

This article was downloaded by: [Min Reuchamps]

On: 27 February 2014, At: 05:23

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Territory, Politics, Governance

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rtep20>

### Drawing Belgium: Using Mental Maps to Measure Territorial Conflict

Min Reuchamps<sup>a</sup>, Dimokritos Kavadias<sup>b</sup> & Kris Deschouwer<sup>c</sup>

<sup>a</sup> Institut de sciences politiques Louvain-Europe (ISPOLE),  
Université catholique de Louvain, Louvain-la-Neuve, Belgium

<sup>b</sup> Political Science Department, Vrije Universiteit Brussel,  
Brussels, Belgium

<sup>c</sup> Political Science Department, Vrije Universiteit Brussel,  
Brussels, Belgium

Published online: 25 Aug 2013.

To cite this article: Min Reuchamps, Dimokritos Kavadias & Kris Deschouwer (2014) Drawing Belgium: Using Mental Maps to Measure Territorial Conflict, *Territory, Politics, Governance*, 2:1, 30-51, DOI: [10.1080/21622671.2013.814549](https://doi.org/10.1080/21622671.2013.814549)

To link to this article: <http://dx.doi.org/10.1080/21622671.2013.814549>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms &

Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

# Drawing Belgium: Using Mental Maps to Measure Territorial Conflict

MIN REUCHAMPS, DIMOKRITOS KAVADIAS and KRIS DESCHOUWER

---

(Received September 2012; in revised form May 2013)

**ABSTRACT** Governing divided Belgium is not an easy affair. Traditional tools of political research have provided insights about the dynamics of Belgian federalism but they have fallen short in exploring the territorial dimension of the conflict and its political representations within the population. Mental maps, scarcely used hitherto by political scientists, offer an innovative research tool to dig into territorial conflict dynamics since they aim at capturing the mental representation an individual has of a given object or space through the materialization of their representation with a drawing. This article discusses drawings of Belgium made by over 5000 first year higher education students in this country. The drawings confirm the importance of the two most prominent—and thus symbolic—elements of the territorial conflict in Belgium: the internal language border and the position of Brussels. In triangulation with responses to a questionnaire collected simultaneously, the analyses show that differences between the two language groups in Belgium are not very high, but that opposed visions on the country are reflected by those who exclusively identify themselves with Belgium or with Flanders. We state that if used with caution to ensure both internal and external validity, mental maps can prove to be an innovative but robust research tool for the study of territorial conflict broadly speaking. Because of their flexibility and their openness, mental maps capture the shortcuts citizens use to forge their political and territorial representation of their country.

**EXTRACTO** Gobernar una Bélgica dividida no es una tarea fácil. Los métodos tradicionales de la investigación política han permitido hacernos una idea de las dinámicas del federalismo belga, sin embargo, han sido insuficientes para analizar la dimensión territorial del conflicto y sus representaciones políticas en la población. Los mapas mentales, apenas utilizados hasta la fecha por los científicos políticos, son un material innovador de investigación para examinar a fondo las dinámicas del conflicto territorial porque sirven para captar mediante dibujos la representación mental que tiene una persona de un objeto o espacio determinados. En este artículo analizamos los dibujos de Bélgica pintados por más de 5000 estudiantes belgas en su primer año académico de enseñanza superior. Los dibujos confirman la importancia de los dos elementos más destacados, y por tanto más simbólicos, del conflicto territorial en Bélgica: la frontera lingüística interna y la posición de Bruselas. Mediante una triangulación con las respuestas a un cuestionario recabadas simultáneamente, los análisis muestran que las diferencias entre las dos comunidades lingüísticas en Bélgica no son muy altas, sin embargo, los estudiantes mostraban visiones opuestas en cuanto al país cuando se identificaban exclusivamente con Bélgica o Flandes. Afirmamos que si se emplean con prudencia para garantizar una validez tanto interna como externa, los mapas mentales pueden servir como un método de investigación innovador y, a la vez, sólido para el estudio del conflicto territorial en términos generales. Debido a su flexibilidad y transparencia, los mapas

**Author details:** Min Reuchamps, Institut de sciences politiques Louvain-Europe (ISPOLE), Université catholique de Louvain, Louvain-la-Neuve, Belgium. Dimokritos Kavadias, Political Science Department, Vrije Universiteit Brussel, Brussels, Belgium. Kris Deschouwer, Political Science Department, Vrije Universiteit Brussel, Brussels, Belgium. Email: [min.reuchamps@uclouvain.be](mailto:min.reuchamps@uclouvain.be)

mentales captan los atajos que los ciudadanos utilizan para plasmar su representación política y territorial de su país.

**摘要** 治理分裂的比利时并非易事。传统的政治研究工具虽提供了理解比利时联邦主义动态的洞见，但却无法探究冲突的领域面向，及其在人民中的政治再现。政治学家至今仍鲜少使用的心理地图，则提供了创新的研究工具来钻研领域冲突的动态，因其目的在于捕捉个人藉由绘图，具体化其对给定物体或空间的心理再现。本文探讨比利时国内超过五千名高等教育一年级学生所绘制的比利时地图。这些绘图证实了比利时领域冲突的两个最重要并因此具有象征性的元素：内在的语言边界与布鲁塞尔的立场。研究分析纳入同时搜集的问卷回覆，显示比利时内部两大语言群体之间的差异并非相当显著，但排他性地自我认同为比利时人或法兰德斯人者，却反映出对国家的两极展望。我们主张，心灵地图若谨慎使用以同时确保内部及外部的有效性，大致而言便可提供做为研究领域冲突的创新却健全之研究工具。心灵地图因其弹性及开放性，捕捉了公民用来打造国家的政治及领域再现的捷径。

**RÉSUMÉ** Gouverner un pays divisé comme la Belgique n'est pas une affaire simple. Les outils traditionnels de recherche en science politique ont permis de bien comprendre la dynamique du fédéralisme belge mais n'ont pas permis l'exploration de la dimension territoriale du conflit et ses représentations politiques au sein de la population. Les cartes mentales, jusqu'à présent rarement utilisées par les politistes, offrent un outil de recherche innovant pour appréhender cette dynamique territoriale puisqu'elles permettent de capturer la représentation mentale qu'un individu a d'un objet ou d'un espace donné via la matérialisation de sa représentation par un dessin. Cet article analyse les dessins de la Belgique réalisés par plus de 5000 étudiants en première année de l'enseignement supérieur dans ce pays. Ces dessins confirment l'importance des deux éléments les plus proéminents—et donc symboliques—du conflit territorial en Belgique : la frontière linguistique interne et la position de Bruxelles. En triangulation avec les réponses à un questionnaire collectées simultanément, les analyses montrent que les différences entre les deux groupes linguistiques en Belgique ne sont pas très fortes, mais que des visions opposées du pays sont toutefois reflétées par ceux qui s'identifient exclusivement à la Belgique ou à la Flandre. Nous avançons que, si elles sont utilisées avec rigueur afin d'assurer leur validité interne et externe, les cartes mentales peuvent constituer un outil de recherche innovant, mais robuste, pour l'étude de conflits territoriaux au sens large. Grâce à leur flexibilité et leur simplicité, les cartes mentales capturent les raccourcis que les citoyens utilisent pour se forger leur représentation politique et territoriale de leur pays.

**KEYWORDS** Federalism Belgium mental maps territory language

## UNDERSTANDING DIVIDED BELGIUM

After the Belgian federal elections of 2007, it took almost 200 days to put together a new federal coalition. The government that was put in place in December 2007 proved to be very fragile, and it finally collapsed in April 2010. After early federal elections in June 2010 it took no less than 541 days—this time a world record—to form a new government. There were two reasons for this long institutional gridlock, two issues that pitted the political parties of the Dutch-speaking northern part of Belgium against the political parties of the French-speaking south. The first was the demand from the Flemish parties to split the Brussels electoral district into one that would only comprise the bilingual region of Brussels and one that would be located fully in the Flemish region. That demand was part of an old debate about the location of the internal boundaries between the language groups and about the position and status of Brussels therein. The second conflict was about the distribution of powers in the Belgian federation.

The Flemish parties demanded an increased autonomy and more fiscal and financial powers for the regions, while Francophone parties defended a status quo.

Governing Belgium is not an easy affair. The party system is fully split, offering the parties few incentives for moderation. Indeed they have to convince the voters of their own language group only. But governing Belgium does require an agreement between parties of both language groups, because a federal government must be composed of an equal number of Dutch-speaking and French-speaking ministers (REUCHAMPS, 2007). When the parties of both language groups make electoral promises that are almost unacceptable for the parties of the other language group, one can assume that they do so because they try to be good representatives of their voters and thus because it is their voters that want them to defend these strong positions. Yet while parties indeed often voice these strong demands and defend them by referring to their obligation to keep their electoral promises, the population remains quite silent and passive. During the long negotiations of 2007 and of 2010–2011 there were some attempts to mobilize the people, but these were all very short-lived and—remarkably—all trying to send out the message that the Belgian population is not deeply divided and that the political leaders should take up responsibility to govern Belgium in the name of the Belgian people.

Attempts to analyse the public opinion and to check to what extent the citizens are indeed divided along the language line and to verify to what extent they believe that the issue of constitutional reform is important have produced rather mixed evidence. Post-electoral surveys have since 1991 asked questions about the salience of the constitutional debates and always conclude that this salience is fairly low. Decisions to vote for a party are strongly based on issues related to social and economic affairs and hardly on the discussions about the institutional future of the country (FROGNIER *et al.*, 2008; SWYNGEDOUW and RINK, 2008). When preferences about this institutional future are measured, a difference does appear though between the voters of the two language groups: voters in Flanders are more likely to advocate further devolution of powers to the sub-states while French-speaking voters are more likely to defend the status quo (DESCHOUWER and SINARDET, 2010).

These attempts to have a better look at the positions in the Belgian public opinion suffer from a few shortcomings. In the first place they are all trying to measure the salience of the institutional issue by using voting motivation as an indicator. It should, however, come as no surprise that social and economic issues are perceived by the voters as the most important ingredients of their motivation to vote for the party of their choice. The second shortcoming is that only one of the two ingredients of the language divide is actually looked at: the distribution of powers and thus the degree in which the sub-states should receive more autonomy. There is, however, also discussion and fundamental disagreement on the internal boundaries on which the sub-states of the Belgian federation have been built and should be built in the future. There is a fundamental disagreement on the location of these internal boundaries and especially on the position and status of Brussels. The perceptions of the Belgian citizens about this purely territorial part of the discussion have so far not been analysed. Indeed it is difficult to do in the framework of a post-electoral survey.

In this article we therefore suggest a different approach. We use mental maps to assess the way in which Belgian citizens perceive the country, its internal boundaries and the position of Brussels. We have asked respondents simply to draw Belgium. That allows us in the first place to see that—contrary to expectations—territorial issues that are able to block the political system for a very long time at the elite level are not that divisive at the citizen level. The combination of the mental maps with questions on identity also reveals

that identity differences within the language groups—within the Dutch-speaking group in particular—provide a stronger explanation than the use of language. The use of mental maps also allows us to tease out a fairly new method for the analysis of opinions that are related to territorial questions. The next paragraph will therefore be devoted to the presentation of this analytic tool, of its history, its advantages and drawbacks and the requirements for a careful use of it. Subsequently we will look a bit deeper into the Belgian division and especially at the way in which it can be seen as a dispute over territories and internal boundaries. After that we present the research methodology and the results. We conclude with some thoughts about the meaning of our results for the understanding of the Belgian language conflict and for the further use of mental maps in the study of territorially divided societies.

### MENTAL MAPS IN POLITICAL SCIENCE

At its simplest expression, a mental map (GOULD and WHITE, 1974; GOLLEDGE, 1976) or also a cognitive map (TOLMAN, 1948; KITCHIN, 1994) or a map in mind (DOWNS and STEA, 1977) is the mental representation one has of a given object or space (HAAS, 2004, pp. 621–622; BREUX *et al.*, 2011, pp. 12–15) or more specifically ‘a mental construct which we use to understand and know the environment’ (KITCHIN, 1994, p. 2). It is ‘in effect ‘representations of objects and their associations’ involving generic and motivational information’ (KITCHIN, 1994, p. 2). It is also the material representation of this object through a drawing (LIBEN, 1981; FOURNAND, 2003; STASZAK, 2003). By extension, mental maps refer to the technique to ask respondents to draw or write individually their representation of this given object, under certain conditions (BREUX *et al.*, 2010). The mental map can thus be defined as the methodological tool that enables the capture of the representation an individual has of his or her environment.

While barely recognized as a scientific method in political science, mental maps have been used in several fields of social and cognitive sciences. The technique has been explored and refined for the last 50 years most notably in the domains of psychology and geography. In his pioneer book, *The Image of the City*, LYNCH has demonstrated that individuals perceive their spatial environment in consistent and predictable ways forming ‘mental maps’ (1960). This seminal work led the way to a boom in the 1970s in the use of mental maps mainly among geographers and psychologists (e.g. APPLEYARD, 1970; GOULD and WHITE, 1974; GOLLEDGE, 1976; MILGRAM and JODELET, 1976; CANTER, 1977; DOWNS and STEA, 1977; CARTER and HILL, 1978; LIBEN, 1981; RAITZ and ULACK, 1981) and another peak in the late 1980s and early 1990s with innovative works in several fields of social and cognitive sciences (e.g. SAARINEN, 1988; ANDRÉ, 1989; BLADES, 1990; KITCHIN, 1994; SAARINEN and MACCABE, 1995; GOLLEDGE and STIMSON, 1997). More recently, a renewed interest in cognitive cartography has led not only geographers and psychologists but also other social scientists to (re)emphasize the appropriate use of mental maps to capture individual representations in an increasingly complex—and sometimes virtual—spatial and political environment (e.g. MATEI *et al.*, 2001; KITCHIN and BLADES, 2002; CHOKOR, 2003; FOURNAND, 2003; RAMADIER, 2003; HAAS, 2004; DIDELON, 2010).

Despite these different waves of interest for the use of mental maps in social sciences in a broad sense, political science has largely stayed away from this technique. Only a few political scientists have so far used the technique of mental maps. In 2001, LAPONCE used mental maps to study where students locate the centre of the world. To this end, he asked a few hundred students from across the world to fill in a blank sheet where a circle with a point in the middle had been drawn. This middle point was to be considered

as the geographic centre. Each individual respondent was invited to place five countries within the circle and five outside—given the fact the countries placed within were, according to them, close to the centre. He found that the centre of the world is both an icon, which delineates the geographic space, and a crossing point, where different classifying factors converge. This led him to conclude that ‘the mental maps, even though they seem incoherent, should not be absent of the analysis of political behaviours’ (LAPONCE, 2001, p. 305, our translation). In the wake of this work, BREUX asked active citizens to draw their neighbourhood and came to the conclusion that their respective mental map was related to the nature of their political or social participation (2008). These recent studies by political scientists using mental maps pave the way to an increasing use of this technique to aptly capture political representations (BREUX *et al.*, 2011).

Two main criticisms are often raised, however. The first one is the differences in the ability to draw between individuals. On this line, STASZAK writes:

it is one thing to have a space in mind and to be able to cartography it (even incorrectly); it is another thing to have a mental map in mind, that is to say to have in memory, not only images or knowledge of a space, but also a true cartographic representation of it. (2003, p. 133, our translation)

The second criticism is about the interpretation of mental maps. Critics argue that making sense of mental maps is quasi-impossible and therefore their scientific use must be limited to exploratory research (DANDOY and MATAGNE, 2011). Both criticisms actually posit that mental maps might be mere artefacts. To avoid mental maps to being mere artefacts, several criteria have to be followed more or less strictly. Indeed, the main reason to be sceptic about such a technique is its potential problem of validity, especially internally. In other words, mental maps seem to be too subjective to be a method as reliable as other well-established methods. Our contention however is that the mental map can reach this status, if its implementation and interpretation follows a strict methodological protocol.

Implementation should be guided by two main criteria. First, the conditions of the collection of data, i.e. the drawing part, should be exactly the same for each individual respondent in terms of the allocated time, the guidelines and the type of paper—or computer should it be used electronically. Moreover, the general question and the guidelines should be kept as simple as possible to avoid both different understandings and over emphasis on the ability—or not—to draw. These criteria should ensure a high external validity of the research design. Second, mental maps should be used on individuals drawn from a fairly homogenous group with similar characteristics. Indeed, confirming insights from psychology, ANDRÉ showed that drawings display an evolution with age and are influenced by one’s socio-cultural group (1989, p. 162, our translation). It is the reason why mental maps are often used with pupils or students, but it should not to be limited to such groups (BREUX, 2008).

However, it is not so much the implementation but rather the interpretation of mental maps, which may be the source of criticism. Complex data are yielded through this technique. The analysis of mental maps consists in making sense of the data, given the theoretical framework of the research, without over-interpreting the mental maps. This risk of subjectivity is inherent to the technique—as it is to several other methods dealing with non-numeric data. To reduce this risk, one has to first classify the information from the maps in order to create a common model, to which each mental map shall be compared, and thus be able to create different sub-groups (APPLEYARD, 1970; ANDRÉ, 1989). It ensures a systematic analysis of the mental maps, where the subjective interpretation of each drawing is kept to a minimum—the role

of the coder is to check whether a given element is present on the mental map or not. Therefore, the internal validity should be high, especially when multiple coders are working on the same material, allowing inter-coder reliability tests. Not only should the coding of the mental maps be systematic, but also the treatment of this classification. To do so, mental maps users have relied on qualitative approaches (BREUX, 2008; LOISEAU, 2011) sometimes using qualitative data analysis software (REUCHAMPS, 2011), on quantitative approaches (LAPONCE, 2001; REUCHAMPS *et al.*, 2009) or a mix of both (FOURNAND, 2003). As much as for any other methods the quality of the mental maps lies in rigorous data collection and analysis.

If used with these criteria in mind, mental maps can be a scientifically valid technique (see also BLADES, 1990). Above all, it offers, and it is its biggest comparative advantage, a more spontaneous way to capture individuals' representations. Contrary to survey questions this method does not impose any categories to the respondents and, by contrast, leaves them a real freedom to answer the question. It thus yields original data not so much on the reality itself but on its perception and representation by the individuals. An important advantage of the use of mental maps is thus the fact that respondents are not guided by the conceptual and theoretical frames of the researchers. Survey questions require the use of words that are never neutral. Survey questions also often stick to wordings that have been used at previous times or in other populations. While this of course guarantees comparability between settings and over time, it also keeps on board the built-in biases. If the use of mental maps wants to avoid this and fully exploit the spontaneity of the responses, the instructions should be kept to an absolute minimum. If used to capture opinions and feelings in a context of conflict—like we have done in our research—the absence of verbal guidance is extremely important. It avoids the framing of the conflict in the words used by one of the groups involved.

In addition to spontaneity and originality, flexibility can be emphasized as another advantage of mental maps. Their use is not limited to a specific topic or public—and thus potential for replication is high, reinforcing external validity. It is a method that does, however, require face-to-face contact with the respondents. But this means that it can also be included in qualitative interviewing, in focus groups or in deliberative events. Maps drawn can be used as input for discussion, as a way to express opinions, as arguments in a debate. Furthermore, as long as the same guidelines are used, the technique of mental maps travels quite well since drawing is universal. It can thus be used—with the same very minimal instruction—in a variety of similar or different settings.

Although this needs to be further explored and proven, we also believe that mental maps can capture deep core beliefs rather than mere opinions or reactions to suggested items in survey questions. Combining mental maps with more classic interview methods and triangulating results of mental maps with responses to survey questions can then yield an even finer picture of individuals' representations. This is true not only for issues directly related to space, territory and identity but also for topics across political science with an indirect spatial component such as political participation, institutional design or multilevel governance.

## DIVIDED BELGIUM

Belgium is a deeply divided society. Belgium is indeed cut in two by a line running from west to east. It is the line marking the limits of the linguistic influence of the Roman Empire. South of the line the vernacular languages are derived from Latin. In Belgium in particular the population living south of that old line speaks French (like in neighbouring France), while the population living in the north speaks Dutch

(like in the neighbouring the Netherlands). The Belgian state-building elite that put the new country on the map in 1830 by seceding from the Kingdom of the Netherlands did however speak French and made French the language of politics and all public affairs in the country. Gradually the inhabitants of the north (actually a small majority of 60% of the population) claimed that Dutch should be accepted as a second language and that the public authorities should use both Dutch and French in public administration and in education. The issue of the use of language was in the course of the twentieth-century settled by opting for a territorial logic, building on the fact that the population speaking either French or Dutch is indeed territorially concentrated (McRAE, 1983; MURPHY, 1988; WITTE and VAN VELTHOVEN, 2000; DESCHOUWER, 2012). Four language areas were created: a Dutch-speaking, a French-speaking, a bilingual territory for the city of Brussels and a small German-speaking territory in the southern region and close to the German border. The latter territory is not important for the issues that we are discussing in this article that relate to the relations and the territorial disputes between Dutch speakers and French speakers. We will therefore leave the German-speaking territory out of the further analysis.

The creation of language territories settled but did not solve the conflict. Until today both the location of the boundary between the territories and its meaning are disputed. That is very much related to the position and status of Brussels. The capital city of the country is located north of the linguistic borderline and is thus originally a place where Dutch was spoken. It has however become to a very large extent a Francophone city and has constantly expanded since it became the capital city of Belgium. And since the boundaries between the language areas were adapted every decade on the basis of a census asking people which language they speak, the bilingual territory of Brussels was gradually enlarged with local municipalities that used to belong to the Dutch-speaking territory. French was in Belgium the 'original' language and therefore also the higher status language. Pressure to be able to function in the second language was much higher for Dutch speakers and bilingualism was also much more spread among Dutch speakers.

That has resulted in a different position on the meaning of the internal boundaries. For the French speakers it should adapt to the population, i.e. it should be flexible and able to respond to internal migration. The boundary should not be fixed but should move whenever needed to respect the demands and the use of language of the population. Brussels should therefore be able to continue its expansion into areas where the population has become dominantly French speaking. For the Dutch speakers however the borderline should be a fixed boundary of the territory where Dutch is the official language. Crossing the border should then result in adapting to that fact and in speaking the language of the territory. In 1963 an agreement was reached to fix the borderline and to limit the expansion of Brussels. Inhabitants of six local municipalities just outside Brussels have received compensation in the form of language 'facilities'. They can indeed communicate with the public authorities in French if they wish to do so. Today these municipalities have a very strong French-speaking majority, but they remain in the Dutch-speaking territory. Francophone parties regularly voice the demand to adapt the borderline and thus the boundaries of Brussels to this demographic reality, but Flemish parties consider the borderline as frozen for once and forever.

The internal boundaries between the language areas that were fixed in 1963 have been since the 1970s the basis on which Belgium has been transformed from a unitary into a federal state. This Belgian federation is quite complex, exactly because it is built on this fundamental disagreement about the internal boundaries and about the status and size of Brussels. It is a double federation of language communities

(French and Dutch—and German) and of three regions (Dutch-speaking Flanders, bilingual Brussels and French-speaking Wallonia). Dutch speakers claim that the language communities (who can both offer their services like education and culture in Brussels) are the most important building blocks of the federation. Francophones claim that the three regions are the most important building blocks.

The complex federation based on a compromise (and thus on lack of agreement) on the building blocks and on internal boundaries did however bring back stability after its coming of age in 1995. While after 1965 all governments collapsed before the end of their four-year term, more than often on issues related to state reform, the four governments formed after 1991 went to the end of their term. But from 2003 on the tensions between the two language groups picked up again. The trigger was an old and recurrent debate about the boundaries of the Brussels electoral constituency (HOOGHE and DESCHOUWER, 2011). This electoral district covers Brussels (the region) and 35 local municipalities located around Brussels and thus in Flanders. Dutch speakers wanted this electoral district to be split into one for Brussels and one for the Flemish part of it, while Francophones claim that the many French-speaking voters living in that part of Flanders should have the possibility to vote for the Francophone parties whose lists are on the ballot in Brussels. And if the electoral district were to be split then Brussels should, according to the French-speaking parties, be enlarged to allow the Francophones living in Flanders to really belong to the bilingual Brussels. The issue of this Brussels electoral district is thus the perfect illustration of the different positions of French and Dutch speakers on the very meaning of the language border—flexible versus hard and final—and on its location—an expanding versus a locked-in Brussels. The issue was prominently present in the campaign for the regional elections in Flanders in 2004 and then again for the federal elections of 2007. It took six months to form a new coalition that postponed the issue to a later date. In 2010 the coalition fell apart exactly because no solution for the Brussels electoral district could be found. After the early elections of 2010 it took no less than 541 days to form a new government, among others because the Flemish parties did not want to start talking about other issues as long as the problem of the electoral district was not settled. An agreement on the Brussels district was eventually found, in the form of a complex compromise that accepts the split, be it with exceptions for six municipalities around Brussels and with financial compensations for the Brussels region (see also DESCHOUWER and REUCHAMPS, 2013).

The question we would like to answer in this article is whether the population is—like the party elites—divided on this issue. Do people in the north and the south of Belgium have a different map of the country in mind? For capturing the opinions of the population we do not, however, have very subtle instruments. Surveys trying to measure the salience and direction of opinions related to the territorial conflict in Belgium always do so in the context of elections and of electoral behaviour. They ask to what extent the institutional debates play a prominent role in the decision to vote for a party, and reveal quite unsurprisingly that social and economic issues are much more important. Questions on the institutional arrangements of the country either ask about the preferred location of competencies—a rather technical problem—or about radical solutions like splitting up the country (FROGNIER *et al.*, 2008; SWYNGEDOUW, 2008, 2010; DESCHOUWER and SINARDET, 2010). They do show differences, however, in the degree in which members of both language groups defend an increased devolution of competences to the sub-states (REUCHAMPS, 2013). The renewed success of Flemish nationalist parties in 2009 and 2010 also reveals this stronger demand for autonomy in Flanders. Yet insights into the way in which the Belgians see their country and in the extent to which this mental representation differs between the two language groups

are not available. Especially the way in which the *territorial* aspect of the divide is perceived—the location and the meaning of the internal boundary—has remained out of sight. For discovering these, we suggest using mental maps.

## METHOD AND DATA

In October to November 2010 we asked 5269 first year higher education students in the human and social sciences from both sides of the language border to ‘draw Belgium’ on a blank sheet of paper. They received five minutes to perform this task and were not given any further guidelines. In addition to this rather unusual question the students were invited to fill in a questionnaire after completing the drawing. If mental maps can be analysed on their own terms, triangulation is an interesting way to increase the explanatory leverage of mental maps—as it was confirmed by a pilot study done on 200 students (REUCHAMPS *et al.*, 2009). The supplementary survey consisted of 31 questions about socio-demographics, political knowledge, political interest, voting behaviour and political attitudes concerning Belgium and its future.

The group of students were not a random sample. Rather we sought to reach a large diversity of first year students throughout the country. We performed the research in 23 higher education institutions, both universities and university colleges. Of course, this group of students is also not representative for the overall population. Selecting only first year students however, combined the advantage of reaching fairly easily—and not too costly—a large number of respondents, with the advantage of the diversity which can be found within first year students (especially since the survey was done in the beginning of the academic year—dropout rate is quite high among first year students).

The refusal rate was close to zero. Of course, it was a more or less captive public, and the test was done at the beginning of a class. Furthermore, very few students (4%) did not do the drawing of Belgium (but did fill in the questionnaire), and part of the reason is that some of these students came later to the classroom and either did not hear the ‘draw Belgium’ guidelines or did not have time to do so. Nonetheless, we cannot exclude that some students—be it a very small number—felt uncomfortable drawing Belgium.

With such an open guideline as to ‘draw Belgium’, one would expect a diversity of answers. We did in fact receive a wide variety of illustrations. Most students (90.5%) drew a map of Belgium, although that was not asked explicitly. A mental map does not necessarily have to be a geographical map, although in this case—asking to draw a country—the most obvious answer is drawing a map of its territory. Those who did not draw a map made drawings of a variety of things like a flag or Belgian specialities like chocolate, beer, waffles or fries. The further analysis is done on those drawings that display a map, i.e. on 4766 respondents.

Since the Belgian conflict is about territory, about internal boundaries and about the status and position of Brussels, we classified the drawings according to features directly related to that. Each drawing was coded according to five dichotomous variables (Table 1). The first one is the presence of the language boundary. Some 56% of the respondents drew a map displaying the horizontal line dividing Belgium historically into two language areas. Forty-four per cent did not draw the internal line and presented Belgium with only its external boundaries (examples in Figure 1). The second variable captures whether Brussels has been put on the map (with or without the language border). The three remaining variables look at how the language border and Brussels are being combined. There are in this respect three mutually exclusive possibilities (see examples in Figure 2). The first is a drawing that locates Brussels fully north of

Table 1. The list of the five codes (frequency, percentage and inter-rater reliability).

Drawing variables	Descriptives frequency	Percentage	Inter-rater Cohen's Kappa	Reliability <sup>a</sup> weighted Kappa
Language border drawn	2660	55.8	1.00	1.00
Brussels on map	2654	55.7	1.00	1.00
Brussels correct	1330	27.9	1.00	1.00
Brussels on border	257	5.4	1.00	1.00
Brussels through border	694	14.6	1.00	1.00
Number of map drawings	4766			

<sup>a</sup>Cohen's Kappa (COHEN, 1960) and Weighted Kappa (DUNN, 2004; GWET, 2010).

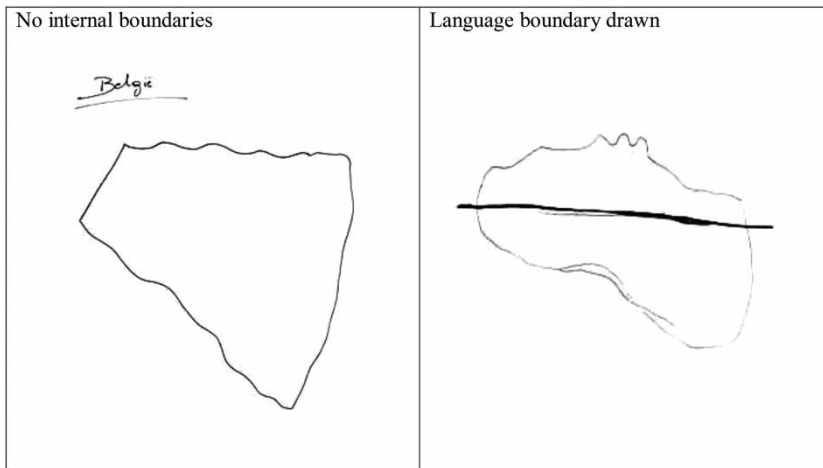


Figure 1. Internal boundaries in the drawings of Belgium.

the language border. That reflects the administrative reality of the internal boundaries. The second is a drawing where Brussels touches the language border. That is not the current location of the border and drawing it like this is politically sensitive. After several expansions of the Brussels area—until the borders were frozen in 1963—there is only a small distance of 4 kilometres between Brussels and the region of Wallonia. Francophone parties have often demanded this gap be closed by the creation of a corridor that would link the territories of Brussels and Wallonia. That would mark on the map the linguistic similarity between the French-speaking Walloon region and the (now very much) French-speaking Brussels.

And finally some drawings have Brussels and the language border on the map, and let the language border run right through Brussels. That is again not where the internal boundary is located, but reflects the fact that Brussels is in the middle of Belgium, that it is a bilingual region in which both languages are officially (in the use by public authorities) on an equal footing.

The construction of specific drawing-variables implies a subjective interpretation of the drawings. In order to test the consistency of the variables, a random sample of 155 drawings was judged by two different coders. These coders were recruited externally and belonged to different language groups. They had to use the common coding sheet to evaluate the sample of drawings. If our codes are reliable, anyone should be able to code

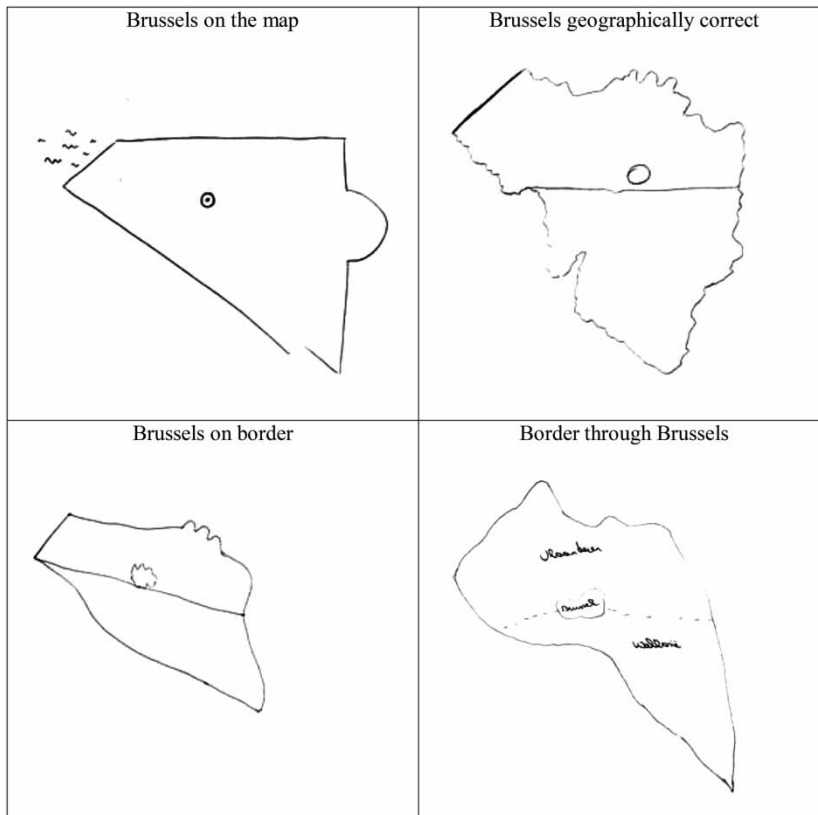


Figure 2. The location of Brussels in the drawings of Belgium.

each drawing and come to the same results (COHEN, 1960; DUNN, 2004; STEMLER, 2004; GWET, 2010). This is confirmed by the extremely high inter-coder reliability coefficients for the two independent coders (last two columns, Table 1). The used variables are of course simple and thus consistent enough to minimize subjective interpretations.

## ANALYSIS

We expected students belonging to either the Dutch or the French language group to draw their country in a different way. For Dutch speakers, the language border is more important. It is defended as a way to protect the Dutch language against the influence of French. Dutch speakers also have a stronger subnational identity than French speakers, and that identity is based on language and thus related to a territory that is defined by the internal boundaries of Belgium (BAWIN-LEGROS *et al.*, 2001; DE WINTER, 2002). Francophones have a stronger Belgian identity and defend a more personal—as opposed to territorial—right to speak their language. We would expect Dutch speakers to make clear that Brussels is located north of the borderline and not touching it. A language borderline running right through Brussels should then also be a more Francophone inspired way of drawing the map. This results in four clear expectations:

H1: Dutch-speaking respondents more frequently draw the language border.

H2: Dutch-speaking respondents more frequently draw Brussels north of the language border.

H3: French-speaking students more often draw Brussels as touching the language border.

H4: French-speaking students more often draw the language border through Brussels.

These expectations are based on the political discourse in both language communities. Parties and media of the two language groups indeed use a fairly homogenous discourse in which their own interpretation of the language conflict is presented as obvious and right, while the interpretation of the other language group is seen as aggressive and wrong (TEMMERMAN and SINARDET, 2008).

Do Belgian students draw mental boundaries? And what is the place of Brussels in this representation? A breakdown of these mapping variables according to the language group (Table 2) is not quite supportive for the thesis that both language groups have different mental images of the country. Dutch-speaking and French-speaking respondents only differ marginally in these matters. Dutch-speaking students tend to draw the language border only a bit more often than their French-speaking counterparts.

Both samples differ however slightly in their composition. We reached more students in the French-speaking community while the Dutch-speaking sample reached more university students (as compared to university college students). Among the Franco-phone students there are also more non-Belgians who might be less familiar with the Belgian political setting. The questionnaire that the students filled in after completing their drawing also contained a set of questions measuring political knowledge.<sup>1</sup> The aggregate score on these items is a bit higher among the Dutch-speaking respondents. The sample consisted of students in political science, sociology, psychology and communication science. It is a fair bet to assume these students vary widely as to their amount of knowledge concerning politics and institutions and hence in their degree of political sophistication. As political knowledge or sophistication can alter their conception of politics, knowledge can act as a confounding variable (DELLI CARPINI and KEETER, 1996; DELLI CARPINI, 2000).

Therefore in order to ascertain the absence of differences between the Dutch-speaking and the French-speaking sample we have controlled for the degree of political knowledge, but also for gender and citizenship status. We include gender in the models because of the repeated observations of a gender gap in political interest, knowledge and participation (BURNS *et al.*, 2001; MONDAK and ANDERSON, 2004). We do not have any theoretically based expectations about the way in which knowledge or gender might affect the drawings. We introduce them in the models to make sure that we measure the effect of language only, by controlling for variables that are known to be generally related to political attitudes and behaviours.

Table 2. *Dependent map-variables by language group (column percentages).*

Indicator	Dutch speakers	French speakers	Total
Language border	56.0% ( <i>n total Dutch sp.</i> = 2086)	53.2% ( <i>n total French sp.</i> = 2680)	54.4%* ( <i>n total</i> = 4766)
Brussels on map	54.4% ( <i>n total Dutch sp.</i> = 2086)	54.6% ( <i>n total French sp.</i> = 2680)	54.5% ( <i>n total</i> = 4766)
Brussels correct	58.9% ( <i>n total Dutch sp.</i> = 973)	58.3% ( <i>n total French sp.</i> = 1243)	58.6% ( <i>n total</i> = 2216)
Brussels through border	29.7% ( <i>n total Dutch sp.</i> = 973)	30.5% ( <i>n total French sp.</i> = 1243)	30.1% ( <i>n total</i> = 2216)
Brussels touching border	11.4% ( <i>n total Dutch sp.</i> = 973)	11.3% ( <i>n total French sp.</i> = 1243)	11.4% ( <i>n total</i> = 2216)

Note: Likelihood ratio  $\chi^2$  test for difference.

\* $p \leq .05$ .

\*\* $p \leq .01$ .

\*\*\* $p \leq .001$ .

We also take into account whether the students have the Belgian nationality. Indeed, not all students in Belgian universities and university colleges are Belgians. Yet we wanted to include also the non-Belgian students because the groups in which we organized the research were taking classes in French or Dutch, and are therefore confronted with the political debates about the future of the country and can have an opinion about it. At the local level most of these students also have the right to vote. Finally, we included the location of enrolment in the models in order to control whether students enrolled in a Brussels-based institution draw different maps than the other students.<sup>2</sup>

Moving forward in our exploration of the question whether Dutch-speaking and French-speaking students have a different mental map of Belgium, we then use a binomial logistic regression model (MENARD, 1995, 2004; TABACHNIK and FIDELL, 2007). We predict each of our relevant mapping-variables on the basis of language, controlling for gender, the degree of political knowledge and the nationality of the respondents. Table 3 shows the logistic regression coefficients, standard errors, odds ratios and an estimation of effect size for each of the five predictors.<sup>3</sup>

The models in Table 3 still show that Dutch-speaking and French-speaking students do not differ fundamentally in their mental construction of boundaries and frontiers. Both are more likely to draw the language border as compared to students with other nationalities. The only significant, but weak, difference can be found in the position of Brussels. If we control for relevant background characteristics, French-speaking students tend to draw Brussels more often in a geographically correct way (above the language border), which is exactly the opposite of what could be expected. But the difference with the Dutch-speaking sample is very modest ( $\beta = -.09$ ).

The absence of deeply divisive differences in the general sample does not automatically exclude the presence of extreme positions. We might assume that students with a higher degree of identification with their respective community might also differ in their mental maps. Contrary to what has been found in other countries where powers were devolved to sub-states (GUIBERNAU, 2006; BURGESS and PINDER, 2007), there is no clear trend towards a strengthening of the sub-state identities in Belgium (DESCHOUWER and SINARDET, 2010). Yet there is a clear difference between the north and the south. In Flanders the Belgian identity remains the strongest, but the sub-state Flemish identity follows at close distance. In the Francophone south the Belgian identity is much stronger, and is hardly challenged by sub-state identities. This also means that Flanders is in this respect more internally divided between a group favouring the Belgian identity and a group favouring the Flemish identity. It is a difference than can also be heard in the political debates between the Flemish regionalist and separatist parties that defend a far-reaching devolution and the other parties that defend more Flemish autonomy but also stress the importance of the Belgian federal framework that needs to be safeguarded (DESCHOUWER and TEMMERMAN, 2012).

In order to explore these differences and their effects on the drawings we have asked the respondents to score their degree of identification with Belgium, with Flanders, with Wallonia and with the French Community on a scale running from 0 (no identification at all) to 10 (complete identification). As respondents can identify themselves strongly with the national as well as the sub-national identity these variables are not mutually exclusive, but can be combined. Respondents could thus indicate for each of these identities (and for a list of others, including identities referring to emigration countries) how important they are.

Most respondents in fact combine a strong identification with Belgium with a strong identification with the Flemish or French community (Table 4). Almost 49% of the

Table 3. Logistic regression models: Effect parameters<sup>a</sup> for mapping variables, according to language, controlling for gender, knowledge and Nationality.

	'Language border'				'Brussels on map'				'Brussels correct'				'Brussels through border'				'Brussels on border'			
	B	SE	Exp (B)	$\beta$	B	SE	Exp (B)	$\beta$	B	SE	Exp (B)	$\beta$	B	SE	Exp (B)	$\beta$	B	SE	Exp (B)	$\beta$
Gender (0 = Male)	.010	.06	1.01	.00	.108	.06	1.11	.06	-.504	.09	.60	-.24***	.359	.10	1.43	.10***	.512	.14	1.67	.09***
Political knowledge	.012	.01	1.01	.02	.020	.01	1.02	.06	.130	.02	1.14	.34***	-.127	.02	.88	-.20***	-.021	.03	.98	-.02
Nationality (0 = Non- Belgian)	.517	.09	1.68	.10***	.354	.08	1.42	.14***	.090	.15	1.09	.03	-.158	.16	.85	-.03	.471	.22	1.60	.06*
Brussels Institution (0 = Outside Brussels)	-.230	.07	.79	-.06**	.075	.07	1.08	.04	-.060	.11	.94	-.02	-.008	.12	.99	-.00	.103	.16	1.11	.01
Language (0 = French)	.084	.06	1.09	.02	-.053	.06	.95	-.03	-.190	.09	.83	-.09*	.175	.10	1.19	.05	.000	.14	1.00	.00
Intercept	-.494	.11	.61		-.471	.11	.63		-.128	.19	.88		-.233	.20	.79		-3.620	.28	.03	
Adj. pseudo- $R^2$ :	1.7%				0.6%				6.4%				4.7%				1.2%			
N:	4762				4762				2216				2216				2216			

Notes (1): We had only 2216 drawings with Brussels correctly on the map. This gives an incidence for 'Brussels on border' 11.6% (257/2216) and for the 'Brussels through border'-variable of 31.3%. We tested the incidence of bias for this variable using a rare events logistic regression, with the ZELIG package in R (Imai *et al.*, 2007). The estimates of effect parameters and standard errors differ only marginally. Biases, due to sample size and occurrence, were negligible. (2): Interaction effects between Political Knowledge and Language were all non-significant.

<sup>a</sup>Beta's computed using MENARD (2004).

\*Significance of effect parameters, based on Wald test:  $p \leq .05$ .

\*\*Significance of effect parameters, based on Wald test:  $p \leq .01$ .

\*\*\*Significance of effect parameters, based on Wald test:  $p \leq .001$ .

Table 4. Total percentages—combinations of identification with Belgian, Flemish or French-speaking identity ( $n = 5266$ ).

	Weak - Flemish comm.	Strong - Flemish comm.	Weak - Flemish comm.	Strong - Flemish comm.	Weak - Flemish comm.	Strong - Flemish comm.	Weak - Flemish comm.	Strong - Flemish comm.
Dutch-speaking sample ( $n = 2347$ )	13.9%	13.5%	0.5%	0.3%	17.3%	48.9%	1.2%	4.5%
French-speaking sample ( $n = 2919$ )	13.0%	0.2%	9.2%	0.2%	19.5%	0.7%	44.7%	12.5%

Dutch-speaking sample and 45% of the French-speaking sample combine both identities. There is however a sizeable part of both samples that identifies only with the national level (17.3% and 19.5%, respectively) and about 13% and 14% that identify with neither the nation nor the subnational units. And finally, 9% of the French-speaking sample identifies exclusively with the subnational community, as compared to 13.5% of the Flemish respondents. The other combinations are negligible (e.g. identifying with the two sub-national units, while negating the national identity).

Instead of using language as a predictor of the mapping variables, we can use a variable that integrates different combinations of identifications with the national and subnational entities. We have grouped the respondents that identify with the national and one of the sub-national levels together, and compare them with the respondents identifying themselves only with the Flemish sub-national entity, only with the French-speaking entity (French-speaking community or Walloon Region), only with the Belgian nation, with the Belgian nation and the two sub-national entities at the same time, and finally with none of these entities. We assume that the more radical groups, exclusively identifying themselves with the subnational entities, will have mental maps reflected in the drawing of linguistic boundaries. As a consequence we expect that the Flemish and French-speaking sub-state identifiers—i.e. those that identify exclusively with one of the regions—will be more likely to draw the borderline and Brussels as expected.

Table 5 summarizes the findings of this analysis and seems to partially confirm the initial expectations.<sup>4</sup> Respondents who cast their identity exclusively in terms of Flanders are more likely to draw the language border and to put Brussels in their mental representation of Belgium. The Francophone ‘exclusionists’ (only Francophone identity) however, do not mirror this representation. They do not differ significantly from the reference

Table 5. Logistic Regression models: Effect parameters<sup>a</sup> for mapping variables, according to identification with national–sub-national entities, controlling for gender, knowledge and nationality.

	'Language border'				'Brussels on map'				'Brussels correct'				'Brussels through border'				'Brussels on border'			
	B	SE	Exp (B)	$\beta$	B	SE	Exp (B)	$\beta$	B	SE	Exp (B)	$\beta$	B	SE	Exp (B)	$\beta$	B	SE	Exp (B)	$\beta$
Gender (0 = Male)	.023	.06	1.02	.01	.095	.06	1.10	.05	-.513	.09	.60	-.26***	.363	.10	1.44	.22***	.527	.14	1.69	.10***
Political knowledge	.012	.01	1.01	.03	.018	.01	1.02	.05	.118	.02	1.13	.33***	-.118	.02	.89	-.40***	-.017	.03	.98	-.02
Nationality (0 = Non-Belgian)	.470	.09	1.60	.16***	.251	.09	1.29	.09**	.027	.15	1.03	.01	-.132	.16	.88	-.06	.524	.23	1.69	.07*
Brussels Institution (0 = Outside Brussels)	-.216	.07	.81	-.09***	.072	.07	1.08	.00	-.072	0.11	.93	-.03	-.012	.12	1.01	.01	.080	.16	1.08	.01
Identification (0 = B + FR or B + FL)																				
...only with FL	.526	.13	1.69	.13***	.112	.12	1.12	.03	0.148	0.19	1.16	0.04	-.139	.21	.87	-.04	-.015	.29	.99	.00
...only with FR	.123	.13	1.13	.03	.056	.13	1.06	.01	-0.083	0.20	0.92	-0.02	-.159	.22	.85	-.04	.533	.26	1.70	.05*
...only with Belgium	-.293	.08	0.75	-.12**	-.218	.08	.80	-.09**	-0.096	0.13	0.91	-0.04	.098	.13	1.10	.05	-.098	.18	.91	-.02
...with B + FR + FL	-.045	.10	0.96	-.01	.052	.10	1.05	.02	-0.177	0.16	0.84	-0.05	.151	.16	1.16	.05	.085	.22	1.09	.01
... with none	-.296	.09	0.74	-.10**	-.43	.09	.65	-.16***	-0.102	0.15	0.90	-0.04	.028	.16	1.03	.01	-.055	.22	.95	-.01
Intercept	-.368	.13	.84		-.301	.12	.74		-0.033	0.20	0.97		-.260	.21	.77		-3.712	.31	.03	
Adj. pseudo-R <sup>2</sup> :	2.9%				2.2%				6.5%				4.8%				1.6%			
N:	4751				4751				2207				2207				2207			

See note 1 of Table 3.

<sup>a</sup>Beta's computed using MENARD (2004).

\*Significance of effect parameters, based on Wald test:  $p \leq .05$ .

\*\*Significance of effect parameters, based on Wald test:  $p \leq .01$ .

\*\*\*Significance of effect parameters, based on Wald test:  $p \leq .001$ .

group (i.e. the respondents identifying themselves with the nation and one of the sub-national entities). The respondents with an exclusive affinity with the Belgian identity (ignoring the sub-national entities) or those without any national or regional identification, on the contrary, are more likely to draw a map without a language border or Brussels. The quintessential elements of the language dispute are ignored in their representation and in the mental map of 'their country'. None of these groups however differ in their positioning of Brussels. The proponents of territorial devolution stress the boundaries, while the proponents of union tend to ignore these political relevant markers. The identification thus tends to match the drawn representation. Whether the students draw Brussels north of the border, or put the capital on the language border is mostly determined by the degree of political knowledge ( $\beta = .33$  and  $\beta = -.40$ ) and gender (the male students are more likely to locate Brussels correctly, while the female students tend to put Brussels through or on the language border).

The political debate in Belgium is often about internal boundaries. Political parties of both language groups defend quite opposed positions on the preferred territorial organization and thus on the building blocks of the federation. Political parties and the media reporting and reflecting on these debates operate in fairly closed worlds, one in French and one in Dutch. Belonging to one or the other language group thus means being confronted with the one or the other vision on the country. That is why we assumed that language would be determining the differences in the drawings of Belgium. Our negative finding in this respect is therefore both interesting and puzzling. Identity—controlling for and thus independently from language—appears to be a much more powerful explanatory variable. And that means that—especially in Flanders—the internal divide between those who identify strongly with the sub-state and the others is the main explanation for differences in the way the maps are drawn.

This raises two—related—issues. The first is the difference between the behaviour of the political elites on the one hand who engage in fierce debates with strongly opposed positions about the meaning and location of the internal borderline, and the public on the other hand where the attitudes between Dutch speakers and French speakers are less important. The second is the existence of divisions within rather than between the language groups. For both, the explanation might be found in the current institutional organization of the Belgian state. The century-old language border dividing the country has been at the origin of the conflicts about the use of language and has been the foundation on which a territorial solution has been developed. The country is now a federation, in which the existence of two language groups is not only formally recognized, but for which it is the very basis of the federal institutions (DESCHOUWER, 2012). This is being reinforced by the fact that there are no statewide political parties but only parties representing the voters of their own language group. The line between the two language groups can therefore be found everywhere in the political system. All politicians belong to one language group only. All parties are unilingual, parliament is formally divided into two language groups and the federal government has to be composed of an equal number of Dutch-speaking and French-speaking ministers. This Belgian federation based on a language divide with its political class operating in two separate party systems offers an obvious image of a society fully divided along that line. And since the language divide is not independent from other political cleavages—the north normally votes for a centre right majority and the south a centre-left majority—the use of language can easily be seen and easily be used as the shortcut to understand what is going on.

One of the major ongoing discussions in the literature on federalism is the question of whether a federation in which the sub-states are built on territorially based identity differences softens or reinforces these differences (see for a good overview ERK and

ANDERSON, 2009). The evidence is quite mixed, but Belgium is certainly a case where the federal-type solution has strongly institutionalized and essentialized the language differences. One of the important consequences of that is thus the stressing of the differences between rather than within the language groups. That is also reflected in the way in which political parties compete and in the way in which the political elites (have to) mobilize their voters (McGARRY and O'LEARY, 2005; McGARRY *et al.*, 2008; DESCHOUWER and VAN PARIJS, 2013).

## CONCLUSION

Using mental maps in political science is a rather rare endeavour. Often judged too subjective or even too infantile, this technique however displays features not found in more standardized tools, like flexibility and openness and—above all qualities—internal and external validity. Used with caution—that is in respect of several criteria for the collection and the analysis of data—this tool can provide novel approaches to political representations. Indeed, mental mapping has proven to be a robust and innovative technique to study the mental representations of a—territorially divided—country like Belgium.

We have used them to make some progress in understanding one of the puzzles of the governing of divided Belgium. Here, the political system is a textbook example of consociational democracy that requires cooperation between the two language groups. Yet its party system is split and parties only cater for the voters of their own language group, making the necessary compromise at the central level often a painstaking (and face losing) exercise. During these long lasting periods of institutional gridlock, the population does not, however, exert great pressure on the political elite, and when they do so they refer rather to the necessity of bringing and keeping the language groups together. Research so far has used standard survey techniques to understand the positions of the public. They have however done so with reference to elections, and have only looked at the disagreement on the kind of powers that should be either devolved or kept central. The conflict about internal boundaries has been left out of these analyses. By using mental maps we have brought this aspect into the picture.

While it could be argued that mental maps scratch only the surface, this research demonstrates that responses from closed-ended questions and representations from mental maps can be combined into interesting and relevant—even if sometimes counter-intuitive—results. The combination of the two techniques has enabled us to dig deeper. Indeed, testing the relationships between identification and the presence of the language border and of Brussels on the maps provided new insights about the representation(s) of—supposedly—deeply divided Belgium. Contrary to our expectations and contrary to the political discourse of both political parties and media we cannot discriminate between the two main language groups of Belgium. Indeed, mental maps of Dutch-speaking and French-speaking students interestingly present similar patterns. While survey research has revealed a difference between the two language groups on their institutional preferences, this research reveals a lack of deep differences on the highly symbolic issues of the internal territorial boundaries between the language groups.

And while there are no substantial differences between Dutch and French speakers, there is an interesting difference *within* one of the two groups. Those who identify exclusively with Belgium (or with no entity) do not see any internal boundaries, while those who exclusively identify with Flanders see these boundaries very clearly. Thus political identification and preferences really shapes the perception of the place where one lives. Citizens do not have an unbiased and complete representation of their polity, but use cognitive shortcuts. Mental maps can indeed capture these shortcuts and their political

meaning. In this case they have brought to the surface a division within the Flemish part of the country that is more important than the division between the language groups. The way in which the Belgian political system has been transformed from a unitary into a federal state, with a very strong institutionalization of the language divide, might provide the explanation for the fact that the differences between the groups are generally believed to be the essential ingredient of Belgian politics.

This article has presented results of the use of mental maps in Belgium, a country divided by a language border and a country divided on the way in which that language border should shape the structure of the federal state and of its federated entities. Of course the level of conflict in Belgium is low. There has never been one shot fired. The Belgian conflict is a war of words only. That should not disqualify the case for the use of mental maps, but open up possibilities for a wider comparative use of mental maps in a variety of settings. Mental maps can be used in political science for the analysis of any relation that involves space, territory or distance. It could be used for instance in parts of Switzerland where there is some discussion about boundaries, or in Cyprus where any reunification needs an agreement on the internal boundaries. Especially when there is conflict about space, mental maps can help us understand the ingredients of it, the dynamics of it, the mobilization of it by political elites and the possible peaceful settlement of it. At least for Belgium the use of mental maps has shown that the degree in which the country is defined in a different way in the two language groups is more limited than political debates might suggest.

**Acknowledgements** – We are truly grateful to the thousands of students who kindly agreed to draw Belgium and respond to our questions. We also would like to thank the anonymous referees and the editors of this journal for their insightful comments. This research project was funded by an intercommunity postdoctoral fellowship of the Francqui Foundation and by the Vrije Universiteit Brussel.

## NOTES

1. Political knowledge was measured using five multiple choice-items forming a single ‘political knowledge’-dimension. Mokken’s Rho = .57; H-index: .28.
2. We are interested in the differences between language groups and not between regions. Students of Brussels institutions were divided according to the language of their institution. Students in Brussels are also not all living in Brussels. On the contrary, most of them are recruited from outside Brussels. We did however check for a possible influence of location and computed also models with interaction terms between language and location. None of these interaction-models were significant and are therefore not reported in this article.
3. There are no indications for multicollinearity between the predictors. There were no problems encountered with convergence, nor were the standard errors excessively large. The highest bi-serial correlation between the predictor-variables was  $-.25$  (between language and political knowledge).
4. As for the previous models there are no indications for multicollinearity between the predictors. There were no problems with convergence and the standard errors were not excessively large. The highest bi-serial correlation between the predictor-variables was  $-.26$  (between nationality and identification with none of the proposed identities).

## REFERENCES

- ANDRÉ Y. (1989) Les cartes mentales, in ANDRÉ Y., BAILLY A., FERRAS R., GUÉRIN J. P. and GUMUCHIAN H. (Eds) *Représenter l'espace. L'imaginaire spatial à l'école*, pp. 153–167. Anthropos, Paris.

- APPLEYARD D. (1970) Styles and methods of structuring a city, *Environment and Behavior* **2(1)**, 100–117.
- BAWIN-LEGROS B., VOYÉ L., DOBBELAERE K. and ELCHARDUS M. (Eds) (2001) *Belge toujours. Fidélité, stabilité, tolérance. Les valeurs des belges en l'an 2000*. De Boeck & Larcier, Brussels.
- BLADES M. (1990) The reliability of data collected from sketch maps, *Journal of Environmental Psychology* **10(4)**, 327–339.
- BREUX S. (2008) Représentations territoriales et engagement public individuel: premières explorations, *Politique et Sociétés* **27(3)**, 187–210.
- BREUX S., REUCHAMPS M. and LOISEAU H. (2010) Apports et potentialités de l'utilisation de la carte mentale en science politique, *Transeo Review* **(2–3)**, (available at: <http://www.transeo-review.eu/Apports-et-potentialites-de-l.html>) (accessed on 27 June 2013).
- BREUX S., REUCHAMPS M. and LOISEAU H. (Eds) (2011) *Carte mentale et science politique: Regards et perspective critiques sur l'emploi d'un outil prometteur*. P.I.E.–Peter Lang, Brussels.
- BURGESS M. and PINDER J. (Eds) (2007) *Multinational Federations*. Routledge, New York.
- BURNS N., SCHLOZMAN K. L. and VERBA S. (2001) *The Private Roots of Public Action: Gender, Equality, and Political Participation*. Harvard University Press, Cambridge.
- CANTER D. (1977) *The Psychology of Place*. Architectural Press, London.
- CARTER R. L. and HILL K. Q. (1978) Criminals' and noncriminals' perceptions of urban crime, *Criminology* **16(3)**, 353–372.
- CHOKOR B. A. (2003) Pattern of representation of countries in cognitive maps of the world with special reference to Africa, *Journal of Environmental Psychology* **23(4)**, 427–437.
- COHEN J. (1960) A coefficient for agreement for nominal scales, *Education and Psychological Measurement* **20(1)**, 37–46.
- DANDOUY R. and MATAGNE G. (2011) La carte mentale : regard critique et méthodologique, in BREUX S., REUCHAMPS M. and LOISEAU H. (Eds) *Carte mentale et science politique: Regards et perspective critiques sur l'emploi d'un outil prometteur*, pp. 147–161. P.I.E.–Peter Lang, Brussels.
- DELLI CARPINI M. X. (2000) Gen.com: youth, civic engagement, and the new information environment, *Political Communication* **17(4)**, 341–349.
- DELLI CARPINI M. X. and KEETER S. (1996) *What Americans Know about Politics and Why It Matters*. Yale University Press, New Haven, CT.
- DESCHOUWER K. (2012) *The Politics of Belgium: Governing a Divided Society*, 2nd Edn. Palgrave Macmillan, London.
- DESCHOUWER K. and REUCHAMPS M. (2013) The Belgian federation at a crossroad, *Regional & Federal Studies* **23(3)**, 261–270.
- DESCHOUWER K. and SINARDET D. (2010) Identiteiten, communautaire standpunten en stemgedrag, in DESCHOUWER K. and (Eds) *De stemmen van het volk. Een analyse van het kiesgedrag in Vlaanderen en Wallonië op 7 juni 2009*, pp. 75–98. VUB Press, Brussels.
- DESCHOUWER K. and TEMMERMAN M. (2012) Elite behaviour and elite communication in a divided society: the Belgian federal coalition formation of 2007, *Journal of Language and Politics* **11(4)**, 500–520.
- DESCHOUWER K. and VAN PARIJS P. (2013) Electoral engineering in a stalled federation. A state-wide electoral district for the Belgian Parliament, in O'LEARY B. and McEVROY J. (Eds) *Power-Sharing in Deeply Divided Places*, pp. 112–131. University of Pennsylvania Press, Philadelphia.
- DE WINTER L. (2002) De ondraaglijke lichtheid van het Belg- of Vlaming-zijn: het enigma van etno-territoriale identiteiten in Vlaanderen, in SWYNGEDOUW M. and BILLIET J. (Eds) *De kiezer heeft zijn redenen. 13 juni 1999 en de politieke opvattingen van Vlamingen*, pp. 215–232. Acco, Leuven.
- DIDELON C. (2010) Une vision de l'Europe. Le tracé de l'Europe des chercheurs impliqués dans Espon, *Annales de géographie* **(673)**, 211–228.
- DOWNS R. and STEA D. (1977) *Maps in Mind: Reflections on Cognitive Mapping*. Harper & Row, New York.
- DUNN G. (2004) *Statistical Evaluation of Measurement Errors: Design and Analysis of Reliability Studies*, 2nd Edn. Hodder Arnold, London.

- ERK J. and ANDERSON L. (2009) The paradox of federalism: does self-rule accommodate or exacerbate ethnic divisions? *Regional and Federal Studies* **19**(2), 191–202.
- FOURNAND A. (2003) Images d'une cité. Cartes mentales et représentations spatiales des adolescents de Garges-lès-Gonesse, *Annales de géographie* **112**(633), 537–550.
- FROGNIER A.-P., DE WINTER L. and BAUDEWYNS P. (2008) *Les Wallons et la réforme de l'Etat. Une analyse sur la base de l'enquête post-électorale de 2007*. PIOP working paper series. Louvain-la-Neuve, Pôle Interuniversitaire sur l'Opinion publique et la Politique, Université catholique de Louvain.
- GOLLEDGE R. G. (1976) Methods and methodological issues in environmental cognition research, in MOORE G. T. and GOLLEDGE R. G. (Eds) *Environmental Knowing: Theories, Research, and Methods*, pp. 300–313. Dowden, Hutchinson & Ross, Stroudsburg.
- GOLLEDGE R. G. and STIMSON R. J. (1997) *Spatial Behavior: A Geographic Perspective*. Guilford Press, New York.
- GOULD P. and WHITE R. (1974) *Mental Maps*. Penguin, New York.
- GUIBERNAU M. (2006) National identity, devolution and secession in Canada, Britain and Spain, *Nations and Nationalism* **12**(1), 51–76.
- GWET K. L. (2010) *Handbook of Inter-Rater Reliability: The Definite Guide to Measuring the Extent of Agreement among Raters*. Advanced Analytics, Gaithersburg.
- HAAS V. (2004) Les cartes cognitives: un outil pour étudier la ville sous ses dimensions socio-historiques et affectives, *Bulletin de psychologie* **57**(6), 621–633.
- HOOGHE M. and DESCHOUWER K. (2011) Veto players and electoral reform in Belgium, *West European Politics* **34**(3), 626–643.
- IMAI K., KING G. and LAU O. (2007) Relogit: rare events logistic regression for dichotomous dependent variables, in IMAI K., KING G. and LAU O. (Eds) *Zelig: Everyone's Statistical Software*, pp. 489–499 (available at: <http://gking.harvard.edu/zelig>)
- KITCHIN R. M. (1994) Cognitive maps: what are they and why study them? *Journal of Environmental Psychology* **14**(1), 1–19.
- KITCHIN R. M. and BLADES M. (2002) *The Cognition of Geographic Space*. I.B. Tauris, London.
- LAPONCE J. (2001) Le centre du monde: icône ou carrefour? *International Review of Sociology/Revue Internationale de Sociologie* **11**(3), 299–307.
- LIBEN L. S. (1981) Spatial representation and behavior: Multiple perspectives, in LIBEN L. S., PATTERSON A. M. and NEWCOMB N. (Eds) *Spatial Representation and behavior Across the Life Span*, pp. 3–36. Academic Press, New York.
- LOISEAU H. (2011) Une exploration du cyberspace à travers les cartes mentales, in BREUX S., REUCHAMPS M. and LOISEAU H. (Eds) *Carte mentale et science politique: Regards et perspective critiques sur l'emploi d'un outil prometteur*, pp. 75–93. P.I.E.-Peter Lang, Brussels.
- LYNCH K. (1960) *The Image of the City*. MIT Press, Cambridge.
- MATEI S., BALL-ROKEACH S. J. and QIU J. L. (2001) Fear and misperception of Los Angeles urban space: a spatial-statistical study of communication-shaped mental maps, *Communication Research* **28**(4), 429–463.
- MCGARRY J. and O'LEARY B. (2005) Federation as a method of ethnic conflict regulation, in NOEL S. (Ed.) *From Power Sharing of Democracy. Post-Conflict Institutions in Ethnically Divided Societies*, pp. 263–296. McGill-Queens University Press, Montreal & Kingston.
- MCGARRY J., O'LEARY B. and SIMEON S. (2008) Integration or accommodation? The enduring debate in conflict regulation, in CHOUDRY S. (Ed.) *Constitutional Design for Divided Societies. Integration or Accommodation?*, pp. 41–88. Oxford University Press, Oxford.
- MCRAE K. D. (1983) *Conflict and Compromise in Multilingual Societies, Volume 2, Belgium*. Wilfrid Laurier University Press, Waterloo.
- MENARD S. (1995) *Applied Logistic Regression Analysis*. Sage, Thousand Oakes, CA.
- MENARD S. (2004) Six approaches to calculating standardized logistic regression coefficients, *The American Statistician* **58**(3), 218–223.
- MILGRAM S. and JODELET D. (1976) Psychological maps of Paris, in PROCHANSKY H. M., ITTELSON W. H. and RIVLIN L. G. (Eds) *Environmental Psychology: People and their Physical Settings*, pp. 104–124. Holt Rinehart and Winston, New York.

- MONDAK J. J. and ANDERSON M. R. (2004) The knowledge gap: a reexamination of gender-based differences in political knowledge, *The Journal of Politics* **66(2)**, 492–512.
- MURPHY A. B. (1988) *The Regional Dynamics of Language Differentiation in Belgium, a Study in Cultural-Political Geography*. University of Chicago, Chicago, IL.
- RAITZ K. B. and ULACK R. (1981) Cognitive maps of Appalachia, *Geographical Review* **71(2)**, 201–213.
- RAMADIER T. (2003) Les représentations cognitives de l'espace : modèles, méthodes et utilité, in MOSER G. and WEISS K. (Eds) *Espaces de vie, Aspects de la relation homme-environnement*, pp. 177–200. Armand Colin, Paris.
- REUCHAMPS M. (2007) La parité linguistique au sein du conseil des ministres, *Res Publica* **49(4)**, 602–627.
- REUCHAMPS M. (2011) *L'avenir du fédéralisme en Belgique et au Canada. Quand les citoyens en parlent*. P.I.E.-Peter Lang, Brussels.
- REUCHAMPS M. (2013) The future of Belgian federalism through the eyes of the citizens, *Regional & Federal Studies* **23(3)**, 353–368.
- REUCHAMPS M., GRANDJEAN G. and FLABA F. (2009) « Dessinez la Belgique »: Comment de jeunes Belges francophones voient le fédéralisme. Les Editions de l'Université de Liège, Liège.
- SAARINEN T. F. (1988) Centering of mental maps of the world, *National Geographic Research* **4(1)**, 112–127.
- SAARINEN T. F. and MACCABE C. L. (1995) World patterns of geographic literacy based on sketch map quality, *The Professional Geographer* **47(2)**, 196–204.
- STASZAK J.-F. (2003) Carte mentale, in LÉVY J. and LUSSAULT M. (Eds) *Dictionnaire de la géographie, de l'espace et des sociétés*, pp. 132–133. Belin, Paris.
- STEMLER S. E. (2004) A comparison of consensus, consistency, and measurement approaches to estimating interrater reliability, *Practical Assessment, Research & Evaluation* **9(4)**, (available at: <http://PAREonline.net/getvn.asp?v=9&n=4>) (accessed on 24 June 2013).
- SWYNGEDOUW M. (2008) *Het stemaandee van de Vlaamse politieke partijen. Een analyse op basis van het postelektorale verkiezingsonderzoek 2007*, Onderzoeksverslag Centrum voor Sociologisch Onderzoek (CeSO), 18 pp. Instituut voor Sociaal en Politiek Opinieonderzoek (ISPO), Leuven.
- SWYNGEDOUW M. (2010) *Towards the independence of Flanders-Belgium? A critical appraisal on the basis the 2007 Belgian election study*. Paper presented at the Annual Meeting of the Midwest Political Science Association, Chicago.
- SWYNGEDOUW M. and RINK N. (2008) *Hoe Vlaams-Belgischgezind zijn de Vlamingen? Een analyse op basis van het postelektorale verkiezingsonderzoek 2007*, Onderzoeksverslag Centrum voor Sociologisch Onderzoek (CeSO), 19 pp. Instituut voor Sociaal en Politiek Opinieonderzoek (ISPO), Leuven.
- TABACHNIK B. G. and FIDELL L. S. (2007) *Using Multivariate Statistics*, 5th Edn. Pearson, Boston.
- TEMMERMAN M. and SINARDET D. (2008) Political journalism across the language border: communicative behaviour in political interviews by Dutch- and French-speaking journalists with Dutch- and French-speaking politicians in federal Belgium, in DARQUENNES J. (Ed.) *Multilingualism and Applied Comparative Linguistics*, pp. 110–138. Cambridge Scholars Publishing, Cambridge.
- TOLMAN E. C. (1948) Cognitive maps in rats and men, *Psychological Review* **55(4)**, 189–208.
- WITTE E. and VAN VELTHOVEN H. (2000) *Language and Politics. The Situation in Belgium in a Historical Perspective*. VUB Press, Brussels.