

RAUMBEZOGENE IDENTITÄTEN *SPACE-RELATED IDENTITIES*

HOW CENTRAL EUROPE IS PERCEIVED AND DELIMITED¹⁾

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with 4 figures and 1 table in the text

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Zusammenfassung

Wie Mitteleuropa wahrgenommen und umgrenzt wird

Der Artikel handelt von der Wahrnehmung und Umgrenzung Mitteleuropas. Sein erster Teil diskutiert grundlegende Konzepte und Konzeptionen von Mitteleuropa, die dafür von Bedeutung sind. Sodann wird den unterschiedlichen Wahrnehmungen Mitteleuropas durch die einzelnen Nationen und deren Gründen nachgegangen. Der dann folgende empirische Teil der Untersuchung stellt das theoretische Wissen den Ergebnissen einer Untersuchung gegenüber. Diese Untersuchung wurde in Form einer Umfrage durchgeführt, die ausgewählte Personen Mental Maps zeichnen ließ. Die Befragten waren Mittelschüler höherer Klassen und Universitätsstudenten im ersten Jahr aus acht mitteleuropäischen Ländern. Sie hatten die Aufgabe, die Grenzen ihrer subjektiven Raumkonzeption von Mitteleuropa auf einer Karte von Europa einzuzeichnen. Insgesamt wurden 490 Mental Maps abgegeben, analysiert und per GIS kartographisch editiert. Der abschließende Teil vergleicht und interpretiert die Ergebnisse und diskutiert die Frage, wie und warum die Ergebnisse nach Ländern unterschiedlich ausfallen und in welchem Ausmaß sie Hypothesen über ‚nationale‘ Wahrnehmungen von Mitteleuropa entsprechen.

Schlagwörter: Mitteleuropa, Raumwahrnehmung, Mental Maps, Raumbegriffe, GIS Analyse

Summary

The paper deals with the issue of perception and delimitation of Central Europe (CE). The first part discusses basic concepts and conceptions of CE, which are crucial in this respect. Attention is then paid to differences in the perception of CE by individual nations and their reasons. The following empirical part of the study compares theoretical knowledge with conclusions from the research. This research was carried out through a questionnaire survey collecting mental maps of selected individuals. The respondents were senior high school students and first year university students from eight CE countries. Their task was to mark the boundaries of CE based on their subjective perception on a map of Europe. A total of 490 mental maps were received, analysed and aggregated to GIS map outputs. The final part compares and interprets the results and reflects on how and why the results differ in individual countries and to which extent they match hypothetical assumptions of 'national' perceptions of CE.

Keywords: Central Europe, spatial perception, mental maps, spatial concepts, GIS analysis

1 Introduction

Even though it has been customary to understand and use the term "Central Europe" informally in everyday language, its contents (or identity) is considerably fragmented. It includes both cultural and historical, but also political and social aspects. As difficult it

may be to identify the region in terms of its contents, so difficult it is to define it spatially and as regards its boundaries. Therefore, it is hardly surprising that there is little agreement among sciences that have tried to define the term. This may have several reasons. Central Europe (CE) does not represent any physio-geographical region. In fact, it is an artificial construct created by power politics and political events (KAMUSELLA 2012, pp. 11–13). Since the creation and establishment of the term in the 19th century, the concept of CE has gone through significant changes, especially in the 20th century due to wars and political turbulence. Frequent changes and shifts of borders in the past, as well as shifts of ethnic or cultural boundaries (due to the relocation of populations) did not help to stabilise the spatial perception and delimitation of CE. The dissolution of multinational empires in this region after World War I prompted centrifugal forces and made people identifying themselves with their nation states.

However, in recent decades, growing identification of people with both Europe as a whole and subnational regions can be noticed (CHROMÝ 2003; CHROMÝ et al. 2014; MARINKOVIĆ & RISTIĆ 2015; JORDAN 1992; HELLER 2011). The integration of nation states into the European Union (EU) and the EU's gradual centralisation could be one of the reasons for this. Moreover, CE has been lacking a core for some time, which works to the disadvantage of Central-European identity, unity and the region's clear delimitation (MARINKOVIĆ & RISTIĆ 2015). While in West Europe such a core may be recognised in the so-called Blue Banana (a belt stretching from the south of England across the Benelux, the Rhineland, Switzerland to northern Italy; BRUNET 2002), Russia performs this role historically in some ways in East Europe (NOVÁČEK 2012).

The paper deals with the issue of perception and delimitation of CE. The first part introduces and discusses basic concepts and conceptions of CE, which can be found in the countries investigated. Attention is then paid to differences in the perception of CE from the perspective of individual nations and to reasons for these differences. The following empiric part of the study compares previous theoretical knowledge with the results of this research.

The research was carried out through a questionnaire survey collecting mental maps of selected individuals. Respondents were senior high school students and first year university students from eleven locations in eight CE countries. Their task was to mark the boundaries of CE based on their subjective perception on a map of Europe. A total of 490 mental maps were received, analysed and aggregated in GIS map layouts.

The final part compares and interprets the results reflecting on the questions of how and why the results differ in individual countries and to what extent they match hypothetical assumptions about 'national' perceptions of CE.

2 Central Europe: concepts and delimitation

2.1 Concepts and conceptions

The term "Central Europe" as a designation for a particular European region is relatively new. According to historians (URBAN 1994; KŘEN 2005), its origins date back to

the period of the Congress of Vienna 1814–1815. German lands were in the focus of this concept initially and therefore it was used mainly there. German politicians tried to emphasise the central position of the German nation in the European system of powers. Until the mid-20th century, the term “Central Europe” had stronger political overtones than it has today. Its German equivalent *Mitteleuropa* gradually became a part of geopolitical concepts and plans for Germany to dominate the area to the east of its borders. A so-conceived *Mitteleuropa* reached to the Russian or Soviet borders and the Balkans (NAUMANN 1915; SCHENK 1995). The defeat of the axis powers in World War II meant a blow (SUPPAN 1990; KAMUSELLA 2012) to this concept. It was heavily damaged by the post-war reality of Europe, which found itself divided between two antagonistic political blocs. After the fall of the Iron Curtain, a new concept of CE has emerged that is spatially narrower.

A lot of studies have dealt with CE and its position in European space. Their opinions on CE's identity and historical position are often significantly different. Trying to simplify the points of view, one could distinguish two main opinions. The one opinion perceives CE as an independent and autonomous region, a sort of ‘third Europe’. It includes the previously mentioned German concept of *Mitteleuropa* and other, not only geopolitical pre-war ideas (PARTSCH 1904; NAUMANN 1915; PENCK 1915; for details on the topic see MEYER 1955 and SCHENK 1995).

The intellectual foundation of a more recent pre-war conception of CE as an independent historical region goes back to an American historian of Polish origin, Oskar HALECKI. Like other authors of that time, he based it on the East-West polarity in Europe. From a historical and cultural point of view, he divides Europe into four geographical regions: West, West-Central, East-Central and East Europe. He conceives CE as a borderland between West and East and divides it into two sub-regions: West-Central Europe (Germany and Austria) as a historical part of the West, East-Central Europe (Poland, the Czech lands, Slovakia, Hungary, to some extent all former Hungary) as a borderland of Western civilisation historically oscillating between West and East (HALECKI 1950).

In common geography, the term “East-Central Europe” is rather used than the term “West-Central Europe”. The term “West-Central Europe” was even rejected by the Hungarian historian Jenő SZÜCS. In his study “The Three Historical Regions of Europe” he divides Europe into Western, Central and Eastern regions and considers Germany and Austria to be integral parts of Western Europe. Using HALECKI's boundaries for East-Central Europe, SZÜCS conceives it as a specific and historically independent “third Europe” (SZÜCS 1983). The idea of CE as an independent region was also supported by Otto FORST DE BATTAGLIA (1960), Emil BRIX (1990) or Jacques RUPNIK (1992). RUPNIK suggested that CE could be a third region equal to West and East Europe in the future.

SZÜCS's conception of CE gained wide acceptance in studies by other authors, mainly from Central Europe. An example is the Polish-American historian Piotr S. WANDYCZ, who credits CE with a specific position, but not the status of an independent region. He identifies CE with East-Central Europe (This term is currently used particularly in German-speaking countries.) and refers to the historical variability of its delimitation. In the past, it comprised Poland-Lithuania, the Czech lands and the Hungarian Kingdom (at that time including Transylvania [Ardeal], Croatia, etc.), nowadays only the territories of their

successor states Poland, Czechia, Slovakia and Hungary. He characterises it as a “central zone” between West and East, which has been culturally and religiously affiliated to the West since the 10th century, yet often inclined to the East (WANDYDZ 2004).

A distinguished Czech historian, Jan KŘEN, supports in principle this delimitation of CE, but includes historically Austrian lands such as Carniola [Kranjska]. He perceives Germany (excluding the period of the German Democratic Republic) as a part of the West and describes CE as a “transition zone” between West and East (KŘEN 2005).

The last two examples are already approaching the second opinion on CE, i.e. the perception of CE as just a gradual transition zone between West and East. The West (or West Europe) and the East (or East Europe) are perceived as representing two basic historical regions into which Europe is divided. Thus, Werner J. CAHNMAN (1949), Norman Davies (2007) and recently Aleš NOVÁČEK speak of a sort of “border of duality” that oscillated throughout history and crossed CE. Based on a complex historical-geographical analysis, one of the authors of this article has tried to reflect these changes by a series of maps (NOVÁČEK 2012, pp. 112–156). The Czech geographer Jiří STEHLÍK goes even further and considers CE as a mere artificial construct. He attaches the countries of the so-called Midwest (interestingly enough, besides Germany, Switzerland and Austria also Czechia and Slovenia, except for the years 1918–1989) to the West, while he regards the Baltic states, Poland, Slovakia, Hungary and Croatia as East-Central European countries or transition countries between West and East (STEHLÍK 1996).

2.2 Delimitation

So far, we have dealt with a discussion of mental concepts and conceptions of CE. Now, attention should be paid to issues of geographical delimitation of the region. From this point of view, we refer to an older valuable study of the Viennese geographer Karl SINNHUBER, who has tried to find out, which territory is most frequently presented as a part of CE, based on an analysis of significant scientific studies from the first half of the 20th century. He concluded that their vast majority considered CE to consist of Germany, Austria, Czechoslovakia, Hungary and Poland. Some included also Switzerland, northern parts of Yugoslavia (i.e. current Slovenia, Croatia and Vojvodina) as well as Romania. Only occasionally were also included the North of Italy, the Benelux, the Baltics, Kresy (in the sense of the western territories of modern Byelorussia and Ukraine or the eastern territories of former Poland), Moldavia or the majority of the Balkan Peninsula. He then labels Bohemia, Moravia and Austria as the heart of CE (SINNHUBER 1954, pp. 15–19). SINNHUBER also points at the fact that CE can be delimited based on various criteria such as physio-geographical, historical, political, cultural or a combination of these.

According to the prominent Czech political scientist Bořivoj HNÍZDO (1995, pp. 82–84) approximately four basic shapes and conceptions of CE can be distinguished. The first interprets CE as identical with the concept of East-Central Europe comprising Poland, Czechia, Slovakia, and Hungary (sometimes also Slovenia, less Croatia and East Germany). Relatively young conceptions of CE like this are based on the reality of the Cold

War, when authors, mostly from these countries, believed that Germany and Austria had excluded themselves from CE to become integral parts of West Europe/the West. This opinion is also supported by the previously mentioned academic writers SZÜCS (1983), RUPNIK (1992), WANDYCZ (2004) and KŘEN (2005), but also by a writer of fiction, MILAN KUNDERA (1986).

Another current and widespread conception of CE integrates the German-speaking countries, i.e. Germany, Austria and Switzerland, in addition to the countries previously mentioned into CE. This kind of delimitation regained some significance after the fall of the Iron Curtain and roughly continues the tradition of perceiving CE in the same way as before World War II. In the past, CE delimited in this way, was, especially in Germany, often described as an area of historical German cultural influence and potentially also of political German hegemony (Schultz 1989, 1990; Simms 1997). Pre-war German geopolitical projects, including the concept of *Mittleuropa*, correlate with this delimitation to a certain extent (NAUMANN 1915; MEYER 1955; SCHENK 1995). Currently, this delimitation of CE lacks ideological connotations and combines countries that used to have close cultural, political and economic relations (Jordan 2005). Awareness of these two delimitations of CE is supported by their representation in geography textbooks in some of the countries of this region and by thus being applied in the school curriculum.

The two remaining conceptions of CE are less frequent in some countries, but play nevertheless some role. One of them is the pre-war perception of CE as a buffer zone between Germany and Russia, West and East. After World War II, it was transformed and roughly identified with the countries of the Eastern Bloc minus the Soviet Union. One of the authors of the concept was the already mentioned diplomat FORST DE BATTAGLIA. His *Zwischeneuropa* comprised the countries of East-Central Europe as well as Austria, which in his opinion should be its integrative core. Besides, he included Finland, the Baltic states, Byelorussia, Ukraine, Slovenia, Croatia and the Balkans (FORST DE BATTAGLIA 1960). In recent studies, similar delimitations, however without Finland and the Baltic states, can be observed. Examples are the Hungarian historians BÉREND & RÁNKI (1974), the Czech political scientist KREJČÍ (2005), but also the famous Historical Atlas of Central Europe by Paul Robert MAGOCSI (2002).

With some exaggeration, the last method of delimitation and perception of CE may be considered as 'Austro-Hungarian'. It has a tendency to conceive the core of CE as the area of the former Habsburg Monarchy that controlled and integrated the Danube region in particular for four centuries (NOVÁČEK 2014). Even after the dissolution of Austria-Hungary, this concept persisted to face the threat of German or Soviet expansion. The Czechoslovakian Prime Minister MILAN HODŽA, WINSTON CHURCHILL and OTTO VON HABSBUERG were political defenders of this delimitation of CE and its re-integration. Today this concept is still vivid, particularly in Hungary, Croatia and Slovenia. People in former border regions of the Habsburg Monarchy having been assigned to a neighbour state without – at times – much respect for ethnic minorities appreciate it, too (e.g. northern parts of Italy, Bosnia and Herzegovina, Serbian Vojvodina, western Romania, western and particularly Transcarpathian Ukraine) (HNÍZDO 1995, p. 84).

3 Central Europe as a way of self-identification

Introducing concepts and conceptions of CE would not be complete without an elementary reference to the way this region is perceived and to what extent identified with by the nations, which share this territory. Literature dealing with the issue of these 'national perspectives' in the past recognises significant differences between the ways individual nations delimit CE and the extent to which they identify themselves with this region and term. This is even complicated by the fact that there is no agreement even within the individual nations. Thus, it is necessary to perceive national opinions as generalisations. This is the case with this paper as well as the already mentioned works of RUPNIK (1992) or SKOKAN (1993). From today's perspective, one might consider these studies outdated on the background of the dynamic development, which CE nations and their thinking have gone through in recent decades. However, they represent a research basis of assumptions, which we have tried to verify in this article.

Probably the highest rate of self-identification with CE is usually attributed (RUPNIK 1992; WANDYCZ 2004; KŘEN 2005) to the trio of nations in East-Central Europe: Czechs, Slovaks and Hungarians. They are said to usually perceive CE as an independent region between West and East Europe, sometimes as a partial sub-region or eastern edge of a broadly defined West. One of the practical results of this attitude is the effort of closer cooperation of these nations in the Visegrad Group (V4) established in 1991, which also includes Poland. Regarding Poles, RUPNIK points out that their feeling to be part of CE as a specific region is overshadowed by their identification with Europe as a whole (1992, p. 15).

Regarding the spatial delimitation of CE, two configurations prevail in all four nations. The first is a narrower delimitation of CE including only countries that form the so-called East-Central Europe, i.e. Poland, Czechia, Slovakia, Hungary. Sometimes, Austria and Slovenia are added. Rather than the term "East-Central Europe", the term "Central Europe" is used. The second way of perceiving CE is to include also the German-speaking countries, i.e. Germany and Austria, to a lesser extent Switzerland. For Poles, Czechs, Slovaks and Hungarians the CE emphasis is supported by the idea that their territory lies in the heart of Europe. It may therefore be assumed that the delimitation of CE perceived by the local public is slightly shifted so that their country is situated in the centre of this region. In this context, RUPNIK claims that while CE is historically perceived as a Danubian region with the core in former Austria-Hungary by Hungarians and, to a lesser extent Czechs, on the contrary Poles would regard it as a region between Germany and Russia – the region they had dominated historically, including the Baltic states, western Byelorussia and the Ukraine.

Germans are said to have a more fragmented approach to regional self-identification. This may be due to Germany's size with its interior differentiation and to fundamental changes, which Germany experienced in the 20th century. Simplifying the situation, two main ways of German identification with CE can be discerned. The first accepts CE as a particular region, and Germany is perceived as its historical (and dominant) core. This view has its roots in the pre-war perception and outlining of CE. As regards spatial delimitation, it does not comprise only Germany, Austria and the Visegrad-4, but

may also include other countries bordering Germany, such as Denmark, the Benelux and Switzerland.

The second, more recent view arises from the post-war division of Europe into West and East. In this context, Germany and Austria are perceived as integral parts of the West/West Europe. A third Europe as an independent region is denied, eastern neighbours in East-Central Europe are rather perceived as parts of the East/East Europe. The latter view is rather attributed to Germans in the western federal states, while in Bavaria and in the lands of the former German Democratic Republic a stronger CE identity is expected. This is also true for Austrians, who consider themselves Central-Europeans and perceive more than Germans their historical connection with the nations of CE, i.e. former Austro-Hungary and possibly Poland, too.

According to RUPNIK's study, Slovenians and Croatians recognise their affiliation to CE quite intensively. This could be explained by their former affiliation to the Habsburg Monarchy and by an effort to distance themselves from the Balkans. A similar attitude not to be identified with the Balkans or even with East Europe is recorded in Romania, especially with the Transylvanian Hungarians.

CE identification can also be observed in other regions that belonged to the Austro-Hungarian Empire (South Tyrol [Alto Adige/Südtirol], Vojvodina, Transcarpathian Ukraine [Zakarpnttja]), but also in countries struggling not to be identified with Russia (Lithuania, Byelorussia and especially Western Ukraine).

The way people in individual countries look at CE and to what extent they identify themselves with it depends on many factors. One of them is just affiliation to a certain nation. This means certain common historical experiences (wars, shifts of boundaries, feelings of historical injustice, etc.) and a certain geographical location. Another important factor are the media, and especially the way the regionalisation of Europe is taught in schools.

4 Methodology

4.1 Cognitive mapping and mental maps

Should the aim of a study be to survey the perception of geographical space or regionalisation of a certain territory by a larger group of people, it is possible to use cognitive mapping with its tools, i.e. mental maps (see BLÁHA & PASTUCHOVÁ NOVÁKOVÁ 2013) when processing it. Cognitive mapping was defined by DOWNS & STEA (1973, p. 9) as "a process composed of a series of psychological transformations by which an individual acquires, codes, stores, recalls, and decodes information about the relative locations and attributes of phenomena in his everyday spatial environment." Cognitive maps are the products of cognitive mapping. Mental maps can then be understood as materialisation of mental spatial images (cognitive maps) transferred to a sheet of paper or other recording device, i.e. as a model of space created in the individual's mind with the output of a drawn map (DRBOHLAV 1991). Mental maps are often used in geography to study cultural and regional

identity (e.g. SIWEK & BOGDOVA 2007; SEMIAN 2012), and that is why it is quite suitable for this study.

The selected method of the study was a questionnaire survey connected with acquiring mental maps from addressed respondents and their subsequent aggregation. Generally, when collecting samples of mental maps one must consider (1) the careful selection of respondents, e.g., considering their age, knowledge, experience, and with special regard to this study, also the country of their origin (SAARINEN 1987). What also influences the result of the study is (2) the instructions for the task given to respondents including the use of a base map, (3) the method of collecting mental maps and (4) the processing of mental maps itself including their aggregation.

Currently, there is a wide range of methods of collecting mental maps, which are primarily focused on seeking opinions about places and locations (so-called emotional maps). Besides the traditional collection of maps in analogue form with subsequent digitalisation there is the collection of maps already in digital format via online applications (e.g. PANEK et al. 2016) or via mobile phone applications (e.g. HUANG et al. 2013). An advantage of these methods is the possibility to acquire a large amount of mental maps in relatively short time. However, a disadvantage might be the indirect participation of the researcher leading to a distortion of the respondent's approach to the research. At the same time, it is not easy to arrange an adequate sample of respondents because the listed technologies are after all still a domain of mainly young people. The collection of mental maps determines the subsequent method of their processing. Regarding analogue maps, they must be digitised; their processing is influenced by the variety of drawn graphic elements (point, line, polygon and their combination), their quantity and amount of other information carried by graphical elements (e.g. positive versus negative records of emotions, types of danger, etc.). When considering the nature of the study, there are various forms of psychological and sociological testing for determining differences between groups of people (e.g. ŠTĚRBA et al. 2015).

As SAARINEN (1987) points out, the method for acquiring mental maps itself might bring problems when the maps are interpreted, and that is why the method has been criticised in the past. Considering the nature of this study (only one polygon on the base map without any detailed survey of positive or negative opinions), these problems should not occur.

4.2 Methodology used in this study

The respondents of the research were senior high school students and first year university students from selected locations (see below). The basic assumption for selecting this group of respondents was a sufficient variety in differences of opinion, also an embedded cognitive map of Europe. The respondents from universities are primarily students of geography. It can, however, be assumed that the influence of the subject in the first university year is minimal on such an embedded cognitive map. The influence of the media or concepts acquired at the primary or secondary school is assumed to be much stronger. Besides the respondents' origin, also their age and gender were surveyed. Not all the data was included in the questionnaires, therefore this data did not become a part of further sta-

tistical processing. The basic data is presented in Table 1. The most important data is then the origin of the sample, easily identifiable by the location of the survey.

Country	Number of respondents	Number of maps used	Average age (in years)	Gender of respondents (%)			Nationality (%)	
				M	F	-	prevailing	other
Austria	75	74	21.7	71	29	0	87	13
Czechia	96	78	18.5	39	40	21	97	4
Germany	76	75	22.9	43	42	15	79	21
Hungary	57	57	18.1	30	70	0	100	0
Poland	28	27	17.1	14	86	0	100	0
Slovakia	96	95	19.2	37	21	42	100	0
Slovenia	49	48	19.5	59	41	0	98	2
Switzerland	36	36	22.8	47	53	0	94	6
Total	513	490	20.0	43	48	9	94	6

Source: own research

Tab. 1: Basic data about the respondents engaged in the research

The research involved a total of 11 institutions from 11 locations, from Austria (Vienna [Wien]), Czechia (Kadaň and Prague [Praha]), from the former East Germany (Leipzig and Rostock) and West Germany (Freiburg im Breisgau), Hungary (Sopron/Ödenburg), Poland (Lublin), Slovakia (Bratislava), Slovenia (Ljubljana) and Switzerland (Zurich [Zürich]). The selection of countries for the survey corresponded to the entrance search (see Chapter 2) as well as to geography textbooks, school atlases and encyclopedias, which resulted in the fact that the eight listed countries (plus Liechtenstein) are most often considered a part of CE (e.g. BROCKHAUS ENZYKLOPÄDIE 2006; ENCYCLOPEDIA BRITANNICA 2014; THE WORLD FACTBOOK 2014). The authors of the study were originally interested in the internal image (PAASI 1986) in which CE plays a key role as a method of self-identification of the local nations.

The survey was carried out during the lessons. Due to its not so time-demanding character, there was almost 100% willingness to cooperate. No time limit was set for task solving. The survey was carried out from February 2014 to February 2015.

In the survey, the respondents marked the boundaries of CE on a map of Europe in Albers projection containing only country borders. The following instruction was a part of the questionnaire: "On the map, please draw what you consider to be the boundaries of Central Europe as precisely as you can. Please use a light marker or pen. The boundaries may, but do not have to follow existing national borders." (see Fig. 1a) As a task of geographical regionalisation it is common to define regions based on the current country borders and de facto not to reflect on possible differences within individual countries. However, the authors of the study did not want to restrict the respondents in this way, and the results clearly show that it was a valid decision.

The pilot study of the survey used a larger-scale map, i.e. not the whole of Europe was displayed on the map face. However, as it turned out, this map influenced the respondents' answer too much – and the results would have been heavily influenced by the researchers' expectations. Thus, based on the recommendation of Sebastian LENTZ (Leibniz Institute of Regional Geography, Leipzig, Germany), the map scale was reduced in the second phase of the survey and the displayed segment of Europe was enlarged to cover nearly the whole of Europe (see Fig. 1b). The boundaries of CE were marked on a topographic base map of the mental map and they figure in the form of an element, which LYNCH (1960) denotes as an edge or a district. In his conception, edges, for that matter, provide the boundaries that separate one region, and districts are defined by some identity or character.

a

On the map, please draw what you consider to be the boundaries of Central Europe as precisely as you can.

Please use a light marker or pen.
The boundaries may, but do not have to, follow existing national borders.

Age: _____

Nationality: _____

Gender: ☐ female ☐ male

b

Source: the authors

Fig. 1: A sample of the questionnaire in English: (a) instructions and data about the respondent, (b) displayed segment of Europe

To control the conditions of the survey, the questionnaire together with the base map of Europe was translated into all languages of the countries involved as well as into English. The questionnaires were distributed to colleagues, who printed them, and after the research, they sent them either in analogue or digitised form back to the authors, where processing took place. This method of collecting mental maps has proved to be the easiest and yet effective. With some exceptions, where no polygon was drawn on the map, but only an incomplete line, it was possible to use all the acquired mental maps, i.e. a total of 490 maps from 513 respondents.

During subsequent processing, all the mental maps were at first digitised by scanning. Then the mental maps were processed in ArcGIS for Desktop 10.3, i.e. georeferenced based on the geographical grid (see Fig. 1b), the marks of CE boundaries were vectorised, and all the vector features combined into one file. This file was converted into a raster and using the map algebra, i.e. counting raster data, aggregated and visualised for each group and also for all the 490 mental maps together (Fig. 2a).

For the sake of clarity, in the following phase software, i.e. tools of extended Spatial Statistics and visualisation, was used to perform the analysis of perceived boundaries of CE by individual groups of respondents. There were marked 50%, 70%, and 90% contours of volume surface (according to HUANG et al. 2013) and the results were graphically adjusted (Fig. 2b, 3, 4).

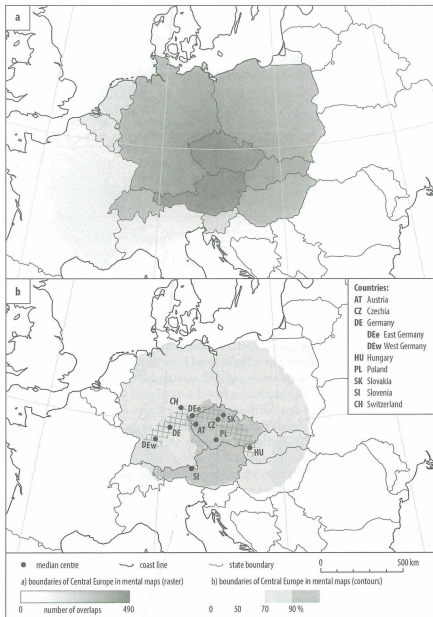
As part of the spatial analysis, the tools Median Center and Central Feature in the toolset Measuring Geographic Distributions were primarily used. The first tool considers mutual distances between the elements and identifies the location, which is the closest to the centre of all elements. Median Center is also less sensitive to remote elements, which limits possible opinion excesses. The second tool identifies the central feature, i.e. it finds the element with the least total direct distance to all other elements (SCOTT & JANIKAŠ 2009). Unfortunately, this results only in a selection of the elements of the relevant dataset, instead of averaging and generating the 'average element'. Thus the resulting rasters were converted back to polygons (Raster To Polygon), combined according to 50%, 70%, and 90% contour lines and generalised (Smooth Polygon). As part of the platform ArcGIS, recently there has been an effort to simplify the whole process of generating a medium line from the mental maps dataset, e.g. by creating a special extension (see KYNCL 2011). Such visualised results also enable a better sample comparison of the mental maps from the individual countries (Fig. 3).

5 Interpretation

5.1 Stability of Central Europe's spatial delimitation

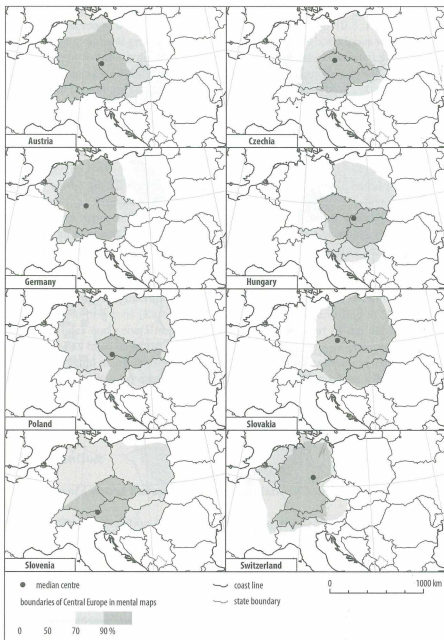
Analysis and interpretation of the respondents' aggregated mental maps were carried out on a few levels. The first phase surveyed the stability of delimitation of CE in the opinions of all respondents and the opinions of all respondents from individual groups, i.e. by individual countries as well as by locations from former East and West Germany. This part of the interpretation departs from an analysis of spatial distribution of contour lines (Fig. 2b, 3, 4) and the appearance of individual rasters (see an example of rasters for all the respondents on Fig. 2b).

Regarding the stability of CE's delimitation on the aggregated maps of all respondents, it must be said that it is quite low, i.e. the boundaries of CE are ambiguous (so-called fuzzy boundaries). A lower dispersion of opinions (i.e. a higher compliance rate) was, however, reached in the East and North (see contour lines in Fig. 2b).



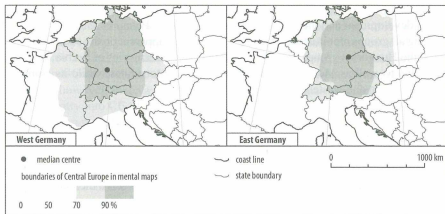
Source: own research and processing

Fig. 2: Aggregation of all the respondents' mental maps (a) in raster form and (b) in the form of perceived boundaries of CE with 50%, 70%, and 90% contours and median centres



Source: own research and processing

Fig. 3: The perceived boundaries of CE by individual countries with 50%, 70%, and 90% contours and median centres



Source: own research and processing

Fig. 4: Perceived boundaries of CE by respondents from West and East Germany with 50%, 70%, and 90% contours and median centres

When comparing aggregated mental maps by respondents from individual countries, not only differences in spatial delimitation of CE become apparent, but also varying dispersion in the opinion on boundaries. The smallest dispersion occurs with Czech and Slovak respondents. Of all analysed groups, Slovaks showed the least dispersion on the eastern boundary of CE, while they have a lower compliance rate on the western boundary. A relatively low dispersion appears also with Austrian and Slovenian respondents. Both groups show dispersions below 50% contour lines towards the West and partly South. (Some respondents also include the Benelux countries, possibly France and northern Italy.) However, the 'inner' structure over 50% contour lines is different. While with Slovenes a wider dispersion can be found mainly at the northern boundaries and a smaller at the southern, with Austrians southern and northern boundaries are quite stable, while the compliance rate about the eastern boundaries is very low. The core of CE (the territory above 90% contour lines) is with Slovenes approximately similar to Austrians.

Regarding the stability of CE's delimitation, the aggregated maps of respondents from Germany and Switzerland show a certain similarity. Both groups display a lower compliance rate on the southern boundaries of CE, while Swiss have a lower dispersion on the eastern boundaries and Germans rather on the western. If location of the respondents in West or East Germany is taken in account (see Fig. 4), the West German group shows a much higher dispersion of opinions on the western boundaries of CE than the Swiss group and has in general a lower compliance rate in boundary delimitation of CE. (In the monitored groups 50% contour lines cover definitely the largest territory within Europe – roughly 1.5 million km².)

Of all respondents, the Polish group shows the largest dispersion of opinions, particularly below 50% contour lines. However, even the core above 90% contour lines is

the smallest regarding the area – less than 200,000 km², which might be explained by the historical development and the lower spatial embedding of Poles.

Among all groups monitored, the widest dispersion is apparent on the southern boundaries with the Hungarian group, who attributed even to the territories of Serbia, Bosnia and Herzegovina as well as Montenegro more than 50% contour lines, while its compliance rate on the eastern and western boundaries is quite high.

5.2 Geographical delimitation and localisation of median centres of Central Europe

Results aggregated for respondents from individual countries (Fig. 3) confirm a tendency to shift the definition of CE ‘closer to themselves’ and perceive their country as part of the core of CE (the territory above 90% contour lines). This is apparent with respondents from Czechia, Slovakia, Hungary, Germany, Austria and to some extent Switzerland. With the exception of the latter, it can be attributed to the attitude of people to perceive the territory of their home country as an imaginary centre of Europe. Although the questionnaire did not explicitly survey the respondents’ personal identification with the term and region of Central Europe, this attitude may be understood as an indirect indicator of such a regional identity. In this context, RUPNIK’s remark about Poles as identifying themselves with Europe as a whole more than other nations of the Visegrad Group is partly confirmed (RUPNIK 1992, p. 15).

The only country, for which it was possible to examine differences among respondents from different locations, was Germany. The results from its western part (Freiburg im Breisgau) indicate a significant mental distance from the countries of East-Central Europe. It has most likely its origin in the post-war period, when CE was sharply divided by the Iron Curtain (Fig. 4). Another reason could be the high cohesion of the territories of the Blue Banana (BRUNET 2002), which closely links western Germany (Rhineland), the Benelux countries, France, Switzerland, Austria and northern Italy. By respondents from Freiburg im Breisgau this area is often included into CE, while in the East of the German and Austrian borders they usually include only Czechia and some borderlands of Poland and Slovenia. More or less identical results were, apparently for the same reasons, reported by respondents from Switzerland (Basel), while those from former East Germany (Leipzig, Rostock), show a stronger tendency towards the ‘classic’ delimitation of CE, i.e. including the Visegrad Group (V4) with the exception of Hungary, which is quite distant for them. Germans from both parts of the country, but also Austrians and Swiss, show a tendency to locate the core of CE in German-speaking countries, i.e. in the area that some authors (e.g. HALECKI 1950) call “West-Central Europe”. By respondents from other countries, Czechia, the West of Slovakia, and Poland are most frequently included into CE. Generally speaking, a region delimited like this is strikingly reminiscent of the Holy Roman Empire of the German Nation, which loosely connected this space since the 10th century until the beginning of the 19th century and where German cultural elements dominated until the first half of the 20th century.

The results from Austria (Vienna) confirm the assumption of greater solidarity with the nations of East-Central Europe, which are connected to this country, a.o., by the long-time joint existence within the Habsburg Monarchy. Austrian respondents did not basically

differ in delimitation of CE from those in Leipzig and Rostock. Unlike them, however, they mostly included countries or parts of countries in close proximity to Austria, which were historically closely connected with it: north-eastern Italy, Hungary, and Slovenia. One might see a similar tendency with Slovenian respondents, since they are the only ones from post-Communist countries, who mostly included Alpine Switzerland into CE. Surprisingly, however, there was no concord among Slovenian respondents in including their own country into CE. If they did it, then mostly as its southern edge only. One might speculate about a potential attempt to distance themselves in this way from Croatia due to a certain rivalry between these two countries.

The southern boundary of CE is definitely seen differently by respondents from Hungary (Sopron/Ödenburg), who often shifted it deep into the territories of former Yugoslavia and Romania. This confirms RUPNIK's (1992) thought about the Hungarians' tendency to perceive CE through a prism of the former Austrian-Hungarian Monarchy and locate there the core of the region. Their generalised delimitation (Fig. 3) might therefore be considered quite specific in the context of the whole surveyed sample, and the most distant to the results acquired from German-speaking countries. Other nations, whose history was connected with the Habsburg Monarchy, did not show any similar 'Austro-Hungarian' inclination – neither Austrians, who were also a constituting nation of the former Monarchy, nor Czechs, to whom RUPNIK assigned this tendency at the time. In the case of Czech respondents, quite a lot of them did not even include Hungary into CE, which might be caused by the fact that after the establishment of the independent state (after 1993), Czechia does not share borders with Hungary anymore.

The results coming from Czechia and Slovakia (in a way from Poland, too) have shown concordance in the delimitation of CE by the countries of V4, Austria and Germany. Contrary to respondents from other CE countries, Czechs and Slovaks included some other areas into CE, particularly Slovenia, occasionally also Switzerland. This similarity may have its reason in the similar school concept of European regionalisation formed in the period of the joint state. Differences between the results from Czechia (Prague, Kadaň) and Slovakia (Bratislava) can rather be observed in the extension of CE's core (area above 90% concordance). While for Czechs it is quite a small territory limited to Czechia itself and parts of neighbouring countries, for Slovaks it includes larger territories of the V4 and most of Austria.

A similar delimitation of CE has proved to be dominant also among Polish respondents. Compared to the sample of mental maps from Czechia and Slovakia, Poles differ by a stronger tendency to include also Slovenia and Switzerland into CE, sometimes even the Benelux countries. Expectations that they will locate the centre of CE in Poland and assign to it territories east of their borders, which belonged to Poland in the past, did not come true – in spite of the fact that the local survey was carried out in the centre of East Poland, Lublin, located about 75 km from the Byelorussian and Ukrainian borders. One may conclude from this that the hypothesis about the Polish perception of CE as the space between Germany and Russia is historical and not anymore relevant today. The Polish inclusion of German-speaking countries into CE may be motivated by the typical attitude of all East-Central Europeans to distance themselves from East Europe (Russia) and affiliate themselves to the West.

The results from Poland, but also from Slovenia, did not show much of a tendency to read CE only as East-Central Europe with the core in the countries of V4 pointed out by RUPNIK (1992), KŘEN (2005) and WANDYCZ (2004). This tendency was much higher with respondents from Hungary, Slovakia and – with restrictions – Czechia. To the opposite, locating the core of CE in West-Central Europe can be observed on mental maps from Switzerland and West Germany. Also in this case, this may be a relict effect of a post-war division of CE by the Iron Curtain.

The last aspect regarded in the analysis of mental maps was the location of median centres acquired by the spatial analysis in GIS of CE boundaries drawn by the respondents (see part 4.2). Median centres for samples of individual countries are shown in Figure 2b. In four cases, the median centre of CE was located in Czechia, in other cases (with respondents from Germany, Hungary, Slovenia and Switzerland) the centre is located 200 km from the Czech border at furthest. There was a strong tendency in every country to shift the centre of CE or the whole aggregated delimitation of CE towards the location and country where the survey took place. Swiss and Poles exceed this trend partly. To the contrary, in the case of German and Czech respondents, the median centre is located in the territory of their country.

6 Conclusion and future research

An input discussion of concepts and conceptions of CE has shown considerable discordance and time variability in the perception and spatial delimitation of this region. In a temporal sequence, it has been perceived as the space of 'natural' German dominance (the conception of *Mittleuropa*), a buffer zone between Germany and Russia (or USSR), a transition zone between the West and the East, and also as an independent 'third' region of Europe. Currently, the territory marked as Central Europe is usually Austria, Czechia, Germany, Hungary, Poland, Slovakia, sometimes also Slovenia and Switzerland. This has been confirmed by the aggregated mental maps acquired from respondents in the countries mentioned above. Most respondents included Austria and Czechia into CE (i.e. into a territory with a minimum of 90% contours), a little less (70–90%) Germany, Slovakia, Hungary, and Poland (except for some of its border areas), still less Switzerland (50–70% contours); Slovenia less than a half of the respondents (Fig. 2). Most of the aggregated mental maps showed a strong coincidence of CE delimitation with current country borders.

Aggregated results by individual countries may roughly be divided into the following four groups: The one extreme in the spatial delimitation of CE were respondents from Switzerland and former West Germany, who showed a considerable inclination to identify CE with West-Central Europe, i.e. the German-speaking countries. The results from former East Germany, Austria, and Slovenia rather combined East-Central Europe with the German-speaking countries. Also their median centres shifted from Germany to Czechia or Austria (Fig. 2b). The next group comprises respondents from Czechia, Poland and Slovakia, who identified CE with Austria, Germany and the V4, but frequently left Slovenia and Switzerland out of CE. They placed the core of CE (the territory with more than 90%

contours) and its median centre in Czechia, Slovakia or East Austria. The other extreme are the results from Hungary shifting CE and its core to the territory of the former Austro-Hungarian Monarchy and more often than Germany and Switzerland including the northern and western Balkans.

What becomes obvious is a West-Eastern gradient shifting spatial delimitation of CE and locating its centre towards the countries where the research took place. This clearly proves the influence of the respondent's origin on the final mental map. As SAARINEN (1987) claims, mental maps are, among other things, influenced by the educational system of the given state, mainly through the so called Framework Education Programme, which presents a concept of CE in textbooks and atlases, as well as through history, politics, and the media. All this contributes to shaping both the cognitive map of individuals and their subjective regional identity.

The authors of this research are aware of the fact that the results may have been influenced to a certain extent by the sample of respondents, who were young people interested in geography. It can be assumed that the results would differ by age categories, and future research could be extended to other age groups. Regional self-identification and spatial delimitation of the region are in fact two different aspects of the perception of Central Europe. Future research should therefore also consider more the extent of the respondents' self-identification with the concept of Central Europe, which was not explicitly monitored in the questionnaire. Similar research based on mental maps may be applied also in other regions, e.g. to explore the complete regionalisation of Europe (JORDAN 2005). It may also be applicable when monitoring where and why respondents perceive the conceptional boundary between West and East (NOVÁČEK 2012) or North and South Europe. In this respect, the authors plan to cooperate with the Palacký University in Olomouc, the Masaryk University in Brno, possibly with the Vienna University of Technology that have experience in similar research (HUANG et al. 2013; PÁNEK et al. 2016; ŠTÉRBA et al. 2015).

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