

Regional & Federal Studies

ISSN: 1359-7566 (Print) 1743-9434 (Online) Journal homepage: http://www.tandfonline.com/loi/frfs20

Changing your political mind: The impact of a metaphor on citizens' representations and preferences for federalism

Min Reuchamps, Jeremy Dodeigne & Julien Perrez

To cite this article: Min Reuchamps, Jeremy Dodeigne & Julien Perrez (2018) Changing your political mind: The impact of a metaphor on citizens' representations and preferences for federalism, Regional & Federal Studies, 28:2, 151-175, DOI: 10.1080/13597566.2018.1433663

To link to this article: https://doi.org/10.1080/13597566.2018.1433663

Published online: 09 Feb 2018.

Submit your article to this journal

Article views: 86

View related articles

View Crossmark data

Full Terms & Conditions of access and use can be found at
http://www.tandfonline.com/action/journalInformation?journalCode=frfs20

REGIONAL AND FEDERAL STUDIES, 2018
VOL. 28, NO. 2, 151–175
https://doi.org/10.1080/13597566.2018.1433663

Routledge
Taylor & Francis Group

Check for updates

Changing your political mind: The impact of a metaphor on citizens' representations and preferences for federalism

Min Reuchamps[a], Jeremy Dodeigne[b] and Julien Perrez[c]

[a]Institut de sciences politiques Louvain-Europe (ISPOLE) Université catholique de Louvain, Louvain-la-Neuve, Belgium; [b]Institut de recherches TRANSITIONS & Département de sciences politiques, sociales et de la communication Université de Namur, Namur, Belgium; [c]Department of Modern Languages: Linguistics, literature and translation Université de Liège, Liège, Belgium

ABSTRACT

Federalism is often presented through metaphors, but little is known about the impact of such metaphors. Two experiments were conducted in Belgium presenting federalism as Tetris – with control and treatment groups – in order to grasp the influence of this metaphor. The first experiment reveals that being exposed to text with the Tetris metaphor influences respondents' representations of federalism towards a more institutional representation and towards more regional autonomy. The second experiment confirms the importance of the text, and more specifically of the metaphor, if political knowledge is taken into account. Respondents with a lower level of political knowledge are those who are influenced by the metaphor, whereas respondents with a higher level are not. Therefore, framing the future of Belgian federalism using the metaphor of Tetris does matter: it affects both individuals' representations of the federalization process and, consequently, their preferences vis-à-vis the institutional future of the country.

KEYWORDS Federalism; Belgium; citizens; preferences; conceptual metaphors; framing

Belgian federalism is often portrayed as the coupling of Flemings and Walloons or Francophones. Related terms and expressions such as 'indivisible union', 'marriage of reason' or 'divorce' can often be heard in public debate. Federalism is indeed frequently presented through metaphors, and not only in Belgium. Examples include the metaphor of the family or of a company or even a machine, but little is known about the impact of such metaphors on these countries' citizens. The objective of this article is precisely to tackle this issue, namely the influence of metaphors on citizens' representations of and preferences regarding federalism, and in so doing, combining the insights of linguistics and political science.

CONTACT Min Reuchamps min.reuchamps@uclouvain.be

© 2018 Informa UK Limited, trading as Taylor & Francis Group

This article builds on two experiments conducted in Belgium, where the future of federalism is hotly debated because the issue resides at the core of Belgium's own future as a single political unit. Several metaphors have been used to express in more familiar terms the complexity of Belgian federalism and its dynamics (Perrez and Reuchamps, 2012, 2014, 2015a). Among these, the metaphor of Tetris was once employed in a newspaper to explain the nature of Belgian federalism in terms of its power distribution. Our experiments test the influence of this metaphor on citizens' representations, on the one hand, and preferences regarding federalism, on the other hand.

In the first experiment, we randomly assigned participants to four groups: one control group, a second group to which the metaphor was presented both as a text and a picture, a third group that saw the metaphor only as a picture, and a fourth group that saw the metaphor only as a text. The second experiment sought to isolate whether it was indeed the metaphor itself (i.e. Belgian federalism as Tetris) that influenced participants' political preferences. To that end, we randomly assigned the participants to three groups: one control group, a second group that was exposed to the original version of the experimental text with the Tetris metaphor, and a third group that read a neutralized version of the experimental text, with references to the Tetris metaphor replaced with generic references to Belgian federalism. In both experiments, we controlled for level of political knowledge among participants, as this variable might have the power to influence the degree to which metaphors shaped individuals' preferences regarding the future of federalism in Belgium.

Federalism and metaphors

Although the study of metaphors is a lesser-known research area for political scientists, the fact that 'we live by metaphors' became widely accepted by the scholarly community of linguists with the seminal work of Lakoff and Johnson (1980, 1999). Their Conceptual Metaphor Theory is based on the idea that metaphors are conceptual in nature, allowing us to perceive, understand and structure our environment. Central to this process is the mapping between a target domain related to abstract entities and processes, and a source domain based on the sensorimotor perception of our environment. The target domain is structured and understood through related terms.

Metaphors can thus be found throughout daily life, including political life. Based on this understanding of the function of metaphors in politics, the starting point of this article is that metaphors should also be taken seriously in federal studies as one of the factors affecting processes of federalization. Students of federalism have already paid attention to the importance of discourse in their analysis of processes of federalization (Burgess, 2006). For instance, British scholars showed that in the United Kingdom, the very word

federalism (the 'F' word) is intentionally absent in British actors' discourses: Unionist British politicians avoid the 'F' word not only when discussing the federalization of their own British Union state but also the federalization of the European Union (Burgess, 1995). When Tony Blair honoured Labour's campaign promise of delivering a Scottish Parliament and a Welsh assembly, British politicians preferred to adopt a discourse based on the idea of *devolution*, which constitutes a minor threat to the sacrosanct 'British Union'. In other words, if the UK were to follow the track of federalization, it would use any term but the 'F' word to describe it. In Belgium, use of the word 'federalism' since the 1960s has revealed much about the political dynamics: initially, it was opposed by those who wanted to keep Belgium together. However, as time (and state reforms) went by, it came to be used in opposition to confederalism or independence (Reuchamps, 2009, 2015; Deschouwer, 2012).

The British and Belgian examples show that discourses are central and strategic resources for political actors, who deliberately develop and adopt specific metaphors to (de)legitimize the federalization process. Based on the idea that metaphors not only reflect the perceived reality but also function as cues through which citizens come to understand complex political processes – and through which they shape political behaviours (Bougher, 2012) – it is often suggested that metaphors have an impact on representations. However, in the literature, the political impact of metaphors is assumed, rather than being empirically established. The aim of this study is precisely to look at how a specific metaphor might affect citizens' representations of and preferences regarding federalism.

Research design

The objective of this study is to assess the political impact of a particular metaphor on individuals' views about federalism. More specifically, three outcomes are investigated: (1) individuals' representations of Belgian federalism (i.e. how they understand federalism as a process), (2) individuals' preferences vis-à-vis regional autonomy in Belgium (i.e. what they support regarding its future institutional architecture), and (3) the potential interaction effect of political knowledge on the influence of the metaphor (i.e. how metaphors only affect the profiles of individuals with lower political knowledge).

Individuals' *representations* refer in this article to the established concept of *social representations* developed by Moscovici. Representations refer to a:

> system of values, ideas and practices with a twofold function: first to establish an order which will enable individuals to orient themselves in their material and social world and to make their way through it; and secondly to enable communication by providing a code for social exchange and a code for naming and classifying unambiguously the various aspects of their worlds and their individual and group history. (Moscovici, 1973: xiii)

Representations provide a cognitive map, making sense of the unknown. This process of 'familiarising the unfamiliar' (de-Graft Aikins, 2012) is operated through two mechanisms: anchoring and objectification (Moscovici, 1984: 29). Firstly, anchoring is a mechanism that 'anchors strange ideas, to reduce them to ordinary categories and images, to set them into a familiar context' (Moscovici, 1984: 29). Secondly, objectification is a process transforming 'something abstract into something almost concrete, to transfer what is in the mind to something existing in the physical world' (Moscovici, 1984: 29).

For instance, the terms 'devolution' in the UK or 'federalization' in Belgium served as the *anchor* for regional self-rule through the more familiar notion of 'devolving' things from one place to another. Similarly, 'Holyrood' or 'L'Élysette' (the names of the Scottish and Walloon governments respectively) currently used by journalists, politicians, and citizens are the *objectification* of this process of devolution/federalization, becoming the concrete and physical expressions of regional institutions in Scotland and Wallonia. Representations are therefore cognitive schemes of actions for individuals (Dodeigne, 2014). In social representations theory, metaphors hold a 'privileged' place, as they are alleged to be powerful cognitive tools for anchoring and objectifying complex social and political phenomena (Lakoff, 1996, 2004), such as the processes of federalization which are the object of this article.

In sum, if metaphors do make a difference, they should influence individuals' representations. In return, citizens' representations determine social and political behaviour. Although individuals' representations reflect complex and long-term processes of socialization, they are not frozen. On the contrary, they are subject to evolution and transformation when the topic becomes more salient. In this respect, metaphors operating as key linguistic-cognitive resources could make a difference, especially shaping the perception of less informed individuals, and possibly to shift their preferences regarding federalism. This is what the data from recent voter surveys in Belgium (2009 and 2014) suggest: many voters responded that federalization is ranked among the latest determinants of their vote, while many do not know much about the institutional processes (Swyngedouw et al., 2014; Deschouwer et al., 2015; Reuchamps et al., 2017).

Overall, three hypotheses are tested. Firstly, we hypothesize that, in the absence of metaphor, individuals' representations of Belgian federalism are dominated by identity accounts. Federalism is mainly framed as a tension – or the result of this tension – between two socio-linguistic groups: Dutch-speakers and French-speakers (Dodeigne et al., 2016). This linguistic dynamic is intrinsically linked to the question of both national and subnational identities: Belgian, Flemish and Walloon, to name but the three main ones. Federalism in Belgium is indeed a response to language- and

identity-loaded conflicts that date back to the creation of Belgium (Deschouwer, 2012). This hypothesis is, furthermore, supported by a previous study that showed the predominance of a love relationship between Flemings and Walloons in citizens' own discourses (Reuchamps and Perrez, 2012; Dassargues et al., 2014; Perrez and Reuchamps, 2015a). Federalism in Belgium is thus often portrayed in terms of inter-community relations between the Dutch-speaking north and the French-speaking south. The issue of distribution of power and economic differences between the substate governments, that is the Regions and the Communities, comes as a consequence of the tensions between the two main groups (Caluwaerts and Reuchamps, 2014a, 2014b, 2015).

Secondly, we argue that in the absence of metaphor, the 'identitarian reflex' is more salient, ultimately leading to the expression of 'usual' preferences about regional autonomy, i.e. unitarist or unionist preferences among French-speaking voters (Reuchamps, 2013). On the contrary, a metaphor could transform the participants' representations, leading to new forms of reasoning about Belgian federalism. We hypothesize that this 'alternative understanding' (preventing the 'identitarian reflex') leads to expressing preferences about regional autonomy *à contre-courant* the average trend observed in the wider population.

Thirdly, considering we are interested in the cognitive mechanisms underlying the impact of a metaphorical discourse, we suggest that not all participants are equally affected by metaphors. As developed above, metaphors serve a specific cognitive role: making sense of unknown and complex phenomena, i.e. 'familiarizing the unfamiliar'. Consequently, only participants for whom Belgian federalism is an unknown process should be affected by metaphors. Political science literature has already demonstrated the role that political knowledge matters play in shaping individual opinions in general (Delli Carpini and Keeter, 1996) and on voters' attitudes towards federalism in Belgium in particular (Deschouwer and Sinardet, 2010).[1] The literature on psycholinguistics allows us to dig deeper into the cognitive mechanisms around a metaphor. One could draw a parallel between the compensatory function of metaphors and the role of background knowledge on text comprehension processes. Psycholinguistic research has indeed shown the importance of prior knowledge on comprehension processes Readers with a lower level of prior knowledge tend to rely more on the presence of textual cues to build their mental representations of a text, whereas readers with a higher level of prior knowledge overlook such cues (see, for instance, Anderson and Pearson, 1984; McNamara et al., 1996; McNamara and Kintsch, 1996; Caillies et al., 2002; Kendeou and van den Broek, 2007).

This means that people who are acquainted with certain topics will create mental images based on the frameworks they possess regarding those topics, a process that is much more difficult for people with less or no prior

knowledge (Rumelhart, 1980). Applied to the framing effect of metaphors, one could argue that the metaphor *only* helps individuals with lower political knowledge to construct a representation of a given political topic, whereas individuals with higher political knowledge do not need to rely on such a metaphor to construct a representation; they already possess their own schemes. Therefore, we hypothesize that respondents who are less familiar with Belgian politics are more likely to be influenced by a metaphor.

Two experiments

Our choice for an experimental research design relies on two main claims. It is the only way to generate data in which the impact of a metaphor can be distinctively assessed. Furthermore, experimental research design is very well suited for theory-testing (Morton and Williams, 2010), which is the main research objective of this article. It permits a strong causal inference by manipulating the variables of interest while controlling the effects of other intervening factors.

Experimental material and set-up

To assess the impact of metaphors on individuals' representations of and preferences regarding Belgian federalism, the experiment relies on an article published in the Belgian newspaper *Le Soir* (13–14 July 2013) in which Belgian federalism was compared to a Tetris game. Our interest in this article is the opportunity to recourse to existing material in our experimental research design, as the original article included a picture (Figure 1) and a text of 208 words (Figure 2), and thus strengthens the ecological validity of the study. The authentic nature of our experimental text is an advantage considering it was produced by a journalist in order to present Belgian federalism as clearly as possible to the newspaper's readers. In other words, even though the research design remains experimental *per se*, its material relies on an existing metaphor from the public debate which we aim to explore. This allows us to avoid a purely 'laboratory-made' metaphor – as usually employed in experimental studies (see, for instance, Thibodeau and Boroditsky, 2011, 2013, 2015). It should also be noted that the metaphor appears in the title and in a few words in the body of the text:

> This is the big Belgian Tetris, where we see the upper floor that is falling apart (decomposing), block by block, to the benefit of other authorities. In certain cases, the legislator is transferring homogeneous blocks (like education, handed over to the communities in 1989).

The rest of the text is not related specifically to the Tetris metaphor, but it provides information about Belgian federalism in light of this metaphor.

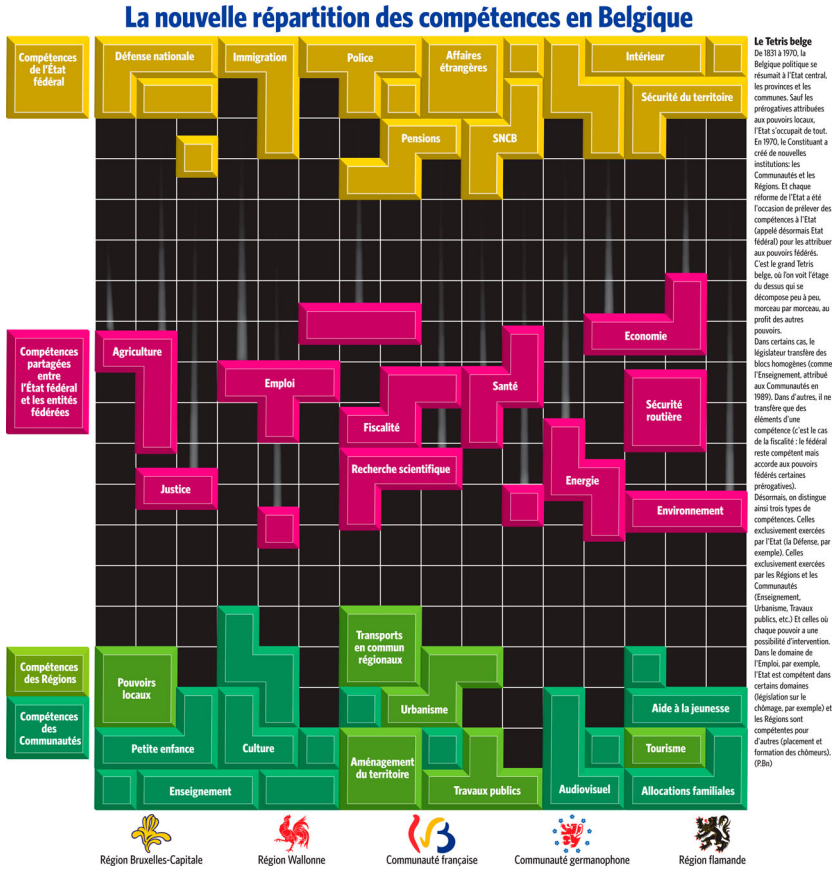


Figure 1. The Tetris metaphor published in the newspaper article *Le Soir* (13–14 July 2013). This article is reproduced with the publisher's authorization. All rights reserved. Any further use (reproduction) is subject to prior specific authorization from the rights management company Copiepresse: info@copiepresse.be.

Experiment 1 – four conditions: control, text, picture, text + picture

In order to assess the impact of this metaphor, we designed a first experiment consisting of three experimental conditions and one control condition (Figure 3). In the first experimental condition (*full condition*), the participants were exposed to the original article (including the text and the picture). In the second and third experimental conditions, the participants were respectively exposed either to the text (*text condition*) or the picture (*picture condition*). In the control condition, the participants were not exposed to any material at all. After this first stage, which was different for each group, the other stages of the experiment were the same for all participants (see the detailed procedure below).

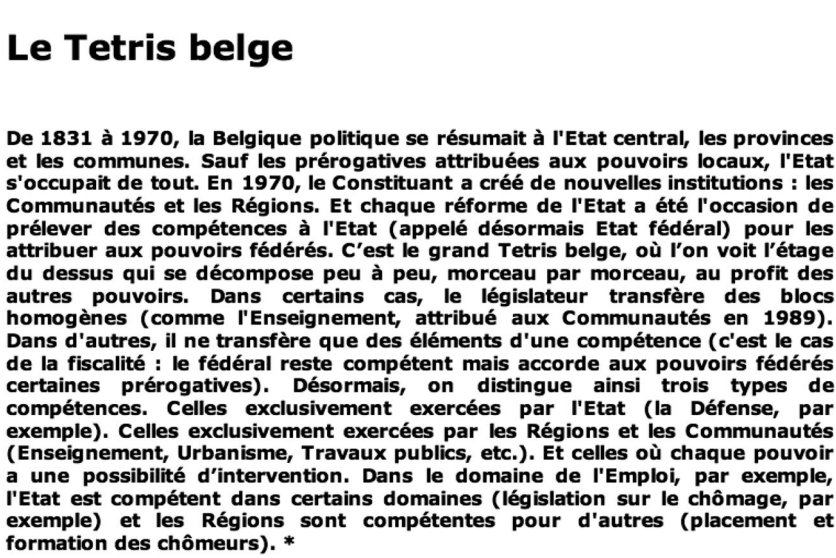


Figure 2. The original experimental text.[6]

The participants were French-speaking first-year university students. In total 623 participants took part in the first stage, but the final sample covers 508 students once incomplete answers were excluded. The number of participants is equally distributed across the four groups, between 114 and 128 students per experimental condition (see Appendix 1). Since all participants were students, the sample was not representative of the overall Belgian population. Yet, considering the current state of the art, providing a

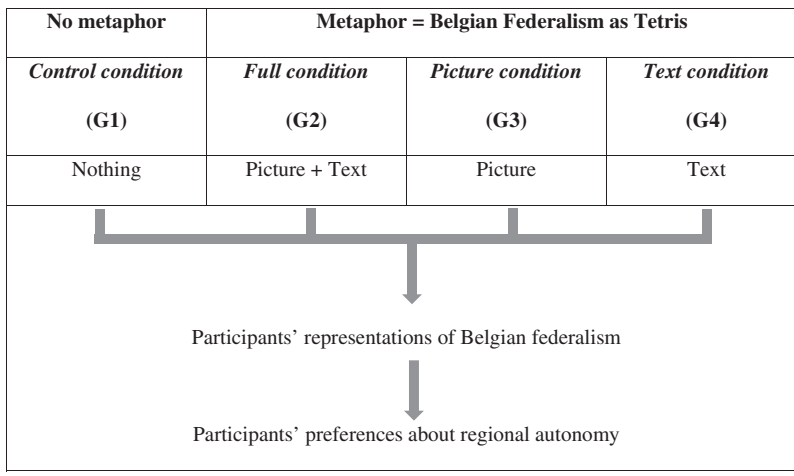


Figure 3. Summary of the experimental research design and the causal mechanism – experiment 1.

first and systematic assessment of the potential impact of metaphor is our main research objective, not the representativeness of participants.

To verify the different experimental groups' effects, we controlled for participants' level of political knowledge, interest in politics, gender and ethno-territorial identities. Multivariate linear regressions estimate participants' preferences about regional autonomy. The operationalization of the variables is the following: for measuring level of political knowledge, we followed a standard procedure of previous surveys on students in Belgium (Reuchamps et al., 2014) by asking participants to respond to five general questions about Belgian politics.[2] If participants responded correctly to all items, they were given a score of 5 on a 0–5 scale. Political interest was based on participants' self-positioning on a 0–10 scale, where 0 means not interested in politics at all and 10 means very interested.

To measure participants' ethno-territorial identities, following the model of a previous survey with students (Reuchamps et al., 2014), we asked them to what extent they feel Belgian, Walloon, Francophone, and Flemish on a scale running from 0 (no identification at all) to 10 (complete identification). This type of measurement allows participants to express strong national identity alone, strong regional identity alone, or equally strong/weak national and regional identities. In multinational countries such as Belgium, it is indeed important to allow participants to express their 'nested identities' instead of forcing them to express only one territorial identity. A one-way ANOVA, with the score of these five variables as a dependent variable and the experimental condition as an independent variable, confirms that there are no significant differences between the four groups (*p*-values between .328 and .927).

Experiment 2 – three conditions: control, text, metaphorical text

In the second experiment, we sought to verify that it is the metaphor itself (i.e. Belgian federalism as Tetris) that has an influence on political preferences. Therefore, for this experiment, we randomly assigned the participants to three groups: one control group, a second group that saw the original version of the experimental text with the Tetris metaphor, a third group that saw a neutralized version of the experimental text; that is, without the Tetris metaphor (i.e. Belgian Tetris was replaced by Belgian federalism). The following table shows the two experimental texts:

The Belgian Tetris

From 1831 to 1970, Belgium came down to the central state, the provinces and the municipalities. Except for the prerogatives devolved to the local authorities, the State took care of everything. In 1970, the constituent power created new institutions: communities and regions. And every state reform has been the occasion to take competences from the state

The Belgian federalism

From 1831 to 1970, Belgium came down to the central state, the provinces and the municipalities. Except for the prerogatives devolved to the local authorities, the State took care of everything. In 1970, the constituent power created new institutions: communities and regions. And every state reform has been the occasion to take competences from the state

*(from there on called the federal state) to redistribute them to federal authorities. This is the big Belgian **Tetris**, where we see the **upper floor** that is **falling apart** (decomposing), **block** by **block**, at the benefit of other authorities. In certain cases, the legislator is transferring homogeneous **blocks** (like education, handed over to the communities in 1989). In other cases, what is involved is just transferring some elements of a competence (it's the case of the tax system: the federal state remains competent but assigned certain prerogatives to the federal entities). From now on, we therefore make a distinction between three types of competences. The ones that are exclusively exercised by the federal state (like Defense, for example). The ones that are exclusively exercised by the Regions and Communities (Education, Town planning, Public works, and so on). And the ones for which each power has some possibility of intervention. In the area of employment, for instance, the (federal) State is competent for certain domains (unemployment legislation, for instance) and the Regions are in charge of other ones (training courses of unemployed people).*

(from there on called the federal state) to redistribute them to federal authorities, at the benefit of other authorities. In certain cases, the legislator is transferring homogeneous competences (like education, handed over to the communities in 1989). In other cases, what is involved is just transferring some elements of a competence (it's the case of the tax system: the federal state remains competent but assigned certain prerogatives to the federal entities). From now on, we therefore make a distinction between three types of competences. The ones that are exclusively exercised by the federal state (like Defense, for example). The ones that are exclusively exercised by the Regions and Communities (Education, Town planning, Public works, and so on). And the ones for which each power has some possibility of intervention. In the area of employment, for instance, the (federal) State is competent for certain domains (unemployment legislation, for instance) and the Regions are in charge of other ones (training courses of unemployed people).

For all other elements of the experimental design, experiments 1 and 2 were done in an identical fashion. Experiment 2 was done one year after experiment 1 on first-year university students. They were not the same respondents, but respondents with the same characteristics. The procedure that we present in the following section was also the same. In total, 340 took part in the second experiment. They were equally distributed among the three experimental conditions (control condition: 110; neutral condition: 114; tetris condition: 116, see Appendix 2). The same control variables developed in experiment 1 were also included to test the metaphor's effects.

Procedure

The experiment was conducted online using the LimeSurvey protocol. The procedure consisted of 6–8 different stages (depending on the experimental condition), each including different kinds of material or tackling different kinds of information. The participants could go through each stage at his/her own pace. Once one stage was validated, the participant could not get back to it. These different stages can be summarized as follows:

- Stage 1 presented the experimental stimulus:
  - Experiment 1: either being the Tetris metaphor text (*picture condition* and *full condition*) or the experimental text (*text condition*).
  - Experiment 2: either being the Tetris metaphor text or the neutral federalism text.

- Stage 2 included the experimental text (only for the *full condition* in experiment 1).
- In stage 3, the participants were asked to freely describe their own representation of Belgian federalism (from this stage onwards, *all conditions*).
- In stage 4, the participants were confronted with five multiple-choice questions tackling their general political knowledge about Belgian federalism.
- In stage 5, the participants had to answer 13 questions aiming to measure their attitudes towards Belgian federalism according to a Likert scale.
- In stage 6, the participants were asked to fill in personal information.
- In stage 7, the participants were asked to score their feelings towards their own identities on a 11-point Likert scale.

Data coding of the preferences and of the representations of Belgian federalism

The main dependent variable is the preferences for Belgian federalism. Participants were thus asked to situate their preferences for Belgian federalism on a Likert scale where '0' means a preference for an exclusive regional self-rule situation ('the regional and community levels would have all the powers') while '10' implies that 'the federal Government would have all powers'. The value '5' was explicitly articulated as a preference for the status quo, i.e. 'being satisfied with the current situation'. This is the question asked in several voter surveys in Belgium (Deschouwer et al., 2015). As an 'intermediary' dependent variable in our endeavour to capture the relationship between the treatment and the preferences regarding Belgian federalism, we also questioned participants' representations of Belgian federalism. We asked the respondents an open question: 'In ten lines and in your own words, we invite you to describe Belgian federalism'. As this variable is based on a free description task (Stage 3), the coding deserves greater elaboration to accommodate the richness of the data. Each response was coded according to 32 variables divided into 6 thematic domains presented in Table 1. The six thematic domains are a summary of existing schemes of analysis from previous research analysing the way Belgian federalism is presented in party manifestos and political discourses (e.g. Sinardet, 2007), as well as the way Belgian federalism is discussed in focus groups (Reuchamps, 2011).

The construction of specific response-variables implies, to some extent, a subjective interpretation of the response. In order to ensure the reliability of the lexical fields, two independent coders were in charge of the data coding. They used a common coding sheet to evaluate each single response. If our codes are reliable, anyone should be able to code each response and garner the same results (Cohen, 1960; Dunn, 2004; Stemler, 2004; Gwet, 2010). This is confirmed by the extremely high inter-coder reliability coefficients for the

Table 1. Coding scheme for the free description task about representations of Belgian federalism.

Thematic domains	Content
Control	No text/plagiarism
History	Reference to the 1831 creation and/or early process of federalization in the 1970s
Institutions	Federal (but not federalism), unitary, central/national, substate, community, region, province/commune
Identity	Belgium, Flanders, Wallonia, Brussels, Wallonia-Brussels and Europe and all their related adjectives
Linguistic	Dutch-speaking, French-speaking and German-speaking
Balance of powers	Distribution of competences/powers, autonomy, centripetal nature, centrifugal nature and the number of specific competences mentioned in the response
Dynamics	Federalism is perceived positively, federalism is perceived negatively, complexity, conflicts, linguistic/cultural nature, community nature and territorial nature

two independent coders (in most cases the inter-rater Cohen's Kappa equals 1). The lexical fields were of course simple and thus consistent enough to minimize subjective interpretations. In the case of a lower Cohen's Kappa score, we solved each coding one by one in order to reach consensus.

In addition, we ran some descriptive statistics to assess the reliability of the data collected for this dependent variable. In particular, we tested the extent to which the experimental condition had an impact on the description task by measuring the mean length (in terms of the number of words) of the descriptions of participants from the different groups. Appendix 3 shows the results of experiment 1, with the results of experiment 2 presented in Appendix 4 following the same trend. Participants who have been exposed to visual and textual material tend to produce longer descriptions (no input < visual input < textual input < visual and textual input). A one-way ANOVA with the description length as dependent variable and the experimental condition as independent variable confirms that the experimental conditions have a significant impact on the length of the descriptions by participants from each group ($F_{(3.489)} = 3.652$, $p < .05$). In the second experiment, the two experimental conditions also significantly differ from the control group ($F_{(2,336)} = 4.990$, $p < .01$). Those results are expected: greater stimulus increases the response, that is a richer and thicker description (see also Perrez and Reuchamps, 2015b). Further post-hoc analyses, however, reveal that the difference between the neutral and Tetris conditions is not significant ($p = .987$). This demonstrates the need to assess the validity of the causal mechanism and the influence of political knowledge in this relationship. We develop this point in the next section.

Findings

We now have to assess whether (1) the Tetris metaphor influences participants' representations of Belgian federalism, and whether this, in return (2) has an

Table 2. Percentage of the six thematic dimensions of participants' representations of Belgian federalism by group – experiment 1.

	G1 (control group)	G2 (picture + text)	G3 (picture only)	G4 (text only)	χ^2 tests
History	5.0%	**12.8%**	0.6%	**25.8%**	(57.82, df = 3)****
Institutional	56.1%	**68.6%**	48.5%	**68.4%**	(19.274, df = 3)****
Identity	**51.1%**	32.1%	21.5%	25.2%	(34.99, df = 3)****
Linguistic	**7.2%**	3.2%	4.3%	2.6%	(4.45, df = 3)
Organization	61.9%	**66.0%**	46.6%	**65.8%**	(16.866, df = 3)****
Dynamic	**40.3%**	19.9%	22.7%	18.7%	(23.27, df = 3)****

****$p < .0001$.

impact on their preferences regarding regional autonomy. To do so, no pre-test is needed since there is a control group that serves as a reference point.

Impact of the Tetris metaphor on participants' representations of Belgian federalism

First of all, answers to the free description task, coded in light of the six thematic domains (see Table 1 above), reveal differences in how participants described Belgian federalism in experiment 1 (Table 2). Indeed, the historical, institutional and organizational thematic dimensions are statistically much more present in the responses of participants who saw both the picture and the text (G2) or the text only (G4). By contrast, participants' responses statistically more often cover the identity and linguistic dimensions in the control group. Participants from G3 have generally developed a *sui generis* behaviour in comparison to the control group and the text groups (G2 and G4).

Overall, these findings validate our first hypothesis: the Tetris metaphor allows participants to develop 'alternative descriptive schemes' of Belgian federalism whereas the 'identitarian reflex' prevails in the responses of participants in the control group. In other words, 'alternative' representations are developed in groups exposed to the experimental material. And these alternative representations are not neutral vis-à-vis the Tetris metaphor: they are in line with the institutional and organizational dimensions of Belgian federalism.

The results from experiment 2 interestingly both confirm and contradict experiment 1. The confirmation comes from the results of the six thematic dimensions. As Table 3 shows, we find a similar pattern: the control group differs from the two experimental groups. The former presents the 'identitarian reflex' of the participants' responses, whereas the latter two score higher on the institutional and organizational descriptors of Belgian federalism. This is in line with experiment 1.

However, we do not find differences between the neutral text and the Tetris metaphor. At this stage, this means that it is not the metaphor that

Table 3. Percentage of the six thematic dimensions of participants' representations of Belgian federalism by group – experiment 2.

	Control group	Neutral text	Tetris text	χ^2 tests
History	10.9%	**31.6%**	**27.6%**	(14.903, df = 2)****
Institutional	82.7%	**90.4%**	**93.1%**	(6.526, df = 2)**
Identity	**64.5%**	40.4%	44.0%	(15.199, df = 2)****
Linguistic	**14.5%**	3.5%	0.9%	(20.348, df = 2)**
Organization	54.5%	**80.7%**	**89.7%**	(40.11, df = 2)****
Dynamic	8.2**%**	3.5%	4.3%	(2.7781, df = 2)

****$p < .0001$.
***$p < .001$.
**$p < .01$.

has an impact but more generally the text, be it neutral or metaphorical. In other words, participants use the information they have been provided with to accomplish the task they have been assigned.[3] The second and decisive test is whether or not metaphors impact participants' preferences about regional autonomy.

Impact of the Tetris metaphor on participants' preferences regarding Belgian federalism

The main political question about Belgian federalism is not the issue of separation – less than 10% of the population support Flemish, Walloon or Brussels' independence (Reuchamps, 2013) – but the extent of self-rule autonomy. Recent voter surveys showed that French-speaking voters tend to be pro-unionist or at least in favour of the status quo (on a 0–10 regional autonomy scale, the mean French-speaking average score was of 5.1 in 2009 and 5.9 in 2014). In any case, they are clearly less autonomist than the Flemish voters, who scored on average 4.3 in 2009 and 4.5 in 2014 (Deschouwer et al., 2015).

Our hypothesis is that the 'identitarian reflex' leads to preferences that are similar to the overall population (being more pro-unionist according to Francophone voter surveys) while participants from other groups – being able to develop new representation schemes aside from the 'identitarian reflex' – develop preferences towards greater autonomy. To verify this hypothesis, we developed multivariate linear regressions which assess the effects of the group conditions on participants' preferences regarding regional autonomy. Our first main independent variable is the group treatment (Tetris picture, Tetris picture + text, or Tetris text in the first experiment; Neutral text or Tetris text in the second experiment). As a categorical variable, the control group serves as the reference category. Our second main independent variable is the level of participants' political knowledge. In line with our previous conceptual developments, we also included an interactive term between the group treatment and political knowledge: we test whether participants with

lower political knowledge are more strongly affected than those with higher political knowledge.

We furthermore controlled for other variables whose impact is acknowledged in the literature on regional and federal studies: ethno-territorial identity (Pattie et al., 1999; Dodeigne et al., 2016), for political interest (Deschouwer and Sinardet, 2010), and gender (Mondak and Anderson, 2004).

The results of the multivariate regressions are presented in Table 4 (experiment 1) and Table 5 (experiment 2). In experiment 1, the most important results are that the groups that were exposed to the Tetris metaphor (G3 and G4) are more autonomist than the control group, even when controlling for the statistically significant effect of ethno-territorial identities, political knowledge, and political interest. The effects are substantial: all other things being equal, participants from G3 and G4 present positions that are respectively 1.3 and 2.1 points more autonomist on the 0–10 scale vis-à-vis the control group. In experiment 2, the Tetris metaphor does matter and boosts participants' autonomist preferences (a difference of 1.5 points on the 0–10 scale vis-à-vis the control group). In contrast, the neutral text condition has no statistically significant effect. This finding is important: although participants from both groups (Tetris and neutral texts) developed similar representations of Belgian federalism,[4] only members of the Tetris group are ultimately affected in their preferences. In other words, the result proves that it is the metaphor that has a critical effect, not the text *per se*.

Table 4. Multivariate linear regression of participants' preferences regarding regional autonomy – experiment 1.

	Beta	Std. error	Pr(>|t|)
Intercept	6.788	(0.589)	***
Gender	0.242	(0.198)	
Belgian identity	0.086	(0.043)	**
Walloon identity	−0.092	(0.031)	***
Political interest	0.123	(0.045)	***
Political knowledge	−0.386	(0.151)	**
Reference category = control group			
G2-full	−1.030	(0.700)	
G3-picture	−1.201	(0.674)	*
G4-text	−2.087	(0.687)	***
Political knowledge | G2-Full	0.192	(0.218)	
Political knowledge | G3-Picture	0.323	(0.208)	
Political knowledge | G4-Text	0.492	(0.218)	**
Observations	471		
R^2	0.074		
Adjusted R^2	0.052		
Residual std. error		2.063 (df = 459)	
F statistic		3.347*** (df = 11; 459)	

***$p < .001$.
**$p < .01$.
*$p < .05$.

Table 5. Multivariate linear regression of participants' preferences towards regional autonomy – experiment 2.

	Beta	Std. error	Pr(>|t|)
Intercept	5.886	(0.754)	***
Gender	−0.199	(0.224)	
Belgian identity	0.042	(0.050)	
Walloon Identity	−0.022	(0.038)	
Political interest	0.048	(0.058)	
Political Knowledge	−0.057	(0.174)	
Reference category = control group			
G-Neutral	0.344	(0.719)	
G-Tetris	−1.522	(0.714)	**
Political knowledge | G-Neutral	−0.020	(0.248)	
Political knowledge | G-Tetris	0.507	(0.232)	**
Observations		340	
R^2		0.043	
Adjusted R^2		0.017	
Residual std. error		2.132 (df = 330)	
F Statistic		1.655* (df = 9; 330)	

***$p < .001$.
**$p < .01$.
*$p < .05$.

Last but not least, the interactive terms of political knowledge and the treatment groups are significant in both experiments. The interactive term being negative, the result indicates that the autonomist positions taken by participants exposed to a metaphor decreases as participants' political knowledge increases. In other words, we observe that the 'autonomist effects' observed in the treatment groups are greater for participants with lower political knowledge. This validates our hypothesis that the underlying cognitive mechanisms of metaphors ('familiarizing the unfamiliar') applies only to certain profiles: participants that have a lower understanding of the political system.

As stated by Brambor et al. (2006), it is possible to observe statistical marginal effects to be different for substantively relevant values of the interactive variable but not for others. Therefore, we implemented the procedure recently developed by Esarey and Sumner (2017). Figures 4 and 5 show that the marginal effects of the metaphor vary with level of political knowledge. The histograms at the bottom of the figures display the distribution of political knowledge along the *x*-axis ('0' means the respondents had no correct answers to the political knowledge questions, whereas '5' means the respondents answered all political knowledge questions correctly). The dotted line represents the null effect of the metaphor: below the line means negative effects, above the line means positive effects. The grey areas cover the 90% confidence intervals.

On Figure 4 (experiment 1), participants with the lowest level of political knowledge have their preferences strongly transformed vis-à-vis the control group. This effect, however, declines as participants' political knowledge

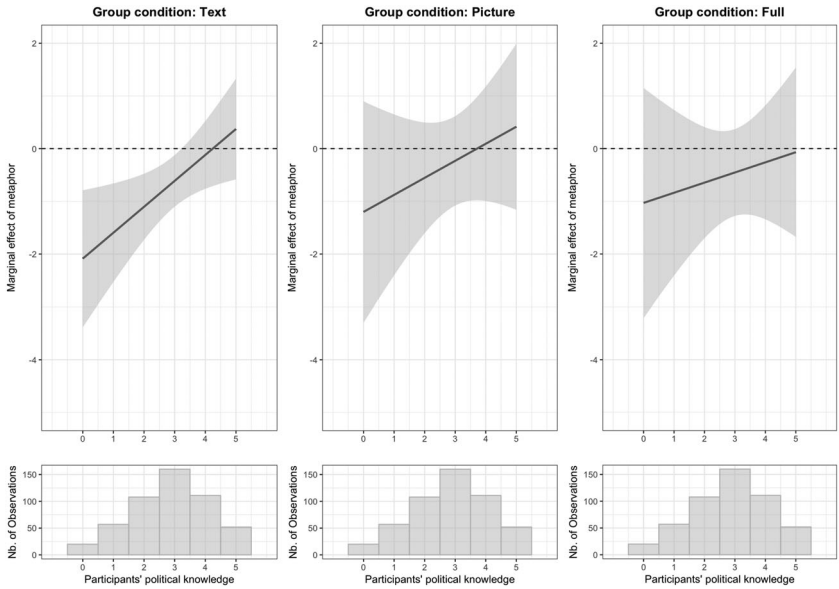


Figure 4. Marginal effects of metaphor (group condition) on participants' preferences regarding regional autonomy (vis-à-vis control group) – experiment 1. Note: Data are marginal effects based on the OLS regression presented in Table 4. The grey areas cover 90% confidence intervals generated using the Esarey and Sumner's (2017) procedure, while the histograms at the bottom present the distribution of observations.

increases until a score of 3 (on the 0–5 political knowledge scale). After this threshold, participants' preferences are no longer affected by the metaphor. Figure 5 (experiment 2) confirms the differentiated impact of the Tetris metaphor according to participants' level of political knowledge. Besides, the absence of effects for all other treatment groups is clear: the grey confidence intervals overlap with the dotted line (null effects of the group condition), irrespective of level of political knowledge.

This is an important finding because it demonstrates that the decisive impact of a metaphor in political discourse is its effect on the targeted audience's initial information. In that respect, the Tetris metaphor was much more efficient in the first than in the second experiment. Because the participants' knowledge score was higher in the latter than in the former (see the distribution of histograms at the bottom of Figures 4 and 5), we observe a lower percentage of participants supporting regional autonomy after being exposed to the metaphor (respectively 79% and 42.6% in the first and second experiments). Overall, framing the future of Belgian federalism with a Tetris metaphor does matter: it affects both participants' representations of the process of Belgian federalization and, consequently, their preferences vis-à-vis the country's institutional future.[5]

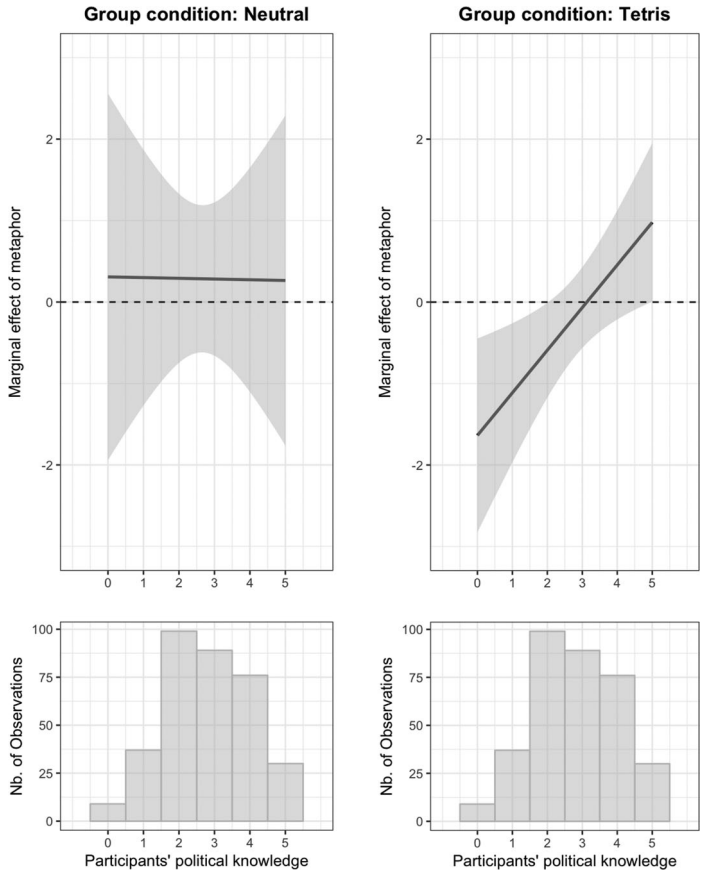


Figure 5. Marginal effects of metaphor (group condition) on participants' preferences regarding regional autonomy (vis-à-vis control group) – experiment 2. Note: Data are marginal effects based on the OLS regression presented in Table 5. The grey areas cover 90% confidence intervals generated using the Esarey and Sumner's (2017) procedure, while the histograms at the bottom present the distribution of observations.

Conclusion

Presenting federalism through a metaphor is not unusual. In fact, metaphors are part of the fabric of public debate. But their potential political impact on individuals has hardly been explored hitherto. Our experimental setting relying on a real media production made of both a text and a picture has demonstrated quite clearly that both the way one presents federalism in general and the metaphor of Tetris in particular do impact the way we understand federalism, at least in the short term.

The results of the first experiment clearly illustrate the main effect of the textual condition. Indeed, participants exposed to the textual stimuli tend to behave similarly. Reading the text clearly appears to have an influence

on how participants describe Belgian federalism, which is in line with the findings of the linguistic analysis of the free description task (see Perrez and Reuchamps, 2015b) but also appears to influence participants' political preferences vis-à-vis regional autonomy. However, these results should be regarded with some caution when considering the exact role played by the Tetris metaphor in this process. On the one hand, considering the text is structured around this particular metaphor, one could suggest it plays a predominant role in constructing mental representations of the text. But in the absence of a neutral version of the text, i.e. without any reference to the Tetris metaphor, this had to be established with a second experiment.

At first sight, the results of this second experiment did not show that the Tetris metaphor had any specific impact in comparison with the neutral version of the stimulus text. While both experimental conditions confirmed the differences identified in the first experiment in comparison with the control group, there was no difference between the two experimental conditions of the second experiment. This finding, however, became more nuanced with the introduction of the interactive effects of political knowledge. These further statistical tests revealed that respondents with a lower level of political knowledge were more influenced by the experimental text, moving more in favour of regional autonomy, and this was only the case for those respondents who saw the Tetris metaphor, not those who saw the neutral text.

To understand under what conditions a metaphor does or does not influence individuals, future research should therefore include political knowledge questions and look for possible interactive effects. Further research should also test which other factors play a role in framing processes. Other factors might indeed influence the framing effect of metaphors. Among these, aptness, that is 'the degree to which a metaphor vehicle captures important features of a metaphor topic' (Thibodeau and Durgin 2011: 206) might be an important factor to explain whether a metaphor has an effect or not. This may also be a matter of extendedness; that is, the degree to which a metaphorical frame is supported by several metaphors in a given text (see Krenmayr et al., 2014; Reijnierse et al., 2015). In addition to extendedness, exposure through time should be looked at since the repetition of a metaphor over time might have a long-lasting impact.

For the study of federalism and political science, this article demonstrates not only that discourse matters but also and above all that the metaphors employed in political discourse matter. A metaphor, such as the Tetris metaphor, has the potential to influence citizens' political representations and preferences. Of course, federalism translates into political dynamics and institutions, but the way these dynamics and institutions are presented is key for citizens and their support, or lack thereof. More research still needs to be done, but this article constitutes a step forward in our understanding

of the complex relation between federalism and metaphor, and calls for further research on the impact of metaphors in political science.

Notes

1. Political science literature refers to the broader concept of political sophistication: although political knowledge is one of the best indicators of sophisticated voters (Lachat, 2007), political sophistication furthermore integrates the idea of political interest, exposure to political information, engagement in political activities and being more politically involved. In this article, we are, however, interested in the effect of metaphor as a cognitive provider of information for individuals with lower political knowledge.
2. The level of political knowledge of the respondents was measured on the basis of the five following questions (* denotes the correct answer): (1) What is the Federal Parliament made of? The Chamber and the Government/The Chamber and the Senate*/The Chamber, the Senate and the Parliaments of the federated entities/The Chamber, the Senate and the Government/No answer. (2) Among the following portfolios, for which is the federal Government not responsible? Foreign Affairs/Justice/Rail/Education*/No answer. (3) For which of the following political positions does one not need to be elected? The MPs at the federal level/The municipal councillors/The ministers*/The regional MPs/No answer. (4) In Belgium … there is an equal share of Dutch- and French-speakers/ … there is a majority of Dutch-speakers*/ … there is a majority of French-speakers/No answer. (5) What is the most important feature of a market economy? The mandatory membership of a trade union/An extended ruling of the national government on the economy/An active competition between companies*/Prosperity for all citizens/No answer.
3. We also ran full multivariate models that confirm the main trends in the findings from the bivariate analyses.
4. Both text groups emphasized the institutional and organizational dimensions of Belgian federalism whereas participants in the control group developed representations in line with the 'identitarian reflex'.
5. We furthermore conducted empirical checks of robustness, testing the interaction effects of political knowledge with other variables of the model, as well as the interaction effects of the group conditions with the control variables. In all models, only the interaction effects of political knowledge and the metaphor were statistically significant.
6. **The Belgian Tetris**

   From 1831 to 1970, Belgian politics came down to the central state, the provinces and the municipalities. Except for the powers devolved to the local authorities, the State took care of everything. In 1970, the constituent power created new institutions: communities and regions. And every state reform has been the occasion to take competences from the state (henceforth called the federal state) to redistribute them to federal authorities. This is the big Belgian Tetris, where we see the upper floor that is falling apart (decomposing), block by block, to the benefit of other authorities. In certain cases, the legislator is transferring homogeneous blocks (like education, handed over to the communities in 1989). In other cases, what is involved is just transferring some elements of a competence (this is the case with fiscality: the federal state remains competent

but has assigned certain prerogatives to the federal entities). From now on, we therefore make a distinction between three types of competences. The ones that are exclusively exercised by the federal state (like Defense, for example). The ones that are exclusively exercised by the Regions and Communities (Education, Town planning, Public works, and so on). And the ones for which each power has some possibility of intervention. In the area of employment, for instance, the (federal) State is responsible for certain domains (unemployment legislation, for instance) and the Regions are in charge of other ones (training courses for unemployed people).

Source: 'Le Soir', 13–14/07/13, p. 8, written by Pierre Bouillon, translated by Julien Perrez and Graham Low.

Acknowledgments

We would like to thank the two anonymous reviewers and the Editor of Regional & Federal Studies, for their valuable comments on earlier versions of this article. Previous versions of this article have been presented at several occasions, notably the annual conference BELGIUM: THE STATE OF THE FEDERATION, and benefitted from the many comments of the participants. The usual disclaimers apply. Because their answers made this article possible, we are greatly indebted to the several hundred respondents to our surveys. We would also like to express our gratitude to Jehan Bottin, Maximilien Cogels, Maxime Lazard, Benoît Lecloux and Aleksi Otto Eerola for their research assistance as well as Pauline Heyvaert for her insightful comments on earlier drafts and François Randour for his help in getting the copyright for the image of the Tetris. The research reported in this article was supported by the Fonds spéciaux pour la recherche of the Université catholique de Louvain and of the Université de Liège, Belgium, and by the Fonds de la Recherche Scientifique — FNRS under grant no. PDR-T.1036.15.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Fonds de la Recherche Scientifique – FNRS: [Grant Number PDR-T.1036.15].

References

Anderson, R. C. and Pearson, P. D. (1984), A schema-theoretic view of basic processes in reading, in P. D. Pearson (ed), *Handbook of Reading Research*, pp.255–291. New York: Longman.

Bougher, L. D. (2012), The case for metaphor in political reasoning and cognition, *Political Psychology*, Vol.33, No.1, pp.145–163. doi:10.1111/j.1467-9221.2011.00865.x

Brambor, T., Clark, W. R., and Golder, M. (2006). Understanding Interaction Models: Improving Empirical Analyses. *Political Analysis*, Vol.14,No.(1), pp.63–82. doi:10.1093/pan/mpi014

Burgess, M. (1995), *The British Tradition of Federalism*. Madison: Fairleigh Dickinson University Press & Leicester University Presses.
Burgess, M. (2006), *Comparative Federalism. Theory and Practice*. London: Routledge.
Caillies, S., Denhière, G. and Kintsch, W. (2002), The effect of prior knowledge on understanding from text: evidence from primed recognition, *European Journal of Cognitive Psychology*, Vol.14, No.2, pp.267–286. doi:10.1080/09541440143000069
Caluwaerts, D. and Reuchamps, M. (2014a), Deliberative stress in linguistically divided Belgium, in J. Ugarriza and D. Caluwaerts (eds), *Democratic Deliberation in Deeply Divided Societies. From Conflict to Common Ground*, (pp.35–52). Basingstoke: Palgrave Macmillan.
Caluwaerts, D. and Reuchamps, M. (2014b), Does inter-group deliberation foster inter-group appreciation? Evidence from two experiments in Belgium, *Politics*, Vol.34, No.2, pp.101–115. doi:10.1111/1467-9256.12043
Caluwaerts, D. and Reuchamps, M. (2015), Combining federalism with consociationalism: Is Belgian consociational federalism digging its own grave? *Ethnopolitics*, Vol.14, No.3, pp.277–295. doi:10.1080/17449057.2014.986866
Cohen, J. (1960), A coefficient for agreement for nominal scales, *Education and Psychological Measurement*, Vol.20, No.1, pp.37–46.
Dassargues, A., Perrez, J. and Reuchamps, M. (2014), Les relations entre langue et politique en Belgique: linguistiques ou communautaires? *Revue internationale de politique comparée*, Vol.21, No.4, pp.105–128.
de-Graft Aikins, A. (2012), Familiarising the unfamiliar: cognitive polyphasia, emotions and the creation of social representations, *Papers on Social Representations*, Vol.21, No.7, pp.1–28.
Delli Carpini, M. X. and Keeter, S. (1996), *What Americans Know about Politics and Why it Matters*. New Haven: Yale University Press.
Deschouwer, K. (2012), *The Politics of Belgium: Governing a Divided Society* (2nd ed.). Houndmills: Palgrave Macmillan.
Deschouwer, K., De Winter, L., Reuchamps, M., Sinardet, D. and Dodeigne, J. (2015), Les attitudes communautaires et le vote, in K. Deschouwer, P. Delwit, M. Hooghe, P. Baudewyns and S. Walgrave (eds), *Décrypter l'électeur : Le comportement électoral et les motivations de vote*, pp.156–173. Leuven: Lannoo Campus.
Deschouwer, K. and Sinardet, D. (2010), Identiteiten, communautaire standpunten en stemgedrag, in K. Deschouwer, P. Delwit, M. Hooghe and S. Walgrave (eds), *De stemmen van het volk. Een analyse van het kiesgedag in Vlaanderen en Wallonië op 7 juni* 2009, pp. 75–98. Brussels: VUB Press.
Dodeigne, J. (2014), (Re-)assessing career patterns in multi-level systems: insights from Wallonia in Belgium, *Regional & Federal Studies*, Vol.24, No.2, pp.151–171. doi:10.1080/13597566.2013.865605
Dodeigne, J., Gramme, P., Reuchamps, M. and Sinardet, D. (2016), Beyond linguistic and party homogeneity: determinants of Belgian MPs' preferences on federalism and state reform, *Party Politics*, Vol.22, No.4, pp. 427–439. doi:10.1177/1354068814550429
Dunn, G. (2004), *Statistical Evaluation of Measurement Errors: Design and Analysis of Reliability Studies* (2nd ed.). London: Hodder Arnold.
Esarey, J. and Sumner, J. L. (2017), Marginal effects in interaction models: determining and controlling the false positive rate, *Comparative Political Studiesm*. doi:10.1177/0010414017730080
Gwet, K. L. (2010), *Handbook of Inter-rater Reliability: The Definite Guide to Measuring the Extent of Agreement among Raters*. Gaithersburg: Advanced Analytics.

Kendeou, P. and van den Broek, P. (2007), The effects of prior knowledge and text structure on comprehension processes during reading of scientific texts, *Memory & Cognition*, Vol.35, No.7, pp.1567–1577. doi:10.3758/BF03193491

Krenmayr, T., Bowdle, B.F., Mulder, G. and Steen, G.J. (2014). Economic competition is like auto racing: Building metaphorical schemas when reading text. *Metaphor and the Social World*, Vol.4, No.1, pp.65–89. doi:10.1075/msw.4.1.04kre

Lachat, Romain (2007). A Heterogeneous Electorate: Political sophistication, predisposition strength, and the voting decision process. Baden, Baden: Nomos Verlag.

Lakoff, G. (1996), *Moral Politics: How Liberals and Conservatives Think*. Chicago: University of Chicago Press.

Lakoff, G. (2004), *Don't Think of an Elephant: Know Your Values and Frame the Debate*. White River Junction: Chelsea Green Publishing Company.

Lakoff, G. and Johnson, M. (1980), *Metaphors We Live by*. Chicago: University of Chicago Press.

Lakoff, G. and Johnson, M. (1999), *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*. New York: Basic Books.

McNamara, D. S. and Kintsch, W. (1996), Learning from texts: effect of prior knowledge and text coherence, *Discourse Processes*, Vol.22, pp.247–288. doi:10.1080/01638539609544975

McNamara, D. S., Kintsch, E., Songer, N. B. and Kintsch, W. (1996), Are good texts always better? Interactions of text coherence, prior knowledge, and levels of understanding in learning from text, *Cognition and Instruction*, Vol.14, pp.1–43.

Mondak, J. J. and Anderson, M. R. (2004), The knowledge gap: a reexamination of gender-based differences in political knowledge, *The Journal of Politics*, Vol.66, No.2, pp.492–512. doi:10.1111/j.1468-2508.2004.00161.x

Morton, R. B., and Williams, K. C. (2010). Experimental Political Science and the Study of Causality: From Nature to the Lab. Cambridge: Cambridge University Press.

Moscovici, S. (1973), *La psychanalyse, son image et son public*. Paris: Presses Universitaires de France.

Moscovici, S. (1984), The phenomenon of social representations, in R. Farr and S. Moscovici (eds), *Social Representations*, pp.3–69. Cambridge: Cambridge University Press & Editions de la Maison des Sciences de l'Homme.

Pattie, C., Denver, D., Mitchell, J. and Bochel, H. (1999), Partisanship, national identity and constitutional preferences: an exploration of voting in the Scottish devolution referendum of 1997, *Electoral Studies*, Vol.18, No.3, pp.305–322.

Perrez, J. and Reuchamps, M. (eds) (2012), *Les relations communautaires en Belgique : Approches politiques et linguistiques*. Louvain-la-Neuve: Academia-L'Harmattan.

Perrez, J. and Reuchamps, M. (2014), Deliberate metaphors in political discourse: the case of citizen discourse, *Metaphorik.de*, Vol.25, pp.7–41.

Perrez, J. and Reuchamps, M. (2015a), A crazy machine or a strong "living apart together" relationship? The role of metaphors in citizens' perception of Belgian federalism, *Mots Les langages du politique*, Vol.109, pp.125–145.

Perrez, J. and Reuchamps, M. (2015b), The "Belgian Tetris": assessing the political impact of metaphors on citizens' representations of Belgian federalism, *Metaphor and the Social World*, Vol.5, No.2, pp.223–244.

Reijnierse, W. G., Burgers, C., Krennmayr, T., and Steen, G. J. (2015). How viruses and beasts affect our opinions (or not): The role of extendedness in metaphorical framing. *Metaphor and the Social World*, Vol.5, No.2, pp.245–263.

Reuchamps, M. (2009), Le fédéralisme et ses deux sens – négatifs – en Belgique francophone, *Revue de la Faculté de droit de l'Université de Liège*, Vol.54, No.4, pp.527–540.

Reuchamps, M. (2011), *L'avenir du fédéralisme en Belgique et au Canada. Quand les citoyens en parlent*. Bruxelles: P.I.E.-Peter Lang.

Reuchamps, M. (2013), The future of Belgian federalism through the eyes of the citizens, *Regional & Federal Studies*, Vol.23, No.3, pp.353–368. doi:10.1080/13597566.2013.773893

Reuchamps, M. (ed) (2015), *Minority Nations in Multinational Federations: A Comparative Study of Quebec and Wallonia*. Abingdon: Routledge.

Reuchamps, M., Kavadias, D. and Deschouwer, K. (2014), Drawing Belgium: using mental maps to measure territorial conflict, *Territory, Politics, Governance*, Vol.2, No.1, pp.30–51. doi:10.1080/21622671.2013.814549

Reuchamps, M. and Perrez, J. (2012), Métaphores conceptuelles dans les discours citoyens en Belgique, in J. Perrez and M. Reuchamps (eds), *Les relations communautaires en Belgique: Approches politiques et linguistiques*, pp.133–158. Louvain-la-Neuve: Academia-L'harmattan.

Reuchamps, M., Sinardet, D., Dodeigne, J. and Caluwaerts, D. (2017), Reforming Belgium's federalism: comparing the views of MPs and voters, *Government and Opposition*, Vol.52, No.3, pp.460–482. doi:10.1017/gov.2015.29

Rumelhart, D. E. (1980), Schemata: the building blocks of cognition, in: R.J. Spiro et al. (eds), *Theoretical Issues in Reading Comprehension*, pp. 33–58. Hillsdale: Lawrence Erlbaum.

Sinardet, D. (2007), *Wederzijdse mediarepresentaties van de nationale andere. Vlamingen, Franstaligen en het Belgische federale samenlevingsmodel*. PhD Dissertation in political science. Antwerpen: Universiteit Antwerpen.

Stemler, S. E. (2004), A comparison of consensus, consistency, and measurement approaches to estimating interrater reliability, *Practical Assessment. Research & Evaluation*, Vol.9, No.4. Available online: http://pareonline.net/getvn.asp?v=9&n=4

Swyngedouw, M., Abts, K. and Galle, J. (2014), Vlamingen en de communautaire kwestie, in K. Abts, M. Swyngedouw, J. Billiet, and B. Meuleman (eds), *Vlaanderen kiest: Trends in stemgedrag en opvattingen over politiek, staatshervorming en kerk*, pp. 219–244. Leuven: LannooCampus.

Thibodeau, P. H., Boroditsky, L. and Lauwereyns J. (2011), Metaphors we think with: the role of metaphor in reasoning, *PLoS ONE*, Vol.6, No.2, pp.e16782. doi:10.1371/journal.pone.0016782

Thibodeau, P. H., Boroditsky, L. and Szolnoki A. (2013), Natural language metaphors covertly influence reasoning, *PLoS ONE*, Vol.8, No.1, pp.e52961. doi:10.1371/journal.pone.0052961

Thibodeau, P. H., Boroditsky, L. and Braunstein, L. A. (2015), Measuring effects of metaphor in a dynamic opinion landscape. *PLoS ONE*, Vol.10, No.7, pp.e0133939. doi:10.1371/journal.pone.0133939

Appendices

Appendix 1. Profile of participants across the experimental conditions – experiment 1.

Condition	N	%	PK (0–5)	PI (0–10)	Gender (% Men)	Belgian (0–10)	Walloon (0–10)
Control	131	25.8	2.9	6.0	49.2	8.2	6.4
Full	131	25.8	2.9	5.9	47.7	8.6	6.8
Picture	120	23.6	2.9	5.7	41.8	8.8	6.6
Text	126	24.8	2.8	5.6	44.4	8.5	6.3
Total	508	100.0	2.9	5.8	45.9	8.5	6.6
χ^2 test	–	–	$F_{(0.127)} = 0.078$ $p = .927$	$F_{(3.16)} = 0.551$ $p = .648$	$F_{(0.138)} = .554$ $p = .646$	$F_{(8.22)} = 1.51$ $p = .328$	$F_{(6.237)} = 0.458$ $p = .712$

Key: PK = political knowledge, PI = political interest, Belgian = Feeling of Belgian identity, Walloon = Feeling of Walloon identity.

Appendix 2. Profile of participants across the experimental conditions – experiment 2.

Condition	*N*	%	PK (0–5)	PI (0–10)	Gender (% Men)	Belgian (0–10)	Walloon (0–10)
Control	110	32.4	2.5	5.7	47.7	9.4	7.3
Neutral	114	33.5	2.8	5.6	49.6	9.4	7.7
Tetris	116	34.1	3.1	5.7	43.9	9.7	7.7
Total	340	100.0	2.8	5.7	50.5	9.6	7.6
χ^2 test	–	–	$F_{(10.435)} = 7.161$ $p < .01$	$F_{(0.567)} = 0.124$ $p = .884$	$F_{(0.1165)} = 0.463$ $p = .630$	$F_{(5.108)} = 0.713$ $p = .491$	$F_{(6.701)} = 0.545$ $p = .580$

Key: PK = political knowledge, PI = political interest, Belgian = Feeling of Belgian identity, Walloon = Feeling of Walloon identity.

Note: Although the degree of political knowledge is statistically slightly higher in the Tetris group, the multivariate analysis controls for variance in individuals' political knowledge to assess the mere effects of metaphor with the two other groups.

Appendix 3. Mean length of the free descriptions across the experimental conditions – experiment 1.

Condition	*N*	Mean score	SD	Min	Max
Control condition	131	41.7	22.9	3	120
Full condition	131	50.2	21.3	3	128
Picture condition	120	43.4	23.6	5	126
Text condition	126	47.7	23.9	3	127
Total	508	45.8	23.1	3	128

Appendix 4. Mean length of the free descriptions across the experimental conditions – experiment 2.

Condition	*N*	Mean score	SD	Min	Max
Control condition	109	41.3	23.8	1	99
Neutral condition	112	49.7	21.7	3	107
Tetris condition	116	49.2	21.0	1	91
Total	337	46.8	22.5	1	107