Party competition in a multiparty system

An empirical study of Dutch party competition 1982-2010

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Rozemarijn Lubbe
0727806

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First reader: dr. H. Pellikaan
Second reader: dr. T. Louwerse

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Abstract

Party competition lies at the heart of every democracy. It is related to party organization and electoral behavior. There is no consensus on what the political space of competition looks like. The left-right dimension is the most well-known model of party competition. However, especially in multiparty systems, with multiple salient issues each election, locating parties in a predefined one-dimensional space is very unlikely to capture all differences between parties. This study addresses the question what the spatial representation of party competition in multiparty systems looks like. Is it indeed structured along a left-right dimension, or are multiple dimensions necessary to understand competition? It has been argued before that competition in multiparty systems is best understood using multiple dimensions. However, this is the first study that investigates whether the left-right dimension gives accurate information about party competition both deterministically and probabilistically. First, the formal logic behind the empirical use of the left-right dimension is tested. In other words, it is investigated whether the necessary conditions for one-dimensional competition hold in a multiparty system. Additionally, it is investigated how much information is gained when the space of competition is modeled probabilistically, without the *a priori* assumption that competition is one-dimensional. Focusing on party competition in the Netherlands, it is found that in all election years from 1982 to 2010 left-right party positions did not give an accurate representation of Dutch competition. Rather, two-dimensional spaces are necessary. Especially ethical issues and the issue of European integration cannot be squeezed into an overarching left-right dimension.

Introduction

Party competition lies at the heart of every democracy. It underlies the behavior of various political actors, such as voters (e.g. Mair, 2008) and parties (e.g. de Swaan, 1973). Therefore, it is important to understand how party competition works. In studies on party competition, parties' ideological standpoints are referred to as 'positions'. That parties are said to have ideological positions implies a political space in which the parties can be located based on their position. In the literature, there is no agreement about what this political space of competition looks like. The debate has two components. First, there is no agreement on the number of dimensions necessary to understand party competition. This discussion is closely related to different views on party competition and party election. Budge and the Manifesto Research Group argue that party competition takes place on a single left-right dimension. They believe competition does not exist in direct confrontation on each issue, but in different saliency weights given to issues by parties (Budge and Bara, 2001a: 7). These differential emphases are reflected in parties' positions on a left-right dimension, which is seen as a one-dimensional political spectrum in which various party positions can be compared across time and space (Budge et al, 2001). On the other hand, some scholars argue there may be more than one dimension on which parties compete. The confrontation approach (Laver and Hunt, 1992; Benoit and Laver, 2006) assumes that parties compete with each other by taking oppositional positions on the same political issues, which can vary over countries and time. Rather than capturing competition on one dimension, the approach allows for the possibility that the political space is multi-dimensional.

Second, among those who believe the political space is multi-dimensional there is an ongoing debate about the content of the relevant political cleavages and dimensions (Lipset

and Rokkan, 1967; Franklin et al, 1992; Kitschelt, 1994; Hix and Lord, 1997; Hooghe and Marks, 2001; Kriesi et al, 2008). It has been argued that the Lipset and Rokkan (1967) cleavages are not as relevant for political competition anymore as they once were. With the rise of new politics, post-materialist value issues became important (Inglehart and Flanagan, 1987; Inglehart and Abramson, 1994). More recently, various scholars have argued that in addition to a (traditional) left-right economic dimension, cultural issues – immigration and European integration – structure party competition in Europe (Hix and Lord, 1997; Hooghe and Marks, 2001; Kriesi et al, 2008).

Although different models of competition exist, the most well-known space of competition is still the left-right scale, a one-dimensional political space. Political parties (and voters) in this space are referred to as having a 'leftist' or 'rightist' position. The position of actors in the middle is referred to as 'center' (Laver and Hunt, 1992: 11).

The left-right dimension was often used as a tool in comparative research. However, it has now been argued that the concepts of left and right mean different things in different countries and over time (Inglehart and Klingemann, 1976; Van der Brug, 2001; Van der Brug and Van Spanje, 2009; Jahn, 2011). This means that party positions on the left-right dimension are not comparable over time and space anymore. The question so rises why the left-right dimension is still used to study competition in one country at one time point. Especially in multiparty systems, with multiple salient issues each election, locating parties in a predefined one-dimensional space is very unlikely to capture all differences between parties.

This study addresses the question what the spatial representation of party competition in multiparty systems looks like. Is it indeed structured along a left-right

dimension, or are multiple dimensions necessary to understand competition? It has been argued before that the left-right dimension is not a good model of competition. However, this is the first study that empirically investigates whether left-right party positions give accurate information about party competition by testing the formal logic behind the empirical use of the left-right dimension. It is investigated whether the necessary conditions for one-dimensional competition hold in a multiparty system. Additionally, it is investigated how much information is gained when the space of competition is modeled probabilistically, without the a priori assumption that competition is one-dimensional.

Because the Netherlands has a multiparty system with parties therefore competing on multiple issues every election, it is an interesting case to study the claim that one-dimensional left-right party positions provide complete information about party competition. Moreover, rich data on party positions on relevant political issue dimensions and on the left-right dimension are available for the Netherlands over time, which allows the me to investigate whether the importance of the left-right model has changed over time. Additionally, I have knowledge about Dutch politics and can so interpret the findings.

The left-right dimension

The concepts of left and right first appeared during the French Revolution in 1789. In the French Constituent Assembly, supporters of the king, the conservatives, were seated to the right of the Chair, and supporters of the revolution, the progressives, were seated to his left. This division between left and right as an indication of a difference in ideologies became the basis of many spatial theories of competition. In one of the earliest analyses of party space, Downs (1957) argues that party competition takes place on a single left-right dimension.

Downs argues that political ideologies on a single dimension are helpful for voters to make their vote choice. Voters do not have complete knowledge about the impact of each party's policy on their personal situation, and therefore "many a voter finds party ideologies useful because they remove the necessity of his relating every issue to his own philosophy" (Downs, 1957: 98). Parties themselves, according to Downs, use ideologies to maximize their vote share and in their battle for office. The classical Downsian interpretation of the left-right dimension is that it aggregates all political questions to "one crucial issue: how much government intervention in the economy should there be?"(Downs, 1957: 116). Parties' positions on the dimension can range from left, full government control, to right, being in favor of a completely free market.

Where Downs saw the left-right dimension as reflecting an economic issue, the modern understanding of the scale is that it is a dimension that includes all political issues. The concepts of left and right are seen as together constituting some sort of 'super-issue'(Inglehart and Klingemann, 1976; Laver and Budge, 1992), aggregating party positions on various political issues. Having this overarching status in politics, many still believe that party competition is structured along the predefined left-right dimension and assume that the left-right dimension is applicable to all (democratic) countries. As such, the left-right dimension provided an answer to the need for a tool to compare party systems over countries. Castles and Mair for instance had as their ultimate goal to "create a scale (...) for cross-national comparative research" when conducting cross-national expert surveys on party positions in 1984 (Castles and Mair, 1997: 151). And one of the considerations for Budge et al to reduce the content of party manifestos to positions on a left-right dimension

was that "our political space should be generalizable and stable across countries and time" (Budge and Bara, 2001b: 59).

In addition to being a tool in comparative research, the left-right dimension is also used in country specific studies (e.g. Van der Brug, 1997; Bara and Budge, 2001; Van Holsteyn et al, 2003; Irwin and Van Holsteyn, 2008). In both cases, it is assumed that party competition can be understood by comparing party positions in the one-dimensional political space. However, among left-right scholars, there is some dispute about how the left-right dimension structures competition, and when this is so. Budge and the Manifesto Research Group (2001) most firmly argue that political competition takes place along a single dimension. The saliency and valence theory, on which their project is based, assumes that competition exists in "differential emphases given to issues by parties rather than direct confrontation on each issue" (Budge and Bara, 2001a: 7). Because competition does not take place on separate issue dimensions, to understand competition all parties should be placed on a left-right dimension which can be understood as a common space that is generalizable across countries and time. The left-right dimension is seen as a "common yardstick" to describe party positions (Van der Eijk and Niemöller, 1983: 229). The dimension is assumed to represent underlying political conflicts best, by summarizing emphases that parties ascribe to the political issues: "Left wing parties do not emphasize tax-cutting but stress the expansion of welfare, while Right wing parties do the opposite. (...) such varying priorities do quite clear differentiate *overall* party stands" (Budge, 2001: 76, emphasis in original). Budge and colleagues do not only see the left-right dimension as a helpful tool to study competition and compare party systems over countries and over time. They argue competition really takes place on this dimension for it is the one which party leaderships think within when

positioning themselves for the election (Budge, 1994). It is assumed both politicians and electors see the political world in left-right terms.

Sani and Sartori (1983) also state that the left-right dimension is a " 'summary' indicator (...) that obtains a superior, all-inclusive status within the hierarchy of cleavages" (p. 329). They argue that left and right are not only useful because of comparability, but also in virtue of the fact that left-right positions correlate to positions on salient political issues, and thus is representative of these positions. However, the scholars explicitly state that this does not mean that everything can be explained in left-right terms. A distinction is made between the domain of identification and the space of competition. Electorates are distributed into multiple dimensions, rather than along a single dimension. However, that is not to say that parties compete along the same dimensions. Rather, "the space of competition may well be a single space, regardless of how many cleavage and/or identification dimensions exist" (p. 330). The competition that is perceived to be rewarding is competition over the floating voters. That competition, Sani and Sartori state, takes place on a left-right dimension.

In line with Sani and Sartori, Van der Brug and Van Spanje (2009) argue that although voters in Western European countries can be located in a two-dimensional space, party competition is largely unidimensional. They state that all relevant political issues are absorbed by the left-right dimension (p. 312; see also Van der Brug et al, 2005). Following the reasoning of Irwin and Van Holsteyn (2008) when discussing the importance of religion in the Netherlands, Van der Brug and Van Spanje seem to believe that all issues not included in the left-right dimension are of marginal importance for understanding competition. However, contrary to the scholars described above, Van der Brug does explicitly

acknowledge that the meaning of left and right is dependent on the political context (Van der Brug, 2001; Van der Brug and Van Spanje, 2009). Although the left-right dimension structures the content of party programs during times of electoral campaigns, what political issues are salient differs over countries and time. As Van der Brug puts it, "The left-right dimension structures the debate about current issues, but the issues are different in each country and in each election. These analyses thus show that the meaning of left and right is dependent upon the current social, political and historical context. (...) Why, after all, should left and right be the same - and become visible in differential manifesto emphases on the same kinds of topics- in Sri Lanka, Lithuania, and Sweden?" (2001: 130).

Van der Brug is not the only one to argue that the concepts of left and right have different meanings over time and space (see e.g. Inglehart and Klingemann, 1976; Huber and Inglehart, 1995; Jahn, 2011). That the substantive meaning of the left-right dimension is context specific, has considerable implications for its use. It means that the dimension should not be seen as a common scale that is generalizable across countries and time, as Budge et al argue. A similar position on the scale might mean different things in different political contexts, and would thus not indicate a similar ideological position. Therefore, the left-right dimension now has limited use as an informative tool in cross-national and cross-time comparisons (Van der Brug, 2001).

The left-right model of competition has been contested. It has been argued more than once that more than one dimension might be necessary to understand party competition (Laver and Hunt, 1992; Benoit and Laver, 2006), and more sophisticated models of competition have been made (Lijphart, 1982; Kitschelt, 1994; Hix and Lord, 1997; Hooghe and Marks, 2001; Kriesi et al, 2008). Even knowing that these models exist, it can be

understood that the simple one-dimensional left-right scale was used as a model of competition, because it made the comparison of party systems possible. However, now that it has been acknowledged that its use as a comparative tool is limited, comparability is no reason for its use anymore. Therefore the question arises why some a priori use the left-right dimension to study party competition within a country at one time point. Is that some sort of habit, a heritage from the time that the left-right dimension was used in many comparative studies, or is the left-right dimension really the best way to understand competition? This study addresses the question what political competition in multiparty systems looks like. Can party competition be fully understood using the deductive left-right model, or are multiple dimensions necessary for an accurate understanding?

Left-right party competition in the Netherlands

Whether vital information is lost when assuming competition takes place on a left-right dimension will be tested in the Netherlands. The Netherlands has a proportional electoral system with multiple parties competing each election. Although in theory the accuracy of the left-right model of competition can be studied in almost each country since the model is believed to be applicable to almost all countries, this study focuses on the Dutch system for three reasons. First, to investigate whether positions on multiple political issues can be squeezed into a single dimension, information is required on parties' positions on relevant political issues, and on the left-right dimension. Precisely such data are available for the Dutch party system, over time. This allows me to test whether, if not now, party competition was once structured along a left-right dimension and how the dimensionality of the political space has changed over time. Second, with its multiparty system and multiple relevant

issues each election, the Netherlands fits perfectly the goal of this study for information can be obtained on what specific issues can, and cannot be collapsed into a single left-right dimension. Third, I have knowledge about Dutch politics. This makes the Netherlands the best country to study since investigating the dimensionality of party competition is "essentially a substantive task that must be based on local knowledge of politics in the country concerned" (Laver and Hunt, 1992: 55).

It has been argued more than once that the Dutch party system is structured along a single left-right dimension. In the 1960s the Netherlands had a typical frozen party system, with voters voting according to the pillar to which they belonged. Dutch party competition took place along two dimensions, a socio-economic left-right dimension, and a religious-secular dimension (Van der Meer et al, 2012). From the 1960s onwards, the Dutch party system gradually became unfrozen, and especially when three Christian parties merged into the CDA in the late 1970s and de-emphasized their Christian background, many argue the religious cleavage lost much of its importance. Rather, Dutch party competition became structured along a single left-right dimension (Sani and Sartori, 1983; Van der Eijk and Niemöller, 1987; Van der Brug, 1997, 2001). The left-right dimension became a "common yardstick" in the description of political parties (Van der Eijk and Niemöller, 1983: 229). The religious parties were compelled to compete along the left-right dimension, and as far as they focused attention to their religious heritage and so also competed along the religious dimension, this was only not to alienate their identifiers (Sani and Sartori, 1983: 335).

Some scholars however argued that even after the de-pillarization of Dutch politics, religious issues were still at the core of politics. Irwin and Van Holsteyn (1989) proposed the so-called 'heartlands and battlefield' model. In this two-dimensional political space three

groups of parties, the liberals, the socialists, and the confessional parties, were believed each to have their own heartland in which they could count on the loyalty of their voters. The parties competed with each other and other parties in the space across the borders of their heartlands, the battlefield. More recently however, Irwin and Van Holsteyn signaled that the group of voters in the religious heartland is eroding and that all heartlands have turned into "mini-battlefields". They conclude that their model is no longer relevant, and that one of the future options is that Dutch competition is structured along a single left-right dimension (Irwin and Van Holsteyn, 2008).

Non-separability

One could argue there is a good reason for locating parties in an a priori assumed left-right space. Using the left-right dimension to indicate party positions in the Netherlands might be helpful because it has been argued that Dutch voters use the left-right dimension as a cue to assess party positions and to decide what party to vote for (see e.g Van der Eijk and Niemöller, 1987). As Sartori puts it, "When the citizen speaks, he may have many things to say. But when he is coerced into casting a (...) vote, he may well have to settle for the 'least-distance' solution, that is, to vote for the party (candidate) perceived as closest, on the left-right spectrum, to his self-assigned location on the same spectrum." (1976: 338). It is therefore not argued here that the left-right dimension is never helpful. However, the extent to which this is the case depends on the goal of the study conducted. This study does not focus on voting behavior. That voters use the left-right dimension as a short cut to make a vote choice gives information, if any, about the dimensionality of the demand side (i.e. voters), while this study sets out to investigate the dimensionality of the supply side (i.e. the

parties). There is no reason to believe that the political space of voters is always explained by the same dimensions as the space of parties .

At the core, the only reason to use the a priori assumed left-right dimension for studying party competition should be that it provides the same information as knowing party positions on relevant issue dimensions. This is only the case when "one can infer parties' positions on the ideological dimension from their position on the specific policies" (Gabel and Huber, 2000: 95). While scholars use the left-right dimension empirically, the underlying formal logic for its use is the 'non-separability' of positions on relevant issues. This means that a party's position on one issue is dependent on its position on another issue; positions are thus known only conditionally (Hinich and Munger, 1997: 52). When explaining the concept of non-separability, Hinich and Munger (1997) argue that parties' positions on two issues can be either negatively, or positively related. [1] These two types of non-separability are presented in figure 1. The ellipse curves indicate the areas in which parties are located. Panel (a) depicts a situation of 'negative complementarity'; the more rightist a party's position on project (issue) 1, the more leftist its position on project 2 is. Panel (b) schematically presents 'positive complementarity'; a more rightist position on project 1 is associated with a more rightist position on project 2. Suppose project 1 indicates the issue of European integration, ranging from more to less integration, and project 2 designates the issue of income differences, ranging from small to large differences. In figure 1(a), the more Eurosceptic a party is, the smaller it thinks income differences should be. In the case of a

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[1] It should be noted that Hinich and Munger use the concept of non-separability to explain voting behavior and therefore consistently refer to voters. However, the idea of non-separability can be applied in an exact similar way to party positions on policy issues.

positive relationship, the more Eurosceptic a party is, the larger income differences should be according to the party.
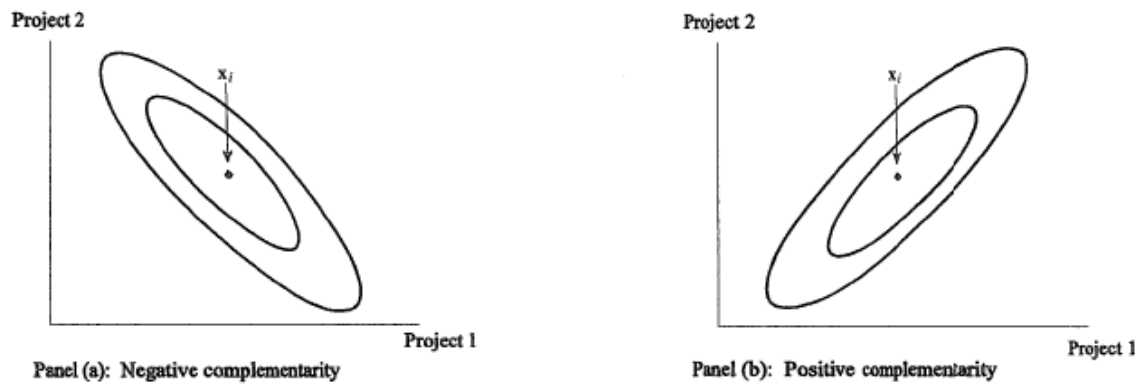
Figure 1. Non-separable party positions
Source: Hinich and Munger, 1997

As can be seen in the figure, in a case of non-separable positions there is a perfect linear correlation between party positions on the relevant issues. Only then can one single left-right dimension accurately describe the overall party positions (Benoit and Laver, 2006: 112). One can deduce a party's position on all non-separable issues, from knowing its position on only one issue. For instance, in the case of negative complementarity we know that if party A is more Eurosceptic than party B, it will also favor smaller income differences than party B. We would thus only need one dimension to understand the parties' positions on multiple issues. Every other dimension would be otiose for it will not provide us with any new information. For the left-right dimension to give us full information about absolute and relative party positions, the condition of non-separability should hold for all relevant issues.

If party positions on the relevant issues are separable, a single left-right space will not give us enough information to fully understand competition. That situation is schematically

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presented in figure 2. As can be seen, party B is much more Europhile than party A, and is in favor of smaller income differences. However, party C is also more Europhile than party A, but wants larger income differences. Overall, there is neither negative, nor positive complementarity of the issues. Party positions on the issues of EU integration and income differences are thus separable and we cannot deduce a party's policy positions from one single dimension. Rather, we need both dimensions to understand how parties ideologically relate to each other.

If the condition of non-separability is not satisfied, the a priori assumption that party competition is structured along a left-right dimension might destroy vital information on party positions (Laver and Hunt, 1992). By squeezing all relevant issue dimensions into one overarching left-right scale, parties that have very different positions on the separate issue dimensions might seem ideologically close on the left-right dimension. When we only look at the left-right dimension in figure 2, party B and C are ideologically very close. However, when we look at the parties' positions on EU integration and income differences in a two-dimensional space, we must conclude that actually, these parties have very different issue positions. We must also conclude that being rightist on the left-right dimension does not
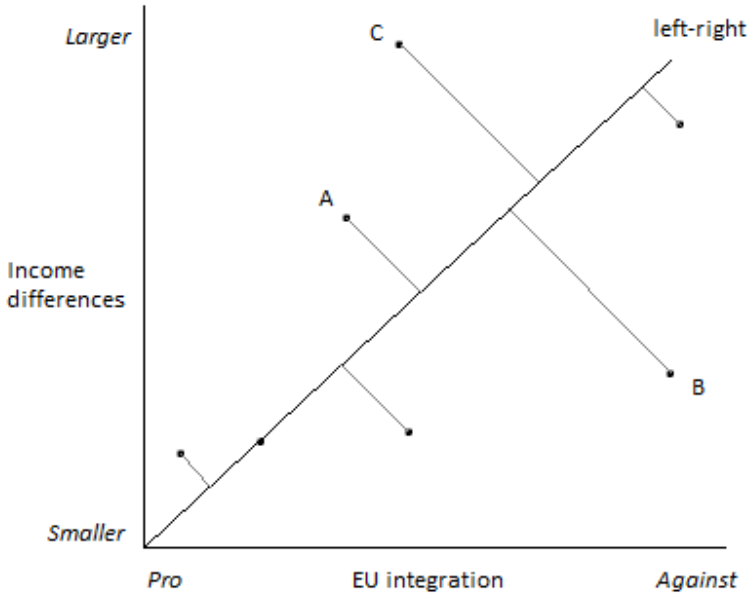
Figure 2. Separable party positions

necessarily mean the party is rightist on all issue dimensions. The left-right dimension might thus be misrepresenting both relative party positions, that is, it might misrepresent proximities between parties, and absolute positions, that is, it might misrepresent a single party's issue positions.

The weakest necessary condition for non-separability to hold is that the ordering of parties on all relevant issue dimensions is identical. Here, it will be investigated whether left-right party positions give us accurate information about Dutch party competition by testing this most basic criterion both deterministically and probabilistically. As to make findings in favor of the left-right dimension most likely, absolute party locations and distances between parties will be left out of consideration. For eight Dutch elections only the ordering of party positions on all relevant issue dimensions at the time will be compared. When at a single time point the orderings of parties on the issue dimensions are similar, and similar to the ordering of parties on the left-right dimension, no vital information on Dutch party competition is lost by assuming one-dimensional left-right competition. The orderings of parties on the issue dimensions must thus be transitive. Using a probabilistic method, this means that Kendall's tau (τ) must be 1 in the case of positive complementarity, or -1 in the case of negative complementarity. Kendall's tau is a measure of association for ordinal rank variables that ranges from 0 to 1 (or -1) (see Kendall, 1938). It is a non-parametric test that represents the probability that a pair of parties is in the same order on the dimensions, versus the probability that the parties are in a different order. Kendall's tau thus indicates the extent to which the condition of non-separability is violated.

Data

Investigating whether the condition of non-separability holds in Dutch party competition requires information on parties' positions on all relevant issue dimensions and the left-right dimension each election. The Dutch Parliamentary Election Studies (DPES) provide all information needed. The DPES have been conducted among representative samples of the enfranchised Dutch population in every parliamentary election year since 1971. Since 1981, the surveys contain items on voter perceptions of party positions on the left-right dimension, and on relevant issue dimensions. For the eight election periods since 1982, this study will test whether the left-right dimension is the most accurate model of Dutch party competition.[2]

Depending on the election year, respondents have been asked to locate the four, five, or six most relevant political parties on all dimensions. To assess these parties' positions on the dimensions, the average party location ascribed by all respondents will be used. Using the perceptions of all voters avoids as much as possible the bias that potentially arises when voters only locate the party they voted for and so should generate a reliable measure (Dalton 2008: 909).

What issues constitute the left-right dimension during each election is dependent on what issues are salient in the campaigns (Van der Brug, 2001: 130). Therefore, investigating whether left-right party positions provide complete information on political competition requires knowledge on what the relevant political issues at the time are. The DPES provide the information by including in each wave items on party positions on those political issues that are relevant at the time. As to what the relevant issues to be included in the analyses

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[2] The election of 1981 is excluded from the analyses, for the next election was only one year later.

are at each point in time, I will thus be led by the data. The number of issue dimensions in the surveys, including left-right, ranges from 4 in 1982, to 8 in 2010 (see Appendix A for an overview of all dimensions).

Orderings of Dutch parties

This study investigates what party competition in multiparty systems looks like. First, it is tested whether competition can be fully understood on a single left-right dimension by examining whether the condition of non-separability of relevant political issues holds in the Netherlands over time. To make non-separability most likely, the orderings of parties on the issue dimensions will be compared to the ordering of parties on the left-right dimension, leaving distances and absolute positions out of consideration. Table 1 to 8 show the orderings of parties on the issue dimensions and the associated correlation coefficients for each election year. It should be noted that a higher number of issues and parties in the more recent surveys increases the likelihood of finding a violation of non-separability. This artifact of the data therefore also leads to lower values of Kendall's tau when more parties are considered. However, as can be seen from the tables, even with a limited number of issues and parties the condition of non-separability is violated. In none of the election years does the left-right ordering of parties provide accurate information about Dutch party competition.

Table 1-8(a). Orderings of parties on relevant dimensions. Shaded areas indicate differences in the ordering of parties on the dimension when compared to the left-right ordering.

Table 1-8(b). Appurtenant Kendall's Tau correlation coefficients between issues.

1(a): 1982

Left-right	PvdA	D66	CDA	VVD

Nuclear Plants	PvdA	D66	CDA	VVD

Income Differences	PvdA	D66	CDA	VVD

Abortion	PvdA	D66	VVD	CDA

1(b): 1982

	LR	Nuclear Plants	Income Differences	Abortion
LR		1,00	1,00	,667
Nuclear Plants	1,00		1,00	,667
Income Differences	1,00	1,00		,667
Abortion	,667	,667	,667	

2(a): 1986

Left-right	PvdA	D66	CDA	VVD

Nuclear Plants	PvdA	D66	CDA	VVD

Income Differences	PvdA	D66	CDA	VVD

Euthanasia	PvdA	D66	VVD	CDA

2(b): 1986

	LR	Nuclear Plants	Income Differences	Euthanasia
LR		1,00	1,00	,667
Nuclear Plants	1,00		1,00	,667
Income Differences	1,00	1,00		,667
Euthanasia	,667	,667	,667	

3(a): 1989

Left-right	PvdA	D66	CDA	VVD

Nuclear Plants	PvdA	D66	CDA	VVD

Income Differences	PvdA	D66	CDA	VVD

Abortion	PvdA	D66	VVD	CDA

Euthanasia	D66	PvdA	VVD	CDA

3(b): 1989

	LR	Nuclear Plants	Income	Abortion	Euthanasia
LR		1,00	1,00	,667	,333
Nuclear Plants	1,00		1,00	,667	,333
Income Differences	1,00	1,00		,667	,333
Abortion	,667	,667	,667		,667
Euthanasia	,333	,333	,333	,667	

4(a): 1994

Left-right	PvdA	D66	CDA	VVD

Nuclear Plants	PvdA	D66	CDA	VVD

Income Differences	PvdA	D66	CDA	VVD

Crime	PvdA	D66	CDA	VVD

Ethnic Minorities	PvdA	D66	CDA	VVD

EU Integration	CDA	VVD	D66	PvdA

Euthanasia	D66	PvdA	VVD	CDA

4(b): 1994

	LR	Nuclear	Income	Crime	Ethnic	EU	Euthanasia
LR		1,00	1,00	1,00	1,00	-,667	,333
Nuclear Plants	1,00		1,00	1,00	1,00	-,667	,333
Income Differences	1,00	1,00		1,00	1,00	-,667	,333
Crime	1,00	1,00	1,00			-,667	,333
Ethnic Minorities	1,00	1,00	1,00	1,00		-,667	,333
EU	-,667	-,667	-,667	-,667	-,667		-,667
Euthanasia	,333	,333	,333	,333	,333	-,667	

5(a): 1998

Left-right	GL	PvdA	D66	CDA	VVD	GPV

Nuclear Plants	GL	PvdA	D66	GPV	CDA	VVD

Income Differences	GL	PvdA	D66	CDA	GPV	VVD

Social Benefits	GL	PvdA	D66	CDA	GPV	VVD

Ethnic Minorities	GL	PvdA	D66	CDA	GPV	VVD

EU Integration	PvdA	D66	CDA	VVD	GL	GPV

Asylum Seekers	GL	PvdA	D66	CDA	GPV	VVD

Euthanasia	D66	GL	VVD	PvdA	CDA	GPV

5(b): 1998

	LR	Nuclear	Income	Social	Ethnic	EU	Asylum	Euthana
LR		,733	,867	,867	,867	,414	,867	,467
Nuclear Plants	,733		,867	,867	,867	,138	,867	,200
Income DIfferences	,867	,867		1,00	1,00	,276	1,00	,333
Social Benefits	,867	,867	1,00		1,00	,276	1,00	,333
Ethnic Minorities	,867	,867	1,00	1,00		,276	1,00	,333
EU	,414	,138	,276	,276	,276		,276	,138
Asylum Seekers	,867	,867	1,00	1,00	1,00	,276		,333
Euthanasia	,467	,200	,333	,333	,333	,138	,333	

6(a): 2002-2003

Left-right	PvdA	D66	CDA	VVD	LPF

Nuclear Plants	PvdA	D66	CDA	LPF	VVD

Income Differences	PvdA	D66	CDA	LPF	VVD

Crime	PvdA	D66	CDA	VVD	LPF

Ethnic Minorities	PvdA	D66	CDA	VVD	LPF

EU Integration	PvdA	CDA	D66	VVD	LPF

Asylum Seekers	PvdA	D66	CDA	VVD	LPF

Euthanasia	LPF	D66	VVD	PvdA	CDA

6(b): 2002-2003

	LR	Nuclear	Income	Crime	Ethnic	EU	Asylum	Euthana
LR		,800	,800	1,00	1,00	,738	1,00	-,400
Nuclear Plants	,800		1,00	,800	,800	,527	,800	-,200
Income DIfferences	,800	1,00		,800	,800	,527	,800	-,200
Crime	1,00	,800	,800		1,00	,738	1,00	-,400
Ethnic Minorities	1,00	,800	,800	1,00		,738	1,00	-,400
EU	,738	,527	,527	,738	,738		,738	-,738
Asylum Seekers	1,00	,800	,800	1,00	1,00	,738		-,400
Euthanasia	-,400	-,200	-,200	-,400	-,400	-,738	-,400	

7(a): 2006

Left-right	SP	PvdA	CU	CDA	VVD

Nuclear Plants	SP	PvdA	CU	CDA	VVD

Income Differences	SP	PvdA	CU	CDA	VVD

Crime	SP	CU	PvdA	CDA	VVD

Foreigners	SP	PvdA	CU	CDA	VVD

EU Integration	CDA	VVD	PvdA	CU	SP

Asylum Seekers	SP	PvdA	CU	CDA	VVD

Euthanasia	PvdA	VVD	SP	CDA	CU

7(b): 2006

	LR	Nuclear	Income	Crime	Foreigne	EU	Asylum	Euthana
LR		1,00	1,00	,800	1,00	-,600	1,00	,000
Nuclear Plants	1,00		1,00	,800	1,00	-,600	1,00	,000
Income DIfferences	1,00	1,00		,800	1,00	-,600	1,00	,000
Crime	,800	,800	,800		,800	-,800	,800	-,200
Foreigners	1,00	1,00	1,00	,800		-,600	1,00	,000
EU	-,600	-,600	-,600	-,800	-,600		-,600	,000
Asylum Seekers	1,00	1,00	1,00	,800	1,00	-,600		,000
Euthanasia	,000	,000	,000	-,200	,000	,000	,000	

8(a): 2010

Left-right	SP	PvdA	D66	CDA	VVD	PVV

Nuclear Plants	SP	PvdA	D66	CDA	PVV	VVD

Income Differences	SP	PvdA	D66	CDA	PVV	VVD

Crime	SP	PvdA	D66	CDA	VVD	PVV

Foreigners	PvdA	SP	D66	CDA	VVD	PVV

EU Integration	CDA	PvdA	D66	VVD	SP	PVV

Asylum Seekers	PvdA	SP	CDA	D66	VVD	PVV

Euthanasia	PVV	VVD	D66	PvdA	SP	CDA

8(b): 2010

	LR	Nuclear	Income	Crime	Foreigne	EU	Asylum	Euthana
LR		,867	,867	1,00	,867	,200	,733	-,600
Nuclear Plants	,867		1,00	,867	,733	,067	,600	-,467
Income DIfferences	,867	1,00		,867	,733	,067	,600	-,467
Crime	1,00	,867	,867		,867	,200	,733	-,600
Foreigners	,867	,733	,733	,867		,333	,867	-,467
EU	,200	,067	,067	,200	,333		,467	-,600
Asylum Seekers	,733	,600	,600	,733	,867	,467		-,600
Euthanasia	-,600	-,467	-,467	-,600	-,467	-,600	-,600	

The ordering of parties on the left-right dimension is stable over the years. The Socialists (SP) and Social Democrats (PvdA) are located at the most left end of the spectrum, followed by the Social Liberals (D66), Christian Democrats (CDA), and Liberals (VVD). The Conservatives (GPV) and Populist Right parties (LPF and PVV) are located at the far right end of the dimension. This ordering, however, is inconsistent with the orderings of parties on some of the issue dimensions. In each year, party locations on ethical issues are deviant from their positions on the left-right dimension. The rank order correlation coefficient τ between the ethical and the left-right dimensions is never 1. Although in the 1980s the association between the dimensions was still fairly strong (τ .667), in 2006 the dimensions were not related at all (τ .000). The Downsian left-right dimension is basically designed for a political system without Christian parties (Koch, 1979). Especially in the Netherlands, contrary to for example the United States, there is no unambiguous relationship between religion and economics (Pellikaan et al, 2003; Pellikaan, 2010). A more rightist position on economic issues does not necessarily imply a more conservative ethical position. The lack of a link between these issues is most clearly mirrored in the relative positions of the Liberal VVD and the Christian Democratic party CDA. While the VVD is consistently considered to be the most rightist party when it comes to economic affairs, the party has liberal, 'leftist', stands when

ethical issues are concerned (and over time is increasingly perceived to have). Unsurprisingly, the CDA (and the more conservative GPV) has the most rightist position on ethical issues. That means that, although many have argued the religious dimension lost much of its significance since the 1970s, ethical issues cannot be compressed into the left-right dimension without losing relevant information on party competition.

Since 1994 the issue of European integration seems also to disturb the dimensionality of party competition in the Netherlands. The ordering of parties on that dimension is different from the ordering on the left-right dimension. The Kendall's tau correlation between party orderings on the European integration and the left-right dimension is also never 1. It ranges from .667 (a negative but relatively strong association) to a low score of .067 (almost no association) in 2010. That the issue of European integration cannot be squeezed into the left-right dimension is in line with what Van der Brug and Van Spanje (2009) found when studying Western European politics (see also Hix and Lord, 1997; Hooghe and Marks, 2001; Kriesi, 2008; Bornschier, 2010). Kriesi et al (2008) argue that in Western European politics, the issues of European integration and immigration of foreigners together form one cultural dimension. However, this dimension is very unlikely to exist in the Netherlands for the ordering of parties on these issues has never been similar. Relatively recently, the immigration issue does influence party competition. Although the issue has been salient for voters since the early 1990s (Aarts and Thomassen, 2008), it was not politicized at the party level. Only from the 2002 elections the ordering of parties on the immigration dimensions is different from the ordering of parties on economic dimensions (τ .800). Since the entrance of Pim Fortuyn and his LPF into national politics immigration became a new line of conflict in Dutch party competition (Pellikaan et al, 2003).

In each of the election years under study, at least one noteworthy violation of the condition of non-separability is found. Some parties have a rightist position on some issues, and a leftist on others, a possibility that was already acknowledged by Downs himself (1957: 116). In the Netherlands, especially the issues of religion, economics, and immigration are separable. Different party positions mean that party competition in the Netherlands cannot be accurately understood in a one-dimensional left-right space, because one-dimensionality "is only guaranteed by assuming that all parties are always leftish (or rightish) on all issue dimensions" (Pellikaan, 2010: 476). When the left-right space is imposed to Dutch politics from above, some vital information on competition is lost. Therefore, party competition in the Netherlands is most likely best understood in a multi-dimensional space.

Probabilistic method

Scholars using the left-right dimension for studies on party competition presuppose that competition can be understood along a single dimension. The orderings of parties on the issue dimensions showed that the condition of non-separability of political issues is violated in every Dutch election in the past three decades. That means that party competition in the Netherlands was not structured solely along a left-right dimension, and that most likely multiple dimensions are necessary to understand competition. The question now remains what the dimensionality of the spaces of competition looks like, and what information is lost by imposing the left-right dimension to the Dutch party system.

In order to investigate competition in the Netherlands, configurations of the Dutch political spaces for parties will be produced for all election years since 1982, using a probabilistic approach. PROXSCAL Multidimensional Scaling Techniques (MDS) will be used

to obtain representations of the political spaces. As Kriesi et al have stated, when using MDS "we do not have to make any a priori assumption about the structure of the political space (...) we want to test our hypotheses regarding both the dimensionality of the political space and the nature of these dimensions" (Kriesi et al, 2006: 935). MDS is a mathematical mapping technique that that produces a low-dimensional configuration in which the distances between the cases on the spatial plot match as good as possible the (dis)similarities between the cases in the original data (Laver and Hunt, 1992). The plots will be based on party positions on all relevant political issues about which data are available in the DPES, in order to give a comprehensive overview of the overall Euclidean distances between parties.[3] [4] It is debatable whether party positions on the left-right dimension should also be included in the analyses to produce the spaces of competition. It could be argued that, since the left-right dimension is actually a conceptual construct, excluding left-right positions would give a more 'factual' overview of the space of party competition, which would then only be based on issue dimensions. To the extent than including positions on the left-right dimension influences the spaces of competition found, these will resemble more the left-right space of competition. Again, to make the case for left-right competition as likely as possible, left-right party positions are included in the MDS analyses. However, including the left-right party positions in the MDS analyses does not influence the configurations of parties much, irrespective of the number of additional issues and parties (see Appendix B for two examples).

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[3] See table 1-8 for an overview of the issues and parties included in the analyses.

[4] Unfortunately, for each election year, data on different parties are available, which makes the spaces incomparable in terms of relative party positions over time. However, for each year the parties about which information is available are the most important during the elections. The overall plots should thus give a good indication of along how many, and which dimensions competition takes place each election.

The produced spaces are purely mathematical, and can, without any additional information, not be interpreted substantively. Issue dimensions, like immigration, European integration, and economic dimensions, will be plotted in the figure to be able to interpret the Euclidean space in terms of ideological differences between parties. To investigate what issue dimensions help best to interpret what the political spaces look like, all relevant policy issues will be regressed over the coordinates of the MDS solutions for each political space separately. The explanatory power of these issues will indicate how many, and which issue dimensions help best to interpret the configuration of party positions.

Results

Table 1 to 8 show that in all of the Dutch election years in the past three decades, positioning parties in a one-dimensional left-right space induces a loss of vital information about Dutch party competition. Rather, we need multi-dimensional models to accurately understand which parties are ideologically close and which are not.

The idea that the Dutch party system is structured along multiple dimensions has been put forward before. It has been assumed that in addition to a socio-economic left-right dimensions, an orthodox dimension (Kleinnijenhuis and Pennings, 2001) or a non-material GAL-TAN dimension (Van Kersbergen and Krouwel, 2008) were salient in Dutch politics. It is now increasingly argued that some sort of cultural dimension (containing issues on immigration and/or European integration) structures Dutch party competition (Bornschier, 2010; Kriesi et al, 2006; Pellikaan et al, 2003; Van der Meer et al, 2012). Based on explorative analyses of voters' sympathy scores for parties, Aarts and Thomassen (2008) conclude that

over time three dimensions underlie Dutch competition, a traditional left-right, a religious, and an authoritarian-libertarian dimension.

There is thus no consensus on what the dimensionality of party competition in the Netherlands looks like over time. Here, the dimensionality of Dutch party competition will be empirically investigated using the same probabilistic approach for each year. The produced spaces will thus be comparable in terms of the method used to produce them, rather than in terms of the number and content of relevant dimensions. Each year we want as few dimensions as possible to explain as much of the (dis)similarities between the parties as possible. To determine how many dimensions are necessary to understand Dutch competition, the scree plot that indicates the stress of the multidimensional scaling model is looked at. The 'elbows' in the scree plots show that for each year under study, a two-dimensional model is optimal. One-dimensional solutions yield significantly worse fits.

Figure 3a to h present the spaces of Dutch party competition over time. The obtained spaces (without issue dimensions) are based on party positions on all issues available in that years' data. In 1982 for example, the configuration of parties is based on the parties' positions on the issues of abortion, nuclear plants, income differences and on the left-right dimension. The party space found only indicates the overall Euclidean distances between parties. It can thus be seen that overall, the PvdA and D66 are ideologically most proximate. The two-dimensional configurations of parties are compared to the parties' exact positions on the issue dimensions. To interpret the distances between parties, dimension lines are plotted in the figures in such a way that the parties line up on the dimensions in the right order, representing also as good as possible the actual distances between the parties on

these dimensions (see Appendix A for the parties' exact issue positions). [5] In 1982 the dimension lines show that the large distance between the PvdA and the VVD can be mainly explained by left-right and economic issues, while on abortion, the parties are relatively close (2.14 and 2.91 respectively).

As can be seen in the figures, the left-right dimension fits all the spaces of competition (see also Van der Brug, 1999, 2001). This is not surprising, since it has been proven that voters think about politics in left-right terms. The conclusion that left-right party locations provide incomplete information on competition is not dismissed by this finding. The fit only indicates a relation between party positions on a left-right dimension and positions in a mathematical political space. The study however focuses on the accuracy of information obtained by looking at left-right positions, and even though there is a relation, left-right positions still misrepresent absolute and relative party positions if taken alone.

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[5] The number of dimension-lines drawn in the pictures is dependent on the number of issue-questions in the data, but also on their fit to the data. The explained variance in a multiple regression analysis with the horizontal and vertical dimension coordinates as independent variables must be sufficiently high (R^2 must be around .90). For example, in 2010, the issue of euthanasia cannot be plotted, for the R^2 is only. 58.

Figure 3a-h
Political spaces of Dutch party competition 1982-2010

a 1982
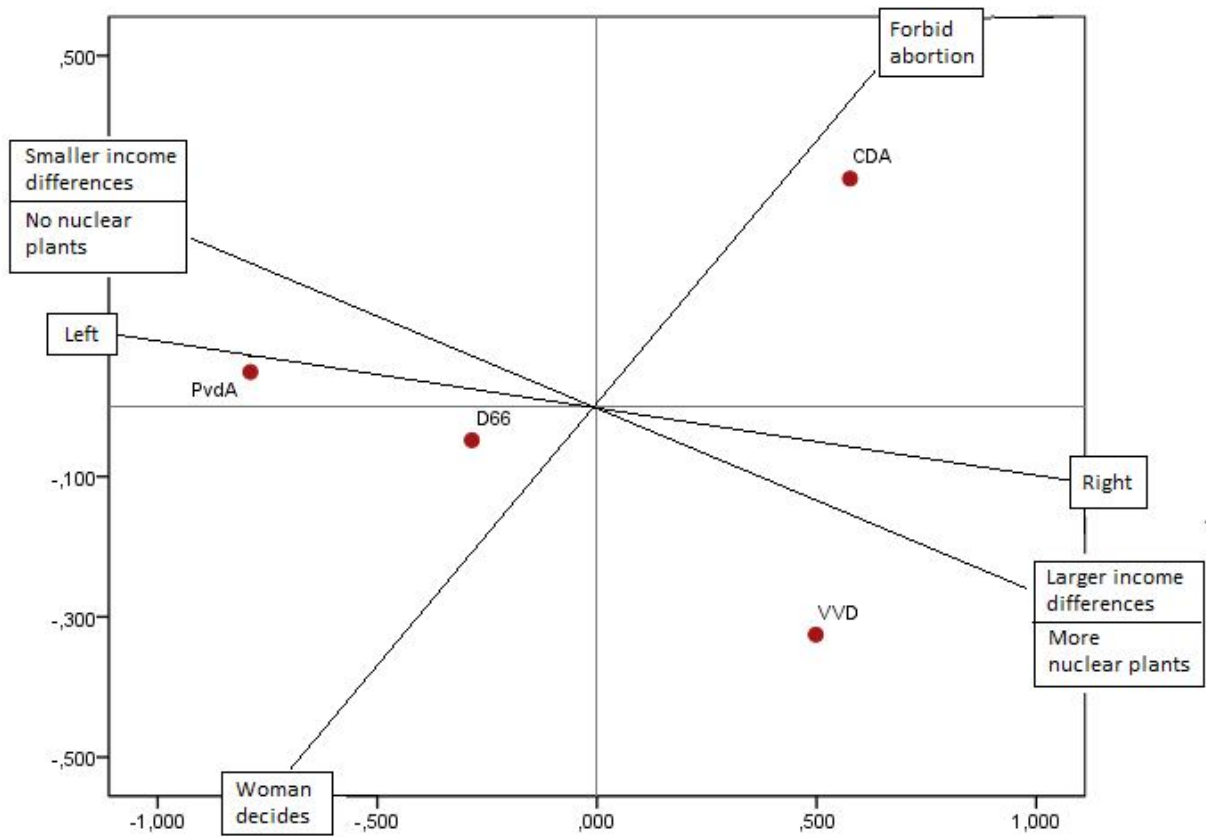
b 1986
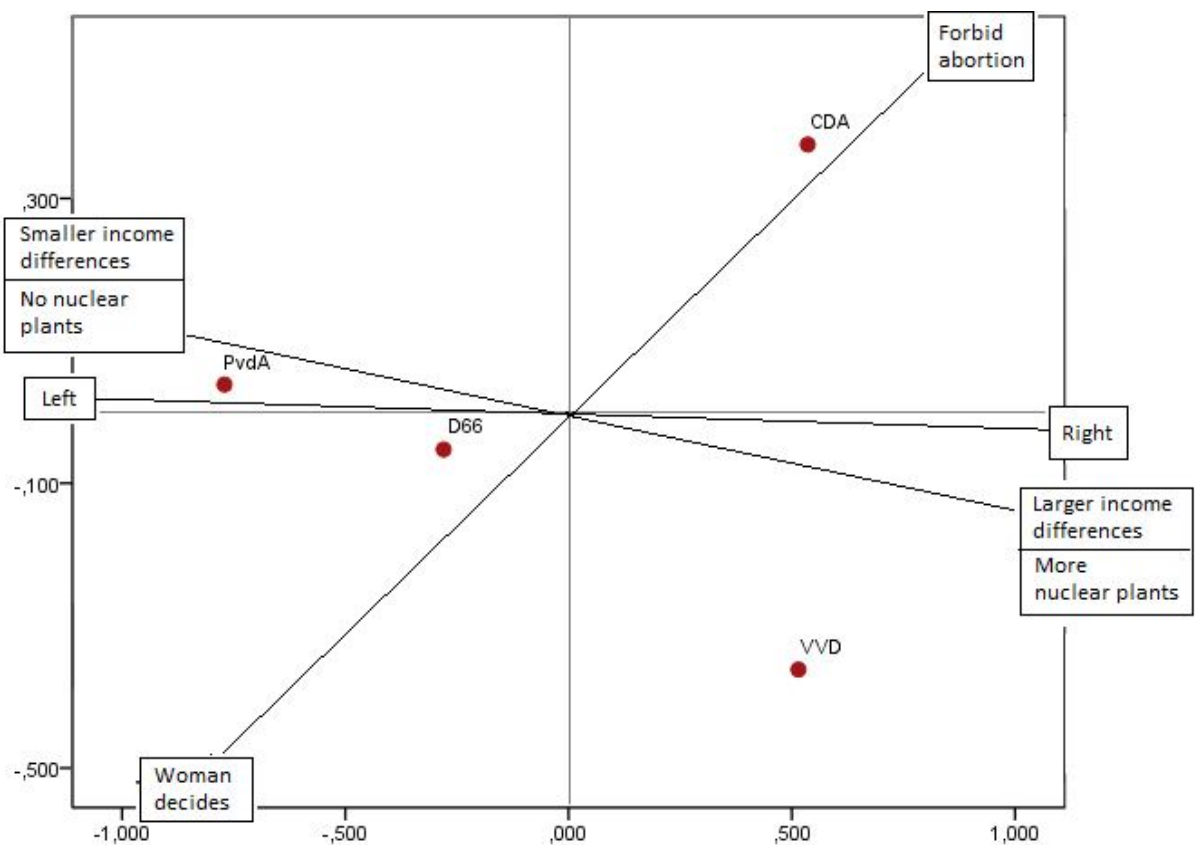
c 1989
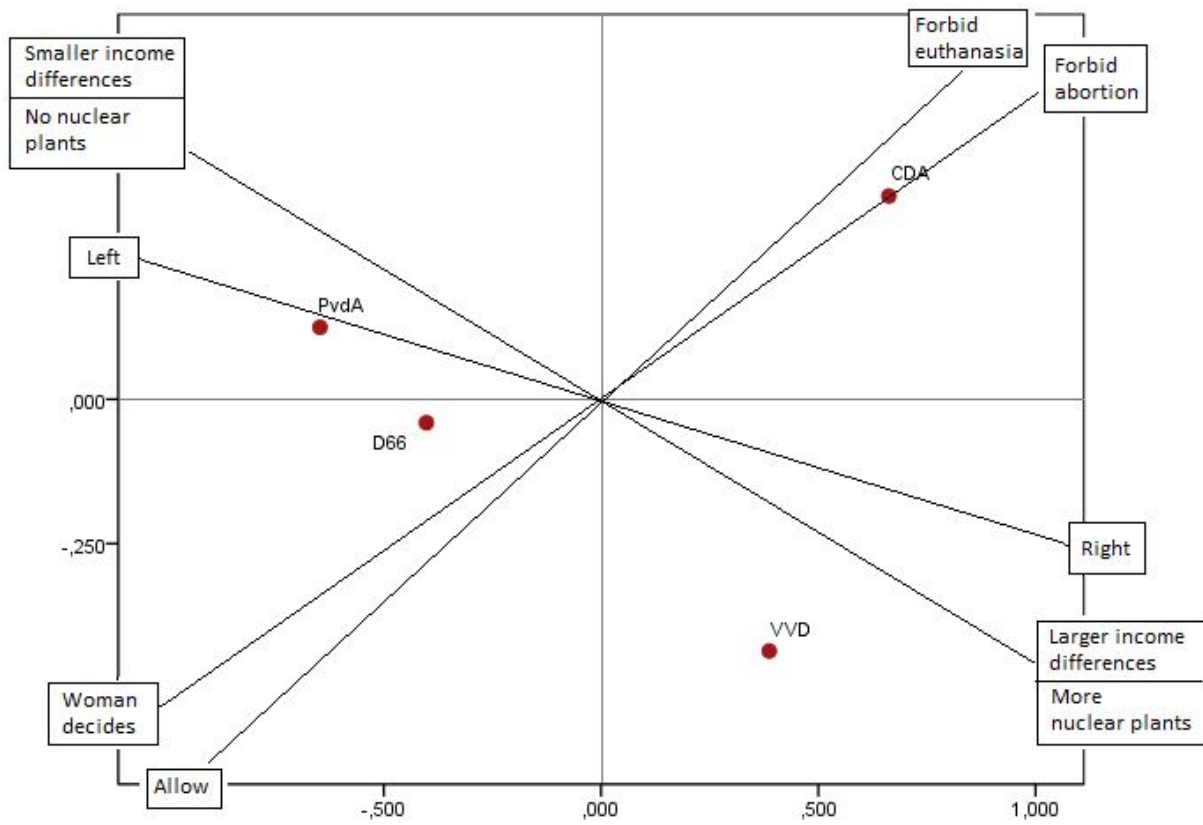
d 1994
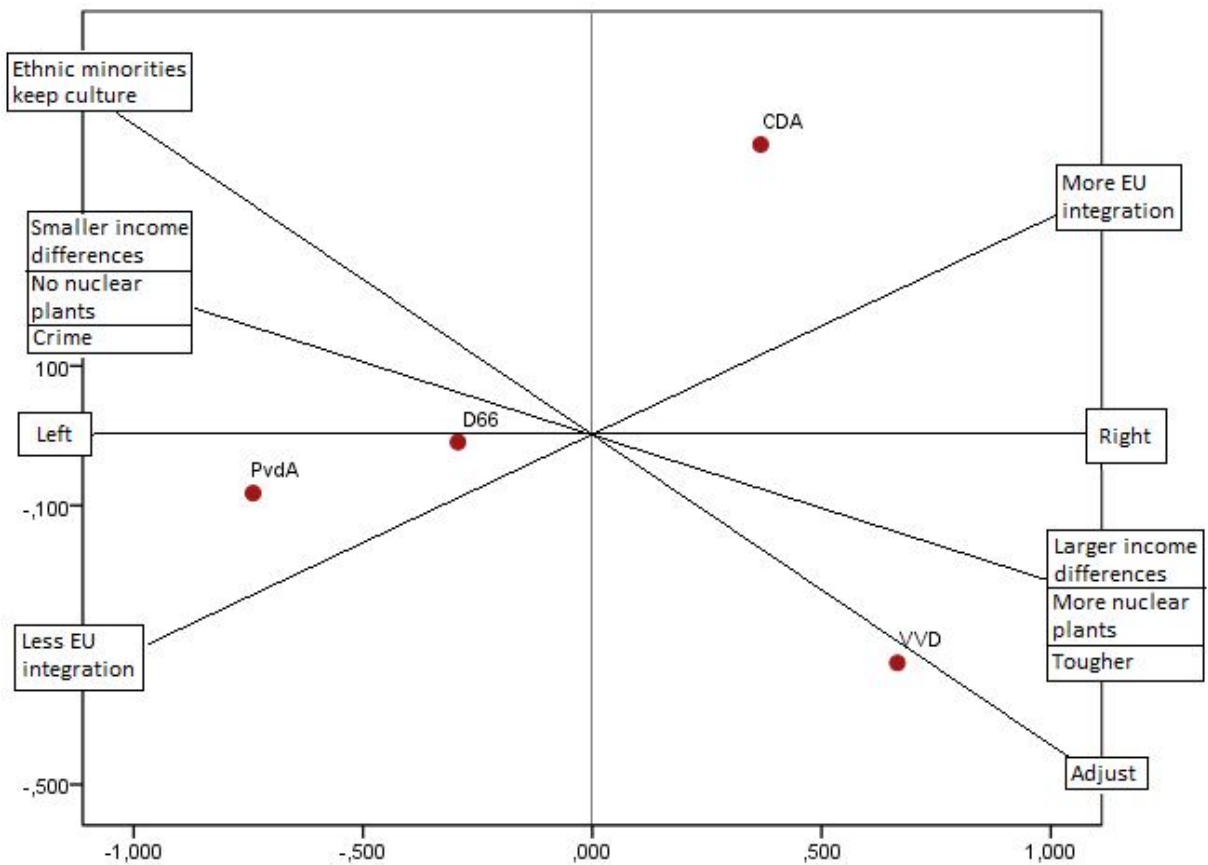
e 1998
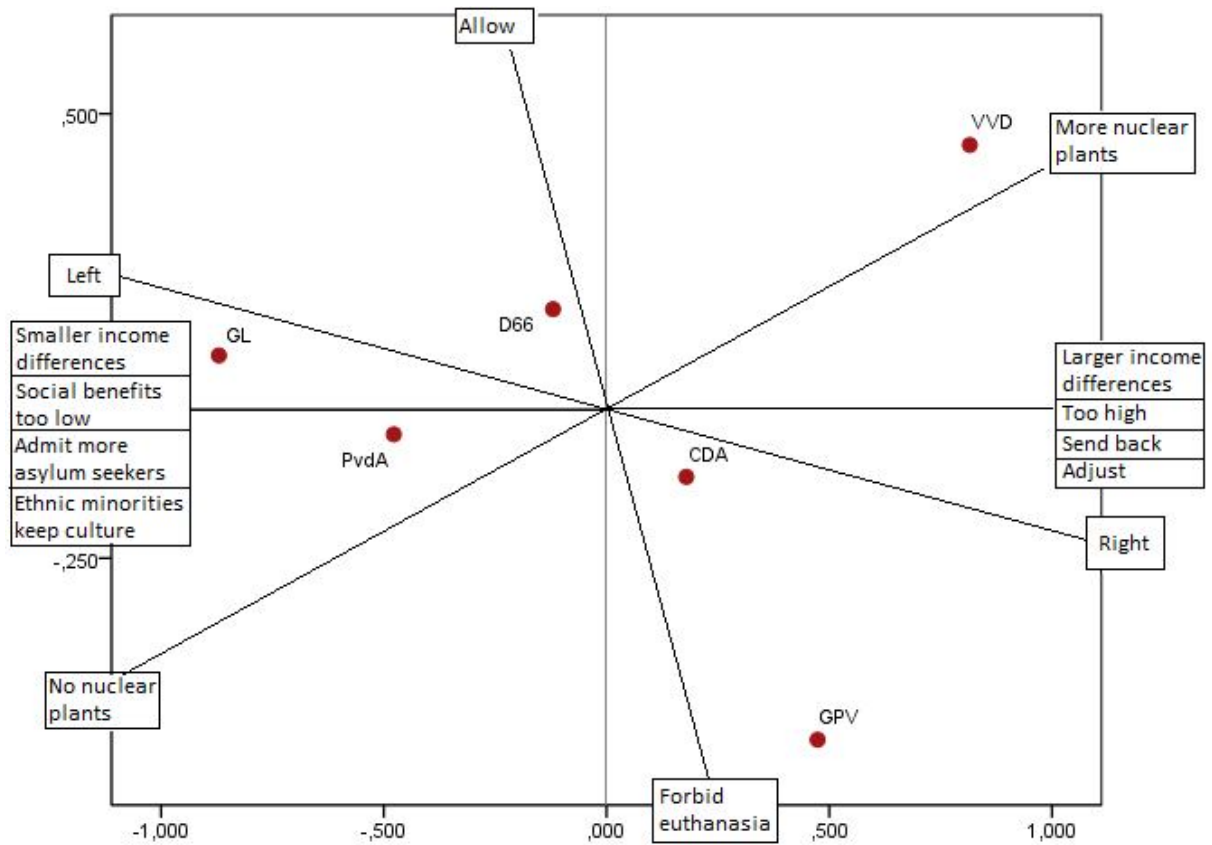
f 2002-2003
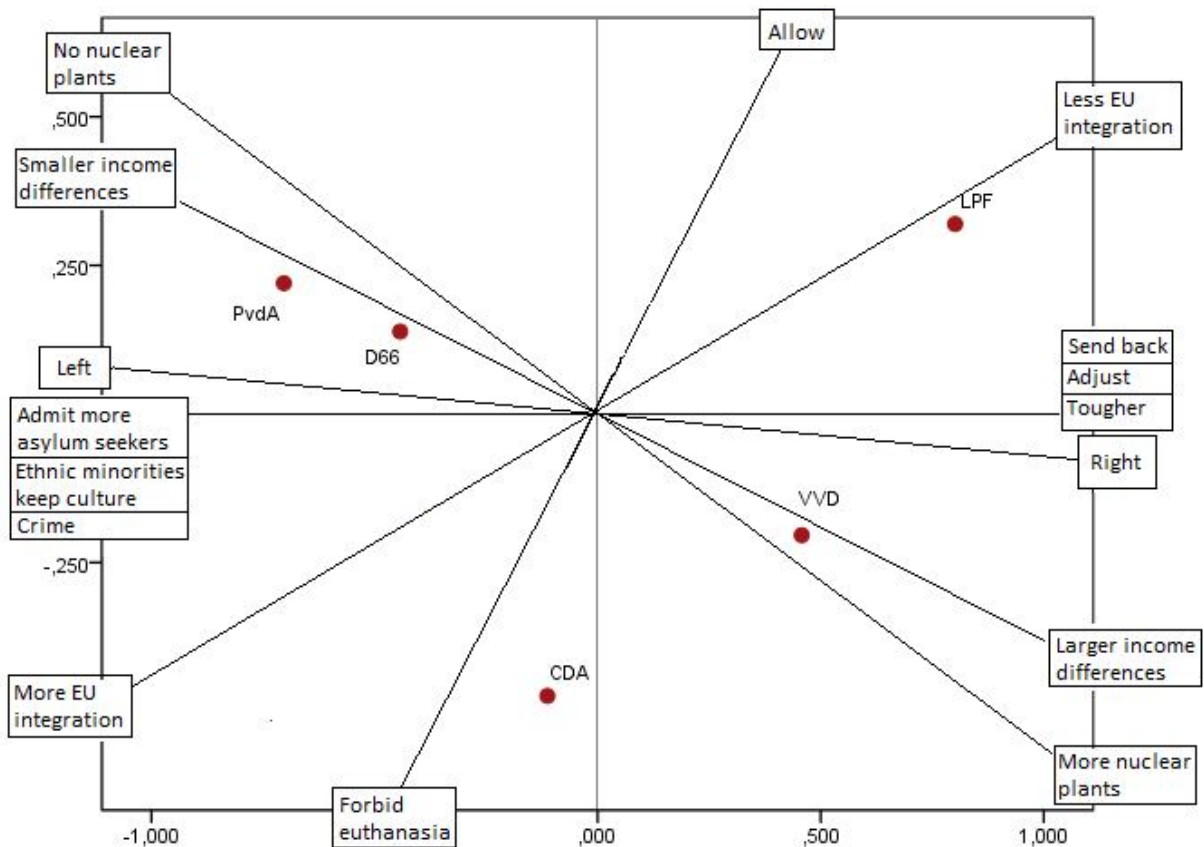
g 2006
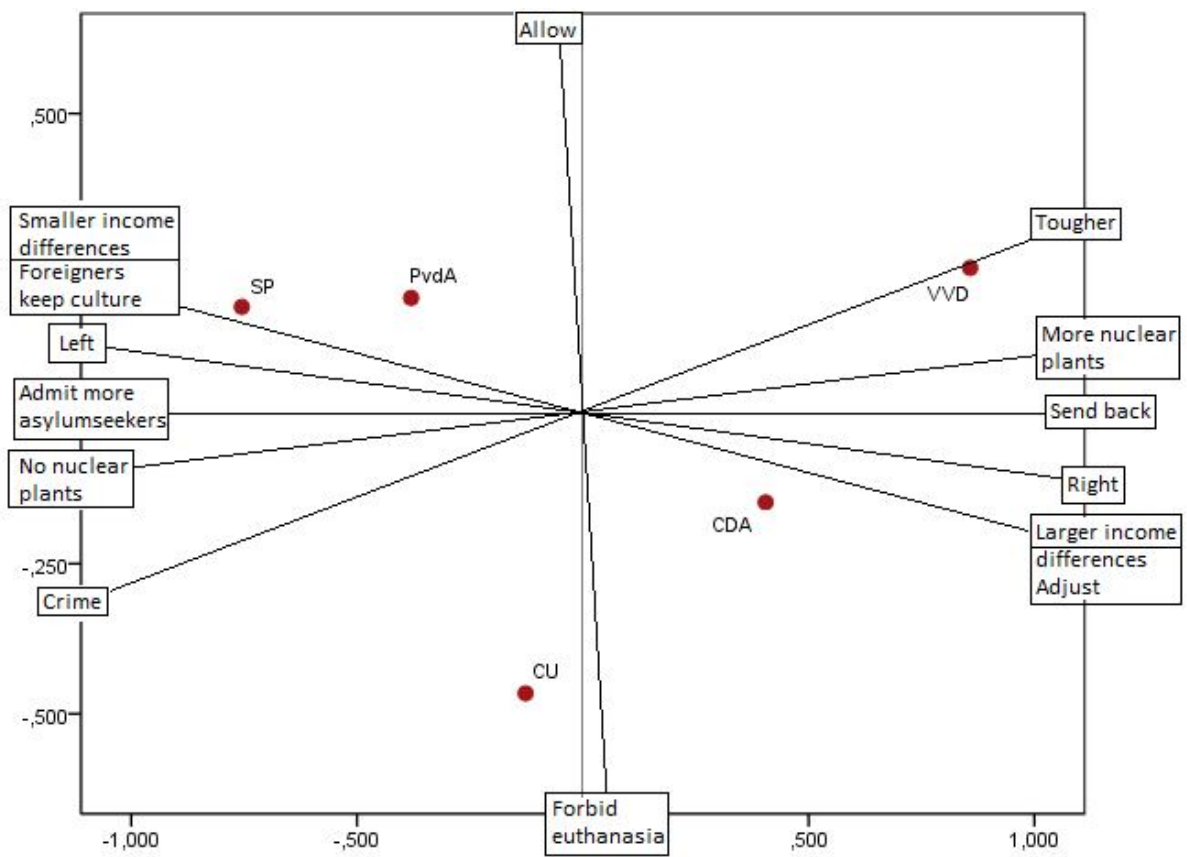
h 2010
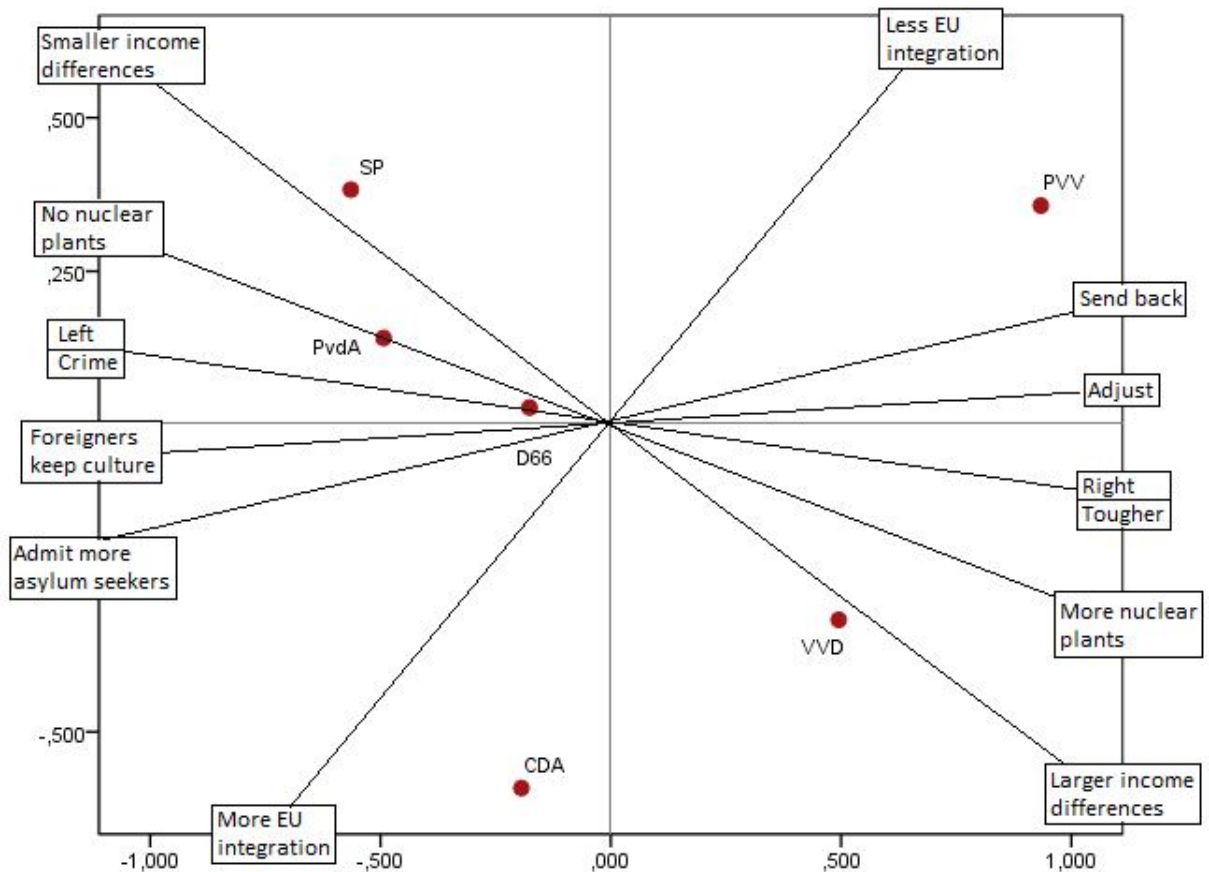
Tables 1 to 8 showed that he violation of non-separability sometimes seems petty. For instance, in the 1980s only two parties are located differently on the ethical and left-right dimension. These dimensions are still relatively strongly associated (Kendall's tau is .667). However, the figures demonstrate that even these violations should never be dismissed as being meaningless. As figure a, b and c show, although three or four issue-dimensions are necessary to interpret the configuration precisely, one could say that in the 1980s party competition was structured along an economic left-right dimension, including the issue of nuclear plants, and a second, ethical dimension. The left-right dimension explains the large distance between the socialist PvdA and the liberal VVD. When it comes to ethical issues on the other hand, all secular parties have approximately the same liberal position, deviating them from the confessional CDA. While the CDA is a center party in terms of left and right, in the 1980s, the multi-dimensional model adds to the left-right model by showing the relative distance between the CDA and the secular parties on the religious dimension. That way, party competition in the 1980s seems to reflect competition during the pillarization (see Lijphart, 1982). Only the traditional class dimension has been replaced by an economic left-right dimension, ranging from pro state (income differences should be smaller) to pro market policy positions. In 1994, no religious dimension could be plotted in the figure and party competition mainly took place on other issues. That year, the CDA lost 20 seats.

It has been argued that, although the issue of immigration was salient for voters since the 1990s (Aarts and Thomassen, 2008), immigration structures party competition only since the 'Fortuyn Revolt' in 2002 (Pellikaan et al, 2003). Criticizing the Purple coalition of VVD,

D66 and PvdA that had governed the Netherlands since 1994, and focusing on economic and multicultural issues, Pim Fortuyn and his LPF managed to seriously challenge the established parties. Participating for the first time, the LPF won 26 seats in 2002. However, as can be seen in the figures, already in 1994 immigration issues can help interpret the configuration of parties. Yet, it should be noted that in 1994 and 1998 the orderings of parties on the issues of ethnic minorities and asylum seekers was similar to the orderings of parties along the economic and left-right dimension; only relative distances between parties were different. Indeed, for the first time in 2002 the ordering of parties on the immigration dimensions were different than the ordering of parties on economic dimensions. From then on, immigration really influenced Dutch party competition. The issue of immigration also seems to have influenced the locations of parties on the left-right dimension, since the dimensions almost fall together. It is the first year in which left-right is closer to immigration issues than to economic issues. With the sudden death of Fortuyn in 2002 and eventually the disappearance of the LPF from the political scene, the saliency of the new issues did not vanish. The established parties seem to have adopted these issues and in 2010, when the PVV became the next big populist right party, and to a lesser extent in 2006, competition cannot be understood without taking immigration issues into account.

Kriesi et al (2008) have also argued that immigration influences Dutch party competition. However, they propose a two-dimensional theoretical model of party competition, consisting of an economic and a cultural dimension. The latter combines the issues of immigration and EU integration. However, in none of the years under study such cultural dimension is found; immigration and EU integration are spread out and form two separate, even relatively distinct, issue dimensions. This is not surprising. Since the Christian

Democratic parties are the driving force behind European integration, the CDA is the most Europhile party. At the same time the CDA has a more center position with regard to immigration of foreigners. And, as can clearly be seen in figure 3h, the SP and the PVV are almost furthest apart when it comes to immigration issues, but have relatively proximate positions when European integration is concerned.

Substantive differences

All separate issue dimensions plotted in the figure individually add to our interpretation of the political spaces and so give extra information on Dutch party competition when compared to the left-right dimension. Comparing the configuration of parties in the two-dimensional spaces with their positions on the left-right dimension, some substantive differences appear.

While the CDA is a center party in terms of left and right, in the 1980s and in the beginning of the 1990s, the multi-dimensional models add to the left-right model by showing a considerable distance between the CDA and the secular parties. In the 1980s, this distance can be explained by the CDA's conservative position towards ethical issues and in 1994 by the CDA's positive view toward the EU.

In 1998, The CDA, the GPV and the VVD have close positions on the left-right dimension. However, the two-dimensional model shows relatively large distances between these parties that can be explained by religious and, to a lesser extent, economic issues. While the GPV is the most rightist party, on economic and cultural issues the VVD is most rightist. And the VVD has a liberal position towards ethical issues. In 2002, the two-dimensional space shows a large distance between the CDA and the LPF which was not

apparent in the left-right model. This distance can be explained mainly by the LPF's Euro-skepticism, and its liberal position on religious issues. In the 2006 space of competition the religious dimension again plays an important role. While on the left-right dimension the CU has a center position, in the two-dimensional space a considerable deviation from all secular parties is revealed that can be explained by ethical concerns.

As table 8 already indicated, in 2010 the multi-dimensional model of competition adds most to the left-right model. Although the PVV is considered the most rightist party in general, on economic issues the VVD is most rightist. And while the CDA is a center party in terms of left and right, in the two-dimensional space the distance between the CDA and PVV is the largest. Comparing figure 3h to the exact positions of the parties on the dimensions shows that it is the EU integration dimension on which these parties are most deviant. The PVV has a Eurosceptic positions (5.92), while the CDA is considered most Europhile (2.92). EU integration can also explain the relative positions of the SP and PVV in the two-dimensional space. While the parties are located at the opposite ends of the left-right spectrum, in the two-dimensional model the distance between these parties is not the largest. The EU integration dimension helps to interpret this proximity, for the SP has a similar stand towards European integration as the PVV. In 2010, the configuration of parties resembles a horseshoe, in which the extreme left and right are not so different.

The left-right model versus a probabilistic approach

By investigating what party competition in a multiparty system looks like both deterministically and probabilistically, it was found that important information on party competition was lost by imposing the left-right model to a party system from above.

Analyzing competition probabilistically showed that more than one dimension is necessary to capture all differences between parties. As described in the section above, in many cases the relative distances between parties were different than in the left-right space of competition. Also, the probabilistic multidimensional models add substantive explanatory information when the issue lines are plotted in de figures.

The results have thus shown that for each individual case using the probabilistic method when studying party competition has only advantages over imposing the left-right model from above. However, many studies on party competition have a comparative character, either in terms of time or countries. It was especially in comparative studies that the left-right dimension became such an important model of competition (see e.g. Castles and Mair, 1997). Because the same substantive left-right model is assumed to be applicable to all cases, exact party positions or absolute distances can be compared over cases. It can be said (irrespective of the substantive meaning of left and right) that the Labour party in the Netherlands is more leftist than the Labour party in Great Britain because it scores higher on the same scale. And one can say that the Labour party and the Liberal party are ideologically more different in the Netherlands, for the distance between the parties on the exact same scale is larger. Because the probabilistic model is very context-specific, absolute party positions in those models cannot be compared. It should thus be acknowledged that the main power of the left-right dimension, comparability of party positions, is lost when using the probabilistic approach for studying party competition.

Then is the probabilistic approach only useful when studying one case of competition? No. The spaces of competition found using the probabilistic approach may not be comparable in terms of the number and content of relevant dimensions, but they are

comparable in terms of the method used to produce them. In each case a configuration of parties is found, given that certain issues and parties are important in that context. So although absolute distances between parties cannot be compared, relative distances (which parties are closest or most deviant) still can, given that party competition actually does take place under different circumstances. And what should not be underestimated is the explanatory power of the probabilistic spaces. Rather than in the left-right model, in which differences and similarities between parties on different issues are brought back to some sort of average distance, the probabilistic spaces can show on what issues exactly parties have either proximate or deviant positions. In comparative studies, that information might be even more valuable than a comparison of absolute distances.

For instance, comparing the probabilistic models might be very helpful in studies on the rise of new party families. Not only can it be seen to what existing party(s) the new party is most proximate, but, contrary to the left-right model, the probabilistic models will also give insight in what political issues are important for the new party's rise. Is there a political issue that is important in all countries faced with the rise of the new party and not in others? Can we indicate one or more issues on which the new party is deviant from all other parties? And can we see in which other cases such a new party is likely to emerge, given the configuration of established parties, and in which not? These are all questions that cannot be answered when only left-right party positions are known. So although there are some losses when the left-right model of competition is replaced by different case-specific probabilistic models, informatively, also much is won. Even for comparative studies.

Conclusion

Some scholars still assume a priori that party competition can be understood in simple left-right terms. However, especially in multiparty systems with multiple salient issues on which parties differ, one dimension is very unlikely to capture all differences between parties. In this study it was investigated what party competition in a multiparty system looks like. Although now various scholars have made multi-dimensional models of party competition, this is the first study that empirically investigates whether the left-right dimension gives accurate information about party competition in multiparty systems by testing the formal logic behind the theoretical and empirical use of the left-right dimension. It was examined whether the condition of non-separability holds in the Netherlands by testing its weakest necessary criterion; a similar ordering of parties on all relevant issue dimensions. It was found that in the past three decades, the left-right dimension never gave a complete picture of Dutch party competition. Rather, multiple dimensions seemed necessary.

A probabilistic investigation of the dimensionality of Dutch party competition over time, without any a priori assumptions about the dimensionality of the space of competition, revealed that in each year under study two, rather than one, dimensions are necessary to understand competition. The analyses indicated that when the deductive left-right model is applied to party competition the information gained might be deceitful. Parties' relative positions on various issues are misrepresented by their left-right position. Especially ethical issues and the issue of European integration cannot be squeezed into an overarching left-right dimension.

The findings in this study differ most from the finding of a one-dimensional left-right model of competition. This difference can in some cases be explained by the fact that

assumptions about competition are not tested empirically. Based on theories of how competition for voters works, some scholars just assume that party competition takes place in a predefined one-dimensional space (e.g. Sani and Sartori, 1983; Budge et al, 2001). Some differences can be explained by the empirical method used to study competition. The finding that in more recent years competition in European democracies can be understood to take place on a single dimension (Van der Brug and Van Spanje, 2009) differs most notably from the conclusions of this study. That finding is however based on a Principal Component Analysis assuming orthogonal relations between dimensions. In that analysis, all dimensions, except for the EU integration dimension, load on one factor. It is not tested what the space looks like without the presupposition of orthogonally related dimensions. Most importantly, the finding that even the PCA analysis points at a second, European integration dimension is played down. Nowhere do the authors refer to a second dimension while it was already argued that especially because of the issue of European integration, the political spaces in European countries are best understood as being multi-dimensional (e.g. Hooghe and Marks, 2001).

It is not my attempt to argue that a multi-dimensional model should always be used when studying party competition in multiparty systems. What model and method are used depend on the goal of your study. Since it has been argued that voters use the left-right dimension as a short-cut to make their vote choice (see e.g Van der Eijk and Niemöller, 1987), left-right models of party competition might be very helpful for studies that focus on voting behavior. And if one knows which issues are important, or only wants to compare party positions on a limited number of self-selected issues, there is also no need to employ the probabilistic approach used in this study. Rather, one can use a multi-dimensional model

with each dimension reflecting one issue and then position the parties in this presupposed space (see e.g. Pellikaan et al, 2003).

The goal of this study was to investigate what party competition in a multiparty system looks like. All together the my empirical findings showed that vital information on party competition is lost when the theoretical left-right dimension is imposed to a party system from above. Rather, over time two-dimensional models are necessary to understand competition. Although these conclusions are only valid for the Dutch case, the Netherlands is very unlikely to stand on its own. Especially in countries with more than 2 political parties, and multiple relevant issues each election, one dimension is unlikely to capture all differences between parties. However, because both the relevant issues and parties are likely to be different over countries, it is very unlikely a single model of party competition exists that can be applied to all countries.

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Appendix A

Overview of exact party positions on all dimensions included in the analyses. The dimensions have been recoded so that all dimensions range from a 'leftist' to a 'rightist' position.

The R squares indicate the explained variance in a multiple regression analysis with the horizontal and vertical Euclidean dimensions as the independent variables. The R^2 must be sufficiently high (around .90) for it to be possible to plot the dimension line in the multi-dimensional configuration of the Dutch party system (Figure 3a-h). If the R^2 is too low, as is the case for example with the issue of euthanasia in 2010 (.58) it is not possible to line up the parties PVV, VVD, D66, PvdA, SP and CDA, in that order in the two-dimensional space.

1982

1 Left   10 Right

Left-right	PvdA	D66	CDA	VVD	R^2 = 1.00
	2.98	4.84	7.58	7.79	

1 No nuclear plants   7 More nuclear plants

Nuclear Plants	PvdA	D66	CDA	VVD	R^2 = .99
	2.45	3.31	4.79	5.00	

1 Pro leveling   7 Against leveling

Income Differences	PvdA	D66	CDA	VVD	R^2 = 1.00
	2.33	3.57	4.79	5.60	

1 Woman decides   7 Forbid abortion

Abortion	PvdA	D66	VVD	CDA	R^2 = .99
	2.14	2.73	2.91	5.25	

1986

1 Left   10 Right

Left-right	PvdA	D66	CDA	VVD	R^2 = 1.00
	2.67	4.66	7.61	7.79	

1 No nuclear plants   7 More nuclear plants

Nuclear Plants	PvdA	D66	CDA	VVD	R^2 = 1.00
	1.68	2.92	4.61	5.23	

1 Smaller differences   7 Lager differences

Income Differences	PvdA	D66	CDA	VVD	R^2 = 1.00
	1.99	3.30	4.49	5.55	

1 Request patient   7 Forbid

Euthanasia	PvdA	D66	VVD	CDA	R^2 = .99
	2.58	2.83	2.91	5.38	

1989

1 Left   10 Right

Left-right	PvdA	D66	CDA	VVD	R² = 1.00
	3.11	4.21	7.03	7.37	

1 No nuclear plants   7 More nuclear plants

Nuclear Plants	PvdA	D66	CDA	VVD	R² = .99
	2.71	3.04	4.50	4.86	

1 Smaller differences   7 Larger differences

Income Differences	PvdA	D66	CDA	VVD	R² = .99
	2.10	3.17	4.48	5.47	

1 Woman decides   7 Forbid

Abortion	PvdA	D66	VVD	CDA	R² = .99
	2.50	2.68	3.05	5.34	

1 Allow   7 Forbid

Euthanasia	D66	PvdA	VVD	CDA	R² = .99
	2.54	2.72	3.08	5.54	

1994

1 Left   10 Right

Left-right	PvdA	D66	CDA	VVD	R² = .99
	3.72	4.94	6.45	7.25	

1 No nuclear plants   7 More nuclear plants

Nuclear Plants	PvdA	D66	CDA	VVD	R² = .95
	2.96	3.17	4.51	5.02	

1 Smaller differences   7 Larger differences

Income Differences	PvdA	D66	CDA	VVD	R² = .99
	2.57	3.56	4.40	5.41	

1 Tough enough   7 Much tougher

Crime	PvdA	D66	CDA	VVD	R² = .99
	3.78	4.03	4.43	5.11	

1 Keep own culture   7 Adjust completely

Ethnic Minorities	PvdA	D66	CDA	VVD	R² = .98
	3.20	3.83	3.91	5.09	

1 As fast as possible   7 Going too fast

EU Integration	CDA	VVD	D66	PvdA	R² = .97
	3.32	3.40	3.49	3.65	

1 Allow					7 Forbid	
Euthanasia	D66	PvdA	VVD	CDA	R² = .89	
	2.72	3.00	3.05	5.13		

1998

1 Left						10 Right	
Left-right	GL	PvdA	D66	CDA	VVD	GPV	R² = .99
	2.84	4.25	5.07	6.23	7.18	7.35	

1 No nuclear plants						7 More nuclear plants	
Nuclear Plants	GL	PvdA	D66	GPV	CDA	VVD	R² = .91
	1.80	2.92	3.10	3.43	3.56	4.32	

1 Smaller differences						7 Larger differences	
Income Differences	GL	PvdA	D66	CDA	GPV	VVD	R² = .99
	2.29	2.51	3.48	3.74	3.77	5.26	

1 Much too low						7 Much too high	
Social Benefits	GL	PvdA	D66	CDA	GPV	VVD	R² = .99
	3.24	3.48	4.02	4.20	4.27	5.06	

1 Preserve cultural customs						7 Completely adjust	
Ethnic Minorities	GL	PvdA	D66	CDA	GPV	VVD	R² = .97
	2.98	3.39	3.86	4.08	4.81	5.33	

1 Unification should go further						7 Has gone too far	
EU Integration	PvdA	D66	CDA	VVD	GL	GPV	R² = .39
	2.94	3.33	3.33	3.52	3.88	4.59	

1 Admit more						7 Send back	
Asylum Seekers	GL	PvdA	D66	CDA	GPV	VVD	R² = .98
	2.95	3.22	3.79	3.80	4.01	5.41	

1 Allow						7 Forbid	
Euthanasia	D66	GL	VVD	PvdA	CDA	GPV	R² = .91
	2.76	2.90	2.97	3.04	5.38	6.54	

2002-2003

0 Left					10 Right	
Left-right	PvdA	D66	CDA	VVD	LPF	R² = .99
	3.43	4.44	6.30	7.03	7.56	

1 No nuclear plants					7 More nuclear plants	
Nuclear Plants	PvdA	D66	CDA	LPF	VVD	R² = .97
	2.89	3.09	4.09	4.78	5.02	

Income Differences	1 Differences should be decreased			7 Differences should be increased		
	PvdA	D66	CDA	LPF	VVD	R² = .86
	2.68	3.59	3.81	4.72	5.31	

Crime	1 The government acts too tough			7 Government should act tougher		
	PvdA	D66	CDA	VVD	LPF	R² = .93
	4.26	4.33	5.06	5.36	6.28	

Ethnic Minorities	1 Preserve cultural customs			7 Completely adjust		
	PvdA	D66	CDA	VVD	LPF	R² = .98
	3.54	3.85	4.83	5.47	6.33	

EU Integration	1 Unification should go further			7 Has gone too far		
	PvdA	CDA	D66	VVD	LPF	R² = .82
	3.10	3.41	3.43	3.43	5.08	

Asylum Seekers	1 Admit more			7 Send back		
	PvdA	D66	CDA	VVD	LPF	R² = .98
	3.31	3.74	4.23	5.21	6.58	

Euthanasia	1 Allow			7 Forbid		
	LPF	D66	VVD	PvdA	CDA	R² = .70
	2.75	2.83	2.97	3.06	5.56	

2006

Left-right	0 Left			10 Right		
	SP	PvdA	CU	CDA	VVD	R² = .99
	2.63	3.59	5.77	6.75	7.19	

Nuclear Plants	1 No more building			7 Quickly build more		
	SP	PvdA	CU	CDA	VVD	R² = .99
	2.54	3.14	3.52	4.32	4.89	

Income Differences	1 Smaller			7 Bigger		
	SP	PvdA	CU	CDA	VVD	R² = .94
	2.11	2.23	3.51	3.83	5.05	

Crime	1 Too strict			7 More strict		
	SP	CU	PvdA	CDA	VVD	R² = .99
	4.34	4.63	4.67	5.12	5.59	

Foreigners	1 Keep own culture			7 Adjust		
	SP	PvdA	CU	CDA	VVD	R² = .93
	3.75	3.93	4.51	4.69	5.60	

1 Should go further					7 Has gone too far	
EU Integration	CDA	VVD	PvdA	CU	SP	R² = .76
	3.14	3.37	3.90	4.23	4.73	

1 Admit more					7 Send back more	
Asylum Seekers	SP	PvdA	CU	CDA	VVD	R² = .98
	3.32	3.58	3.72	4.45	5.44	

1 Allowed					7 Forbidden	
Euthanasia	PvdA	VVD	SP	CDA	CU	R² = .99
	2.58	2.74	2.84	4.50	6.48	

2010

0 Left						10 Right	
Left-right	SP	PvdA	D66	CDA	VVD	PVV	R² = .99
	2.48	3.22	4.58	5.90	7.34	7.77	

1 No more building						7 Quickly build more	
Nuclear Plants	SP	PvdA	D66	CDA	PVV	VVD	R² = .99
	3.05	3.49	3.78	4.42	4.57	4.91	

1 Smaller						7 Bigger	
Income Differences	SP	PvdA	D66	CDA	PVV	VVD	R² = .92
	2.34	2.54	3.51	3.74	3.87	4.81	

1 Too strict						7 More strict	
Crime	SP	PvdA	D66	CDA	VVD	PVV	R² = .97
	4.21	4.41	4.54	4.72	5.37	6.39	

1 Keep own culture						7 Adjust	
Foreigners	PvdA	SP	D66	CDA	VVD	PVV	R² = .97
	3.65	3.75	4.09	4.15	5.10	6.65	

1 Should go further						7 Has gone too far	
EU Integration	CDA	PvdA	D66	VVD	SP	PVV	R² = .90
	2.92	3.40	3.43	3.57	4.38	5.92	

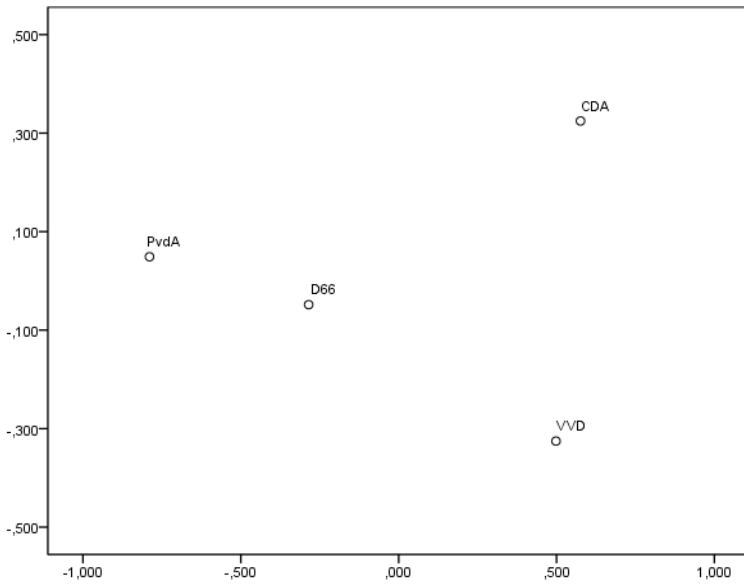| 1 Admit more						7 Send back more	
Asylum Seekers	PvdA	SP	CDA	D66	VVD	PVV	R² = .97
	3.46	3.47	3.92	3.93	4.88	6.54	

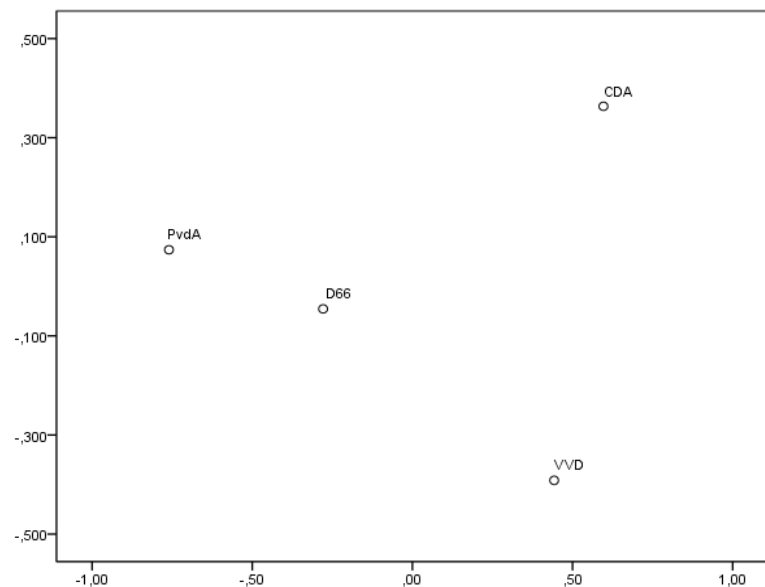| 1 Allowed						7 Forbidden	
Euthanasia	PVV	VVD	D66	PvdA	SP	CDA	R² = .58
	2.62	2.73	2.79	2.82	3.07	4.71	

Appendix B

Multi-dimensional spaces with and without left-right party positions included

Spaces based on three additional issues and four parties (minimum in data)
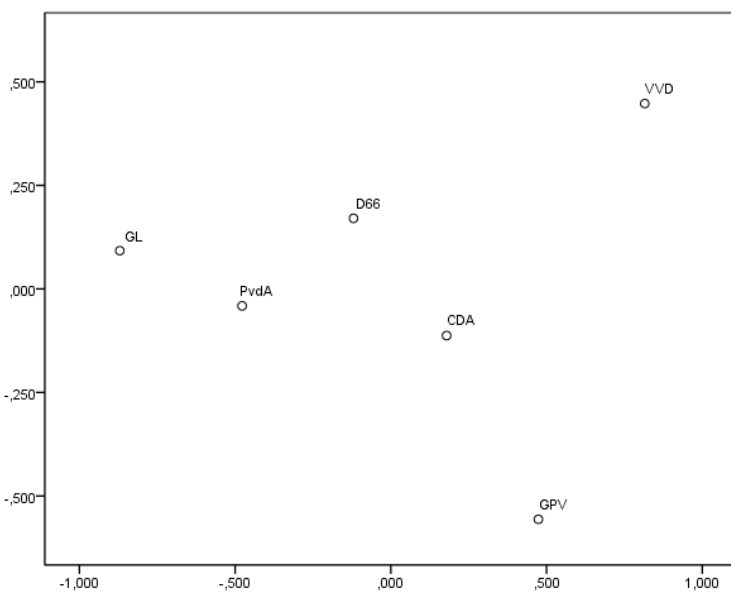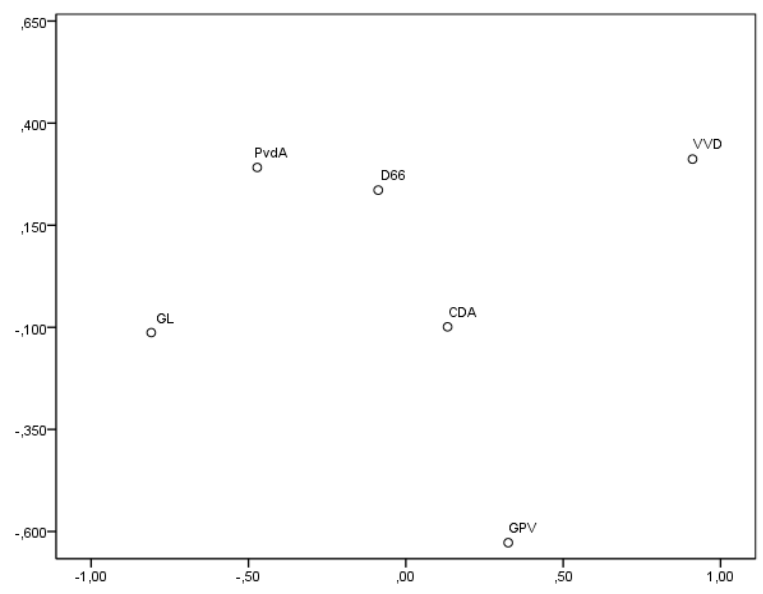

1982 including left-right positions

1982 excluding left-right positions

Spaces based on seven additional issues and six parties (maximum in data)

1998 including left-right positions

1998 excluding left-right positions