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Sabine DÖRRY
Olivier WALTHER

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Relational policy spaces in border regions¹

Sabine Dörny

Department of Geography, Centre for Population, Poverty and Public Policy Studies (CEPS),
Luxembourg, L-4364 Esch-sur-Alzette, Luxembourg, sabine.doerry@ceps.lu

Olivier Walther

Department of Geography, Centre for Population, Poverty and Public Policy Studies (CEPS),
Luxembourg, L-4364 Esch-sur-Alzette, Luxembourg, olivier.walther@ceps.lu

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Abstract

In European border regions, policy networks steer processes of politico-economic integration and de-bordering. Policy networks integrate actors belonging to different decisional levels and countries. Actors tend to coordinate actions and communications in policy networks to formulate common policies; however, this is subject to a long process, aggravated by the actors' distinct policy cultures. They further have to agree on a common network space to efficiently enforce policy measures. An overrepresentation of certain network spaces due to some actors' dominant network positions may lead to imbalanced policy decisions. By focussing on transport policies in the border regions of Basel and Luxembourg, we analyse measures of persistency of national preferences among policy actors, mapping their perceived 'policy spaces of action' and conceptualising these 'policy spaces' as relational. Based on a combination of in-depth interviews, cognitive maps, and social network analysis, we show that large spatio-cultural differences are still prevailing among network actors, thus potentially impacting decisions taken in policy networks.

Key words: Social network analysis, mental maps, policy networks, border studies, policy cultures, public transport, Basel, Luxembourg

JEL classification: D01, D78, D85, O18, O20, R11, R58, Z18

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1. Policy networks in cross-border metropolitan regions

The liberalisation of intra-European borders has left a lasting imprint on cross-border metropolitan regions. Some border cities have been able to exploit the recent permeability of state borders. They utilise economic benefits arising from the diverging potentials of a confluent Europe characterised by free movements of people, goods, capital, and services. Long considered a handicap for economic development, previously separating borders have now become resources (Sohn, 2013) for metropolitan development, an opportunity and valuable asset in the worldwide competition between cities and regions. From an institutional perspective, the integration process promoted by the European Union (EU) has helped to encourage new power configurations, replacing unilateral border dependency and giving rise to policy networks designed to cope with the unevenness of cross-border metropolitan development. As van Houtum and van Naerssen argue, “it is at borders where normative values of differential social systems meet. Borders function as spatial mediators of often latent power and governance discourses and practices of places in society ... and ineluctably represent the governing and preserving of values” (2002: 129). In other words: A major challenge actors in policy networks face is the difference in policy cultures on either side of a border. Policy cultures serve as organising concepts for regional policies and planning (Young, 2008) and are determined by “particularities of history, attitudes, beliefs and values, cognitive frames, interpretations of ... tasks and responsibilities, political and legal traditions, rules and norms, different levels of market integration, and different institutional structures of governance” (Knieling and Othen- grafen, 2009: 39).

In this paper, we therefore discuss aspects of policy spaces in the bordering process and shift our analytical focus towards the actors of two different policy networks. We focus on transportation policy networks, a key sector when it comes to reinforcing the physical integration between national territories and, as a matter subjected to national strategic decision-making, a highly contested field in cross-border cooperation. We analyse possible national preferences of actors integrated in transboundary policy networks that are designed to overcome ‘borders’ in a respective policy realm in border regions.

Network actors originate from the different regions and countries that have been forming and transforming inner-European border regions (Fürst, 2009). Their distinct cultural contexts may likely be influencing the spatial reach of specific policy activities and decisions in cross-border policy networks, or in ‘policy spaces of action’. If actors greatly differ in their perception of the relevant policy space, this would imply consequences for the network’s capacity to act and the way political actions are in fact obeyed. An over-reaching of specific areas within a border region by certain actors may impede decision-making and manifest traditional nationalist views. Therefore, we aim at answering: Do policy actors overvalue their represented territorial parts of the policy space? If so, who does, who does not, to what degree, and why? We assume that policy actors with a certain policy culture socialisation (possibly best represented in terms of their nationality) may overvalue those parts of the policy space that belong to their own country due to their familiarity with a particular policy culture. A positive answer to this question may lead to an actual mismatch between a policy network’s juridical territory and its perceived policy action space.²

Although the majority of policy actors has in-depth knowledge regarding differing aspects of the policy field of public transport in their respective border region, we reason that the perception of what constitutes the relevant policy space is still strongly influenced by the actors’ cultural roots, traditional national discourses, cognitive frames and/or shared heuristic devices. They in turn manifest themselves in distinct nationally informed policy solutions. An empirical evaluation of the actors’ network positions in combination with a careful analysis of their individual attributes would thus, as we propose, illuminate the perceived inclusion/exclusion of spaces of policy action in border situations. We hence shift our analytical focus from a prevailing structural approach of policy networks (for an overview of the history of policy network analysis, see e.g. Knoke, 2012; Rhodes, 2008) towards aspects of a more actor-oriented research perspective (Brunet-Jailly, 2013; Dörry, 2014), thus applying a mixed methods-approach of in-depth interviews, mental mapping, and social network analysis (SNA). We develop our arguments on the examples of transport policies in the border regions of Basel and Luxembourg, and, on a more general level, aim at contributing to a “polymorphy of sociospatial relations” in contemporary sociospatial theory (Jessop et al., 2008: 392).

² Vivid examples of the mismatch between the physical space of pollution and the political space of pollution regulations are provided by Conca (2005) and Fall (2011).

In the next section, we formulate explanatory foundations for our analysis. The third section discusses the policy field of cross-border public transportation and links it with the respective backgrounds of the two case studies, Basel and Luxembourg. In the fourth section, we outline the methods combined in this paper. Subsequently, we examine to what extent the allegedly relevant policy space for cross-border public transport depends on the attributes of the actors and their structural position in policy networks. We conclude by wrapping-up our key points, discussing possible research avenues towards a more comprehensive understanding of policy networks in border regions, and arguing that such policy spaces are always relational.

2. Relational policy spaces

Borders articulate a regional political dilemma due to a fundamental question of (economic) power. Some bordering regions bolster the economic dynamics of the ‘other side’ whilst feeling at a disadvantage as underpaid suppliers. Unfolding conflicts about resources and dependency, identity, and ‘othering’ (van Houtum and van Naerssen, 2002) are among the challenges that cross-border policy cooperation schemes face. The recently introduced concepts of territorial cohesion and cooperation between EU metropolitan border-regions have (re)enforced modes of functional multi-level governance (type-II-governance, cf. Marks, 1993; Marks and Hooghe, 2004) via policy networks. Cooperation in such policy networks builds on a number of politico-economic interdependencies; it supports the valorisation of the border’s resources but is not legally enforceable. Previous studies on cross-border policy networks suggest, however, that competing policy solutions and organising concepts still prevail (Dörny and Decoville, 2013), which in general supports the manifestation of dissonant spatial perceptions among actors on either side of a border.

There have been two influential strands on border studies in the past. Scholars approaching borders and border regions through *constructivist perspectives* (e.g. Newman and Paasi, 1998; Paasi, 1999; van Houtum and Strüver, 2002; van Houtum and van Naerssen, 2002) have underlined the different kinds of meaning of borders and border regions, de/constructing the altering social and political border perceptions and cognitions (van Houtum, 2000) as well as the border’s relevance as important identity markers (Eskelinen et al., 1999; Liikanen, 1999; Paasi, 1996). With his concept of mental distance, van Houtum (1999) argues that “belief sets”, conventions,

and socially constructed rationalities shape individuals' own subjective borders and own behavioural patterns. Paasi (1996) similarly considers borders to be “spatial institutions”, influenced by people's identities that shape the meaning of the border on their thoughts and behaviours. In that sense, border space represents “a process of social production and reproduction of mental representations, leading to the creation and prolonging of the images of ‘us’ versus ‘them’” (van Houtum, 2000: 71).

Scholars engaged in analysing border regions from the conceptual angle of the *new regionalism* mainly utilise similar constructivist approaches of discourses but still struggle to define what remains a rather “opaque” concept of ‘regional identity’ (cf. Paasi, 2013). Administrative state organisations are determining actors for normative-political regionalisation. Activities of structuring and coordinating politico-administrative operations contribute to region building, in which the process of regionalisation is utilised as a medium to exercise power. This notion, however, builds on the principle of territory, in which powers and spheres of competence of administrative and political organisations refer to clearly defined spaces (Weichhart, 2008). It reminds us of the long traditions of territorially shaped planning cultures, whose differences are certainly more evident in border regions. For a more nuanced understanding of space, the recognition of the contextuality of social action becomes significant (Thrift, 1985). Regions are socially constructed because they are “constituted and reconstituted as the contingent outcome of interaction between diverse (often competing) economic, political and social forces operating both proximate to, and at a distance from, a particular locality” (Harrison, 2012: 59). In other words, regions can be defined as situated contexts of individual (formal and informal) actions, choices, traditions, practices, and discourses (cf. Giddens, 1986 [1984]; Ramutsindela, 2011; Werlen, 1997). A ‘border’ adds further social sets of practices to the conceptualisation of a region, often still facing national particularism and territorial anxieties (Scott and van Houtum, 2009). Such spaces are, however, “not ‘givens’ but are created – for human agency designates human beings as makers of their milieu, albeit within unequal power relations” (Dyck and Kearns, 2006: 88; O’Dowd, 2010).

In this paper, we aim to overcome the concept of territorially articulated politics and scalar logic and instead refer to a socio-relational space with no predefined territorial boundaries (Allen and Cochrane, 2007). We develop our argument on the example of two cross-border policy networks. On a strategic level, policy networks

largely comprise state or municipal actors, whereas the operative level mainly incorporates representatives of the private economy and the civil society (Rhodes, 2008). In general, actors' relations in networks are shaped by their "constant feedback between structure and behaviour" (Kadushin, 2012: 11). This is an important notion as empirical observations with regard to cross-border policy networks suggest "that decision-making processes are still fragmented and deeply anchored in traditional national decision-making structures and rationales" (Dörry and Decoville, 2013: 2). Both, Paasi's (1986) account of a region as product of collective socio-spatial action and Giddens' notion of structuration (1981), 'sensitise' not only for a careful analysis of non-/mobile social practices and discourses in cross-border policy networks but – as we argue in this paper – also of the differences between policy spaces by actors in policy networks that are produced, reproduced, and transcended by "power relations that are mobilized for various purposes" (Paasi, 2012: 2304).

Both major conceptual approaches, however, often seem to examine border policies without placing them in a wider context, i.e., although their work relates to thick, illustrative descriptions, it seems that the actual *explanation* is rather thin. Such limitations are fittingly illustrated by the fact that the link between those approaches analysing and exploring individual attitudes, perceptions, and behaviours and those approaches that focus on their socio-spatial effects as well as on "the political and social functions of bordering practices" (Paasi, 2012: 2307) is not yet well established. More recent border study approaches have thus incorporated this criticism and shifted the analytical focus from a macro towards a more micro level (Brunet-Jailly, 2013), thus providing an adequate analytical level to study socio-dynamics of policy spaces. Although cross-border policy spaces are formally predefined by the politically mandated territories, informally, policy actors negotiate and contest what they perceive as being an appropriate policy space for a policy field in border situations. In turn, this may enable them to include or exclude specific areas and projects. Policy spaces are thus, as we argue in this paper, highly relational and dynamic.

3. Transport policy networks in Basel and Luxembourg

Favourable economic conditions found in the Swiss and Luxembourg parts in their respective cross-border metropolitan regions (CBMRs) (map 1) attract a large number of daily commuters. In the Basel region, 11,800 daily commuters use public transport

from the adjacent countries (TEB 2012), while an approximate number of 18,200 travel to the agglomeration of Luxembourg-City (Schmitz and Gerber, 2012). Vigorous transboundary labour markets are polarized by the bio-pharmaceutical cluster in Basel City and the financial industry in Luxembourg City. Against this background, cross-border public transport policies need to efficiently coordinate the manifold daily cross-border movements and interactions, e.g. by improving accessibility via expansions of the rail and road infrastructure, harmonisation of tariff systems, coordination of conflicting time tables, or information of customers across national borders.

Map 1: The Basel and Luxembourg cross-border regions



Source and cartography: authors

The two case studies represent important European transportation hubs in which two overlapping levels of infrastructure and, thus, the respective policy network actors meet: the (inter-)regional level and the macro-regional level. The former is primarily relevant for the two case studies, whereas we only mention the latter being the frame for the large European railway corridors. Potential French-German linguistic differentials within the two regions diminish due to the Luxembourg and Swiss multi-lingual

bridges (Walther and Reitel, 2013), whereas the nation state's sovereignty in both regions via national laws and regulations incisively conditions politico-economic features.

The implementation of cross-border transport policies highlights a number of contradictory interests that make studying the policy networks particularly interesting. First, cross-border transport projects are usually costly and cannot be developed and implemented without a minimal level of political and economic cross-border cooperation. Second, cross-border transport policies are subject to national interests such as: Which infrastructure should be funded? Where should rail or road routes go? And which of the neighbouring partners should finance it? The EU's policies reinforce a Janus-faced situation within border-regions, by simultaneously encouraging regions to engage in regional cooperation and competition. Both Basel and Luxembourg face such a contradictory situation.

3.1 The Basel Region

The Basel region is characterised by a strong historical dominance of Basel City as an economic and cultural centre. Long known for its chemical cluster, Basel has developed highly innovative sectors in the field of pharmaceutical, medical, and life-sciences since the mid-1990s. Basel City is also recognised as a major cultural centre and still remains among the richest Swiss cantons with a deliberate international orientation. Basel urban elites have developed a common vision of what the city's place in the world, thus creating a strong contrast to the neighbouring French and German municipalities. At the same time, the regions' policy actors regard themselves as pioneers in cross-border cooperation, sharing a vision of a common future and building on several cross-border structures developed since the 1960s. They comprise the *Tri-national Eurodistrict of Basel* and *metrobasel*, mostly active at the local level, the *Regio Basiliensis* and the *Regio TriRhena*, whose focus is more regional, and the *Upper Rhine Conference and Council*, which target the macro-regional level (Reitel, 2006). More recently, Basel benefitted from the Swiss Confederation Agglomeration Policy that finances large-scale transport infrastructure in the CBMR provided the project serves the interests of the Basel region as a whole. Partly financed with Swiss funds (Swiss Federal Council, 2010), a tramline now connects Basel City with Germany and an extension to France is planned for 2016 (Walther and Reitel, 2013).

3.2 The Luxembourg ‘Greater Region’

Deriving from the repeated territorial movements and changing border demarcations in the area of today’s ‘Greater Region’ in the past, this particular border region is the product of a decisive political will to cooperate in a larger regional space (Niedermeyer and Moll, 2007). In addition to the 1971 established working committee *Regional Commission Saarland–Lothringen–Luxemburg–Trier/Westpfalz*, a platform for the highest representatives – the Heads of (federal) states or governments – of the region, the *Summit of the Greater Region*, was founded in 1995. The organisation of cross-border cooperation, however, differs greatly between each member region and the legislative and regulatory systems are not always compatible with each other (Chilla et al., 2010). A number of consultative public bodies complement the summit’s work and comprise about 20 working groups to steer specific thematic priorities, among other cross-border public transportation. The arguable large size of the cooperation space *Greater Region* goes far beyond the core region close to the borders of the original SaarLorLux area. It is constantly subject to contention but is based on the summit’s mandated territory that encloses the entire political territories of the neighbouring regions. Hence, this “pooled territory” is still missing “a cross-border perimeter” (Chilla et al., 2012: 970), as all policy fields in the Greater Region are still subject to the respective national jurisdictions.

4. Methods

Which actor in which position within the policy network perceives which kind of policy space to be relevant for respective policy measures? To analyse this, we apply a mixed-methods approach that combines qualitative interviews, cognitive maps, and SNA.

The survey among policy actors in cross-border transportation in the Luxembourg region included interviews with 41 representatives from 34 public and private organisations in Belgium, France, Germany, and Luxembourg. In the Basel region, the survey comprised 44 actors from 29 public and private organisations located in France, Germany and Switzerland. These interviews first served the purpose to collect cognitive maps and to reveal the actors’ cognitive perception of their network’s relevant policy space of action. To each interviewee we presented a topographical

map of the respective border region with the major physical infrastructure and cities and asked them to draw the limits of what they perceived to be the relevant space of policy action for cross-border transport policies.³ The resulting total of 70 mental maps, 34 in Basel and 36 in Luxembourg (15 interviewees did not perform the task of mapping), provided a global picture of the two border regions as perceived by our respondents. Their comparison as well as the application of several measures of surface and dispersion, such as the average distance to the centre of gravity, standard distance and standard deviational ellipse, indicates the actors' meaning of the policy spaces. Our methodological approach shares similarities with the one applied by Brennan-Horley and Gibson (2009), who used cognitive maps to investigate patterns of concentration and 'epicentres' of creativity in Darwin, Australia.

Since Kevin Lynch's (1960) pioneering study on Los Angeles, Boston, and Jersey City, cognitive maps have been widely used to study environmental cognition (Heft, 2013; Kitchin, 1994). Variation across mental maps are usually explained by three main variables: the attributes of the actor, such as gender, age, or level of education; the environment composed of places and their connecting relations; and the action undertaken by the actor in space. In this paper, we do not claim for a systematic survey considering those three variables. Instead, we purposely distinguish between actors on the sole basis of their nationality as a strong indicator of their policy culture. This choice is justified by two reasons. First, the two case studies are characterised by the presence of a national border, which likely causes disruptions and individual adjustments in the actors' cognitive representations of the policy space. Second, we are interested in finding out to what extent cognitive maps are shaped by the actors' embeddedness in their policy networks and not just by their attributes. With this aim, we follow the discussed 'social fabrics' of policy networks, because a social system can cause conformance pressure among its members regarding the possible aims of actions and the permissible means used for reaching the aim (Weichhart, 2008: 263-4). We hence expect that our empirical results reflect a tendency for similarities of the spatial representation among actors of the same nationality.

³ The exact question we asked reads: "If you would need to define the effective reach of action for cross-border public transportation in the region, where would be the spatial delimitation?" Asked in this form, this question also gave room for interpretation to the respondents according to their own professional background and affiliations; and our empirical results reflect this fact.

The second purpose of our interviews was to reveal the structural position of each actor within their policy network. Using snowball techniques that allow to identify actors among our interviewees, we asked our respondents with whom they had been exchanging information regarding cross-border public transport in 2009/2010. They were free in their nomination of persons and their respective location or nationality. This network is called an information network, since it primarily concerns the exchange of information between policy makers (for a more detailed description, see Walther and Reitel, 2013).

The network was then mapped with the UCINET software NetDraw (Borgatti et al., 2002) and tested for several measures of centrality (Freeman, 1979; Wasserman and Faust, 1994). The most basic is *degree centrality*, which measures the number of ties between an actor and the rest of the network. Degree centrality is a local measure that is often associated with power, since actors with many social ties can exert control and disseminate orders and key information to more peripheral ones. We further measured *closeness centrality*, another local measure, analysing the closeness of one actor to all other actors of the network best illustrated as the shortest path to spread information. The calculated *betweenness centrality* refers to an actor's gate-keeping or 'bridging' capacity between two other actors. In border situations, communication processes of advocacy and lobbying, but also of coalition and consensus building are of pivotal importance (Dörny and Decoville, 2013: 15). For that reason, it certainly helps policy actors to have strong broker capacities to control communication between other network actors. In order to understand an actor's influence, we finally measured the *eigenvector centrality*, which illustrates an actor's ability to be linked to high-scoring actors and therefore measures an actor's influence on the network. Our data, collected between December 2010 and August 2011, provides evidence on both, regional and national, sensitivities on a range of programmes developed to improve public transport accessibility.

We finally compare the results of the SNA's centrality measures with the results obtained through cognitive maps, thus revealing the extent to which the individual cognitive representations are shaped by the degree of embeddedness in a respective policy network.

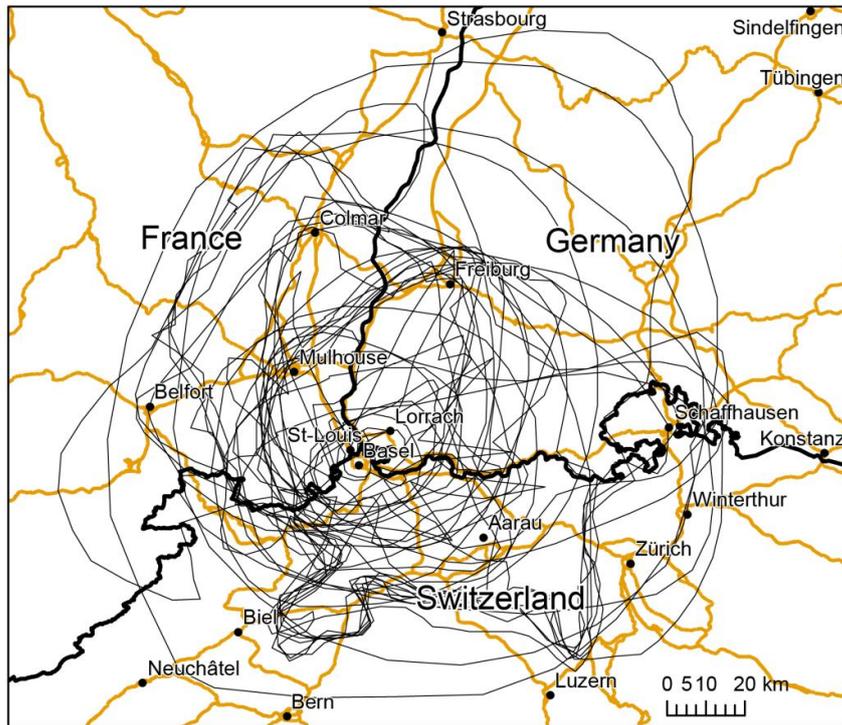
5. Empirical observations and interpretations

5.1 Dissonant perceptions of the relevant policy ‘spaces of action’

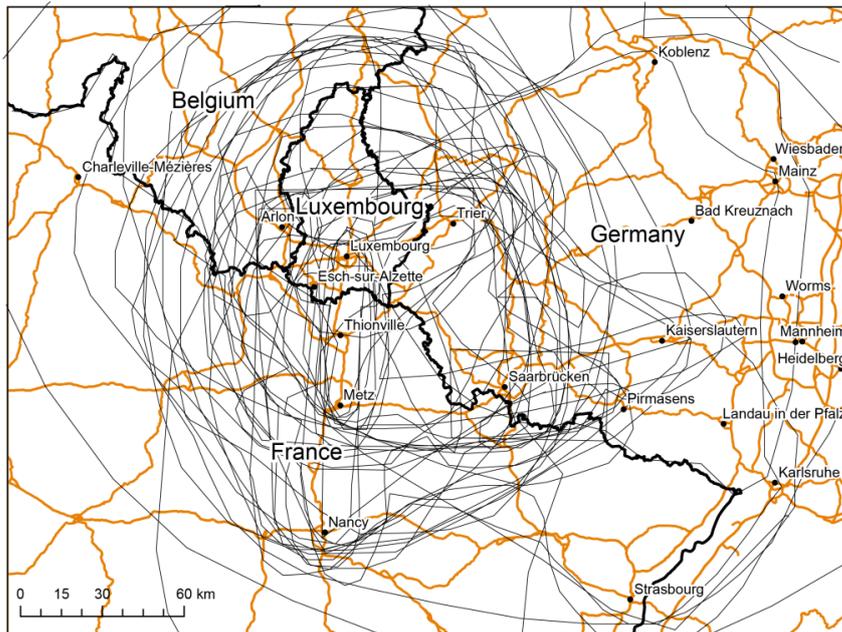
In the following, we introduce and analyse three empirical findings with regard to our research questions: 1) the individual cognitive boundaries represented by the mental maps, 2) the individually perceived role of cities within the two CBMRs, and 3) the spatial variations between the perceived policy spaces by the actors.

First, a large number of interviewees have mainly followed administrative limits, notably between the Basel Area and the neighbouring Swiss cantons of Aarau and Jura, or between France and Switzerland, as if cross-border transport policies should stop at national borders (map 2). This obviously contradicts the fact that recently the labour market has extended irrespectively of the administrative boundaries (Sohn and Walther, 2012). In the Luxembourg case, we observed different patterns among the interviewees, strongly related to their nationalities: Whereas the Luxembourg representatives generally incorporated their whole country including the wider border regions into their spatial representation, French actors mainly stuck to the (very limited) perception of the French transport corridor Sillon Lorrain, which was initially limited to the Nancy-Thionville area and is now extended into Luxembourg. French actors hardly indicate a larger vision for the Greater Region (cf. the respective average values in table 2).

Map 2: Cognitive maps of actors in the policy networks of Basel and Luxembourg



— Major roads Cognitive maps — National boundaries



Source: authors

In general, there is only a loose correspondence between the policy spaces drawn by the policy actors and the existing geographical extension of the cross-border functional areas, defined as an integrated labour market where cross-border commuting is predominant (Sohn et al., 2009) covering an area of 4,344 km² in Lux-

embourg and 2,544 km² in Basel. The comparative sizes of the cognitive maps, however, vary considerably between the cases: The average policy space of transport policies is almost twice as large in Luxembourg (16,164 km²) as it is in Basel (5,152 km²) (table 1). When calculated by countries, actors from the Basel region generally agree on the size of the relevant space of action, which is reflected by the fact that the average policy space of action is approximately 5,000 km², whereas actors from the Luxembourg region have largely contradictory opinions about the policy spaces' size, with average values ranging from 4,841 km² for actors located in France to more than 20,000 km² for Luxembourg actors (table 1).

Table 1: Standard area measures

	Basel region			Luxembourg region			
Average policy space of action, km ²	5,152			16,164			
Average policy space of action according to nationalities, km ²	CH	DE	FR	LU	DE	FR	BE*
	5,193	4,997	5,193	20,295	18,263	4,841	-
Minimum area, km ²	87			719			
Maximum area, km ²	21,085			7,3571			

Source: authors. *Note: insufficient data for Belgium.

Policy actors do not only express divergent views on the general size of the border region. They also have different opinions on how the cross-border region is subdivided between the various countries. In the Basel region, each nationality tends to overestimate the part of the region located in its own country (table 2). The Swiss assess the relevant policy space located in their own country to be of a respective larger proportion (2,016.9 km²), compared with those located in Germany (1,993.1 km²) and in France (1,182.6 km²). The French and the German actors also tend to overestimate their sub-regions compared to foreign border territories.

Table 2: Basel – Average area according to nationalities (in km²)

	Swiss actors	German actors	French actors
Switzerland	2,016.9	1,575.1	1,210.6
Germany	1,993.1	1,977.5	1,934.4
France	1,182.6	1,444.3	2,048.2

Source: authors

Different are the results in the Luxembourg case. Each nationality tends to attribute a larger average value to the territories located in Germany (table 3). One should, however, note that the Luxembourg national territory is much smaller than the bordering territories in the neighbouring countries. In fact, the average value given by the Luxembourg respondents (2,031 km²) is close to the actual size of the country Luxembourg (2,586 km²), suggesting that the entire national territory is perceived as being relevant for cross-border transport policies.

Table 3: Luxembourg – Average area according to nationalities (in km²)

	Luxembourg actors	German actors	French actors
Luxembourg	2,030.9	1,810.5	1,104.1
Germany	8,929.5	8,164.6	2,588.4
France	7,164.9	6,543.8	1,869.5
Belgium	4,167.5	2,229.5	776.0

Source: authors. Note: insufficient data for Belgium.

Second, the perimeters drawn by the actors include a number of cities, whose size, political importance, and economic activities considerably differ from each other. Table 4 shows the frequency of nomination of the most nominated cities. A number of cities are indisputably included in the relevant policy space: St-Louis, Basel, and Lörrach in the case of Basel, and Luxembourg-City, Thionville, Esch-sur-Alzette, Metz, and Trier in the case of the Luxembourg region. These cities correspond to the ‘urban core’ of the two respective border regions. More distant urban centres such as Mulhouse and Colmar in France rather mark the boundaries of the relevant policy space, as they are potential origins for cross-border commuters. With the important exception of Basel, which is both a city and a Swiss Canton, the cities usually have no legal power in the decision-making process within the policy field of cross-border public transport provision. Their competencies are largely bound to their own local administrations although being confronted with the pressing commuters’ problems on a daily basis.

Table 4: Frequency of nomination for top-scoring cities

	Basel region		Luxembourg region	
	<i>Cities</i>	<i>Frequency</i>	<i>Cities</i>	<i>Frequency</i>
1	St-Louis	35	Luxembourg-City, Thionville	35
2	Basel	34	Esch-sur-Alzette, Metz	34

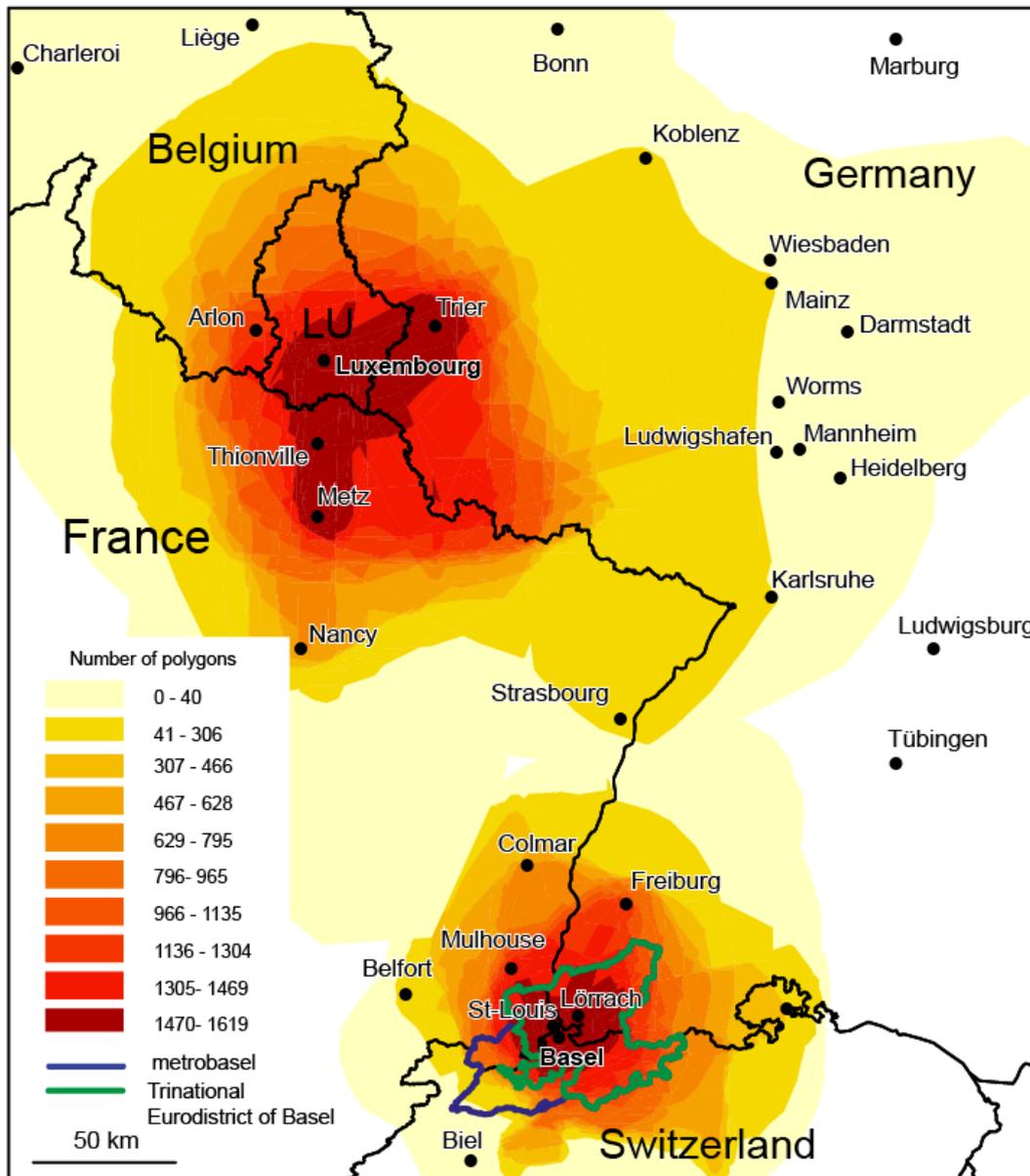
3	Lörrach	33	Trier	32
4	Mulhouse	27	Saarbrücken	27
5	Freiburg	21	Arlon	24
6	Aarau	17	Nancy	15
7	Colmar	13	Kaiserslautern	11
8	Schaffhausen	8	Koblenz	5
9	Belfort	5	Mainz	4
10	Zurich	4	Ludwigshafen-Mannheim	3

Source: authors

Third, and in order to provide more specific spatialised figures, we overlaid the cognitive maps presented in map 2 and created new polygons each time there was an intersection between the various perimeters drawn by our respondents on the maps.⁴ Map 3 shows the distribution of such values across national borders: the darker the area, the larger the number of policy actors agreeing on considering it as the relevant space for transport policies. In both regions, the aggregation of cognitive maps shows a mono-centric spatial structure composed of a privileged zone of intervention of transport policies, corroborated by a large majority of respondents, and a periphery lacking a consensus among the interviewed actors.

⁴ Overlaying the 34 Basel maps lead to the creation of 1,882 new polygons; overlaying the 36 maps of the Luxembourg region resulted in the creation of 1,703 additional polygons. A value was attributed to each of these polygons, which corresponds to the number of times that the polygon is mentioned by at least one respondent.

Map 3: Areas considered relevant for cross-border transport policies



Source: authors

In Basel, the core area comprises the cities of Basel, Saint-Louis, and Lörrach, and corresponds roughly with the Trinational Eurodistrict of Basel, whose perimeter is based on the urban area defined by the Swiss Federal Statistical Office. It is within this area that most of the political and financial efforts for improving transport policies have been developed. It also illustrates the current refocusing of cross-border cooperation at the scale of the urban area (Walther and Reitel, 2013). The focus on the core urban area is obvious on some of the cognitive maps drawn in the Basel region by Swiss, German, and French actors. They distinguish between the urban agglom-

erations, where tramways are important, and the larger functional area, from which most cross-border workers commute and where inter-city trains operate more frequently.

In Luxembourg, the core area is larger than the Luxembourg metropolitan area as defined by Sohn and Walther (2008). It comprises the cities of Thionville and Metz in Northern Lorraine, France, as well as the city of Trier in Germany. The core area particularly highlights the Northern part of the Sillon Lorrain, the transport corridor linking France with Luxembourg, while the highly frequented transportation link between Luxembourg-City and Trier shows a second core policy space. Both connections characterise the pressure to address the problem of insufficient transportation infrastructure.

An alternative to analysing the variations between the actors' perceived policy spaces is to examine the spatial distribution of the gravity centres of their cognitive maps. The centre of gravity, also called mean centre, is the crossing point of the mean x- and the mean y-coordinates. Using ArcGIS, we mapped the centres of gravity of the cognitive maps and calculated the distance between this location and the centre of gravity of all mental maps. This distance indicates the dispersion of the individual cognitive maps compared to the average location. The centre of gravity of all the maps drawn in the Luxembourg case is located near Perl in Germany, close to the border triangle Luxembourg-Germany-France. This is indeed a symbolic location, considering that in 1985 the Schengen Agreement, which led to the abolition of border checks, was signed a few kilometres away across the Moselle River. In the case of Basel, the centre of gravity of all maps is located in the German municipality of Lörrach (table 5), less than 10 km from Basel City.

Table 5: Standard dispersion measures

	Basel region			Luxembourg region			
Centre of gravity	Near Lörrach (DE)			Near Perl (DE)			
Average distance to centre of gravity according to nationalities (km)	CH	DE	FR	LU	DE	FR	BE
	15.5	12.0	16.2	20.5	26.3	23.0	-
Standard distance (m)	705.6			2,907.1			
Standard deviational ellipse (km ²)	667.0			2,489.7			

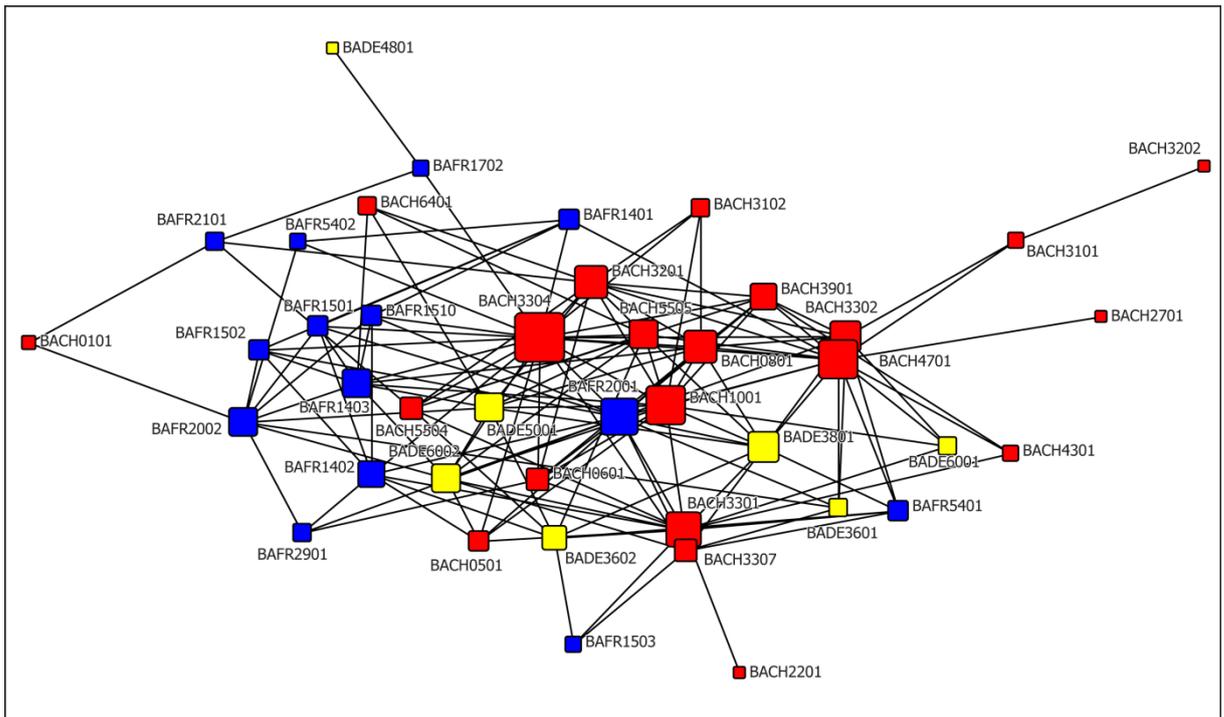
Source: authors. Note: insufficient data for Belgium.

To back up our results, we also utilised two measures of compactness to evaluate the clustering of our distribution: the standard distance and the standard deviational ellipse (table 5). The standard distance measures the concentration/dispersion of the cognitive maps around the centre of gravity of all maps, producing a single value. The standard deviational ellipse denotes the orientation of the distribution. It shows whether the distribution of the cognitive maps exhibits a particular directional trend, with the x- and y-axis representing twice the standard deviation of our values and extending one standard deviation in both directions. From a spatial point of view, both measures suggest that the cognitive maps drawn by actors in the Basel region differ much less from one another than those drawn in the Luxembourg region: the standard distance is 705 m in Basel compared with 2,907 m in Luxembourg, and the standard deviational ellipse is only 667 km² in Basel whereas it is 2490 km² in Luxembourg.

5.2 Network centrality and spatial perception: two contrasting cases

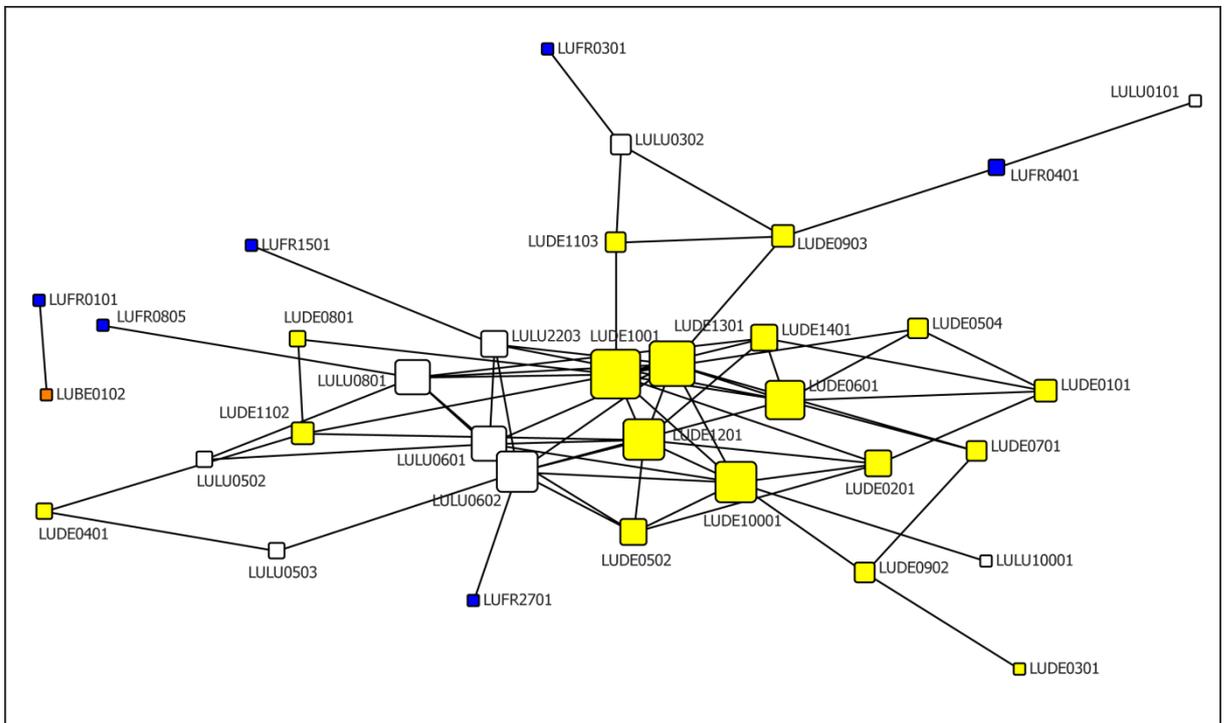
The sociograms in figures 1 and 2 show how social relations between the policy actors who drew the mental maps shape the policy networks (for details on the two policy networks, see Dörry and Decoville, 2013; Walther and Reitel, 2013). The colour of the nodes reflects the nationality with Swiss actors in red, German actors in yellow, French actors in blue, Luxembourg actors in white, and Belgian actors in orange. The spatial distance between the social actors is proportional to their social proximity when it comes to the exchange of information: The more ties they have, the closer they are. The size of the node is proportional to an actor's degree centrality. Central actors are, thus, prominent in the sense that they have a large number of social ties as potential sources of influence or constraint.

Figure 1: Basel policy network with countries in colour (degree centrality)



Source: authors; Software: UCINET (Borgatti et al., 2002). Note: Isolates are not shown.

Figure 2: Luxembourg policy network with countries in colour (degree centrality)



Source: authors; Software: UCINET (Borgatti et al., 2002). Note: Isolates are not shown.

Overall, social actors are more densely connected in Basel (density: 0.255) than in Luxembourg (0.092), where a few central actors of German and Luxembourg origin are surrounded by a large number of peripheral actors from France and Belgium. The density is particularly high among Swiss actors (0.257) in the Basel region as well as among Germans (0.595) and between German and Luxembourg actors (0.250) in the Luxembourg region (see figure 2).

Graphically, the core area of the Basel network is mainly composed of Swiss actors and the core of the Luxembourg network of German and Luxembourg actors. It does, however, not mean that policy actors limit their exchange of information to other actors from the same nationality, a tendency known as homophily. The extent to which a social actor tends to associate more with other actors of the same nationality can be verified with the application of several measures of homophily. In this paper we use the E-I Index calculated as the difference between external (E) and internal (I) ties for each country, divided by the total number of ties. Negative values on the index ranging from 1.0 to -1.0 imply that actors tend to associate with others from their own nationality, whereas positive values imply more external ties with other nationalities. In Basel, the E-I Index is almost equal to zero (-0.032), reflecting a low level of homophily. In other words, policy actors do not particularly favour actors belonging to the same nationality when it comes to communication across national borders. In Luxembourg the index is slightly negative (-0.265), suggesting that nationalities play a more important role in the exchange of information without being a determinant factor.

To show whether there was a relation between the structural position of the actors and their cognitive representations, we calculated the correlation between the social centrality of the policy actors and the spatial centrality of their mental maps. The former measures the variation to the average distance to the centre of gravity of all the maps, and the latter measures variation to the average area of the represented policy space. In Basel, empirical results confirm that central actors have the most average or ‘consensus’ spatial representation of the border region. As shown in table 1, four of the above introduced centrality measures in the SNA literature show a negative correlation between the actors’ centrality in the network and average mental maps. This suggests that the more central the actors the more average their vision of the cross-border policy space. The statistical relation between centrality and average

distance and average policy space does not seem to hold true for the case of Luxembourg (table 6), where the correlations are weak and/or slightly positive.

Table 6: Correlation between average mental maps and social networks (R square)

	Variation to average distance to centre of gravity	Variation to average area of policy space
Basel		
Degree	-0.238	-0.201
Closeness	-0.131	-0.562
Betweenness	-0.307	-0.117
Eigenvector	-0.090	-0.264
Luxembourg		
Degree	0.062	-0.023
Closeness	0.096	0.018
Betweenness	-0.123	-0.059
Eigenvector	0.110	-0.032

Source: authors, Software: ORA (Carley, 2012). Note: N=30 in Basel, N=30 in Luxembourg

These contradictory results may be explained by the differences in the policy culture of the two border regions. In Basel, in the absence of legally binding agreements, the success of cross-border cooperation relies heavily on the ability to bring together actors with conflicting agendas around policy issues. Prominent policy network actors can hardly afford to express extreme views, if they want to work repeatedly with their neighbouring counterparts in the future. This tradition is particularly promoted by politicians and high-ranking representatives of public authorities in consensual political systems such as Switzerland or Germany. In contrast to the central actors, peripheral actors have a more atypical mental representation of the cross-border policy spaces, because of a much looser connection to the rest of the network and the related lower access to crucial information among the policy network.

In the much younger ‘Greater Region’ Luxembourg, empirical evidence suggests a large influence of competing economic structures and interests besides a keen interest for cooperation. This argument is substantiated by various interviewees. According to the representative of the Ministry of Transportation in Luxembourg,

“... expectations are more often than not [...] quite different among the individual regions. The Greater Region is – as the name says – pretty large. ... That means that interests are not always the same. If you look at the periphery of the Greater Region and its core region, their concerns can be very different” (LU_LU_05_03).

This reasoning is in line with recent studies conducted within the framework of the Metroborder project (ESPON, 2010): From a mainly functional point of view, the heterogeneity of the Greater Region challenges the merging of the differing interests of the peripheral areas (where cross-border commuting is particularly developing) with those of the core region, despite the prevailing dominance of national interests. This point of view is further reflected in the following quotation from a German representative of the Ministry of Transportation, Saarland, who argues that:

“... especially in France, the national interest is very dominant; we often realise projects that do not directly benefit the Saarland, but within a transnational cooperation you do not withdraw. In France, a tough policy of national interest is being pursued, also in regard to transnational transport” (LU_DE_06_01).

5.3 Summary and interpretation of the empirical results

European border regions have been transforming towards integration and liberalisation, thus, requiring efficient cross-border governance regimes to exploit the potential resources of formerly separated regions. Cross-border policy networks are manifestations of such governance regimes. Our empirical analysis started from the premise that the ‘making’ of such new policy spaces requires the consideration of culturally anchored cognitive boundaries of the policy actors involved. Thus, in a first step, we looked at the persistence of individual national preferences in the spatial representation of the policy actors engaged in cross-border transport policies. We linked network data of policy actors in the border regions of Basel and Luxembourg with their individual perceptions towards the policy space covered by the conceptual governance construct of a ‘policy network’. This was based on the argument that cultural diversity and the respective institutional settings have a spatial component, i.e., serve as organising concepts (Knieling and Othengrafen, 2009).

We found dominating national preferences by the actors’ spatial representations of the policy network in the Luxembourg region. In the Basel region, however, a consensus on the limits of the border region seems to have emerged, which is consistent with the EU set-up of governance actions towards an ‘inclusive’ development in border regions. Our results further show that the attributes of the individual policy actors cannot explain the cognitive preferences among them. Building on SNA, we have il-

illustrated that central network actors tend to have the most consensual spatial representation of the cross-border policy space, while being able to act ‘inclusively’. On the contrary, peripheral actors tend to produce dissonant cognitive maps, overestimating their own territories in relation to the aspired broad policy agreements in border contexts. Generally, we found that the degree of accuracy of the cognitive maps decreases when actors represent ‘foreign’ spaces, i.e., spaces outside their own (sub)national territory. The boundaries of the perceived space of action are generally well known in the actors’ own national territories but become increasingly fuzzy when interviewees describe more distant areas of their border region (on the discontinuing geographies determined by distance, cf. Baybeck and Huckfeldt, 2002). This is particularly the case with Belgian and German policy actors in the Luxembourg case, who have little direct interaction despite sharing a common border.

In the Basel region, decades of cross-border cooperation have not overcome conflicting interests (Walther and Reitel, 2013). One explanation is the relative position of the French and German border municipalities, which are peripheral to both, Basel-City and their respective administrative centres of powers located in Strasbourg or Paris and Freiburg, Stuttgart, or Berlin. A second important factor is that inter-city competition has increased in Europe, and urban centres within the Basel region have become competitors of Basel City. Within a context of increasingly limited public funding, conflicts can arise as to where and when large investments should be conducted. Strasbourg, for instance, has engaged in a long-term cross-border project (Eurodistrict), trying to develop cross-border public transport with the neighbouring German municipality of Kehl. In Germany, the city of Freiburg has ambitiously been developing competing structures of knowledge intensive services and technologies to those in Basel. This has led numerous interviewed actors – very similar to the undertone in the Luxembourg region – to think that more could be done if cross-border cooperation was indeed on the political agenda. The representative of a German border municipality, who works intensively with her Swiss partners, is “somewhat less satisfied with the French side. It starts with the transportation on offer. It is not adequately extensive... They just all have their Carte orange and sadly have no interest in working together with others; because the structure is completely different” (CH_DE_36_01). As outlined in section 5.2, there are large similarities in the explanatory patterns and interpretation for Luxembourg.

Individual perceptions of policy spaces may bring – in the worst case – opposing border effects to the fore, thus impeding the idea of cooperation to the detriment of intra-regional competition. One conclusion might be that cross-border policy spaces must not be too sizeable, as the example of the Luxembourg case illuminates. To even out the competing interests of the various actors, the region of Basel – having been in a similar ‘space’ situation like Luxembourg – decided in 2007 to downsize the actual policy space under the new label Trinational Eurodistrict of Basel.

In summary, we developed a novel perspective in order to highlight attributive network aspects of the individual policy actors in border regions, because a solely descriptive notion ignores the crucial social dimension of policy actors embedded in their disparate policy cultures, as we have argued in the beginning of the paper. Further, the contradicting core-periphery interests as well as opposing organisational structures of the transport policies and huge economic disparities shape fundamental conditions within which we need to interpret our empirical results.

6. Discussion

What are the repercussions of our analysis for the border regions’ policy networks? Most fundamental, we hope to have stimulated the awareness of the policy network actors’ spatial incongruence’s and mismatches in border situations. Transport policy spaces tend to be dynamic and manifest themselves around areas with specific problem pressure, as the empirical results in map 3 suggest. We argue that policy spaces are relational. This relationality, however, is evident in terms of two aspects: First, due to the influential architecture of the policy network, in which certain actors are more prominent and powerful in influencing decision-making than others (cf. Dörry and Decoville, 2013). Second, a number of different interpretations of the policy space collide among the actors in a policy network. This is, therefore, subject to continuing contestation and negotiation among the network actors that shape not only project decisions but also the vision among actors of one policy network. Aided by the results of our descriptive statistics in this paper, we are able to verify both, the relationality of policy spaces as well as a sensitisation that policy actors tend to overestimate and advantage their own territories in governance settings of border regions.

In a subsequent attempt, we have proposed a methodology to measure spatial perception in policy networks, thus enriching the policy network research with geographical parameters. This was done by comparing two case studies, which strengthens not only the theorisation of our empirical findings in terms of observing important commonalities and differences but also the drawing of policy conclusions. Our two case studies' differing results tellingly remind us to be careful of generalisations of policy strategies within the frame of such manifold and heterogeneous border regions within Europe. European border regions are too diverse to nurture generalities and contexts matter tremendously, as the comparison of the two cases Basel and Luxembourg has illustrated. To combine the analysis of de-/bordering processes with governance analyses would, in our opinion, be a fruitful research avenue. However, not only featuring a somewhat positivist approach but also by enriching the analysis and underlying the research designs with 'why'-questions, interviews with policy actors, and more qualitative research in this vein. These efforts will be worthwhile to illuminate reasons and processes of cultural, linguistic, and institutional enclosures of actors shaping the same policy network with their cognitive perceptions and behaviours.

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3, avenue de la Fonte
L-4364 Esch-sur-Alzette
Tél.: +352 58.58.55-801
www.ceps.lu