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Spatial Model Analysis of Party Policy Strategies

Insights of Deterministic and Probabilistic Voting with ‘Biased’ Voters: Applications to Finland

ACADEMIC DISSERTATION
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Abstract

According to the proximity theory of voting, if parties and voters can all be represented on the same policy issue dimension, voters will vote for the party that stands closest to their policy issue position. Contrary to the spatial tradition, the Michigan school of voting professes that voters do not take rational decisions on the grounds of policy issue proximity but vote for the party that they feel psychologically close to, meaning the party of identification.

Relying on Adams, Merrill and Grofman (2005) work that reconciles the above-mentioned traditions of voting, the thesis at hand shows the effect that a psychological characteristic such as party identification imparts on parties’ rational strategies to locate their optimal positions on the policy issue dimension. The analysis is divided into two parts. The first part assumes that voters vote with certainty or deterministically for the party of choice on the grounds of proximity and party identification. The second part assumes that voters’ decisions are probabilistic in the sense that their utilities are perturbed by unmeasured components that render their decisions uncertain from the parties’ perspectives.

Under deterministic voting it is shown by means of a simulation analysis, that parties have incentives to present different optimal positions when party identification affects the voting and when it does not. Under probabilistic voting it is shown that party identification has a curvilinear effect on Finnish parties’ Nash equilibrium positions; low levels of party identification lead to strong centripetal competition; medium levels of party identification lead to less strong centripetal competition; high levels of party identification bring the competition back to strong centripetal outcomes. The aforedescribed curvilinear effect of party identification also holds sway when data on Swedish elections is used and is in line with the results reported by Adams, Merrill and Grofman (2005) when applying the same algorithm of voting to French politics.
Applying spatial model techniques to survey data on real elections this work also shows the extent to which voters’ decisions in Finland are based on long-term psychological characteristics such as party identification as opposed to left and right policy orientation; whether Nash equilibrium positions exist in the case of Finland and Sweden and how the characteristics of such equilibrium configurations compare with previous empirical studies; the extent to which party identification and left and right policy orientation affects parties’ expected vote share; why Finnish parties with large partisan constituencies have electoral incentives to move centripetally on the policy issue dimension; whether there is a similarity between Finnish parties’ policy issue positions in 2007 with their Nash equilibrium configurations; and whether Finnish voters’ perceptions of parties’ left and right positions in 2007 are shaped by the psychologically based concept of projection.
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Gothenburg 2011
Achillefs Papageorgiou
During the funeral of their grandfather a disagreement erupts among the family members regarding the deceased person’s political beliefs.

[...]
-Don’t start arguing in front of Grandpa now.
-I can’t believe you.
-One moment [...] He wasn’t a Republican. He wasn’t even a Democrat.
-He must have been something!
-He was a foot fetishist! [...] This is the only group I remember him belonging to...

[Scene from the movie “Everyone Says I Love You”, Woody Allen, 1996]

“_ESTIN ἂρα ἢ ἀρετὴ ἔξις προαιρετικὴ, ἐν μεσότητι οὖσα
[1107a] τῇ πρὸς ἡμᾶς, ὡρισμένη λόγῳ καὶ ῥ ἂν ὁ φρόνιμος ῥίσειεν. μεσότης δὲ δύο κακῶν, τῆς μὲν καθ’ ὑπερβο- λὴν τῆς δὲ κατ’ ἐλλειψιν’ καὶ ἐτὶ τῷ τὰς μὲν ἐλλείπειν τὰς δ’ ὑπερβάλλειν τοῦ δέοντος ἐν τε τοῖς πάθει καὶ ἐν (5) ταῖς πράξει, τὴν δ’ ἀρετήν τὸ μέσον καὶ εὐρίσκειν καὶ αἰρεῖσθαι.

[Aristotle, Nicomachean Ethics Book I, 1106a14–1107a6]
Prologue

As the title promises, this thesis presents a spatial model analysis of party policy strategies. Following Adams (2001b) a party’s policy strategy is defined as the party’s optimal positioning in the space of competition. A party’s optimal position is the one at which he maximizes his votes\(^1\). The country of interest is Finland. The main aim of the study is to shed light on the effect that a ‘bias’ characteristic, such as party identification, has on Finnish parties’ optimal positioning in the space of competition. Party identification is defined as the psychological tie that the voters develop towards a political party (Campbell et al. 1960). Party identification is considered as a ‘bias’, since it predisposes voters to vote for the party that they feel the closest to. The main assumption is that party identification has a substantial effect on Finnish party optimal position taking despite the fact that fewer Finnish voters identify with political parties than in the past (e.g. Paloheimo 2003; Pesonen 2001).

Beyond this point, arguing on the effect that party identification imparts to Finnish party strategies, this work presents a series of results that fall into the realm of political analysis. This study identifies the equilibrium positions and the ‘one-off’ optima of the political parties in Finland; demonstrates the effect of policy issue considerations on Finnish parties’ equilibrium positions; assesses the effect of party identification and policy issue considerations on Finnish ideological polarization in comparison to Sweden; demonstrates the effect of assimilation and contrast on Finnish party positions, etc.

This work continues the work of studies subscribing to the Michigan school of thought, as expressed through the concept of party identification, (reviewed in detail in Chapter 1) with the methods of a formal positive analysis, such as the spatial models (reviewed in detail in Chapter 2). Although the focus of the study entails reconciling these two disparate traditions of voting, the assumption of the spatial analysis that parties seek to

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\(^1\) Throughout the thesis, I retain the convention of refereeing to the party as ‘he’ and to the voter as ‘she’.
maximize votes is retained. Methodologically, the work builds on both deterministic and probabilistic models of voting.

The most famous articulation of deterministic models\(^2\) of voting belongs to Downs (1957). As will be reviewed in detail in Chapter 2, Downs (1957) argues that voters vote \textit{with certainty} for the party that stands closest to their ideal position (Grofman 1985). In a two-party system, where voters are distributed normally, parties have electoral incentives to converge towards the centre of the distribution (Downs 1957) Albeit, Downs (1957) sets the criteria under which two competitive parties can reach equilibrium, yet in general deterministic models can rarely spot equilibria\(^3\) (Plott 1967; Cox 1990). As Ordeshook (1986) points out: “Equilibrium is assured in deterministic models only if we impose severe restrictions on the electorate’s preference distribution”. This inability of deterministic models to show the existence of equilibrium (or equilibria) concerns both the multidimensional (Plott 1967; Kramer 1972) and the single dimensional space of competition (Eaton and Lipsey 1975; Cox 1990). The observation that on many occasions parties do not converge on the centre, as the Downsian model predicts (Erikson and Romero 1990), along with the abovementioned deficiency of the deterministic models to demonstrate the existence of equilibria, paved the way for the development of probabilistic models of voting. One such model of voting was presented by Enelow and Hinich (1981). Enelow and Hinich (1981), building on the early work of Downs (1957) and Shepsle (1972), presented a model where voters are uncertain of the candidates’ positions. Enelow and Hinich (1981) showed that if voters are risk-averse and if the candidate whom the average opinion places at the centre of the distribution creates the greatest uncertainty among voters as to his intentions, then parties have incentives to move centrifugally rather than towards the position of the median voter.

\(^2\) For a review of deterministic and probabilistic models of voting see the chapter that deals with the contribution of the study.

\(^3\) For an exception see for example the study of Eaton and Lipsey (1975), Hermsen and Verbeek (1992), Adams (2001a; b) and Hug (1995) etc.
The difference between deterministic and probabilistic models of voting is relevant to the discussion of how the voters vote. If parties’ decisions determine voters’ choices, in a way that parties can accurately predict the voters’ choices then voting is considered deterministic (Coughlin 1992). In other words, deterministic voting does “not allow for error by voters” (Poole 2005: 8). On the other hand, probabilistic models bring into play the concept of uncertainty. Generally speaking, uncertainty may affect both voters and parties. The voters may be uncertain as to whether parties will implement their campaign promises, or of their exact position on the ideological map. What causes voters’ uncertainty may be a product of lack of information or of little trust in the parties. From the party’s perspective, voters’ decisions are uncertain insofar as indeterminate factors affect the voting. Such indeterminate factors may be related to personal characteristics of the leadership, unexpected events such as earthquakes, floods, terrorist acts, and valence issues such as corruption, voter mistakes and others.

The discussion on deterministic and probabilistic voting necessitates the making of distinction between intentions and behaviour. The former demarcation was first uncovered by the work of two social psychologists, Martin Fishbein and Icek Ajzen (1975). On conceptualizing a theory of planned behaviour, Fishbein and Ajzen (1975) pointed out that human behaviour depends on intentions, which in turn depend on three factors: 1) Attitude toward the behaviour, 2) Subjective norm, 3) Perceived behavioural control (Figure 1).
The ‘attitude towards the behaviour’ has to do with the degree in which an individual evaluates negatively or positively the behaviour in question. The ‘subjective norm’ refers to the pressure that the social surroundings impose on the individual as to whether to perform or not certain behaviour. Lastly, the ‘perceived behavioral control’ refers to the ‘ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles’ (Ajzen 2005: 111). An individual’s ‘perceived behavioral control’ also has a direct effect on behaviour, thus indicating that the latter is not only a matter of intentions but of ability as well. All three factors influence the individual’s intention to perform a certain behaviour. The stronger the three factors are, the stronger is also the intention to perform the behaviour.

Whether choices are deterministic or probabilistic does not refer to their behaviour but to their intentions. A voter’s behaviour is always deterministic, for the voter has to make a
(definitive) choice between two or more alternatives (political parties). Yet, it is her intentions that might be covered by uncertainty and render her decision indeterminate from the parties’ perspective.

Spatial representation of deterministic and probabilistic models

In spatial terms, deterministic models assume that a voter votes with certainty for the party that is placed closest to her ideal position while probabilistic models posit that there is a likelihood that the voter will not vote for the closest to her party. Let us assume that a voter has to decide between two parties $\chi$ and $\psi$. If voter’s $i$ decision is deterministic, then the probability that the voter will vote e.g. for party $\psi$ is either 0 or 1, that is $P_i(\psi) \in \{0,1\}$. In other words under certainty the individual’s party choice is given by a discrete probability distribution. If on the other hand, voting is assumed to be probabilistic, the probability distribution for the area that is close to the midpoint $\frac{\chi + \psi}{2}$ is given by a cumulative probability density function; while it equals 0 or 1 for the most part of the graph (Figure 2). A voter who stands at the midpoint $\frac{\chi + \psi}{2}$ is equally likely to vote for either $\psi$ or $\chi$, that is the probability of choice equals 0.5. The closer the voter moves towards $\psi$ the closer also the probability moves towards the unity. The further away the voter moves from $\psi$ — in others words the closer she moves towards $\chi$ — the faster the probability of voting for $\psi$ approaches 0 (Hinich 1977).
Deterministic or probabilistic?

For authors like Fiorina (1981) the inescapable reality of imperfect information leaves no doubt as to which of the probabilistic or deterministic models is better as a tool of political analysis; “In real world choices are seldom so clean as those suggested by formal decision theory. Thus, real decision makers are best analyzed in probabilistic rather than deterministic terms” (1981: 155).

Coughlin (1992) contends that the choice between deterministic or probabilistic models is dependent upon the level of information: “[D]eterministic voting models are most appropriate with candidates who are well-informed about the voters and their preferences…Probabilistic voting models…are most appropriate in elections in which
candidates have incomplete information about voters’ preferences and/or there are some random factors that can potentially affect voters’ decisions…” (1992: 21).

In a similar line of argumentation, Ordeshook (1986) asserts that the choice between deterministic and probabilistic models is relevant to the intentions of the researcher:

[...] If we want to design models that take cognizance of the kind of data that the candidates are likely to possess, probabilistic models seem more reasonable. On the other hand, the conclusions we deduce using probabilities depend on the specific functional forms that relate those probabilities to candidate strategies. Deterministic assumptions yield cleaner propositions, and are better suited to uncovering fundamental forces that operate in politics. Choosing between deterministic and probabilistic assumptions requires knowing research intent: uncovering general theoretical propositions, or moulding those propositions and their accompanying perspective to the limitations of our data (1986: 180).

The first part of this study adopts the assumption of deterministic voting to empirically show by means of a simulation analysis the effect of party identification on Finnish parties’ optimal positions. In the second part of the thesis, where the weight of the analysis falls on statistical testing, probabilistic models of voting are assumed.

**Justification of the study: Why bother with party identification?**

As early as in 1976, Niemi and Weisberg, studying the American electoral, argued that: “Of all the developments in contemporary electoral politics, the most remarkable is the increase in the number of Independents after the mid 60’s [...] Significantly, the increase was greatest among the young, suggesting that the electorate may become still more independent as older voters who are more partisan die off” (Niemi and Weisberg 1976: 414). Burnham also asserted that: “The interregnum state that has emerged on the ruins of the traditional partisan seems chiefly to be associated with…massive decay of partisan electoral linkages to the population” (in Fiorina 2002: 103). In the same vein, more recent
accounts of party identification assert that “Voters no longer strongly identify with one of the major parties as they once did” (Wilson 2005: 155). Other scholars (Crewe and Denver 1985; Dalton and Wattenberg 2002) reported a similar trend in continental and northern Europe (Holmberg 1994).

The decline of partisan attachments coupled with a decline in party membership, an increase in abstention and partisan volatility, and the birth of new parties shaped a general theory that became known as the *dealignment* thesis. The *dealignment* thesis maintained that “party ties were generally eroding as a consequence of social and political modernization, and thus most advanced industrial societies should experience a dealignment trend” (Dalton and Wattenberg 2002: 22). On the face of this, apace with the erosion of the significance of political parties, several psephologists turned their attention to issues such as the role of political communication (Esser and Pfetsch 2004), the role of political movements (Gamson and Meyer 1996) and others.

Given the above discussion, one could logically ponder: Why bother with party identification? I justify my answer with two arguments.

First, scholars disagree on whether or not party identification is still in decline. Bartels (2000) contends that party identification underwent a major revival in the 90’s and that any discussion of partisan deadignment is a mere anachronism. Fiorina (2002) also supports the argument that party identification enjoys resurgence today. On focusing in European countries Mair (1993) asserts that “[t]he electoral balance now is not substantially different from that 30 years ago, and in general electorates are not more volatile than they once were” (1993: 132). Other scholars focus on the relationship between party identification and voting behaviour to argue that this relationship has become stronger (Miller 1991; Bartels 2000). In Bartels’ (2000) words “partisan loyalties has at least as much impact on voting behaviour at the presidential level in the 1980s as in the 1950s” “[…] and even more in the 1990’s than in the 1980s” (Bartels 2000: 35).
In Finland, surveys have quite recently started to report party identification and not in a systematic way\textsuperscript{4}. In 1975 59\% of the voters identified with parties, in 1991 61\%, in 2003 47\%, and in 2007 54\% (Figure 3). The data do not permit the safe conclusion as to whether party identification has been in decline or on the increase. Party identification was up in 1991, down in 2003 and up again in 2007.

However, if one compares the level of party identification in 2003 and 2007 with that before the 90’s, then the percentage of voters who identify with parties has undoubtedly fallen. The argument that party identification in Finland is in decline (Paloheimo 2003; 2005; Pesonen 2001) brings us to the second reason that justifies a study of the effect of party identification on Finnish party strategies.

If party identification affects Finnish party strategies when in decline, it will also do so when on the increase. In other words, if it is shown that low levels of party identification have an effect on Finnish optimal positions, then the same will hold for higher levels of party identification\textsuperscript{5}. The thesis focuses on two types of optimal positions: a) ‘one-off’ optima and b) Nash equilibrium positions. The meaning and properties of these two types of optimal positions are explained in detail in the following chapters.

\textsuperscript{4} The Finnish National Election Study started to measure party identification systematically only in 2003.

\textsuperscript{5} Actually, the effect is expected to be even greater.
Figure 3. Data of party identification in Finland


In brief, to assess the effect of party identification on Finnish parties’ ‘one-off’ optima party positions are simulated for scenarios in which party identification is fixed at a minimum level and then compared with cases in which party identification is set at zero. To evaluate the effect of party identification on Finnish Nash equilibrium positions, an algorithm developed by Merrill and Adams (2001) is applied. The algorithm has the properties of locating unique Nash equilibrium configurations.
Contribution of the study

As mentioned in the Prologue the aim of the study is to offer a spatial model analysis of party competition in Finland showing the effect that a ‘bias’ characteristic such as party identification has on Finnish parties’ optimal position taking.

Scholars studying Finnish politics have referred to the notion of party identification with regard to whether party identification has been in decline or not. Paloheimo (2003) argues that the decline of partisan attachments has shifted voters’ attention from parties to other issues such as the personal characteristics of the leadership. Pesonen (2001) observes that both party organizations and party identification have become weaker due to “the growing volatility of the increasingly individualized and independent voters” (2001: 134). Kestilä (2006) notes that “the breakdown, or at least weakening, of the traditional cleavages has several implications: party identification has declined, party membership collapsed and parties’ local associations have lost their viability” (2006: 173). Wass (2008) uses data from the World Value Survey 2005 to stress that: “Finns have considerably more trust in the church, the army, the police and the legal system than in political parties and parliament: only 29 per cent trusted very or fairly much in parties, while the corresponding figure for parliament was 56 per cent (World Values Survey 2005: Finnish data)” (2008: 24). Comparing Finland with other European countries, Raunio and Tiilikainen (2003) also report a declining trend in both party identification and party membership.

Yet, despite the plethora of studies arguing on the decline of party identification in Finland, no study has been presented that argues whether party identification—albeit in decline—affects party strategies or not. This project aspires to fill this lacuna in the literature by showing that party identification has a substantial effect on Finnish party strategies for scenarios in which party identification is either ‘fixed’ at a minimum level (Chapter 5) or is set at its empirical value (Chapter 6).
Another contribution of the study relates to the methodology employed. As will be shown in the following lines, this is the first study to employ spatial models as a means of analyzing Finnish party strategies. Albeit the rich work on Finnish voters, elections and campaigns (e.g. Bäck and Kestilä 2008; Kestilä 2006; Karvonen and Rappe 1991; Johanson and Mattila 1994; Bengtsson and Mattila 2009; Grönlund et al. 2005; Nurmi and Nurmi 2001; 2002; 2004; 2007; Borg and Sänkiaho 1995; Paloheimo and Raunio 2008; Raunio 2005), Parliament of Finland (e.g. Isaksson 1994; Wiberg and Mattila 1997; Pajala and Jakulin 2007; Wiberg 1995; 2000), Finnish political parties (e.g. Arter 1999; Jungar 2002; Karvonen 1993; Rantala 1982; Ruostetsaari 2000; 2003; Sundberg 1994; 1995; Maunula 2008; Paloheimo and Wiberg 1997) and the Finnish party system (e.g. Arter 2006; Mattila 1997; Mylly and Berry 1984; Paloheimo 2005; Sundberg 2002b), an empirical application of spatial models in Finland has not so far been carried out.

The international scholarly literature that seeks to examine parties’ strategies through formal models of deterministic or probabilistic voting is voluminous and it cannot reasonably be exhaustively reviewed. As an example, the literature that utilizes deterministic models includes the work of Downs (1957), Black (1958), Stokes (1963), Groseclose (2001), Hug (1995), Austen-Smith (1983), Snyder and Ting (2002), Zakharov (2008), Enelow and Hinich (1982; 1984), Davis et al. (1970), Smithies (1941), Plott (1967), McKelvey (1976), Eaton and Lipsey (1975), Cox (1990), Adams (1998; 2001a) and others.

For reasons explained at length in the introduction, deterministic and probabilistic models have largely developed separately from one another. On mixing deterministic and probabilistic models this study aspires to contribute to the few studies (Adams 2001b; Adams et al. 2005) that have incorporated these two models within one and the same analysis.

In a series of publications, James Adams, Samuel Merrill III and Bernard Grofman consider two ‘known’ variables of voting: A policy issue variable that captures the spatial characteristics of the voting, and a non-policy characteristic such as party identification. Their analysis uses National Election Studies from Britain (Adams 1998; 2001a), France (Adams 2001a; Adams and Merrill 2000; Merrill and Adams 2001; 2002), Norway (Adams and Merrill 1999b), and USA (Adams et al. 2005). The study at hand, in using the same variables of voting and in selecting Finland as a case study, offers a comparative perspective on the abovementioned line of research. As will be shown in detail in the following chapters, some of the arguments of Adams, Merrill and Gofman (Adams et al. 2005) are found to hold true in the case of Finland while others are not.

To recap the contribution of this study to the existing literature, four arguments are in order:

1. This is the first study to show the effect of party identification and policy issue considerations on Finnish party strategies.
2. The study employs a spatial model analysis of the Finnish party competition. This has not been done before.
3. This study adds to the limited number of studies incorporating both deterministic and probabilistic models of voting.
4. By studying the Finnish party system, the study offers a comparative perspective on the line of research that has applied either deterministic or probabilistic models to other multiparty systems.
Plan of the thesis

Chapter 1 gives in detail the theoretical background behind the concept of party identification. The chapter begins by putting the weight of the analysis on stressing the fact that party identification is a psychological bias that voters develop towards political parties. The chapter also discusses the relationship between party identification and voting behaviour. To assess the magnitude of the relationship with regard to Finland, results are presented from an empirical analysis that draws on the Finnish National Elections Study 2003. Other issues such as the measurement of party identification, the concept of normal voting, and the notion of independents are also discussed. The chapter concludes by presenting Dalton’s functional theory of party identification. Dalton’s definition of the cognitive partisan is a currency of a great value for this project, as this is the type of the voter assumed throughout this work.

Chapter 2 presents the fundamentals of spatial analysis. Among others, the chapter refers to the concept of rationality and the paradox of voting. Since, the concept of rationality is extensive enough to support a thesis by itself, attention is restricted to those aspects that are directly relevant to the present analysis. Attention is thus paid to discussing concepts such as “rational voting”, “proximity”, “utility maximization”, “space of competition” “Euclidean metric” etc. In addition, the most famous theorem of spatial analysis, the median voter theorem, is also discussed.

Chapter 3 presents a theory that integrates the properties of the psychologically based concept of party identification with spatial analysis. The theory is attributed to the early work of Adams (1998; 2001a; b), labelled the ‘biased voting’ model. The ‘biased voting’ model is used extensively in the first part of this project where voting is assumed to be deterministic; the second part, which assumes that voting is probabilistic, modifies the ‘biased voting’ model by adding a random term to the voter’s utility.

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6 A good review of the literature on rational choice theory can be found in Hindmoor (2006).
The remaining Chapters, 4, 5, 6, 7, 8 constitute the core analysis of this study. The chapters are divided into two parts. In the first part (Chapter 4, Chapter 5) voting is assumed to be deterministic, while in the second part (Chapter 6, Chapter 7 and Chapter 8) probabilistic. All chapters adopt the same format, namely:

1) Summary, 2) [State of the problem, main analysis and results] 3) Discussion of Chapter 4) Proposals for further research 5) See Appendices.

The Summary has the properties of an (extended) abstract and it gives a general overview of the topic, method and results of the chapter. After the Summary follows the main analysis of each chapter. The headings in this part are relevant to the analysis and therefore are different in each chapter. The part entitled the Discussion of chapter presents the main results of the chapter. The section Proposals for further research concedes the shortcomings of the analysis and proposes ideas for further research. Lastly, each chapter ends with a section (See Appendices) where the reader can see what can be found in the appendices. The material presented in the appendices is either explanatory or complementary to the analysis of the chapter. The first number next to each appendix indicates the chapter to which the appendix refers. So, for example Appendix 4.1 is the first appendix of Chapter 4, Appendix 5.2 is the second appendix of Chapter 5 and so on.

The chapters are self-contained in the sense that one can read each chapter separately from the rest (A brief recap of the previous chapter’s results is given in the Summary of each chapter).

Regarding the context, Chapters 4 and 5 adopt the assumption that voting is deterministic. Incorporating elements of non-cooperative game theory and spatial model analysis, Chapter 4 offers further theoretical insights on Adams’ (1998; 2001a; b) ‘biased voting’ model of deterministic voting. Chapter 5 uses data on Finnish party positions to argue by means of a simulation analysis for the effect of party identification on Finnish parties’ ‘one-off’ optima. Two types of simulations are conducted: The partisan type, where party identification affects voters’ choice and the apartisan type, where party
identification plays no role in voters’ decisions. At the end of Chapter 5, the assumption of deterministic voting is relaxed and simple probabilistic models are introduced. The reasons for assuming probabilistic models of voting are two: first, to statistically test whether the addition of the variable of party identification in the equation used in the \textit{apartisan} type of simulations significantly improves the fit of the latter; second, to integrate in the same chapter an analysis of both deterministic and probabilistic models of voting.

The second part of Chapter 5 paves the way for the second half of the thesis, where voting is assumed to be solely probabilistic. Compared to the simple binary logit models employed in Chapter 5, the next chapters, Chapters 7, 8, and 9 assume more complex probabilistic models such as the conditional logit. The data for Chapter 6 and 8 draw on the Finnish National Election Study 2007 (FNES 2007) and for Chapter 7 on FNES 2007 and the Swedish Election Study 2006.

Chapter 6 debates on the effect of party identification on Finnish party strategies under a state of Nash equilibrium. On finding the Nash equilibrium positions of the Finnish parties, the effect of party identification is assessed by varying the later while holding constant the other parameters affecting party choice. Drawing on the role of party identification on party strategies, Chapter 7 and Chapter 8 expand the analysis presented in the previous chapters.

Chapter 7 presents a comparative analysis between Finland and Sweden. The main idea of the chapter is to uncover the role of voting parameters on the level of polarization in these two party systems. The parameters considered are party identification and policy issue considerations. Chapter 8 draws on the results of Chapter 6 to assess if Finnish voters project their own positions onto the parties.

Chapter 9 presents the main concluding remarks in the form of headings followed by a short descriptive summary, where the methodology and main results are stated. Three
theoretical and ten empirical results are presented. The theoretical results draw on Chapters 4, and 5, while the empirical ones draw on Chapters 1, 5, 6, 7 and 8. The Appendices, and the list with cited References complete the thesis.
Chapter 1: An introduction to party identification

This chapter offers a theoretical account of the concept of party identification. Party identification has been one of the most studied concepts in the field of voting behaviour in the last forty years (McAllister and Wattenberg 1995). Subsequently the concept of party identification has generated a plethora of related studies. Here, attention is restricted to some basic insights on the notion of party identification.

The chapter begins by presenting the classical definition of the concept of party identification. The next section argues that party identification is a psychological tie that is stable and synonymous neither with a consistent voting record nor party support. The section that follows discusses some measurement issues linked with party identification. The next section presents some empirical evidence regarding the strong relationship between party identification and voting behaviour. The section after that discusses the concept of independents while the last section reviews Dalton’s (1984; 2007; 2010) functional theory of party identification.

Party identification defined

The first to coin the term ‘party identification’ were Belknap and Campbell in an article published in the journal of Public Opinion Quarterly in 1952, under the title: “Political Party Identification and Attitudes toward Foreign Policy”. However, the first concrete definition of the notion of party identification did not come earlier than 1958, when The Voter Decides was published. In The Voter Decides, Campbell and his colleagues defined party identification as “The sense of personal attachment which the individual feels toward the [partisan] group of his choice” (Campbell et al. 1954: 89).

The former two publications prepared academia for a book that was meant to set a new benchmark in studies of voting behaviour. This book was The American Voter and its authors: Angus Campbell, Philip Converse, Warren Miller and Donald Stokes. The
American Voter became the reference point of the Michigan school of voting that took its name after the university with which the four authors of The American Voter were affiliated. The Michigan school of voting took the concept of party identification and transformed it into an elegant theory that has influenced the voting behaviour studies ever since.

We use the concept [of party identification] here to characterize the individual's affective orientation to an important group-object in his environment. Both reference group theory and small-group studies of influence have converged upon the attracting or repelling quality of the group as the generalized dimension most critical in defining the individual-group relationship, and it is this dimension that we will call identification. In the present chapter the political party serves as the group toward which the individual may develop an identification, positive or negative, of some degree of intensity (Campbell et al. 1960: 121-122).

Before moving on to present the basic characteristics of the concept of party identification it should be noted that throughout this and the following chapters the term ‘party identification’, ‘partisan attachment’, ‘partisanship’ and ‘party ID’ are used interchangeably. The same implies for the terms ‘party identifiers’ and ‘partisans’. Also, when a voter is described as being ‘attached’ to a party, it means here that the voter is ‘a partisan’ of that party.

The main characteristics of the notion of party identification as captured by The American Voter (1960) is that party identification is neither pertinent to a formal type of membership nor to a stable voting record, and that party identification is a stable and emotional related attribute.

Neither pertinent to a formal type of membership nor to a voting record

When one hears the term party identification the first question likely to be asked is who identifies with what? The answer, as the term reveals, is that voters identify with
(political) parties. Although, the answer is correct, the formation of the question veils an important component of party identification.

Party identification is primary identification as and secondary identification with (Greene 2004). Voters adopt an identity as identifiers of a certain party. The voters’ identification is a matter of self-conception and therefore is not based in any formal type of party membership (Blais et al. 2001).

As Campbell et al. put it:

...[P]artisans are partisan because they think they are partisan. They are not necessarily partisan because they vote like a partisan or think like a partisan, or register as a partisan, or because someone else thinks they are a partisan. In a strict sense, they are not even partisan because they like one party more than another. Partisanship as party identification is entirely a matter of self-definition (in Blais et al. 2001: 6).

The voter is self-defined as an identifier of a party and is self-positioned not (necessarily) in relation to the party but in relation to other voters who have the same “psychological tie”.

By arguing that party identification is not based in any voting record, it is clear that a person who consistently votes for the same party does not necessarily identify with this party. In other words, although there is a high likelihood that someone who always votes for the same party also identifies with this party, nevertheless one’s voting record does not suffice as exact information on his party ID; this because, a voter may vote for the same party for many reasons other than being an identifier of the party. In its positive context the fact that voting behaviour and party identification are not synonymous means that a voter’s party identification does not cease to exist when the voter casts a ballot for a party other than the party with which she identifies.
Psychological and stable

Party identification is related to emotions. This is manifest through the wording used in both *The American Voter* and *The Voter Decides*. As seen in *The American Voter*, party identification is defined as “an individual’s affective orientation to an important group-object in his environment” (Campbell et al. 1960: 21, emphasis mine) while in *The Voter Decides* as the “the sense of personal attachment which the individual feels towards the [partisan] group of his choice” (Campbell et al. 1954: 89, emphasis mine). Therefore both books make clear that the concept of party identification is a psychological related tie to political parties that is related to feelings and affection (Pierce 1970).7

Building on the argument that party identification is related to the voters’ emotional tie with the party, recent studies (Weisberg and Hasecke 1999; Roscoe and Christiansen 2001; Greene 1999; 2000; 2002; 2004; Kelly 1988; 1989; Karasawa 1991; Bartle and Bellucci 2009) assert that party identifiers have the sense of belonging to a distinct social identity group (Turner 1978; Tajfel and Turner 1979; 1986), akin to other social groups such as ethnic, occupational8, class etc. (Abrams and Hogg 1990; Turner and Hogg 1987). Green et al. (2002) take the former argument as far as to argue that party identification resembles religious identities. As Green and his colleagues argue, in the same way that one dubs himself as a Catholic (“I am a Catholic”), he also identifies as e.g. a Democrat (“I am a Democrat”) or Republican (“I am a Republican”) etc.

As with any other psychological attachment, in the case of party identification, too, the degree of affiliation fluctuates from individual to individual. The term *degree of party identification* is meant to capture this fluctuation in attachment. There are two main degrees of party identification - strong and weak. A strong party identifier is someone

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7 The affecting basis of party identification was also reaffirmed with the publication of *The New American Voter* according to which “party identification is a concept…posing that one’s sense of self may include a feeling of personal identity with…a political party” (Miller and Shanks 1996: 120, emphasis mine).

8 Not all members of occupational groups have the sense of social belonging. Usually, this is the case of occupational groups that form isolated communities, are small in size, and require close cooperation among their members (Papageorgiou 2003).
who feels very close to a political party while a weak one someone who feels less close. The term direction of party identification indicates the party towards which a voter feels close to. By combining the strength and direction of party identification, Campbell et al. (1960) classified the American voters as follows:

- **Strong Democrats**
- **Weak Democrats**
- **Lean Democrats**
- **Independents**
- **Lean Republicans**
- **Weak Republicans**
- **Strong Republicans**

Lean Democrats (Republicans) are those voters who do not feel particularly close to the Democratic (Republican) Party but who are inclined to feel more attached to the Democratic (Republican) Party in comparison to the rival (Inglehart and Klingemann 1976). The notion of independents is scrutinized in detail in the following section; suffice it to assert for now, that independents have no attachment to political parties.

Arranged across the line, the above-mentioned classification of the American electorate generates a seven-point scale, (Figure 1) where 1 stands for the position of the strong Democrats and 7 for that of the strong Republicans. The more one moves towards either end of the scale the stronger her partisan attachment becomes. The middle position in the scale denotes that voters have no partisan attachment.
Figure 1. Classification of the American electoral along the line

Ranking party identifiers on a seven-point scale has the advantage of creating a continuous ordered variable which one can regress linearly. Yet, ordering party identifiers as before in systems with more than two parties can be quite a dubious process. In a multiparty system such as that of Finland, that numbers eight parliamentary parties, the former classification would be meaningless.

Another characteristic of party identification is that it remains “stable [...] and relatively impervious to change” (Fiorina 1981: 86). Although the matter of stability has weathered a plethora of critique from studies that argue that party identification is a subject of change relevant to the performance of the incumbent party (Fiorina 1981), the attractiveness of the party’s policy issue program (Franklin and Jackson 1983; Clarke and Stewart 1984; 1985), and the president’s charisma (Page and Jones 1979), nevertheless “the empirical record today favors the original claim made on behalf of party ID: Americans possess varying degrees of partisan attachment that remain stable over time” (Schickler and Green 1997: 452). The stability of party identification has been echoed in various studies focusing on the USA and beyond (Green et al. 2002; Budge et al. 1976). The main reason for the discrepancy between the studies that argue that party identification remains stable and those which argue that voters change their party ID (e.g. Stevenson 1987; Meier 1975; Johnston and Pattie 1996) is that the latter usually fail to take account of methodological issues such as measurement error (Green et al. 2002) or they adopt statistical techniques that are inadequate for tracing the individual voter’s partisanship across the time (2002).

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9 Green et al. (2002) refer to the scholarly practice of measuring partisanship in the U.S. by employing the three-point scale (Democrats-Independents-Republicans) instead of the seven-point scale (Strong Democrats-Weak Democrats-Lean Democrats-Independents-Lean Republicans-Weak Republicans-Strong Republicans). The three-point scale has the disadvantage of exaggerating the percentage of independents by
One remark stands out here. When arguing that party identification is stable, this refers to the direction and not to the degree of the partisan attachment. Results from empirical data show that voters’ partisan attachment becomes stronger with age (Campbell et al. 1960; Shively 1979; Bowler et al. 1994). In addition, Converse (1969) showed by employing a time series analysis that voters adopt stronger party identities due to a life-cycle process. According to Converse (1969; 1976) in countries that have experienced ‘political shocks’, such as wars, the life-cycle relationship between partisanship and age is absent, whereas in countries with an uninterrupted political life the feeling of party closeness is analogous to the time during which the voter has been attached to the party. The longer the time of attachment is, the stronger the degree of attachment becomes.

**Independents in the classical literature of party identification**

It should be clear by now that independents are those voters who do not identify with political parties. Here, attention is given on elaborating how each of *The Voter Decides* and *The American Voter* approach the concept of independents.

The authors of *The Voter Decides* treat the independents as the remnants of those not reporting any partisan attachment (Weisberg 1980). As such *The Voter Decides* considers independents tantamount to a-partisans or non-partisans.

Contrary to *The Voter Decides* the authors of *the American Voter* did not see independents as a group of voters who just “lack of positive attraction to one of the parties”. According to *The American Voter*: “Certainly independence of party is an ideal of some currency in our society, and it seems likely that a portion of those who call themselves Independents are not merely reporting the absence of identification with one of the major parties” (Campbell et al. 1960: 123).

tapping voters whose identification is leaning towards either the Democrats or the Republicans as having no partisan attachment.
The authors of *The American Voter* amplified the notion of independents to contribute to a more general discussion that added to the belief that parties are a *sine qua non* in politics. According to Campbell et al. (1960) the type of independent who is “attentive to politics, concerned with the course of government, who weights the rival appeals of a campaign and reaches a judgment that is unswayed by partisan prejudice…” (1960: 143) scarcely appears in the tradition of politics. Usually

*...]Independents tend as a group to be somewhat less involved in politics. They have somewhat poorer knowledge of the issues, their image of the candidates is fainter, their interest in the campaign is less, their concern over the outcome is relatively slight, and their choice between competing candidates, although it is indeed made later in the campaign, seems much less to spring from discoverable evaluations of the elements of national politics* (Campbell et al. 1960: 143).

This negative view of independents in *The American Voter*, is no source of wonder. As will be discussed later, at the time that *The American Voter* was written, voters had no other means to clarify the opaque signals of politics than through the political parties. Political parties were the only channels through which voters could express an interest in politics. Subsequently, a lack of attachment to political parties automatically implied a lack of interest in politics.

**Measurement of party identification**

The first to measure party identification was the Survey Research Center (SRC) in 1952 Election Study. The question was worded:

*Generally speaking do you usually think of yourself as a Republican, a Democrat, an Independent or what?*

The use of the terms “general speaking” and “usually” are intended to capture the long term horizon of the notion of party identification. The term “think of yourself” aims to
capture the self-categorization aspect of the notion. However, the employment of the prompt “think” in the formulation of the question is problematic. “Thinking” is related to a process that reflects cognition and as such it fails to capture the affective component of party identification (Burden and Klofstad 2005). Ironically, the authors of The American Voter employed the SRC wording to measure party identification despite their emphasis on the affective nature of the notion.

Slightly different from the SRC wording is the Gallup question that measures party identification by asking:

In politics, as of today, do you consider yourself as a Republican, Democrat or Independent?

The term “consider” entails the same qualifications as the term “think” as discussed above, and thus there is no need to dwell more on this. Gallup’s main difference from the SRC wording is the use of the term “as of today”. The use of the term “as of today” captures a transient reference of the notion of party identification as opposed to the terms “generally speaking” and “usually” used by SRC, which capture the long term horizon of the concept of party identification.

Other studies such as the Finnish National Election Study 2003 or the Flash Eurobarometer measure party identification by asking the following question.

Do you feel close to a political party? (1)

In the case of the Finnish National Election Study 2003 if the answer is “yes”, then the responder is asked the open-ended question.

Which party is this? (2)

If the answer to (1) is “no”, then the responder is asked:
Do you feel closer to one party compared to the other? (3)

Question (1) measures party identification in terms of closeness. The use of the word “feel” has the advantage of capturing the component of affection and for this reason it is very close to the classical definition of party identification as stressed by the Michigan School. Moreover, the use of the term “feel close to” has the property of capturing the self-identification prompt without confusion with group belonging.

Does wording matter, and if so, which one should be preferred over the other? On answering the first part of the question, Burden and Klofstad (2005) professed that the wording of the question asserts an effect on both the distribution of responses and the response time. Regarding the former, Burden and Klofstad (2005) measured the direction of party identification in two instances, initially by using the “think” and then the “feel” measure. When the “think” measure was used the Democrats outnumbered the Republicans by 10 points. When the prompt “think” was replaced by the prompt “feel”, the results were reversed; the Republicans outnumbered the Democrats by 10 points. The fact that “thinking” favoured the Democratic Party while “feeling” favoured the Republican Party caused the authors to assert that some voters are “Democrats in their heads but Republicans in their heart” (Burden and Klofstad 2005: 877). Also, when “think” was replaced by “feel”, it took 10% longer for respondents to report their party identification. The authors justified this outcome on the ground that when feelings were primed to thought, voters had to “dig more deeply for material on which to base their responses” (2005: 879).

The answer to the question “which wording should be preferred?” is akin to the answer that the cat gave to Alice, in the book ‘Alice in Wonderland’, when asked which road she should take: The cat replied: “It depends where you want to go”. If one wants to reconcile

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10 The Finnish National Election Study 2007 (FNES 2007) retains the closeness component, yet it replaces the term “feel” with the term “think”. The question that measures party identification in FNES 2007 is: “Do you think of yourself as close to any particular party?”
the classical definition of party identification with its measurement then a wording that
primes feelings rather than thoughts is appropriate. If, on the other hand, the importance
lies in stressing the long-term horizon of the notion of party identification then the SRC
question should be preferred.

**Party identification and voting behaviour**

Although party identification is not synonymous to voting record, the strong relationship
between voting and party identification has been reported in numerous of studies (e.g.
Campbell et al. 1960; Miller 1991; Bartels 2000; Green et al. 2002; Miller and Shanks
1996 etc.). Here I test the relationship between party identification and voting behaviour
in Finland (data: Finnish National Election Study¹¹ (FNES) 2003) in light of two arguments.

1. Party identifiers are more likely than independents to turn out to vote.
2. When a voter identifies with a party usually she votes for this party in the
elections.

With respect to the first proposition, a cross-tabulation between turn-out¹² (dependent
variable) and party identification (independent variable) shows that of those voters who
did not turn out to vote in 2003, 77.1% were independents while only 22.9% were party
 identifiers (Table 1). In addition a chi-square test reveals that the relationship between
turn-out and party identification is statistical highly significant
\( \chi^2 = 71.754, p < 0.001, df = 1 \). In other words, turn-out is not independent of party
identification.

¹¹ Finnish National Election Study 2003 [computer file]. FSD1260, version 1.0 (2003-10-09). Karvonen,
Lauri (Åbo Akademi University) & Paloheimo, Heikki (University of Tampere) & Elections and
Representative Democracy in Finland research group [authors], 2003. Espoo: TNS Gallup Finland [data

¹² To create the variable turn-out the analysis considered those voters who cast votes on the day of elections
and those who voted at an earlier date.
Table 1. Relationship between party identification and turn-out (data: FNES 2003)

<table>
<thead>
<tr>
<th>Turn-out</th>
<th>Pid</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>No</td>
<td>54</td>
<td>182</td>
</tr>
<tr>
<td></td>
<td>22.9%</td>
<td>77.1%</td>
</tr>
<tr>
<td>Yes</td>
<td>536</td>
<td>466</td>
</tr>
<tr>
<td></td>
<td>53.5%</td>
<td>46.5%</td>
</tr>
<tr>
<td>Total</td>
<td>590</td>
<td>648</td>
</tr>
<tr>
<td></td>
<td>47.7%</td>
<td>52.3%</td>
</tr>
</tbody>
</table>

Notes: $\chi^2 = 71.754$, $p < 0.001$, $df = 1$

To test the second argument two types of correlations are presented. The first type, are bivariate correlations between party identification and party choice. As it can be seen in Table 2, the correlation between party identification and voting for the same party is not only highly significant (correlations in bold face, Table 2) but also bigger compared to any other pair-wise correlation\(^{13}\). The biggest correlation is for RKP where almost all voters who identify with the party also vote for it. This result makes for intuitive logic, for the votes of the Swedish People’s Party usually come from a specific part of the Finnish population, the Swedish-speaking minority, which that has one of the highest and most stable percentages of partisan attachment. The smallest correlation is for VIHR, indicating that the Greens’ identifiers are the more likely to vote for a rival party than any other party identifier.

As Holmberg (1994) eloquently notes, the paradox of correlating party identification with party choice is that we “want high correlations but not too high” so that we will not be accused of “merely measuring current voting intentions” (1994: 95). On average the correlations in bold face equal 0.8, thus indicating a strong relationship between party

\(^{13}\) To see this compare the correlation in bold face with all other correlation results across the same row.
identification and party choice, yet keeping the two concepts (party identification and party choice) apart.
Table 2. Bivariate correlations between party of identification and party voted (data: FNES 2003)

<table>
<thead>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SDP</td>
<td><strong>0.83</strong>*</td>
<td>-0.26***</td>
<td>-0.19***</td>
<td>-0.11***</td>
<td>-0.24***</td>
<td>-0.06</td>
<td>-0.14***</td>
<td>-0.05</td>
</tr>
<tr>
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<td>-0.27***</td>
<td><strong>0.84</strong>*</td>
<td>-0.13**</td>
<td>-0.14***</td>
<td>-0.20***</td>
<td>-0.13**</td>
<td>-0.12**</td>
<td>0.01</td>
</tr>
<tr>
<td>KOK</td>
<td>-0.21***</td>
<td>-0.16***</td>
<td><strong>0.83</strong>*</td>
<td>-0.10*</td>
<td>-0.09*</td>
<td>-0.08</td>
<td>-0.07</td>
<td>-0.03</td>
</tr>
<tr>
<td>VAS</td>
<td>-0.14***</td>
<td>-0.12**</td>
<td>-0.09*</td>
<td><strong>0.80</strong>*</td>
<td>-0.08</td>
<td>-0.08</td>
<td>-0.06</td>
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</tr>
<tr>
<td>RKP</td>
<td>-0.25***</td>
<td>-0.21***</td>
<td>-0.09*</td>
<td>-0.11**</td>
<td><strong>0.92</strong>*</td>
<td>-0.10*</td>
<td>-0.06</td>
<td>-0.03</td>
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<tr>
<td>VIHR</td>
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<td>-0.13**</td>
<td>-0.09*</td>
<td>0.05</td>
<td>-0.10*</td>
<td><strong>0.61</strong>*</td>
<td>-0.04</td>
<td>-0.02</td>
</tr>
<tr>
<td>KD</td>
<td>-0.12**</td>
<td>-0.12**</td>
<td>-0.10*</td>
<td>-0.07</td>
<td>-0.09*</td>
<td>-0.02</td>
<td><strong>0.83</strong>*</td>
<td>-0.02</td>
</tr>
<tr>
<td>PS</td>
<td>-0.03</td>
<td>-0.03</td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.02</td>
<td><strong>0.71</strong>*</td>
</tr>
</tbody>
</table>

Notes: N=593. * p < 0.05, ** p < 0.01, *** p < 0.001
The second type are partial correlations controlling for sex, education, income, occupation, employment status, trade union membership and language.

**Table 3.** Partial correlations between PID and party voted (with controls on sex, education, income, occupation, employment status, trade union membership and language)\(^{14}\) (data: FNES 2003)

<table>
<thead>
<tr>
<th></th>
<th>SDP</th>
<th>KESK</th>
<th>KOK</th>
<th>VAS</th>
<th>RKP</th>
<th>VIHR</th>
<th>KD</th>
<th>PS</th>
</tr>
</thead>
<tbody>
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<td></td>
</tr>
<tr>
<td>KESK</td>
<td></td>
<td>0.84</td>
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<td></td>
</tr>
<tr>
<td>KOK</td>
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<td>0.81</td>
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<td></td>
</tr>
<tr>
<td>VAS</td>
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<td></td>
<td>0.82</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>RKP</td>
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<td></td>
<td>0.40</td>
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<tr>
<td>VIHR</td>
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<td>0.62</td>
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<tr>
<td>KD</td>
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<td>0.87</td>
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<td>PS</td>
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<td></td>
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<td>0.82</td>
</tr>
</tbody>
</table>

*Notes:* N=433, entries are statistical significant at \( p < 0.001 \)

The correlations in Table 3 are very similar and in some cases clearly higher (e.g. KD, PS) than those reported in Table 2. There is only one real exception to the former and this involves the case of RKP. RKP’s correlation drops from 0.92 to 0.40 when controls are imposed. On lifting the controls one by one, it was found that the reason behind this sharp downfall of \( r \) was controlling for employment status (full time/ part time/ unemployed/ redundant/ not in working life). Omitting the control of employment status, the partial correlation equalled the bivariate correlation at 0.92.

\(^{14}\) Finland’s two official languages are Finnish and Swedish.
Dalton’s functional theory of party identification

This chapter concludes by reviewing Dalton’s (1984; 2007; 2010) functional theory of party identification. Dalton’s (1984; 2007; 2010) description of the cognitive partisan is the type of voter implicitly assumed throughout this project. This is a voter who does not identify slavishly with political parties but also has the cognitive ability to evaluate the parties’ policy issue positions.

Dalton builds his theory of party identification on the concept of cognitive mobilization. Cognitive mobilization is a term referring to the individual’s effort to gather information and use it as a yardstick for political decisions. Relevant to the strength of party identification and the degree of cognitive mobilization, one can distinguish among four different patterns of political mobilization (Table 4). If cognitive mobilization is high and the strength of partisanship is weak, the type of apartisan emerges. Apartisans are cognitively mobilized, sophisticated voters free from affective party ties. Their political participation is mostly developed through action groups, lobbying, protest demonstrations and not so much through voting turn-out (Dalton 1984). On the other hand, those who are lacking both the interest in politics and the psychological tie with parties are labeled as apoliticals.15

Table 4. Different types of party identifiers

<table>
<thead>
<tr>
<th>Cognitive mobilization</th>
<th>Partisan attachment</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Weak</td>
</tr>
<tr>
<td></td>
<td>Apartisans</td>
</tr>
<tr>
<td>Low</td>
<td>Apoliticals</td>
</tr>
</tbody>
</table>

Notes: Source: Dalton (2007)

15 Granberg and Holmberg (1988) call this group ‘apathetics’.
The *ritual partisans* (Petersson 1978) use their party identity as a yardstick for their politicization. For this type of voters, partisanship functions as the main “perpetual screen” through which voters fathom the nuances of political messages. The *ritual partisans* are likely to vote ‘habitually’ and cast a ‘normal’ ballot for the party of their support. Pomper (1975) describes the *ritual partisans* as “dependent voters.”

*The dependent voter does not make an autonomous choice on the basis of the issues and candidates. He relies instead on indirect and uncertain relationships;...political discourse is limited, sparse and desultory...Family background, cultural milieu, all of the inchoate pressures of “socio-economic status” seem subtly to work on the voter in a process which is neither rational nor accompanied by high interest...Party is a type of a social group, a group that happens to be political. Attachment to this group is, therefore, psychological in character, and is not essentially a political phenomenon...In place of individual judgment, group influences determine the dependent voter’s choice. A person thinks politically as he is socially, for his vote formed in the midst of a group decision* (1975: 16).

In a nutshell the type of the *ritual partisan* stems from the logical argument that “less sophisticated voters would be more dependent on the political system to provide cues as to where the parties or the candidates stand on the issues” (Listhaug et al. 1994a: 280). This *ritual partisan* is the type of identifier actually described by the authors of *The American Voter* although not explicitly mentioned. Dalton (2007) argues that this type of partisan that the authors of *The American Voter* described is nowadays in decline. Concomitantly with the expansion of the mass media and the decline in the cost of information (Shively 1979) the “functional need for party cues” (Dalton 2007) has ceased to be so dominant. Nowadays, political parties in most of the industrial democracies are inadequate to deal with modern challenges as these are environmental protection, immigration, the economic crisis of the welfare state and others. In order to deal with modern issues citizens are mobilized in different groups of political activation which sometimes surpass the power of political parties, as this is the case of legitimized independent authorities. This new type of citizen with an increased cognitive ability
(Dalton 2007) marks the birth of a new type of partisan that of the *cognitive partisan*. The *cognitive partisans* do not vote slavishly for the party of support as there are also cognitive resources which drive their politicization.

This project takes on board Dalton’s thesis that the *ritual partisan* has been replaced by the *cognitive partisan* who is much more a sophisticated citizen than the voter that the authors of *The American Voter* had in mind. As it will be argued in detail in Chapter 3 voters vote against the party of identification when their utility by doing so surpasses the degree of their partisan attachments.

The idea of the voter as a utility maximizer is the bedrock of the rational school of voting. Scholars who admit belief in the rational school of voting employ formal models to conceptualize voters’ behaviour. Such formal models have been advanced by the spatial theory of voting to which we turn our attention in the next chapter.
Chapter 2: The spatial theory of voting

This chapter presents some basic discussion of spatial models. Although the theory of spatial modeling has been applied to explain the inter-institutional power and legislative decision in the European Union (Napel and Widgrén 2004; Thomson 2011), to solve voting paradoxes (Nurmi and Saari 2009), to fathom parliamentary voting (Poole 2005) and coalitional arrangements (Schofield 2008), here the focus is on seeing how spatial models can shed light on party competition.

As will become apparent from the presentation of the spatial theory of party competition, the theory rests on a series of assumptions regarding the behaviour of both parties and voters. It is beyond any doubt that some of these assumptions are a simplification of real life situations. However, “even though a theory’s assumptions may not be 100 per cent accurate, they may be, as economist Milton Friedman has noted, “sufficiently good approximations for the purpose at hand”’ (in Arnold 2010: 197). A good theory is one that is testable (Popper 1963) and yields reasonable predictions (Frank 2002); and the spatial theory of party competition, despite its weaknesses\textsuperscript{16}, is such a theory (Westholm 1997).

The concept of rationality

Spatial analysis has been applied to various fields such as psychology, economics and political science. The idea of spatial analysis was first introduced by economists such as Hotelling (1929) and Smithies (1941) yet with the publication of Anthony Downs’ “An Economic theory of Democracy” in 1957 spatial models in politics came into their own.

\textsuperscript{16} More on the shortcomings of the spatial theory of voting can be read at Macdonald, Rabinowitz and Listhaug (1997; 1998; 2001; 2007), Listhaug, Macdonald and Rabinowitz (1990; 1994b), Green and Shapiro (1994) etc.
Spatial models are embedded in the concept of rationality. Commencing from the principles of economic theory Downs (1957) defines a behaviour as rational when a “man moves towards his goals in a way which, to the best of his knowledge, uses the least possible input of scarce resources per unit of valued output” (1957: 5). An important remark emanating from Downs’ definition is that rationality is associated with the means that one chooses to pursue a goal and not the goal itself. Goals cannot be classified as rational or irrational (Robertson 1976). For instance, a voter who turns out (means) to cast a ballot for the preferred party (goal) is a rational agent; by the same token a religious person who prays to God (means) for the ‘salvation of her soul’ (goal) is also a rational agent as she uses relevant means to achieve her goal. Applying the concept of rationality to homo politicus a citizen acts as a rational agent when he “casts his vote for the party he believes will provide him with more benefits than any other” (Downs 1957: 36).

To formalize the concept of rationality Downs (1957) builds on the ground of utility maximization and expected utility maximization. A voter is a rational actor when she will vote for the incumbent (party $A$) instead of the opposition (party $B$) if she believes that after the elections, at time $t+1$, her expected (E) utility ($U$) when $A$ is in office will be bigger than when $B$ is in office:

$$E(U_{t+1}^A) > E(U_{t+1}^B) \quad (1)$$

When (1) is valid, we say that the individual strictly prefers $A$ to $B$. If relationship (1) is in the opposite direction then the voter strictly prefers $B$ to $A$. If the voter’s expected utility differential equals zero:

$$E(U_{t+1}^A) - E(U_{t+1}^B) = 0 \quad (2)$$

the voter is indifferent regarding the two alternatives and decides to abstain.

According to Downs (1957), since one of the parties is already currently in power at time, $t$, the voter can assume that her utility will remain the same in the future if the incumbent
(party A) wins again\(^{17}\). Also, the voter estimates the opposition performance had it also been in power at current time \(t\) (1957). Thus the voter compares an expected with a ‘current’ utility decreasing thus the level of uncertainty:

\[
U_t^A - E(U_t^B) \quad (3)
\]

Downs (1957) describes the main steps of a rational voter as follows:

1. Acquire information on a specific policy issue.
2. Use this information which is important to her.
3. Analyse the facts for a specific issue.
4. Value how a specific policy will serve an issue.
5. Create a “net evaluation” for each political party.
6. Decide by comparing the net evaluation of each party.
7. Vote or abstain.

Ironically, the concept of rationality leads to a paradox (Nurmi 1999) according to which if a voter is rational she will never or very seldom turn out to vote\(^{18}\). A voter must spend time and money to become informed on the parties’ policy issues so to make the best decision. A voter also has the cost of showing up at the polling station on election day\(^{19}\). Either taking the public transport or using her car the voter has to pay a cost.

\(^{17}\)This is a simplified assumption made by Downs (1957). One may aptly argue that voters will vote again for the incumbent hoping that their utility will be higher than today.

\(^{18}\)Fiorina calls the paradox of not voting the “paradox that ate rational choice” (in Grofman 1995: 93).

\(^{19}\)In Finland, voters can also vote in advance. Advance voting begins on the 11th day before the election date. Also voting can take place at home if the citizen cannot get to polling stations due to serious disability.
On the other hand having millions of people turning out to vote, the ballot of a single individual does not make a difference. According to Meehl (1977) the chances of casting the decisive vote in the American Presidential elections is smaller than that of dying in a car accident or being struck by a lightning bolt on the way to the polls. In the same vein Evans (2004) gives the following example. Assuming that the utility of a voter when voting is £1,000 and that the possibility to cast the decisive vote is 1 in 100,000. In this case the expected utility of the voter is 1 penny (£1,000×0.00001). Since the cost of transportation or the cost of information is likely to be more than 1 penny, one would logically ask why a rational voter should turn out to vote.

Downs’ (1957) solution to the abovementioned paradox, is that the rational voter will turn out to vote because if she does not do so, democracy will collapse, and the cost of such an event is far greater than the cost that the voter bears when she turns out to the polls.

Other authors (Riker and Ordeshook 1968; Bufacchi 2001; Overbye 1995) argue that the satisfaction that a voter feels from casting her ballot is not only related to the electoral outcome. Through the action of voting voters feel the satisfaction of being active members of a community, and of contributing to the well-being of society.

However, neither of these explanations is adequate. Regarding the latter argument, according to which voters enhance their satisfaction by offering something to the community, this can hardly be compatible with the definition of the rational voter since it is related to the voter’s feelings (Barry 1978).

Downs’ (1957) argument, according to which voters show up to the polls because they do not want to bear the cost of a possible collapse of democracy, also fails to take into account what causes the paradox of rational voting in the first place. For the same reason that a voter’s chance of casting the decisive vote are miniscule, so also is the chance that the abstention of a single voter will bring about the collapse of democracy.
By inverting the argument Ferejohn and Fiorina (1974) give an eloquent answer to the paradox\textsuperscript{20}. In short, if a voter knows that it is rational for every other rational voter to abstain, then she has an obvious incentive to turn out and cast the decisive vote.

Quoting:

\emph{If a citizen calculates according to the conventional analysis, he will decide to abstain. But all citizens will arrive at the same decision, therefore a smart citizen would vote and single handedly decide the election. And yet, other citizens would also follow this strategy so may be he should abstain after all. But if other citizens reason similarly, may be...and so forth} (Ferejohn and Fiorina 1974: 527).

\textbf{The space of party competition}

A strong assumption of the spatial theory of voting is that:

\emph{The positions the candidates announce prior to an election will be the positions they subsequently enact once in office. Since voters typically have preferences defined over policy outcomes and not over electoral announcement per se, but their only information at the time of voting consist of these announcements per se, the equivalence of announced position and policy outcome appears to be one analytical tractability at the expense of realism} (Banks 1990: 311).

Another basic assumption of the spatial theory is that voters’ and parties’ preferences can be demonstrated as points in the policy space. The space may consist of one or more coordinates, depending on the number of issues. When there is a single issue, the space is one-dimensional, when the policy issues are two the space is defined by two coordinates and so on. It goes without saying that there are endless policy issues that can define the

\textsuperscript{20} For a mathematical demonstration of Ferejohn and Fiorina’s (1974) argument see Nurmi (1999: 46-49).
dimension of competition. However, for an issue to be considered as such in politics, it needs to fulfill certain criteria.

First, it needs to be meaningful. A meaningful issue is the one that is recognizable by the voter and one that demands a certain policy action on behalf of the party. Arguing that an issue needs to be recognizable by the voter means that the voter should perceive this as a reason for a positive or a negative vote or abstention.

Another criterion set by Sartori (1976) is that an issue needs to be controversial. If parties hold the same position on an issue, then voters would not be able to differentiate and make up their minds. Stokes refers to issues that raise no differentiation as “valence issues” as opposed to “position issues”. “Valence issues” are consensual issues such as ‘fighting crime’ ‘economic growth’ etc. as it is hardly possible to find a party that will e.g. oppose economic growth.

In Stokes’ (1963) words:

_Let us call “position issues” those that involve advocacy of government actions from a set of alternative over which a distribution of voter preferences is defined. And...let us call “valence issues” those that merely involve the linking of the parties with some condition that is positively or negatively valued by the electorate_ (1963: 373).

Lastly, ‘group interest responses’ (Barry 1978) cannot be classified as an issue. When, for instance, one argues that this party is a ‘worker’s party’ he reflects the image of the party and not a specific policy issue position on behalf of the party (Sartori 1976).

Political analysts often define the dimension of competition in terms of ‘left and right’. The distinction between ‘left and right’ is attributed to the pre-Socratic philosophers in ancient Greece. The pair right and left appears in the Pythagorean ‘Table of Opposites’ (found in Aristotle’s _Metaphysics_ ed. 1998 A 5986a 22ff) There Pythagoras associated the right with ‘good’ while the left with ‘evil’. Also Pythagoras believed that sacred-
places like temples should always be entered from the right, which is the origin of the even numbers and therefore symbolizes something ‘good’ (Pythagoras ed. 1999). Before Pythagoras, Homer also shared some similar beliefs in his *Iliad* when perceiving the omens on the right as a good thing but those on the left as inauspicious (ed. 1998, XXIV: 315-321).

Beyond ‘good and evil’, the use of ‘left and right’ in purely spatial terms in politics is traced back to the Constituent Assembly, which emerged after the French Revolution. In Thomas Carlyle’s words “…as in all human Assemblages, like does begin to arrange itself to like;…There is a Right Side (Côté Droit), a left side (Côté Gauche); sitting on M. le President’s right hand or on his left: the Côté Droit conservative; the Côté Gauche destructive…” (Carlyle ed. 2009: 120).

The advantage of ‘left and right’ is that it gives a good overview of a party’s ideology in broad terms. When a voter thinks of a party’s ideology she often thinks in terms of left and right. On the other hand, the left and right dimension can be a ‘sword of Damocles’ for studies interested in comparative analysis. This is because what people might think of as a ‘left party’ in one country might not be considered as such in another, where the classification criteria are different.

Another advantage of the left and right dimension is that it can reveal information on the party’s position in other settings. When voters are asked about parties’ ‘left and right’ positions they order parties having some latent issues in their minds. On studying 47 countries Benoit and Laver (2006) found that in most cases parties’ left and right placement is based on socio-economic criteria, such as ‘laissez faire’ versus ‘interventionism’ and ‘liberal’ versus ‘conservative’. Thus, knowing a party’s ‘left and right’ one can exact information on the party’s position on another policy issue dimension. Technically this can be done by multidimensional scaling (MDS). With reference to Finland MDS has been conducted by Paloheimo and Raunio (2008: 54). On using data from the Finnish National Election Study 2007 regarding party positions on

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21 In Greek the word for ‘even’ is ‘άρτιος’ and also means ‘perfect’.
the left and right dimension, Paloheimo and Raunio (2008) generated parties’ positions on a synthetic scale of “traditional moral values and multiculturalism”.

Utility maximization as a function of distance

In placing the parties and voters on the same dimension, the spatial theory holds that the voters vote for the party that is the closest to their ideal position (Downs 1957). For this reason Downs’ spatial theory is often referred to as proximity theory. The following simple examples articulate the nuance of proximity theory.

Assume that policy issue distance \( d \) is the sole determinant of party choice. Also, assume that \( v \) stands for the voter, \( x_v \) for her position in a policy issue dimension, \( \lambda \) and \( \lambda_1 \) for the contestant parties and \( x_{\lambda} \) and \( x_{\lambda_1} \) for the parties’ positions respectively in the same dimension. Voter \( v \) will prefer party \( \lambda \) over \( \lambda_1 \) if and only if 
\[
d(x_v, x_{\lambda}) < d(x_v, x_{\lambda_1}) ;
\]
while she will be indifferent to them if and only if 
\[
d(x_v, x_{\lambda}) = d(x_v, x_{\lambda_1}) .
\]
Figure 1 (cases (a), (b), (c), (d)) pictures four cases where voter \( v \) is closer to \( \lambda \) compared to \( \lambda_1 \) and thus votes for \( \lambda \).
In situations where two parties keep the ratio of the distance unchanged between them and the voter, the latter will have no incentive to change her voting preference. Such a case is depicted in Figure 2 (case a) and b)). In either a) or b) the voter is proportionally equally indifferent between the alternatives, \[\frac{d(x_v, x_\lambda)}{d(x_v, x_{\lambda_e})} = \frac{d(x'_v, x'_\lambda)}{d(x'_v, x'_{\lambda_e})} = 1,\] and will therefore abstain.

**Figure 1.** Single voter’s preferences
From the latter example, it should be clear that the voter’s utility function is symmetric; same distance departures in opposite directions from the voter’s ideal point result in the same decline in her utility.

Now consider that we do not have just one voter but millions, as this is usually the case in national elections. Finding parties’ vote share by calculating each voter’s party choice separately would be a daunting process. To find each party’s vote share we work as follows. We divide the dimension in parts as these are defined by the parties’ positions. Since in this example there are only two parties, the dimension is divided into three parts (Figure 3). One from \((\alpha, x_\lambda)\), another one from \((x_\lambda, x_{\lambda_1})\) and one from \((x_{\lambda_1}, \beta)\).

Applying the proximity theory it is clear that all voters on the left of \(x_\lambda\) vote for party \(\lambda\), while all those on the right of \(x_{\lambda_1}\) for \(\lambda_1\).

The question is what happens with the voters found in between the two contestant parties, that is the voters who are found in \((x_\lambda, x_{\lambda_1})\). How would one expect these voters to vote?

To answer the question one needs to find the cut-point between the two parties. The cut-
point between party $\lambda$ and $\lambda_1$ is at $\frac{x_{\lambda} + x_{\lambda_1}}{2}$ and is the point that is equidistant from both parties. At this very point the voters will be indifferent between $\lambda$ and $\lambda_1$ because neither of the parties is closer to their ideal position. Regarding the voters who are between $\lambda$ and $\lambda_1$ the same logic of proximity theory applies. Applying, as before, the logic of proximity theory all voters to the left of $\frac{x_{\lambda} + x_{\lambda_1}}{2}$ vote for $\lambda$ - as this is the closest party- and all voters to the right of $\frac{x_{\lambda} + x_{\lambda_1}}{2}$ vote for $\lambda_1$. Therefore, party $\lambda$ gets all voters at $\left(\alpha, \frac{x_{\lambda} + x_{\lambda_1}}{2}\right)$, while party $\lambda_1$ all voters at $\left(\frac{x_{\lambda} + x_{\lambda_1}}{2}, \beta\right)$ (Figure 4).

![Figure 4. Cut-point in a two-party competition](image)

Now assume that we have more than two parties. Assume that $\lambda$, $\lambda_1$, $\lambda_2$, .. $\lambda_n$ ($n \in \mathbb{N}$) are contestant parties with positions $x_{\lambda}, x_{\lambda_1}, x_{\lambda_2}, ..., x_{\lambda_n}$ respectively. As shown before, in order to calculate each party’s vote share one needs to find the cut-point for each pair of contestant parties and apply the logic of proximity theory. On finding the cut-points for each pair, it can be easily seen that the voters at $\left(\alpha, \frac{x_{\lambda} + x_{\lambda_1}}{2}\right)$ vote for the party closest to them, party $\lambda$, the voters at $\left(\frac{x_{\lambda} + x_{\lambda_1}}{2}, \frac{x_{\lambda_1} + x_{\lambda_2}}{2}\right)$ vote for the party closest to them, party $\lambda_1$, the voters at $\left(\frac{x_{\lambda_1} + x_{\lambda_2}}{2}, \frac{x_{\lambda_2} + x_{\lambda_3}}{2}\right)$ vote for $\lambda_2$ and so forth (Figure 5).

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22 In general the cut-point between two points $x_1$ and $x_2$ on the $x$-axis equals $\frac{x_1 + x_2}{2}$. 

58
Figure 5. Cut-points in multiparty competition

Notice from the previous examples that the space of competition is assumed to be continuous. Thus, if for instance, the space is ordered from 0 to 10, between positions 0 and 2, there is position 1, between 2 and 4 there is position 3 etc. According to Hinich and Munger (1997) the condition of continuity cannot hold for dichotomous issues such as capital punishment as these issues can only take two discrete answers (e.g. Agree/Disagree or Yes/No).

However, the use of a thermometer scale can preserve continuity even for issues that appear to be dichotomous in nature. Instead of asking, for example, if one agrees with capital punishment, we can alternatively ask ‘how much he agrees’ with it. In the latter case, answers can be arranged on a continuous dimension. The more one moves from one end to the other, the more positive (or negative) her opinion becomes towards capital punishment.

Having shown how voters choose parties in terms of distance the next section considers how one can measure distance.
**Euclidean metric**

The most common way of measuring distance between two points is the Euclidean metric. In a single dimension, the Euclidean distance between two points \( v(x_v) \) and \( \lambda(x_\lambda) \) is given by the square root of the square difference of the two points. That is:

\[
d(v, \lambda) = \sqrt{(x_v - x_\lambda)^2}
\]

The former simplifies to the absolute difference between the two points

\[
d(v, \lambda) = |x_v - x_\lambda|
\]

Where \(|\cdot|\) stands for the absolute value of a function.

If voter \( v \) has to decide between two alternatives \( \lambda \) and \( \lambda_1 \) she will strictly prefer \( \lambda \) to \( \lambda_1 \) if and only if (iff from now on) \( |x_v - x_\lambda| < |x_v - x_{\lambda_1}| \) and she will be indifferent between \( \lambda \) and \( \lambda_1 \) iff \( |x_v - x_\lambda| = |x_v - x_{\lambda_1}| \)

In terms of utility, the Euclidean distance between a voter \( v \) and a party \( \lambda \) is given by the loss function\(^{23}\):

\[
U_v(\lambda) = -|x_v - x_\lambda| \quad (4)
\]

The negative sign in front of the absolute values indicates that the utility decreases with distance. The greater \( |x_v - x_\lambda| \) becomes the smaller the utility becomes when voter \( v \) votes

\[^{23}\text{Equation (4) is the function: } f(-|x_v - x_\lambda|) = U_v(\lambda).\]
for party \( \lambda \). Because (4) is a loss function, it follows that the utility of the vote \( v \) when voting for \( \lambda \) is the optimal, in other words, it reaches maximum, when

\[-|x_v-x_\lambda| = 0 \Rightarrow x_v = x_\lambda\]

Or

\[
\max_{x_v} U_v(\lambda) = U_v(\lambda)\bigg|_{x_v = x_\lambda} = 0 \quad (5)
\]

Relationship (5) makes sense; the utility of voter \( v \), who votes solely on ground of proximity reaches maximum when the party presents the same position \( (x_\lambda) \) as the voter’s position \( (x_v) \). The further away party \( \lambda \) departs from the voter’s position the smaller the utility of the voter becomes.

It is common practice in mathematics to replace the absolute value of a function with the square. The power of two has the same property as the absolute value, namely to give back the positive value of a number:

\[|\neg \eta| = |\eta| > 0\]

and also

\[(-\eta)^2 = \eta^2 > 0\]

\(\forall \eta \in \mathbb{R}\)

Using the quadratic norm we write the voter’s utility as follows:
\[ U_i(\lambda) = -(x_i - x_\lambda)^2 \] (6)

Equation (6) is a quadratic loss function and will be used extensively during the course of the thesis\(^{24}\).

When there are two coordinates, in other words, two policy issues according to which the voter casts her ballot, the Euclidean distance is given by a simple application of Pythagoras’ theorem\(^{25}\).

Algebraically if \((x_v, y_v)\) and \((x_\lambda, y_\lambda)\) are the coordinates of two points \(v\) and \(\lambda\) respectively (Figure 6) then:

\[ d(v, \lambda) = \sqrt{(x_v - x_\lambda)^2 + (y_v - y_\lambda)^2} \]

\(^{24}\) More about this in Chapters 3 and 4.

\(^{25}\) In any right-angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides.
For more than two coordinates the distance between \( v(x_1, y_1, z_1, \ldots, n_v) \) and 
\( \lambda(x_{\lambda}, y_{\lambda}, z_{\lambda}, \ldots, n_{\lambda}) \) is given by the following formula:

\[
d(v, \lambda) = \sqrt{(x_v-x_{\lambda})^2 + (y_v-y_{\lambda})^2 + (z_v-z_{\lambda})^2 + \ldots + (n_v-n_{\lambda})^2}
\]

(Nurmi 1987)

Or

\[
d(v, \lambda) = \sqrt{\sum_{i=1}^{n} (i_v-i_{\lambda})^2}
\]
City block metric

The Euclidean metric is not the only way to measure distance. Minkowski (1907/1915) proposed an alternative way of measurement, known as city block metrics. City block metrics are also referred as Manhattan metrics or “Taxicab” distance. The latter name draws from the way taxicabs find the fastest way between two points in the grid layout of the streets in Manhattan.

According to the city block metric, the distance in a single dimension between two points \(v(x_v)\) and \(\lambda(x_\lambda)\) is given by the absolute difference of their positions, that is

\[
d(v, \lambda) = |x_v - x_\lambda|
\]

(Gärdenfors 2000)

Thus in a single dimension city block metrics measure the distance between two points in the way that we understand it in everyday life. For example, assume that a voter \(v\) presents a position at 3 on the left-right dimension and party \(\lambda\) presents a position at 6, then according to city block metrics their distance is \(|6 - 3| = 3\).

According to Euclidean metrics the distance of voter \(v\) from party \(\lambda\) is:

\[
d = \sqrt{(6 - 3)^2} = 3
\]

Thus on a single dimension it does not matter whether one employs the Euclidean or the city block metric as they yield the same result.

When there are two coordinates the distance between two points \(v(x_v, y_v)\) and \(\lambda(x_\lambda, y_\lambda)\) according to city block metrics is given by:
$$d(\nu, \lambda) = |x_\nu - x_\lambda| + |y_\nu - y_\lambda|$$

and for \( n \) coordinates the distance between two points \( \nu(x_\nu, y_\nu, ..., n_\nu) \) and \( \lambda(x_\lambda, y_\lambda, ..., n_\lambda) \) is given, as we saw above, by:

$$d(\nu, \lambda) = \sum_{i=1}^{n} |x_\nu - x_\lambda|$$

(Taylor 1971)

The difference between the Euclidean and the city block metric for two points \( \nu \) and \( \lambda \) on two coordinates is shown in Figure 7.

**Figure 7.** Manhattan vs. Euclidean metric

In a competition with two policy issues, the Euclidean and the city block metric might yield different results. For example, assume that there is one voter, \( \nu \) and two parties, \( \lambda \) and \( \lambda_1 \) with positions on the ‘left and right’ dimension and on ‘European integration’ as shown in Figure 8.
Figure 8. Two policy issues

When measuring distance according to city block metrics, voter \( v \) is 3 units away from \( \lambda \) on the left and right dimension and 7 units away on the European integration dimension. In total, \( v \) sees \( \lambda \) to be 10 (=7+3) units distant from her. The same logic applies for \( \lambda_1 \); as the voter is 6 units away on the left-right dimension and 4 units away on the European integration, she sees a total difference of 10 units from \( \lambda_1 \) (as in the case of \( \lambda \)).

Measuring now distance according to the Euclidean metric one gets the following:

Voter’s distance from \( \lambda \): \( d_{(v,\lambda)} = \sqrt{(2-5)^2 + (10-3)^2} = \sqrt{9 + 49} = \sqrt{58} = 7.6 \)

Voter’s distance from \( \lambda_1 \): \( d_{(v,\lambda_1)} = \sqrt{(2-8)^2 + (10-6)^2} = \sqrt{36 + 16} = \sqrt{52} = 7.2 \)

Therefore, when measuring distance according to the city block metrics \( v \) is equidistant from both \( \lambda_1 \) and \( \lambda \) while when measuring distance according to the Euclidean metric \( v \) is closer to \( \lambda_1 \) than \( \lambda \). In other words according to the city block metric voter \( v \) will abstain, whereas according to the Euclidean metric voter \( v \) will prefer \( \lambda_1 \) to \( \lambda \).
Both Euclidean and city-block metrics can be summarised with the help of Minkowski’s general metric (Arabie 1991). According to the Minkowski metric, if $i$ stands for the number of coordinates and $r$ for the order of the metric then the distance between voter $v$ and party $\lambda$ can be given by:

$$d_{v,\lambda} = \left( \sum_{i=1}^{n} |x_{iv} - x_{i\lambda}|^r \right)^{1/r}$$

(Gärdenfors 2000)

In that case, the order for city block metrics is one ($r = 1$) while for the Euclidean metric it is two ($r = 2$).

Scholars (e.g. Gärderfors 2000; Humphreys and Laver 2009) have argued that the city block metrics are better compared to the Euclidean norm on the grounds of theoretical modelling (Enelow et al. 1988), empirical fit (Westholm 1997) and predicting power (Grynaviski and Corrigan 2006). However, Euclidean metrics have become “the standard for formal theoretical and empirical work in political science” (Platt et al. 1992: 561). On explaining the wide use of the Euclidean metric among political scientists, Laver conducted a survey among leading professionals in the field (in Benoit and Laver 2006). The vast majority of respondents reported that they used Euclidean metrics because they are “tractable given current analytical techniques” (Benoit and Laver 2006: 32). Only 2 out of 23 participants in the survey justified their commitment to Euclidean geometry on the ground that there is evidence that this is how real people think (Benoit and Laver 2006). However, as Gärderfors (2000) stresses, what is important when using geometrical measures of distance in not how real they are but “that we can do things with them” (2000: 31).

**The median voter theorem**

The median voter theorem is one of the most widely known theorems of spatial analysis. It is attributed to the work of Black (1958) and Downs (1957). Black applied the median voter theorem in committees while Downs (1957) applied it in party competition. Prior to
presenting Black’s (1958) and Downs’ (1957) work, it should be mentioned that the very first one to refer to the importance of the middle in politics was Aristotle. Aristotle (ed. 2008) writes in his Politics:

[…] A city ought to be composed, as far as possible, of equals and similars; and these are generally the middle classes. Wherefore the city which is composed of middle-class citizens is necessarily best governed; they are, as we say, the natural elements of a state. And this is the class of citizens which is most secure in a state, for they do not, like the poor, covet their neighbors’ goods; nor do others covet theirs, as the poor covet the goods of the rich; and as they neither plot against others, nor are themselves plotted against, they pass through life safely (Aristotle ed. 2008: 139).

The above description of a legislator occupying a position that corresponds to the needs of the middle class is the first idea of what Black (1958) conceptualized as the median voter theorem:

When there are n numbers in a committee, all of whose curves are single peaked, and n is odd, the value \( O_{(n+1)/2} \) can get at least a simple majority against every other and it is the only value which can do so (In Gill and Gainous 2002: 394).

From the definition, one can observe that the theorem holds under three basic conditions: (1) each voter has single peaked preferences (2) there is an odd number of voters and (3) decisions are based on simple majority.

The first criterion of the single peaked preference implies that “the voter’s preferences fall off around in both directions around [its] her ideal point” (Morrow 1994: 108). The voter’s ideal point is the most preferred outcome. Any other outcome decreases the utility of the voter. The assumption of the single peaked preference implies that there is an unbeaten alternative. Graphically the condition of single peaked preferences means that when the peak of the distribution is reached, preferences decline monotonically. Without the single peaked preference assumption, one might encounter cyclic majorities (Nurmi
The Condorcet’s paradox holds that “no alternative has a claim to be the collectively best alternative since no matter which alternative is chosen, there is another one that is preferred to it by a majority” (Nurmi 1999: 16). The Condorcet paradox violates transitivity (Nurmi 1987); transitivity means that if voter $v$ strictly prefers party $\lambda_i$ to $\lambda_j$ and party $\lambda_j$ to $\lambda_k$, then she also prefers party $\lambda_i$ to $\lambda_k$ (If $\lambda_i P_v \lambda_j$ and $\lambda_j P_v \lambda_k$ then $\lambda_i P_v \lambda_k$).

To fathom the Condorcet paradox, the example given by Nurmi (1987) is replicated here. Consider three persons 1, 2, 3 and their preferences on three alternatives A, B, C (Table 1). Person 1 prefers alternative A to B to C. Person 2 prefers alternative B to C to A and person 3 prefers alternative C to A to B.

<table>
<thead>
<tr>
<th>Person</th>
<th>Person</th>
<th>Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>B</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>C</td>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

*Notes: Source: Nurmi (1987: 12)*

One can observe that this set of preference is intransitive because A is preferred to B (preference of person #1 and person #3), B is preferred to C (preference of person #1 and person #2) but A is not preferred to C (only person #1 prefers A to C. Person # 2 and person #3 prefer C to A). To gain insight into the second condition, according to which the number of the committee members has to be an odd number, consider the following example.

---

26 Transitivity also applies when an individual is indifferent among alternatives.

27 There is a plurality tie in Table 1.
Assume that there are 5 voters $v_1, v_2, v_3, v_4, v_5$ with ideal policy issue positions $x_{v_1} = 1, x_{v_2} = 2, x_{v_3} = 3, x_{v_4} = 4, x_{v_5} = 5$ respectively. According to Black’s (1958) definition, $v_3$ occupies the median position $O_{(n+1)/2} = O_{(5+1)/2} = O_3 = v_3$. Now assume that one of them e.g. $v_5$, does not turn out to vote. In this case, all positions $p_{v_i}$ between the second and the third voter, can be the position of the median voter. For position, 2.1 there are two ideal points above and below it, and so there is for position 2.2, 2.3 and so on. Therefore, when there is an even number of voters the median voter position ($x_M$) is not unique. By contradiction, it follows that the median position is always unique when the number of voters is an odd number.

Arguing that the median position is unique is not the same as arguing that the median voter is unique (Hinich and Munger 1997; Shepsle and Bonchek 1996). For example, assume that $v_3$ and $v_4$ present the same ideal policy issue position (e.g. $x_{v_1} = 1, x_{v_2} = 2, x_{v_3} = 4, x_{v_4} = 4, x_{v_5} = 5$); then although the median position is unique ($x_M = 4$), the median voter is not; there are two median voters, voter $v_3$ and voter $v_4$.

The third condition asserts that the voting system should be a simple majority. In a simple majority voting system, the party that gets more than half of the votes is the winner of the elections. Under simple majority, the voter can only vote for one party.

Downs (1957) applied the median voter theorem to party competition by drawing on the early work of Hotelling (1929) and Smithies (1941). According to Hotelling (1929) if customers have no other alternative than to shop in one street then ceteris paribus (price, product quality and quantity is the same in shop K and J) the two competitor shops are better off if they cluster next to each other (Figure 9). As shown in Figure 9 the customers will be evenly distributed between the two shops. Shop K will get all the customers to its left, while shop J all the customers to its right.
Smithies (1941) modified Hotelling’s (1929) apparatus by challenging the precondition that demand is inelastic. He argued that demand depends on price, which increases when transportation costs also increase (shops transfer the cost of transportation to the customers by increasing the price). Smithies (1941) noticed two drives that affect the spatial location of the shops on the street. The first drive pushes towards convergence, as both shops desire to increase their sales in what is defined as the “competitive region”, while the second one makes shops keep a distance as a means of improving their sales in their own “hinterlands”. Smithies suggested that this concept could also apply to politics as electoral demand is elastic; voters will abstain from the polls if both parties are far away from their ideal positions.

Although Downs’ apparatus of the median voter is based on a series of assumptions, it is nevertheless one of the most famous theorems in political analysis. According to the theorem, in a two party single space competition if the voters are distributed normally, then the party occupying a position in the middle of the voters’ distribution will be the winner (McCain 2004) (Figure 10). If neither of the two parties

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28 Grofman states 16 conditions under which Downs’ theory holds true: 1) There only two political parties running in the elections, 2) There is a single round election, 3) there is only one winner, 4) there is only one constituency, 5) the electoral rule is majority, 6) voters and parties are placed on a single left-right dimension, 7) parties’ positions are well defined, 8) voters can estimate parties’ policy positions, 9) voters do not look further than the next election, 10) voters go to the elections if their gains are greater then their losses, 11) voters vote for the candidate who stands the closest to their ideal position, 12) if there is no policy difference between two parties, the voters will be indifferent, 13) candidates are running to win the elections, 14) parties do not look further than the next elections, 15) parties can estimate the policy preferences of voters, and 16) candidates form a unified system (Grofman 2004).

29 Actually the party is a Condorcet winner as it can win any other rival in a pair wise competition.
occupies the median, the winner of the elections will be the party positioned closest to the middle of the distribution. In terms of utility the former can be expressed as follows:

$$U_\lambda(x_\lambda, x_{\lambda_1}) = \begin{cases} 
1 & \text{if } |x_\lambda - x_M| < |x_{\lambda_1} - x_M| \\
0.5 & \text{if } |x_\lambda - x_M| = |x_{\lambda_1} - x_M| \\
0 & \text{if } |x_\lambda - x_M| > |x_{\lambda_1} - x_M| 
\end{cases}$$

and

$$U_{\lambda_1}(x_\lambda, x_{\lambda_1}) = \begin{cases} 
1 & \text{if } |x_\lambda - x_M| > |x_{\lambda_1} - x_M| \\
0.5 & \text{if } |x_\lambda - x_M| = |x_{\lambda_1} - x_M| \\
0 & \text{if } |x_\lambda - x_M| < |x_{\lambda_1} - x_M| 
\end{cases}$$

Assume, therefore, that there are only two parties competing in the elections, party $\lambda$ and party $\lambda_1$, and that the parties have symmetric utilities. When a party wins the elections, his utility equals one, when a party loses the elections his utility equals zero, and when there is a draw each party’s utility equals 0.5. If party $\lambda$ (or $\lambda_1$) articulates a position closer to the median position than party $\lambda_1$ (or $\lambda$), then party $\lambda$ (or $\lambda_1$) wins the elections. Party $\lambda$’s (or $\lambda_1$’s) utility equals one, whereas party $\lambda_1$’s (or $\lambda$’s) utility equals zero. If both parties are equidistant from the median position there is a draw.

---

30 A very simple version of the median voter theorem is presented here. It follows that if one of the assumptions ‘breaks’, there are implications for the theorem. For instance, Shepsle (1991), Palfrey (1984) Cox (1985; 1987) considered the case where there are more than two candidates; Plott (1967) studied what happens when there is more than one dimension of competition; Wittman (1983) and Alesina (1988) investigated the scenario where parties have policy seeking objectives; Aragones and Palfrey (2002) studied party strategies assuming that one candidate enjoys an advantage over the other.
Figure 10 pictures a situation where there are only two contestant parties, party $\lambda$ and party $\lambda_1$. The party that will move first to the median position (at M) will win the elections. If both parties converge towards the median there will be a draw.

As can be seen in Figure 10, voters’ are distributed normally on the policy issue dimension. However, the median voter theorem could also hold in situations where the voters’ distribution is not bell shaped (Hinich and Munger 1997; Shepsle and Bonchek 1996). For example, assume that the distribution is not bell shaped but bimodal, as shown in Figure 11. In this case, the party that first presents the median position wins the elections.$^{31}$

---

$^{31}$ There is an exception to this. If voters decide to abstain due to alienation or indifference and a simple majority is needed, then the party that presents the median position will not be the winner of the elections. Abstention due to indifference may occur if $\lambda_1$ relocates so close to $\lambda$’s position that voters seeing no substantial difference between the two decide to abstain. Abstention due to alienation may occur in the case where voters who are found at either of the peaks of the distribution perceive the median position as being too far from their optimal point.
Figure 11. The median position in a symmetrical bimodal distribution

Recapping the spatial model theory holds that voters vote for the party that stands closest to their ideal policy issue position. The idea of spatial modelling is founded on a series of assumptions such as that voters can place themselves on the policy issue dimension (Green and Shapiro 1996), voters can spot parties’ positions on the same policy issue dimension (Listhaug et al. 1994a), the dimension is the same for all voters, voters vote ‘sincerely’, etc. Scholars such as Green and Shapiro (1997) have attacked the spatial theory of voting on the grounds that its assumptions are not realistic. But should we judge a theory by its assumptions? It is worth quoting in length the parallelism that Friedman (1953) draws on this issue between businessmen and billiard players:

...[I]ndividual firms behave as if they were seeking rationally to maximize their expected return (generally if misleading called “profits”) and had full knowledge of the data needed to succeed in this attempt; as if, that is, they knew the relevant cost and demand functions, calculated marginal cost and marginal revenue from all actions open to them, and pushed each line of action to the point at which the relevant marginal cost and
marginal revenue were equal. Now, of course, businessmen do not actually and literally solve the system of simultaneous equations in terms of which the mathematical economist finds it convenient to express this hypothesis, any more than leaves or billiard players explicitly go through complicated mathematical calculations or falling bodies decide to create a vacuum. The billiard player, if asked how he decides where to hit the ball, may say that he “just figures out” but then also rubs a rabbit’s foot just to make sure; and the businessman may well say that he prices at average cost, with of course some minor deviations when the market makes it necessary. The one statement is about as helpful as the other, and neither is a relevant test of the associated hypothesis (Friedman 1953: 22).

Acknowledging the restrictions of his theory, Downs (1957) himself argues that a good theory should not be judged by its assumptions but by whether it delivers the results that it promises to under these very assumptions. Thus one should not test a theory by its assumptions but the other way around: The assumptions are false if the theory is false (Friedman 1953).
Chapter 3: Integrating party identification and the spatial theory of voting: The ‘biased voting’ model

The main aim of the chapter is to explicate the properties of Adams’ (1998; 2001a; b) ‘biased voting’ model. In general, ‘rationality’ and ‘affection’ are seeing as concepts antithetical to one another, with scholars subscribing to either Downs’ proximity theory (presented in Chapter 2) or the Michigan school of party identification (presented in Chapter 1). However, Adams (1998; 2001a; b) presented a deterministic model of voting that borrows elements from both aforementioned schools of voting. Adams’ (1998; 2001a; b) ‘biased voting’ model relies upon deterministic assumptions of voting, but his theory has been also expanded to probabilistic voting (e.g. Adams et al. 2005; Adams and Merrill 1999; Adams and Merrill 2000; Merrill and Adams 2001). Since the logic does not change much when voting is assumed to be probabilistic attention is restricted here to Adams’ (1998; 2001a; b) deterministic model of voting. This chapter begins with a review of the rational insights of party identification.

The ‘rationalist’ view of party identification

As Holmberg (1997) notes “the emotional and non-rational, non-political definition of party identification was and still is the main target of the critique levelled at the Michigan School of voting behavior [...] Most of the critique emanates from rational choice theory” (1997: 558). The general tenor of the rationalist stream of research is that party identification does indeed exist not as a psychological determinant of voting, but rather as a ‘cue’ that voters use for taking rational decisions for the party of choice. As such, party identification is considered rather as an attitude than a stable psychological tie.  

Downs (1957) does not articulate the term ‘party identification’ even once in his Economic Theory of Democracy. This is logical, as the term became known mainly

32 See the second part of the thesis.
through *The American Voter*, which was published three years later than Downs’ book. Nevertheless, Downs (1957) uses the term ‘political ideologies’ to refer to voters’ attachments to political parties.

According to Downs (1957) in a world of perfect information a rational voter would link each party’s proposed choice to his own beliefs and then vote for the party that is the closest on the grounds of policy issues. Yet, as information is imperfect, the voter uses political ideologies as a means of deciphering the opaque signals of parties’ positions. As such political ideologies are merely ‘a rational habit’ or ‘a shortcut’ to information (1957) that helps the voter to decide rationally.

For another rationalist, Fiorina (1981) party identification is just a “function of party performance” or more precisely “a running tally of retrospective evaluations” (1981: 89). The argument that voting is a retrospective decision dates back to the work of Key (1966), who asserted that the electorate is “an appraiser of…past evens, past performance, past actions. It judges retrospectively; it commands prospectively only insofar as it expresses either approval or disapproval of that which has happened before” (in McKelvey and Ordeshook 1993: 337)

In Fiorina’s account (1981) voters do not need to know the details of parties’ policy issue platforms to judge retrospectively33. It is worth quoting in length:

*If jobs have been lost in recession, something is wrong. If sons have died in foreign rice paddies, something is wrong. If thugs make neighbourhoods unsafe, something is wrong. If polluters foul food, water, or air, something is wrong. And to the extent that citizens vote on the basis of such judgement, elections do not signal the direction in which society should move so much as they convey an evaluation of where society has been. Rather*

33 Similar to Fiorina’ view is Achen’s (1992; 2002) argumentation, according to which voters evaluate parties based on experience. Achen (1992; 2002) sees party identification as a store of cumulative knowledge or to be more exact as a ‘Bayesian updating process’ (Gerber and Green 1999).
than a prospective decision, the voting decision can be more of a retrospective decision (Fiorina 1981: 5).

Fiorina’s (1981) argument also revolves around the reward-punishment theory like his precursor Downs (1957). If the voter is satisfied with the incumbent she will trust him with a second term in office; if not she will vote for a rival.

Adams’ (1998; 2001a; b) ‘biased voting’ model

The argument that voters are entirely rational actors has been challenged by scholars such as Adams (1998; 2001a; b) who picture party choice with a deterministic utility function with two components. One component represents the rational school of spatial theory and the other the Michigan school of voting, as expressed through the concept of party identification.

Adams (1998; 2001a; b) models voters’ behaviour with the following equation:

\[ U_i(\theta) = b_\theta - (x_i - x_\theta)^2 \] (1)

(Adams 1998; 2001a; b),

Relationship (1) can also be applied in multiple policy coordinates:

\[ U_i(\theta) = b_\theta - \sum_j (x_{ij} - x_{\theta j})^2 \] (2)

where \( j \) stands for an issue. However since the focus of the project is on competition across a single dimension, \( j = 1 \), and thus Equation (1) is retained.

The component \((x_i - x_\theta)^2\) stands for the spatial component of the equation. It measures the squared Euclidean distance between position \( x_i \) of voter \( i \) from the position \( x_\theta \) of party \( \theta \). The negative sign in front of \((x_i - x_\theta)^2\) in (1) denotes that utility decreases with
distance. The closer a party is to the voter’s bliss point, the greater is the latter’s utility and *vice versa.*

$b_\theta$ represents the component of party identification\(^{34}\) discussed in detail in Chapter 1. The variable of party identification equals a constant if voter $i$ identifies with party $\theta$ and otherwise zero. Party identification here is on the right of the equation, denoting an exogenous determinant of voting. The discussion, on whether party identification is endogenous or exogenous to policy preferences, has spanned half a century. Scholars such as Franklin (1984), Fiorina (1981), Markus and Converse (1979) and Page and Jones (1979) assert that party identification is endogenous to policy evaluations. Others, such as Green and Palmquist (1990), Green Palmquist and Schickler (2002), Schickler and Green (1997), Miller (1991) and Miller and Shanks (1996), counter that party identification is an exogenous characteristic. Such argumentation means that voters do not change their party identification to fit their policy issue beliefs. A clear verdict on whether party identification is exogenous or endogenous in nature is hard to reach. Among other reasons, this is because voters often “bring party identification into line with their prior ideological preference” (Abramowitz and Saunders 1998: 645). Adams’ voting model as given in Equation (1) assumes that the component of party identification $b_\theta$ is independent of and therefore exogenous to policy issue considerations.

Under (1), when the voter presents a position identical to that of the party of choice, so also when $x_i = x_\theta$, the voter’s utility reaches maximum and equals the degree of her partisan attachment. To see this note that should $U_i(\theta)=b_\theta-(x_i-x_\theta)^2$ be strictly concave then voter $\theta$’s utility has a maximum point and this maximum is unique.

---

\(^{34}\) As Adams et al. (2005) assert the component $b_\theta$ can represent any other measured non policy variable such as candidate or sociodemographic characteristics.
By axiom we know that a twice-differentiable function \( f(\bullet) \) is strictly concave iff
\[
f''(\bullet) < 0.
\]

Thus \( U_i(\theta) \) is strictly concave in \( x_\theta \) iff
\[
U''_i(\theta) < 0.
\]

We have
\[
\frac{\partial}{\partial x_\theta} U_i(\theta) = \frac{\partial}{\partial x_\theta} b_\theta - (x_i - x_\theta)^2 = 2(x_i - x_\theta)
\]

And
\[
\frac{\partial^2}{\partial x_\theta^2} U_i(\theta) = -2(0), \text{ which is always true.}
\]

And so \( U_i(\theta) \) is strictly concave and symmetric in \( x_\theta \)

\( U_i(\theta) \) is also symmetric in \( x_i \) since:
\[
\frac{\partial}{\partial x_\theta} U_i(\theta) = 0 \iff x_\theta = x_i
\]

With a unique maximum:
\[
\max_{x_i} U_i(\theta) = U_i(\theta) \bigg|_{x_i = x_\theta} = b_\theta \quad \text{or}
\]

\[
U^*_i(\theta) = b_\theta.
\]

(Figure 1)
Figure 1. Maximum point for utility

Hence $b_\theta$ is the highest utility for the voter when voting for party $\theta$ and so the greater the quadratic loss function $-(x_i - x_\theta)^2$, the smaller also is $U_i(\theta)$. This is logical as we expect utility to decline with distance. Before moving on to present Adams’ ‘biased voting’ model, we revert briefly to Downs’ median voter theorem (MVT). The theorem holds that in a two-party system the party that occupies the median position wins the elections. An extension of the MVT to a three-party system implies that the party in the centre is in the hapless position of being squeezed by the other two parties (Figure 2). If party $\lambda$ and $\kappa$ ‘squeezes tightly’ party $\theta$, the latter does not win the elections but actually becomes the party with the smallest vote share.

---

Assuming that leapfrogging is not allowed.
Incorporating the ‘bias’ characteristic of party identification in an equation that measures proximity, Adams (1998; 2001a; b) showed that edge parties do not have incentives to ‘stick’ to the middle party, as the MVT predicts, but ‘squeeze the party in the middle up to a limit (Figure 3).
To gain further insights into Figure 3, consider a situation in which party $\lambda$ and $\kappa$ are found to the left and to the right of $\theta$, respectively ($x_\lambda < x_\theta$ and $x_\kappa > x_\theta$). Also, assume that voters identify only with one party e.g. party $\theta$ (so $b_\theta > 0$ and $b_\lambda = b_\kappa = 0$) and that party $\lambda$ and $\kappa$ want to siphon-off $\theta$'s partisans. $\theta$'s $\lambda$'s and $\kappa$'s utilities are given below:

\[
U_i(\theta) = b_\theta - (x_i - x_\theta)^2
\]

\[
U_i(\lambda) = -(x_i - x_\lambda)^2 \text{ and}
\]

\[
U_i(\kappa) = -(x_i - x_\kappa)^2
\]

For $\lambda$ to attract support from $\theta$'s partisans, $\lambda$ should present a position for which the utility differential of $\lambda$ over $\theta$ is positive or
\[ U_i(\lambda) - U_i(\theta) > 0 \Rightarrow -(x_i - x_\lambda)^2 - b_{\theta} + (x_i - x_\theta)^2 > 0 \]

As Adams has shown\(^\text{36}\), when party \(\lambda\) proposes the voter’s ideal policy, that is when \(x_\lambda = x_i\), \(\theta\)’s partisans will defect to \(\lambda\) when \(-b_{\theta} + (x_\lambda - x_\theta)^2 > 0 \Rightarrow |x_\lambda - x_\theta| > b_{\theta}^{\frac{1}{2}}\). In other words, \(\lambda\) will successfully attract all \(\theta\)’s partisans found on the left of \(x_\theta - b_{\theta}^{\frac{1}{2}}\) if \(\lambda\) will propose a position, \(x_\lambda\), that is \(b_{\theta}^{\frac{1}{2}}\) away from \(\theta\)’s position. Applying the same logic as before, party \(\kappa\) attracts all \(\theta\) partisans found on the right of \(x_\theta + b_{\theta}^{\frac{1}{2}}\).

The area \((x_\theta - b_{\theta}^{\frac{1}{2}}, x_\theta + b_{\theta}^{\frac{1}{2}})\) in Figure 3 is called \(\theta\)’s ‘zone of invulnerability’ because \(\forall x_\lambda, x_\kappa \in (x_\theta - b_{\theta}^{\frac{1}{2}}, x_\theta + b_{\theta}^{\frac{1}{2}})\), \(\lambda\) and \(\kappa\) fail to ‘pull’ any of \(\theta\)’s partisans. This is because \(\theta\)’s identifiers found inside the former interval, do not see any ‘substantial difference’\(^\text{37}\) between \(\theta\)’s and \(\lambda\)’s (\(\kappa\)’s) policy issue position and therefore they vote according to their partisan attachment (that is, they vote for party \(\theta\)).

Adams’ (1998; 2001a; b) analysis is founded on a series of assumptions such as that all voters have some kind of attachment towards political parties, this attachment is the same for all voters, partisans are distributed in separate partisan constituencies\(^\text{38}\), and parties cannot leapfrog one another.

For a three-party competition like that put forward by Adams (1998; 2001a; b) the party in the middle ‘loses’ partisans relevant to three factors:

\(^{36}\) For the proof see Adams (2001b: 36).

\(^{37}\) A policy issue position makes a ‘substantial difference’ when it outweighs the degree of attachment that voters feel toward the party of identification.

\(^{38}\) Note in Figure 3 that \(\lambda\)’s partisans are found in \((P0, P1)\), \(\theta\)’s partisans are found in \((P1, P4)\) and \(\kappa\)’s partisans are found in \((P4, P5)\).
1. The strength of partisanship.
2. The way partisans are distributed within the middle party’s interval of partisanship.
3. The length of the afore mentioned interval.

The abovementioned points can be summarized under the heuristic terms ‘Value of Partisanship’ (VoP) that is defined as follows:

\[ VoP = \frac{2\sqrt{b_\theta}}{|E - B|} \]

where \( b_\theta \) stands for the degree of partisanship and \(|E - B|\) for the interval where the partisans of the middle party are found. Since the strength of partisanship is the same for all parties the VoP depends merely on the interval wherein a party’s identifiers are found. The closer the VoP is to unity the greater is the ‘control’ that the centre party imparts to his partisans. The bigger the denominator is the more an edge party can gain by moving towards the middle party’s position. For example consider the case where \(|E - B|\) is greater than \(2\frac{\sqrt{b}}{2}\) as depicted in Figure 4. Party \( \lambda \) is at position \( P1 \), party \( \kappa \) is at position \( P5 \), while party \( \theta \) is at position \( P3 \). The voters who identify with party \( \lambda \) are found in the interval \((A, B)\), the voters who identify with party \( \kappa \) are found in the interval \((E, F)\) while those who identify with party \( \theta \) are distributed inside the interval \((B, E)\). Parties \( \lambda \) and \( \kappa \) can maximize their vote share by relocating at positions \( P2 \) and \( P4 \) respectively (Figure 4). At these positions, \( \lambda \) also gains the additional voters found in \((P2, B)\) while \( \kappa \) also gains the additional voters found in \((P4, E)\).
Figure 4. Maximum gain for party $\lambda$ and $\kappa$

The more $\text{VoP} \to 1$, the less the anticipatory gains are for $\lambda$ and $\kappa$.

Even more so, when the length of $b_{\theta}^{\frac{1}{2}}$ equals $\frac{1}{2}|E - B|$ then $\lambda$ and $\kappa$ cannot attract any of $\theta$’s partisans (Figure 5). In the previous case $\text{VoP}=1$ and thus the interval of $\theta$’s partisans equals the “zone of invulnerability”.

Figure 5. $\theta$’s partisans interval equals the “zone of invulnerability”

To fathom in practice the applicability of Adams’ (1998; 2001a; b) ‘biased voting’ model in a three-party system, consider the following example. Assume that there are three parties $\lambda$, $\theta$, $\kappa$, with initial positions $x_\lambda = 2$, $x_\theta = 6$, $x_\kappa = 8$, and that $b = 3$ for all parties.

Then the utility for $\lambda$ partisans can be written as:

$$U_i(\lambda) = -(x_i - 2)^2 + 3$$

and

$$U_i(\theta) = -(x_i - 6)^2$$

$$U_i(\kappa) = -(x_i - 8)^2$$
For partisans of $\theta$:

$$U_i(\theta) = -(x_i - 6)^2 + 3 \quad \text{and}$$

$$U_i(\lambda) = -(x_i - 2)^2$$

$$U_i(\kappa) = -(x_i - 8)^2$$

and for partisans of $\kappa$:

$$U_i(\kappa) = -(x_i - 8)^2 + 3 \quad \text{and}$$

$$U_i(\theta) = -(x_i - 6)^2$$

$$U_i(\lambda) = -(x_i - 2)^2$$

Further, assume that partisans are distributed normally and that the partisans of $\lambda$ are located in the interval $(0, 3)$ those of $\theta$ in $(3, 7)$ and those of $\kappa$ in $(7, 10)$. What would the optimal positions be for $\lambda$ and $\kappa$, should they want to enhance their voting share? With party $\theta$ and $\kappa$ fixed at their actual positions, party $\lambda$ maximizes support by locating at 4.3. To see this, note that if $x_\lambda = 4.3$, $x_\theta = 6$ and $b_\theta = 3$, then $\lambda$’s partisan utility differential for $\lambda$ over $\theta$ is given by:

$$U_i(\lambda) - U_i(\theta) = -(x_i - x_\lambda)^2 - [(x_i - x_\theta)^2 - b_\theta] = -(x_i - 4.3)^2 + (x_i - 6)^2 + 3 = -3.4x_i + 14.51$$

We want $U_i(\lambda) - U_i(\theta) \Rightarrow -3.4x_i + 14.51 \geq -3.4x_i - 14.51 \Rightarrow x_i \approx 4.268 \approx 4.3$. In other words, all voters to the left of 4.3 prefer $\lambda$ to $\theta$. Thus at 4.3 $\lambda$ does not only win the support of his own partisans but also wins $\theta$’s partisans who are found in $(3, 4.3)$. Note that point 4.3, stands $b^{\frac{1}{2}}$ away from $\theta$’s fixed position at 6. Also 4.3 stands for $\lambda$’s
optimal position \( s^*_\lambda = 4.3 \) as in any other position \( s^*_\lambda \), \( U_i(s^*_\lambda)(U_i(s^*_\lambda)) \). By the same token \( \alpha^* \) maximizes support by locating at 7.70.

On the empirical side Adams (1998; 2001a; b) has shown that modest to strong degrees of partisan attachments can lead to a Nash equilibrium. A set of strategies is a Nash equilibrium\(^{40} \) when each party’s strategy is the best response to the other party’s strategy. By using data from the British National Election Study 1987, Adams (1998; 2001a; b) showed that equilibria are possible for Labour, the Alliance and the Conservatives for \( b \sqrt{2} \geq 3 \). The greater the partisan attachment is, the greater also the distance among the equilibrium positions of the three parties. This happens as Adams (2001b) explains because “when party attachments are strong the Conservatives and Labour must differentiate themselves from the Alliance in order to attract Alliance partisans” (2001b: 46).

In sum, Adams’ theoretical and empirical work (1998; 2001a; b) can be summarized by the following propositions:

1. Partisans give their party the ‘benefit of the doubt’ (Feld and Grofman 1991) in the sense that they usually vote for the party of identification unless a rival party is more attractive on policy issue grounds.
2. When partisanship is correlated with policy positions, “parties have electoral incentives to appeal on policy grounds to voters biased toward them for non policy reasons” (2001b: 15).
3. Partisan attachments significantly affect parties’ vote maximizing positions.

\(^{39} \) To see this, move \( \lambda \) 0.1 increments to the right of 4.3. For the new position 4.4, \( \lambda \) gets all partisans placed to the left of 4.263 who are slightly less than those found at \( (0, 4.268) \). The same happens when moving \( \lambda \), just one place to the left of 4.3, at 4.2. For the new position 4.2, \( \lambda \) wins all voters placed at \( (0, 4.266) \) who are (marginally) less than those found in \( (0, 4.268) \).

\(^{40} \) The concept of Nash equilibrium is used in the second part of thesis.
4. Centrally located parties, are in a hapless position compared to the peripheral parties whose partisans take extreme positions.

5. Modest and strong degrees of partisanship can lead a three party competition to Nash equilibrium.

6. Parties’ equilibrium positions are located near their own partisans’ constituency.

7. Parties’ incentive to present positions that reflect the beliefs of their partisans explains why party systems are characterized by both policy stability and policy divergence. Policy stability means that parties rarely leapfrog one another. Policy divergence implies that parties differentiate their policy issue positions from one another, thus offering different alternatives to voters.

The work in the next two chapters relies heavily on Adams (1998; 2001a; b) ‘biased voting’ model of deterministic voting, as presented here. Chapter 4 presents a stylized example of party competition that shows the effect of party identification on parties’ positioning in a theoretical level. Chapter 5 relies on empirical data to show the effect of party identification on Finnish parties’ ‘one-off’ optima.
Deterministic Voting
Chapter 4: Theoretical insights into the effect of party identification on parties’ spatial competition

Summary

The purpose of this chapter is to conduct a theoretical investigation of the effect that a psychological characteristic such as party identification imparts on parties’ positioning. The analysis draws heavily on Adams’ (1998; 2001a; b) ‘biased voting’ model presented in the previous chapter. In brief, the main argument of Adams’ (1998; 2001a; b) analysis is that party identification affects parties’ rational calculations when positioning themselves in the policy issue space. Counter to proximity theory according to which parties have incentives to move as close as they can to a rival party as a means of gaining additional votes, Adams (1998; 2001a; b) showed that the peripheral parties should move towards the middle party’s position, to the limit of the ‘zone of invulnerability’. The ‘zone of invulnerability’ is defined as the area inside which voters do not see any substantial difference among parties and therefore vote for the party of identification.

The chapter is arranged as follows. First, a theoretical framework that incorporates elements of non-cooperative game theory and proximity theory is presented. Second, plausible ‘applications’ of the three party stylized example to the multiparty Finnish system are considered.

The stylized theoretical example is based heavily on a series of assumptions that make an empirical testing of the theory presented here not feasible. However, the aim of the chapter is to provide a purely theoretical insight of the role of party identification to party strategies. The following chapter which empirically tests the effect of party identification on the Finnish parties’ ‘one-off’ optima inevitably relaxes most of the assumptions made here.
In what follows the party that moves away from his initial position as an attempt to gain rival partisans is called the ‘challenger’ while the party that remains in his initial position, is called the ‘rival’.

**Spatial analysis with ‘biased’ voters**

The analysis in this section builds upon applications of spatial analysis and game theory and assumes as in the case of Adams (1998; 2001a; b) a competition among three political parties. The main discrepancies between the stylized example presented here and the one put forward by Adams (1998; 2001a; b) are the following:

1. Adams’ (1998; 2001a; b) analysis considers a situation where the two peripheral parties – the ‘challengers’ – attempt to gain the support of the middle (the ‘rival’) party’s identifiers. Here, Adams’ example is modified by assuming that both ‘challengers’ are on the same side relevant to the rival party’s position. This modification has a substantial effect on parties’ strategic spatial location. This is because the first ‘challenger’ to the right (or left) of the rival can no longer move freely anymore towards the rival party’s positions but has to calculate the partisan hemorrhage ensuing from the adjacent ‘challenger’s’ strategic move.

2. Also in Adams’ (1998; 2001a; b) simulations parties respond sequentially to each other’s optimal positions while here parties take the contestant parties’ positions as fixed meaning; parties have only one chance to respond to rival parties’ positioning.

3. Subsequent to the former point, Adams (1998; 2001a; b) works towards locating equilibrium whereas here party optima do not constitute equilibrium but ‘one-off’ optima.
Since, a stable $b$ is assumed, parties’ ‘one-off’ positions are calculated by varying the length of the interval where the rival party’s identifiers are found\textsuperscript{41}. $L, CL, C$ are the contestant parties, where party $C$ is the ‘rival’ and $L$ and $CL$ are the two ‘challengers’. The assumptions which Adams (1998; 2000a; b) put forward when presenting his stylized model are retained here. These assumptions are\textsuperscript{42}:

1. Parties and voters are found in a unidimensional policy issue space.
2. The ordinal configuration of parties is $L - CL - C$. In other words, $L$ is the leftmost party, $CL$ is the one in the middle, and $C$ is the rightmost party.
3. Parties cannot leapfrog one another; therefore, the ordinal configuration $L - CL - C$ does not change.
4. All voters exhibit partisan biases and all voters have the same degree of attachment toward the party of identification. Thus, $b_L = b_{CL} = b_C$.
5. $L, CL, C$ cannot present the exact identical positions on the policy issue dimension.
6. Parties’ identifiers are found at separate intervals on the policy issue dimension. In this case, $L$’s partisan constituency is given by the interval $(0, P0)$, $CL$’s partisan constituency is given by the interval $(P0, P1)$ and $C$’s partisan constituency is given by the interval $(P1, P3)$.
7. Parties do not cooperate\textsuperscript{43}.
8. Party $CL$ wants to attract $C$’s identifiers.
9. There is no turnout because of alienation or indifference.

In a stylized three-party competition with properties assumed as presented in the previous section, $CL$ has two options at his disposal (Figure 1):

\textsuperscript{41} For a discussion on this, see Chapter 3, where the concept of ‘Value of Partisanship’ (VoP) was introduced.

\textsuperscript{42} I customize Adams’ (1998; 2001a; b) assumptions here for the needs of the stylized example.

\textsuperscript{43} So there is no cooperation between the edge parties at the expense of the middle one.
I. To present a position inside his own partisan constituency

II. To present a position inside C’s partisan constituency

I. CL inside his partisan constituency

Suppose that party C is placed within the boundary of his partisan constituency at \( P2 \in (P1 + \frac{v}{c}, P3) \). With the party C fixed at this position, the following quantities are defined:

\[
G1 = \begin{cases} 
(P0, \frac{P2^2 - b_c}{2(P - P2)}) & \text{if } P1 < \frac{P2 + P}{2} \\
(P0, \frac{P2^2 - 2b_c}{2(P - P2)}) & \text{if } P1 > \frac{P2 + P}{2}, \quad P \in (P0, P0 + \frac{v}{c}) \\
(P0, P1) & \text{if } P1 = \frac{P2 + P}{2}
\end{cases}
\]

\[
G2 = \begin{cases} 
(P - \frac{v}{c}, \frac{P2^2 - b_c}{2(P - P2)}) & \text{if } P1 < \frac{P2 + P}{2} \\
(P - \frac{v}{c}, \frac{P2^2 - 2b_c}{2(P - P2)}) & \text{if } P1 > \frac{P2 + P}{2}, \quad P \in (P0 + \frac{v}{c}, P1 - \frac{v}{c}) \\
(P - \frac{v}{c}, P1) & \text{if } P1 = \frac{P2 + P}{2}
\end{cases}
\]

And

\[
G3 = \begin{cases} 
(P - \frac{v}{c}, P1) & \text{if } P1 = \frac{P2 + P}{2} \\
(P - \frac{v}{c}, \frac{P2^2 - b_c}{2(P - P2)}) & \text{if } P1 < \frac{P2 + P}{2}, \quad P \in (P1 - \frac{v}{c}, P1)
\end{cases}
\]
Lemma 1.

$G_1, G_2,$ and $G_3$ are the votes that $CL$ can win if he chooses a policy issue position that falls within the intervals, $(P_0, P_0 + b_{CL}^{1/2})$, $(P_0 + b_{CL}^{1/2}, P_1 - b_{CL}^{1/2})$ and $(P_1 - b_{CL}^{1/2}, P_1)$ respectively (Figure 1).

Proof

To calculate the voters that $CL$ gains when he chooses a policy issue position $P$ within the constituency of his own party identifiers, it is assumed that voters who vote for $CL$ are found in a continuous interval, for example, $(A, B)$. The upper bound $B$ is conditional upon $CL$’s distance from party $C$. The lower bound $A$ depends on party $L$’s distance from party $CL$. For the points $A$ and $B$ the following holds:

$$U_B(CL : P) = U_B(C : P2) \text{ and } U_A(CL : P) = U_A(L : P_L)$$

$(U_{K1}(R : K2))$: This is to indicate the utility of voter $K1$ when party $R$ is placed at position $K2$).

Initially, determine the upper bound of the interval $(A, B)$. Point $B$ can be inside the constituency of $CL$’s partisans or inside the constituency of $C$’s partisans. Let’s distinguish among three sub-cases:
A) First, assume that \( P1 = \frac{P2 + P}{2} \)

This implies that:

\[
P1 - P = P2 - P1 \Rightarrow -(P1 - P)^2 = -(P2 - P1)^2 \Rightarrow U_{p1}(CL : P) = U_{p1}(C : P2)
\]

Note, that since the border \( P1 \) is between \( CL \)'s and \( C \)'s partisans, the voters at this point identify with neither \( CL \) nor \( C \). Because of the continuity of the interval \((A, B)\) the last relationship means that position \( P1 \) stands as the ‘border’ between \( CL \)'s and \( C \)'s voters, and thus \( B = P1 \).

B) Suppose that \( P1 > \frac{P2 + P}{2} \) and that\(^{44} \) \( P \in (P0, P1 - b_{CL}^{\frac{1}{2}}) \)

Then,

\[
P1 - P > P2 - P1 \Rightarrow -(P1 - P)^2 < -(P2 - P1)^2 \Rightarrow U_{p1}(CL : P) < U_{p1}(C : P2).
\]

Therefore, \( P1 \) will vote for \( C \), which implies that \( B < P1 \). Because the voter(s) at \( B \) are placed within the partisan constituency of \( CL \) they identify with \( CL \) and therefore the following utilities are obtained:

\[
U_B(CL : P) = -(B - P)^2 + b_{CL} \quad \text{and} \quad U_B(C : P2) = -(B - P2)^2
\]

We want: \( U_B(CL : P) = U_B(C : P2) \Rightarrow -(B - P)^2 + b_{CL} = -(B - P2)^2 \Rightarrow

\(^{44} \) For a justification of why \( P \) is only defined in \((P0, P1 - b_{CL}^{\frac{1}{2}})\) ‘See Appendices’.
\[-(B^2 - 2PB + P^2) + b_{CL} = -(B^2 - 2BP2 + P^2) \Rightarrow -B^2 + 2PB - P^2 + b_{CL} = -B^2 + 2BP2 - P^2 = 2(P - P2)B = P^2 - P2^2 - b_{CL} \Rightarrow \]

\[B = \frac{P^2 - P2^2 - b_{CL}}{2(P - P2)} \]

C) Suppose that \( P1 < \frac{P2 + P}{2} \)

Then,

\[P1 - P < P2 - P1 \Rightarrow -(P1 - P)^2 > -(P2 - P1)^2 \Rightarrow U_{p1}(CL : P) > U_{p1}(C : P2). \]

Therefore, \( P1 \) will vote for \( CL \), which implies that \( B > P1 \). Because \( B > P1 \) it means that the voters who are placed at \( B \) identify with party \( C \) and therefore

\[U_B(CL : P) = -(B - P)^2 \text{ and } U_B(C : P2) = -(B - P2)^2 + b_c \]

We want: \( U_B(CL : P) = U_B(C : P2) \Rightarrow -(B - P)^2 = -(B - P2)^2 + b_c \Rightarrow \]

\[-(B^2 - 2BP + P^2) = -(B^2 - 2BP2 + P^2) + b_c \Rightarrow -B^2 + 2BP - P^2 = -B^2 + 2BP2 - P^2 + b_c \Rightarrow \]

\[\Rightarrow 2B(P - P2) = P^2 - P2^2 + b_c \Rightarrow \]

\[B = \frac{P^2 - P2^2 + b_c}{2(P - P2)} \]

To complete the proof it remains to show the lower bound \( A \). Party \( L \) does not have a fixed position like \( C \), but he locates according to \( CL \’s \) positioning. The logic that renders \( L \’s \) positioning is vote maximization. As leapfrogging is not allowed, \( L \’s \) optimal position is always found to the left of \( CL \). If \( CL \) presents a position \( P \in (P0 + b_{CL}^{\frac{1}{2}}, P1) \), then \( L \) will maximize his votes by locating at \( P - b_{CL}^{\frac{1}{2}} \). At this
position, $L$ will get all voters found to the left of $P_0 + \frac{1}{2}b_{cl}$. If $P \in (P_0, P_0 + \frac{1}{2}b_{cl})$, then $L$ will have an incentive to articulate a position at $P_0$. At this position, $L$ will gain all voters found to the left of $P_0$.

II. **CL inside C’s partisan constituency**

In order to make the computations easier, assume again that $b_c = b_{cl} = b$.

**Lemma 2.**

Suppose that party C chooses a policy issue position $P_2 \in (P_1 + \frac{1}{2}b, P_3)$ proposed by one of his partisans and that there is no possibility of leapfrogging between $L$ and $CL$.

$G_4$ and $G_5$ is the votes that $CL$ gets when presenting a position at $P = P_2 - \frac{1}{2}b$ or $P \in (P_1, P_2 - \frac{1}{2}b)$ respectively. The following quantities are defined:

$$G_4 = \begin{cases} 
\langle P_0, P_1 \rangle & \text{if } \langle P_2 - \frac{3}{2}b, P_2 - \frac{1}{2}b \rangle > \langle P_0, P_1 \rangle \\
\langle P_2 - \frac{3}{2}b, P_2 - \frac{1}{2}b \rangle & \text{if } \langle P_2 - \frac{3}{2}b, P_2 - \frac{1}{2}b \rangle < \langle P_0, P_1 \rangle 
\end{cases}$$

$$G_5 = \begin{cases} 
\langle P_0, P_1 \rangle + P \left( \frac{P^2 - P_2^2 + b}{2(P - P_2)} \right) & \text{if } \langle P - \frac{1}{2}b, P \rangle > \langle P_0, P_1 \rangle \\
\frac{2P - \frac{1}{2}b}{2} \left( \frac{P^2 - P_2^2 + b}{2(P - P_2)} \right) & \text{if } \langle P - \frac{1}{2}b, P \rangle < \langle P_0, P_1 \rangle 
\end{cases}$$

$P \in (P_1, P_2 - \frac{1}{2}b)$.
Proof

We will first show $G4$. Suppose that $CL$ ‘squeezes tightly’ party $C$ (Figure 2). That is, $CL$ picks $P2 - b^{1/2}$ to be his policy issue position. Then $L$ can move either\(^{45}\) to $P2 - b^{1/2}$ or $P2 − 2b^{1/2}$. If $L$ locates at $P2 - b^{1/2}$, he gains

$$\langle O, P0 \rangle + \langle P1, P2 - \frac{3}{2} b^{1/2} \rangle + \langle P2 - \frac{3}{2} b^{1/2}, P2 - b^{1/2} \rangle$$

If $L$ moves to $P2 − 2b^{1/2}$ he gains

$$\langle O, P0 \rangle + \langle P1, P2 - \frac{3}{2} b^{1/2} \rangle + \langle P0, P1 \rangle$$

Party $L$ will choose the policy issue position which maximises his gain. Thus, if $\langle P2 - \frac{3}{2} b^{1/2}, P2 - b^{1/2} \rangle > \langle P0, P1 \rangle$ then $L$ will choose $P2 - b^{1/2}$, in which case $CL$ will get only his partisans found in $\langle P0, P1 \rangle$. If $\langle P2 - \frac{3}{2} b^{1/2}, P2 - b^{1/2} \rangle < \langle P0, P1 \rangle$ then $L$ will choose $P2 − 2b^{1/2}$, in which case $CL$ will get $\langle P2 - \frac{3}{2} b^{1/2}, P2 - b^{1/2} \rangle$.

\(^{45}\) Since by assumption $L$ cannot present $CL$ ‘s position, $P2 - b^{1/2}$ indicates a position that is just to the left of $P2 − b^{1/2}$. (If parties could present identical positions, gains would be halved between $L$ and $CL$). The same holds for positions $P$ and $P$ (See Figure 3 for a representation of these two positions).
We will now demonstrate $G5$.

If $P \in (P1, P2 - b^{\frac{1}{2}})$ then $B)P$ and so

$$U_B(CL : P) = -(B - P)^2$$

$$U_B(C : P2) = -(B - P2)^2 + b$$

We want

$$-(B - P)^2 = -(B - P2)^2 + b \implies -(B^2 - 2BP + P^2) = -(B^2 - 2BP2 + P2^2) + b$$

$$2B(P - P2) = P^2 - P2^2 + b$$

$$B = \frac{P^2 - P2^2 + b}{2(P - P2)}$$

Thus to the right of $P$, $CL$ will get $\left\{ P, \frac{P^2 - P2^2 + b}{2(P - P2)} \right\}$ (Figure 3).

It now remains to determine the votes that $CL$ will obtain to the left of $P$. This depends on the position of $L$ on the dimension found to the left of $P$. Party $L$ can move to either $P$ or $P - b^{\frac{1}{2}}$. If $L$ goes to $P$, he gains:

$$\langle O, P0 \rangle + \langle P1, P - b^{\frac{1}{2}} \rangle + \langle P - b^{\frac{1}{2}}, P \rangle$$

If $L$ moves to $P - b^{\frac{1}{2}}$ he then gains

$$\langle O, P0 \rangle + \langle P1, P - b^{\frac{1}{2}} \rangle + \langle P0, P1 \rangle$$

Party $L$ chooses this policy issue position for which his profit will be the maximum. Thus, if $\langle P - b^{\frac{1}{2}}, P \rangle > \langle P0, P1 \rangle$, $L$ will choose $P$ and thus $CL$ will get $\langle P0, P1 \rangle + \langle P, \frac{P^2 - P2^2 + b}{2(P - P2)} \rangle$. If $\langle P - b^{\frac{1}{2}}, P \rangle < \langle P0, P1 \rangle$, $L$ will choose $P - b^{\frac{1}{2}}$ and therefore $CL$ will get:
This completes the proof □

Figure 3. CL chooses a policy position that falls within \((P_1, P_2 - b^{\frac{1}{2}})\)

To recap the following corollary is in order:

**Corollary**

1. If party CL tightly squeezes party C, then he will not win more votes than the share of his own partisans.

2. If there is an interval with length that equals \(b^{\frac{1}{2}}\) inside \((P_1, P_2 - b^{\frac{1}{2}})\) with more voters than CL partisans, then CL will squeeze C, but not tightly.

3. If \(P_1 - P < P_2 - P_1\) and \(P \in (P_0, P_0 + b^{\frac{1}{2}}_{CL})\) then CL will win more votes if he will present a policy position that is found within the interval of his own partisans, instead of tightly squeezing party C.

From the above, it is fair to argue that is not always in CL’s advantage to relocate inside C’s interval of partisans. On occasions (1) and (3) as summarized above, CL will not be
better off if he attempts to attract $C$’s partisans. Thus if $CL$ is rational, as has been assumed here, he will decide to remain inside the interval of his own party identifiers. With $CL$ staying inside the interval of his own partisans, party C as the party with the biggest proportion of partisans will not necessarily suffer a partisan defection.

**Theoretical extensions to the Finnish party system: A ‘cartel’ type of competition**

The analysis presented above assumes a competition among three parties. How can this be related to a multiparty system such as that in Finland with eight political parties? Theoretically, the competition presented above can involve any group of three sequential parties. Therefore assuming that the parties’ positions are fixed and they cannot leapfrog one another, a party system with eight parties will generate 5 types of competitive triads (Figure 4)\(^{46}\).

1.  

|---------------------|---------------------|-------------------------------|---------------------|-----------------------------|---------------------------------|----------------|-----------------------------|

2.  

| VAS | VIHR | SDP | KESK | RKP | KD | PS | KOK |

3.  

| VAS | VIHR | SDP | KESK | RKP | KD | PS | KOK |

4.  

| VAS | VIHR | SDP | KESK | RKP | KD | PS | KOK |

\(^{46}\) The ordering is according to Benoit and Laver (2006) expert data survey to the left and right dimension.
5.

| VAS | VIHR | SDP | KESK | RKP | KD | PS | KOK |

**Figure 4.** Tripartite party competition in the Finnish party system

In other words, one can envision a ‘cartel’ type of competition, where, instead of having a competition of *all against all*, parties compete against their adjacent parties. However, as has already been asserted, the stylized example presented is of technical interest and therefore any attempt to apply it to the Finnish parties would be doomed to meet serious constraints. For example contrary to the theory:

1. Not all Finnish voters identify with political parties.
2. Parties’ identifiers are not distributed at discrete intervals but at intervals that overlap.
3. In real life, political parties leapfrog one another (although not often).
4. The peripheral party among a competition of three parties is not always the party with the greatest number of party identifiers\(^{47}\).
5. In real life elections competition for rival voters is not restricted to sequential parties.

For the reasons mentioned above, the chapter that follows relaxes the assumptions of the stylized example presented here and tests empirically the effect of party identification on Finnish parties’ optimal positions.

\(^{47}\) In the pattern of party competition pictured in Figure 4 this actually holds in case 1—where the SPD is the party with the biggest share of party identifiers among VAS and VIHR—, case 3—where SPD is the party with the biggest share of party identifiers among KESK and RKP—, case 4—where RKP is the party with the biggest share of party identifiers among KD and PS— and case 5— where KOK is the party with the biggest share of party identifiers among KD and PS.
Chapter 4 Discussion

The purpose of the chapter was to offer theoretical insights into the effect of party identification on parties’ ‘one-off’ optima. The analysis considered a stylized example of party competition that integrated a spatial model analysis with insights of non-cooperative game theory. Specifically, for a party competition among $L – CL – C$, where $L$ is the leftmost party, $CL$ is the one in the middle, and $C$ is the rightmost party, and where $L$ and $CL$ are the ‘challengers’ that want to ‘drag’ $C$’s identifiers, it was shown that:

1. It is not always advisable for party $CL$ to move inside the domain of party’s $C$ identifiers
2. The party with the greatest share of party followers, party $C$ in the stylized example, will not necessarily suffer a partisan hemorrhage

(Both propositions are in the Corollary)

Proposals for further research

The analysis assumed the ‘trade-offs’ and ‘gains’ in a multiparty system where competition involved three consecutively political parties. In my attempt to add one more party in the three-party competition the sub-cases to be considered mushroomed exponentially, making any observation extremely unclear. Yet working with cases in which more than three parties are considered in the competition, can undoubtedly set a much better theory for the Finnish case compared to that presented here.

Also, work could be developed towards assuming, as Adams (1998; 2001a; b) does, that parties respond sequentially to each other’s optimal position. In that case one could observe whether equilibria can be spotted in an eight-party system such as the Finnish

---

48 It is assumed here that party $C$’s identifiers are so large in numbers, that it pays-off for both $CL$ and $L$ to attempt to siphon-off his partisans. This assumption notwithstanding, the parties at either end ($L$ and $C$) would have a clear incentive to pull the middle party’s ($CL$) identifiers.

49 This result holds of course under the assumption that there is no decline in turnout due to alienation.
one, where voting is assumed to be deterministic. Although this would be an interesting undertaking to show the “analytical complexity” of such an attempt would be “severe” (Adams 1998: 22).

**See Appendices**

1. A note regarding the case (I/B in the main text) where \( P \in (P0, P1 - b_{CL}^{1/2}) \)
   (Appendix 4.1)
Chapter 5: Empirical applications: Simulation analysis of the effect of party identification on Finnish parties’ optimal positions

Summary

This chapter moves from theory to empirical applications. In 2003, the Finnish National Election Study revealed that the majority of Finnish voters are independents. The purpose of this chapter is to show that although the majority of Finnish voters are independents, party identification affects Finnish parties’ optimal position taking.

This chapter is divided into two parts. In the first part, which is also the longer of the two, voting is assumed to be deterministic. In deterministic voting, the effect of party identification on Finnish parties’ optimal positions is assessed by conducting two types of simulations, the partisan and the apartisan type.

According to the partisan type of simulations, partisans’ voting behaviour depends on their partisanship and their policy issue distance from the party. According to the apartisan type, voting behaviour depends solely on distance. After calculating the parties’ gains it is observed whether the partisan type of simulations suggests different optimal positions from the apartisan type. It is shown that partisan attachments make Finnish parties adopt in general different optimal positions than they would if party decision were only a matter of the voter’s distance from the party.

In the second part of the chapter, voting is assumed to be probabilistic in the sense that voters’ utilities are perturbed by unmeasured components that render their decisions uncertain. The main purpose in assuming that voting is probabilistic is to calculate a party’s probability of being voted for when placed at his optimal position as found in the first part of the chapter, where the assumption of deterministic voting was adopted. It is shown that the probability that a voter will vote for a party when the latter occupies a position according to the partisan type of simulations is greater than when it occupies a
position according to the *apartisan* type. It is also shown that the inclusion of party identification in a voting model, that regards only distance, results in a statistically significant improvement in model fit.

In this chapter, simple probabilistic equations are used such as the binary logit to statistically model party choice. In the second part of the thesis, which is concerned exclusively with probabilistic voting the work develops to consider more sophisticated models of voting.

Besides demonstrating the implications of party identification for Finnish parties’ optimal position taking, the chapter contributes to those studies (Adams et al. 2005; Adams 2001b) that incorporate both deterministic and probabilistic assumptions of voting in the same analysis.

A serious assumption of the present chapter’s analysis and those that follow is that it does not take into consideration the possibility of abstention due to alienation (see e.g. Downs 1957; Brody and Page 1973; Thurner and Eymann 2000) or indifference (see e.g. Riker and Ordeshook 1973; Enelow and Hinich 1984). In the first case, when a party moves away from its actual position it may lose supporters not necessarily to other parties but to the group of non-voters. In the second case, voters may not be motivated to turn out to vote if they see no substantial difference among parties’ policy issue positions. Although the presence of abstention would definitely add to the analysis, it is not considered in the present work for one main reason: The main concern in this chapter as in those that follow is to show the effect of party identification on parties’ optimal position taking. So although considering abstention in the simulations would give more a realistic results of parties’ gained votes\(^{50}\), the effect of party identification on parties’ optima would be attenuated having high scores of non-voters.

\(^{50}\) On this, see also the observation made in Chapter 7 when the voting percentages of the Swedish and Finnish parties under the Nash equilibrium scenario are discussed.
Independents and the effect of partisans on Finnish parties’ optimal position taking

There have been two different approaches to measuring the strength of independents (Dennis 1988). The first was developed with reference to American politics and looks at the behaviour of voters (behavioural approach). According to the behavioural approach, independents are measured by observing how many voters switch their vote from one party to another (Daudt 1961; Key 1966; both found in Dennis 1988) or split their tickets (Schramm and Wilson 1993) between different candidates. The second approach (attitudinal approach) measures independents by considering how many voters are self-defined as such or have no partisan attachment (Conover and Feldman 1982; Jacobson 2003).

The second approach has been adopted among others by the Finnish National Election Studies. According to the Finnish National Election Study (FNES) 2003 most voters are independents and do not identify with any political party (Table 1).

Table 1. Finnish party identification 2003 (data: FNES 2003)

<table>
<thead>
<tr>
<th>Q[41] “Do you feel close to any political party?”</th>
<th>Valid percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>46.7</td>
</tr>
<tr>
<td>No</td>
<td>51.4</td>
</tr>
<tr>
<td>DK/DN</td>
<td>1.9</td>
</tr>
<tr>
<td>Total (N=1,270)</td>
<td>100</td>
</tr>
</tbody>
</table>

As emerges from the FNES 2003 data the independents outnumber the amount of partisans. We ask the question: What would be the effect of the number of partisans on Finnish parties’ optimal position taking?

In most of this chapter where voting is assumed to be deterministic, the work relies heavily on Adams’ (1998; 2001a; b) ‘biased voting’ model.
As in the previous chapter, here, too party competition is perceived as a ‘single shot’\textsuperscript{51} game in the sense that parties have only one chance to respond to rival parties’ fixed positions. This is the greatest difference from Adams’ (1998; 2001a; b) simulation analysis, according to which parties respond sequentially to each other’s optimal positions.

In the real world, it is ambiguous whether parties take rivals’ positions as fixed, as is assumed in this chapter, or whether they respond sequentially to each other’s strategies, as Adams (1998; 2001a; b) assumes. However, assuming that parties take rival parties’ positions as fixed, this chapter offers a new insight into Adams’ (1998; 2001a; b) line of research.

Another difference between Adams’ spatial analysis and that presented here is that in Adams’ publications of 1998 and 2001, partisan attachments are assumed to be modest to strong. In contrast, here, the component of partisan attachment is assumed to be small.

In the second part of this chapter, the analysis follows those of previous studies (see e.g. Adams 2001b; Adams and Merrill 1999a; b; Adams et al. 2005), according to which the vote choice is assumed to be probabilistic\textsuperscript{52} and therefore indeterminate from the parties’ perspective.

The main reason for assuming that voting is probabilistic is to be able to compute the probability of voting for a party when the latter is located at his optimal position according to the deterministic analysis presented in the first part of the chapter. A combination of probabilistic and deterministic voting like that presented here can be found in Adams (2001b)\textsuperscript{53}. Adams (2001b) utilizes probabilistic voting models that

\textsuperscript{51} Also known as a non-repeated game.

\textsuperscript{52} For more on this see the section ‘Contribution of the study’.

\textsuperscript{53} In the first chapters (1-5) the author assumes that voting is deterministic. He then proceeds to test the arguments emanating from deterministic voting under the condition of probabilistic voting (Ch. 6).
assume a conditional logit function while in this chapter a binary logit analysis is employed.

**Deterministic voting**

**Voting equations**

Two voting equations are employed here. According to the first, the voter’s decision is a deterministic utility of both party identification and the voter’s distance from the party of choice. This model known as the ‘biased voting’ model (Adams 1998; 2001a; b) was presented in detail in Chapter 3. The main argument of Adams’ (1998; 2001a; b) analysis was that a party can attract rival party identifiers by proposing a policy issue position for which the utility differential of voting for the rival over the party of identification is positive. For the purposes of the present analysis, for instance, assume that the Green League wants to attract voters who identify with the Social Democratic Party.

If the Green League emulates the Social Democratic Party’s ideological position, he will fail to attract any support from Social Democratic Party’s partisans. This is because the Social Democratic Party’s partisans, seeing no difference on ideological grounds between the two parties, will vote for the party of identification. In order for the Green League to successfully siphon-off rival partisans, he should propose a policy position that is not only different from that of the rival but is also significantly more attractive. A significantly more attractive position will be one granting a greater utility for the Social Democratic Party’s partisans when voting for the Green League, than when voting for their party of identification.

\[ U_i(\theta) = b_\theta - (x_i - x_\theta)^2 \]

where \( b_\theta \) is a dummy variable that represents the component of party identification and equals a constant if voter \( i \) identifies with party \( \theta \) and otherwise zero. Distance is given by \( (x_i - x_\theta)^2 \), where \( x_i \) stands for the position of voter \( i \) and \( x_\theta \) for the position of party \( \theta \).
According to the second voting model, party identification has no effect on party choice. We call this model the proximity model, for the voters are assumed to cast a ballot according to classical spatial or proximity theory. As party identification has no role in voters’ decisions \((b = 0)\), the voters’ utility equals a quadratic loss function that takes the form:

\[
U_i(\theta) = -(x_i - x_\theta)^2 \tag{1}
\]

From the parties’ perspective proximity implies that each party will try to present a position as close as possible to the position of the majority of the voters. To find the gains for each party when competition is in pairs, one needs to find the cut-point between their positions (See Chapter 2). The cut-point stands for the position that is equidistant from the two parties. All voters whose ideal issue position is identical to that of the cut-point will be indifferent\(^{55}\) towards the two parties. All voters to the left of the cut-point will vote for the leftmost party while all those to the right of the cut-point for his rival. As Berger et al. (2000) have shown, under competition in pairs, each party can gain more votes by moving the cut-point closer to the other party’s position.

**Simulation analysis**

Before presenting the logic behind the simulation analysis it should be noted that the results of the analysis depend on the empirical distribution of Finnish partisans and independents along the ideological scale.

For the sake of clarity, the distribution of the Finnish partisans and independents in 2003 is given in different figures, Figure 1 and Figure 2 respectively\(^ {56}\) (data: FNES 2003).

\(^{55}\) Here, the practical implication of this is that voters’ ballots will be halved between the two parties.

\(^{56}\) The data emanates as follows. For each party, the percentage of partisans found in each 0-10 position is multiplied with the total percentage of voters answering that they ‘feel close to a political party’. To get the
Voters who reported neither ‘closeness’ to a political party nor independency are not considered in the simulations\textsuperscript{57}. Voters who initially reported that they ‘feel close’ to a political party but failed to report the direction of their identification, are likewise not considered in the simulations\textsuperscript{58}.

\footnotesize
figures of the independents, the total percentage of voters reporting no partisan closeness is multiplied by the percentage of voters located in each position. The summation of the figures in each sell results in a marginal smaller per cent compared to the initial per cent of partisans and independents as reported in the FNES 2003. This is due to the fact that not all voters were able to place themselves in the left-right scale.

\textsuperscript{57} The percentage 1.9\% corresponds to 24 respondents (data: FNES 2003).

\textsuperscript{58} 3.2\% of the respondents could not report the direction of their identification, although they answered that they “feel close to a political party” (data: FNES 2003).
Figure 59. Distribution of Finnish party identifiers (data: FNES 2003)

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59 Figure 1 is made in an excel spreadsheet and therefore decimals are given with a comma (,) instead of a dot (.). Same applies for all other excel figures presented in the thesis.
Figure 2. Distribution of Finnish independents (data: FNES 2003)

As has already been argued, parties’ positions are simulated under two types of competition; the partisan type, where partisan attachments affect partisans’ voting behaviour and the apartisan type, where partisan attachments have no effect on voting behaviour. In the partisan type of simulations, the same degree of partisan attachment has been assumed for all parties. The reason for assuming the same degree of partisan attachment is that if it is shown that a small degree of partisan attachment, such as one ($b = 1$)\(^{60}\), affects the optimal positions of parties with a large pool of party identifiers, then certainly the same will hold true for a greater degree of partisan attachment.

The rationale behind simulating parties’ positions under two types of competition is that if it is shown that parties’ optimal positions under the apartisan type are similar to that in the partisan type, this means that the distribution of party identifiers does not influence parties’ optimal positions. Moreover, it is hypothesized that not only will there be

\(^{60}\) Appendix 5.1 explains why $b = 1$ is a small degree of partisan attachment.
differences between the optimal positions as suggested by the two types of simulations but also that these differences will be ‘strikingly different’.

The hypothesis tested is that:

*Simulations of partisan attachments make parties adopt ‘strikingly different’ optimal positions than they would adopt under competition based solely on distance.*

A party’s optimal position is the one for which the party receives the most votes. At any other position the party fails to attract a greater amount of support. Reiterating the point made at the beginning of the chapter, parties find their optimal positions after taking rival parties’ positions as fixed. Parties have only one chance to respond to rival parties’ strategies and in that sense parties’ optimal positions are ‘one-off’ optima.

For the purposes of this chapter, a ‘strikingly different’ optimal position is considered to be one that belongs to a different political side of the same policy issue dimension than the position of comparison. For instance, if under the partisan type of simulations, a party maximizes his electoral share by taking a position that belongs to the centre side of the policy issue dimension and under the apartisan type by taking a position that belongs to the right one, then the difference in optimal positions will be put down as ‘strikingly different’.

The simulations are conducted under the following pattern; initially Finnish parties are placed at their actual positions as recorded by the expert survey data by Benoit and Laver (2006)\(^61\). In Table 2\(^62\) Benoit and Laver’s data has been transformed\(^63\) to reflect a Likert scale ranging from 0 to 10 that is also used in FNES 2003.

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\(^61\) The reason for using Benoit and Laver experts’ data on parties’ positions is that the FNES 2003 had omitted to record the position of the True Finns and also because the FNES 2007 was not available at the time that this chapter was written (Chapter 8 reviews different methods of capturing parties’ positions).

\(^62\) Reading Table 2 in conjunction with Figure 1 shows that in most of the cases partisans’ positions are correlated with the parties’ actual positions. For example, most of the voters who identify with the Social
Table 2. Experts’ opinions on Finnish parties left-right placement in 2003 (data: Benoit and Laver 2006)

<table>
<thead>
<tr>
<th>Parties</th>
<th>Left</th>
<th>Green</th>
<th>Social Democratic Party</th>
<th>Centre</th>
<th>Swedish People’s Party</th>
<th>Christian Democratic Party</th>
<th>True Finns</th>
<th>National Coalition Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Placement</td>
<td>1.84</td>
<td>3.42</td>
<td>3.89</td>
<td>5.79</td>
<td>6.74</td>
<td>7.0</td>
<td>7.58</td>
<td>7.68</td>
</tr>
</tbody>
</table>

Parties being fixed at their actual positions (time $t_0$), as given in Table 2, I proceed to move only one party at a time from 0 to 10 in increments of 0.1 (time $t_1$). For each of the 101 positions created, the ‘challenger’s’ total gain is calculated. Before presenting the math behind the simulations, a discussion explains how the voters have been calculated.

**Calculation of total votes**

In general if the function $f(x)$ is known then the area $A$ under the graph’s function, between two points $(a, b)$ with $a < b$, is given by

$$ A = \int_a^b f(x)dx $$

Since the function of neither independents nor party identifiers is known, the votes are generated as follows. Each position is assumed to represent a set of 37 voters $^{65}$ who are distributed at an interval of:

---

$^{63}$ Benoit and Laver (2006) used a metric scale 1-20.

$^{64}$ Defined as the party that relocates in an attempt to siphon-off rival party identifiers.

$^{65}$ The idea comes from Adams (2001b). The reason for choosing 37 voters was purely empirical. Firstly, each position represented 10 voters, but as this division was lacking in accuracy when computing the total
\[ x_r - 0.45, x_r - 0.425, x_r - 0.4, x_r - 0.375, \ldots, x_r + 0.4, x_r + 0.425, x_r + 0.45 \]

where \( x_r \) represents the respondent’s self-placement on the 0-10 scale. Thus, for example, when a voter places herself at position 6 on the left right scale, this voter represents 37 voters who are distributed at the points \( \{5.55, 5.575, 5.6, 5.625, \ldots, 6.375, 6.4, 6.425, 6.45\} \). Since the percentage of voters found in each of the 0-10 points is known, the percentage of voters found at each of the 37 points can be given by dividing the total percentage by the number of points. Thus, for example if the percentage of voters found at 6 is \( y\% \) then each of the 37 points represents \( \frac{y\%}{37} \) of the voters placed at 6.

With this method, the area under the curve can be calculated easily. For instance, assume that we want to calculate the percentage of Social Democrats that the Left Alliance gains when he occupies the position 1.3. With the Social Democrats placed at their actual position, \( x_{SD} = 3.89 \) and with \( b_{SD} = 1 \), the Left Alliance gets all the voters placed to the left of 2.4 \(^{66}\). In order to find the percentage that these voters represent one needs to add all percentages assigned at 2.4 and below. These are the partisans’ percentages found at the intervals \((2.4, 2.375)\), \((2.375, 2.35)\), \((2.35, 2.325)\) and so on, until one reaches position \(-0.45\), which represents the 37th voters who is placed at position zero. The sum of all votes, I decided to represent each position with more voters. By increasing the number of voters each time, it was finally observed that when each position represented 37 voters, the gains for each party could be computed quite accurately.

\(^{66}\) To see this, replace \( x_{VAS} = 1.3, x_{SD} = 3.89 \) and \( b_{SD} = 1 \) to the inequality:

\[ -(x_i - x_{SD})^2 + b_{SD} < -(x_i - x_{VAS})^2. \]

We have

\[ -(3.89)^2 + 1 < -(x_i - 1.3)^2 \Rightarrow \]

\[ -(15.1321 - 7.78x_i + x_i^2) + 1 < -(1.69 - 2.6x_i + x_i^2) \Rightarrow \]

\[ -15.1321 + 7.78x_i + 1 + 1.69 - 2.6x_i < 0 \Rightarrow 5.18x_i - 12.4421 < 0 \Rightarrow \]

\[ 5.18x_i < 12.4421 \Rightarrow x_i < 2.4 \]
these percentages gives the votes of rival identifiers when the Left Alliance is placed at position 1.3.

For cases where two parties occupy the same position, the vote shares are halved. For positions of the form, $x + 0.5$, with $x \in N \cap [0,10]$, the average number of votes assigned to $x + 0.45, x + 0.55$ was considered. If a position was not found in the matrix, the closest position was selected. The furthest approximation made in the simulations was 0.02 increments away from the points found in the matrix or from $x + 0.5$ with $x \in N \cap [0,10]$. Yet, as the matrix consists of 407 points, more than half of the positions $^67$ in the simulations were found in it.

**Simulations**

The ‘challenger’s’ total gain is found upon summing up the gains among:

1. rival party identifiers,
2. independent voters, and the
3. ‘challenger’s’ partisans.

(Papageorgiou 2010a)

Rival party identifiers are voters who identify with a party other than the ‘challenger’. independents are those with no partisan attachment to either the ‘challenger’ or a rival party. Lastly, the ‘challenger’s’ partisans, as the name reveals, are those voters who identify with the ‘challenger’. Upon calculating the ‘challenger’s’ total gain at each position the ‘challenger’ is shifted to the position at which he maximizes his votes. With the ‘challenger’ shifted to his new position, the optimal position of the next in order party is calculated.

$^67$ For the others, the most frequent approximation made was 0.01 increments away from the matrix positions.
The same process is repeated for all eight parties until each of them has been repositioned once. Parties are assumed to move sequentially in the following order: (1) The Left Alliance (2) The Green League (3) The Social Democratic Party (4) The Centre Party (5) The Swedish People’s Party (6) The Christian Democratic Party (7) The True Finns (8) The National Coalition Party. Simulations are done in an excel spreadsheet.

Parties’ total gains are found according to the two types of simulations: I. The partisan type and II. the apartisan type.

I. The partisan type of simulations

In what follows, $G_1$ stands for the party’s gains among rival party identifiers, $G_2$ for the party’s gains among independents and $G_3$ for the party’s gains among his ‘own partisans’.

‘Challenger’s’ gains among rival party identifiers ($G_1$)

To run the ‘biased voting’ model, the inequality $-(x_i - x_\lambda)^2 > -(x_i - x_\theta)^2 + b$ is solved for $x_i$:

\[
\begin{cases}
    x_i > \frac{x_\lambda^2 - x_\theta^2 + b}{2(x_\lambda - x_\theta)}, & \forall x_\lambda > x_\theta \\
    x_i < \frac{x_\lambda^2 - x_\theta^2 + b}{2(x_\lambda - x_\theta)}, & \forall x_\lambda < x_\theta
\end{cases}
\]

When the order is reversed, the partisan type of simulations suggests different optimal positions for the parties. Yet the interest here is whether there is a difference between the positions indicated by the partisan and the apartisan type of simulations. Since the differences in the optimal positions indicated by the two types of simulations are vast, the hypothesis that “partisan attachments make parties adopt ‘strikingly different’ positions than they would take under competition based solely on distance” prevails irrespective of the order in which one decides to move the parties.
Since partisan attachment is assigned a fixed value of one, the previous relationship can be written as:

\[
x_i \left\{ \begin{array}{ll} \frac{x^2_\lambda - x^2_\phi + 1}{2(x_\lambda - x_\phi)}, & \forall x_\lambda > x_\phi \\
< \frac{x^2_\lambda - x^2_\phi + 1}{2(x_\lambda - x_\phi)}, & \forall x_\lambda < x_\phi 
\end{array} \right. \tag{*}
\]

where \( x_\lambda \) represents the position of the ‘challenger’ and \( x_\phi \) the fixed position of the rival party. When \( \lambda \) occupies the same position as \( \theta \) \((x_\lambda = x_\phi)\), there is no gain as (*) has no meaning. In cases where the ‘challenger’ occupies a position to the left of the fixed position of the rival party, \( x_\lambda < x_\phi \), the ‘challenger’s’ gains \((G_i)\) are found to the left of position \( x_i \). When the ‘challenger’ occupies a position to the right of the fixed position of the rival party, \( x_\lambda > x_\phi \), the ‘challenger’s’ gains \((G_i)\) are found to the right of position \( x_i \).

Thus, in terms of the ‘challenger’s’ gains:

1. If \( x_\lambda < x_\phi \), \( \max G_i = (-0.45, x_i) \)
2. If \( x_\lambda > x_\phi \), \( \max G_i = (x_i, 10.45) \)
3. If \( x_\lambda = x_\phi \), \( G_i \notin \mathbb{R} \)

For instance, when the Left Alliance (the ‘challenger’) occupies the same position as the Christian Democrats (the ‘rival’), at 7, fraction (*) cannot be defined and thus there is no gain for the Left Alliance. When the Left Alliance occupies a position smaller than 7 e.g. 5, his gain on Christian Democrats is an interval to the left of \( x_i = 5.75 \)\(^{69} \). When on the

\(^{69}\) The number 5.75 is found after replacing \( x_\lambda = 5 \) and \( x_\phi = 7 \) in lower inequality in (*)
other hand the Left Alliance occupies a position greater than 7, e.g. 7.8, he gains the support of the Christian Democrats found to the right of \( x_i = 8.03 \).

‘Challenger’s’ gains among independents \((G_2)\)

If the ‘challenger’ presents a position to the right of the rival party, the ‘challenger’s’ maximum gain among independents is found upon adding all voters found between the cut-point of the ‘challenger’s’ and the rival’s position and 10.45. Position 10.45 represents the last of the 37 voters assigned to position 10. Succinctly:

1. If \( x_{\lambda} > x_{\theta}, \max G_2 = \left( \frac{x_{\lambda} + x_{\theta}}{2}, 10.45 \right) \)

If the ‘challenger’ articulates a position to the left of the rival party, the ‘challenger’s’ maximum gains can be calculated by adding all votes found in the interval between 0.45 and the cut-point. Here position -0.45 represents the first of the 37 voters assigned to position zero. Hence:

2. If \( x_{\lambda} < x_{\theta}, \max G_2 = \left( -0.45, \frac{x_{\lambda} + x_{\theta}}{2} \right) \)

When the ‘challenger’ is squeezed by rivals, his gains are found between the two cut-points defined by the ‘challenger’s’ position and the first rival party on the left and right respectively. Algebraically:

3. If \( x_{\theta} < x_{\lambda} < x'_{\theta} \) or \( x'_{\theta} < x_{\lambda} < x_{\theta} \) then \( G_2 = \left( \frac{x_{\lambda} + x_{\theta}}{2}, \frac{x_{\lambda} + x'_{\theta}}{2} \right) \)
‘Challenger’s’ gains among own partisans ($G_3$)

To compute the ‘challenger’s’ gains among his partisans, Remark 1 is followed according to which:

**Remark 1 [R1]**

Assuming that there is no abstention, the percentage of the ‘challenger’s’ identifiers, voting actually for the ‘challenger’ ($\lambda$) will be those not defecting to the rivals ($\Theta$).

with $\Theta = \{\theta_1, \theta_2, \ldots, \theta_7\}$, where $\theta_1, \theta_2, \ldots, \theta_7$ are the rival Finnish parties.

When rival parties are all placed to the left of the ‘challenger’ one needs to find the position for which the ‘challenger’ suffers the greatest loss. Then, from [R1] and (*) it follows that all ‘challenger’s’ partisans found to the right of this position vote for the ‘challenger’. In terms of distance ($d$) the foregoing can be given by the following relationship:

1. If $x_\lambda > x_\phi \ \forall x_j \ \text{s.t.} \ d(x_j, x_\lambda) = \min \{d(t, x_\lambda) \forall t\}$ then $G_3 = \langle x_\lambda, 10.45 \rangle$

When rival parties are placed to the right of the ‘challenger’, then from [R1] and (*) it follows that the ‘challenger’s’ own partisans who actually vote for the ‘challenger’ are those found to the left of the position for which the ‘challenger’ suffers the greatest loss over a rival party. In terms of distance ($d$):

2. If $x_\lambda < x_\phi' \ \forall x'_{j} \ \text{s.t.} \ d(x', x_\lambda) = \min \{d(t, x_\lambda) \forall t\}$ then $G_3 = \langle -0.45, x_\phi' \rangle$

When some rival parties are found to the left and some others to the right of the ‘challenger’s’ position, then from [R1] and (*) it follows that: The ‘challenger’s’ gain
among his ‘own partisans’ can be found by adding all partisans placed between the left and right position for which the ‘challenger’ suffers the greatest loss in partisans.

3. If $x_\theta < x_\lambda < x_\theta'$ then $G_3 = \langle x_i, x_i' \rangle$

The ‘challenger’s’ total vote share at each position is given by summing up the relevant gains among the three types of voters or:

$$G_{\text{TOTAL}} = G_1 + G_2 + G_3$$

II. The apartisan type of simulations

In the apartisan type of simulations we have $b = 0$. A voter who presents a position at $x_i$ will vote for $\lambda$ instead of $\theta$ if the utility differential of $\lambda$ over $\theta$ is positive, or:

$$U_i(\lambda) > U_i(\theta) \Rightarrow (x_i - x_\lambda)^2 > -(x_i - x_\theta)^2 + 0,$$

and solving for $x_i$ when $x_\lambda > x_\theta$,

$$x_i > \frac{x_\lambda^2 - x_\theta^2}{2(x_\lambda - x_\theta)} \Rightarrow x_i > \frac{(x_\lambda - x_\theta)(x_\lambda + x_\theta)}{2(x_\lambda - x_\theta)} \Rightarrow x_i > \frac{1}{2}(x_\lambda + x_\theta)$$

Similarly when $x_\lambda < x_\theta$,

$$x_i < \frac{1}{2}(x_\lambda + x_\theta)$$

To recap what was shown under I and II the following holds: In the partisan type of simulations, party identification affects all voters’ behaviour apart from that of the
independents’. The independents have no attachment to political parties and so party identification plays no role on their party decision.

To find the percentage of voters that the ‘challenger’ manages to attract among rival party identifiers, the ‘biased voting’ model applies. At each position the ‘challenger’ gains the support of those partisans for whom the proposed ideology surpasses the degree of their partisan attachment. Parties are assumed to be competing in pairs. Since there are eight parties, gains among rival partisans are computed for fifty-six pairs.

To compute the ‘challenger’s’ gains among independents, the basic principles of the proximity model apply as presented at the outset of this chapter. At each position the ‘challenger’ gains the support of those independents who are closer to him than to the rival parties.

Lastly, to calculate the votes that the ‘challenger’ wins among his own partisans a deductive logic is employed. To find how many voters who identify with the ‘challenger’, actually vote for the ‘challenger’, one needs to calculate the percentage of the ‘challenger’s’ partisans who cast a deviant ballot for a rival party. What is left is the ‘challenger’s’ gain among his own partisans.

In the apartisan type of simulations voters’ attachment to political parties does not influence their voting behaviour. This means that voters vote for the party that stands closest to them and thus the ‘challenger’s’ gains among rivals, independents and his own partisans are computed in the exact same way as the gains among independents in the partisan type of simulations.

**Simulation results**

The results of the partisan and the apartisan type of simulations are given in Figure 3 (a-h) (data: Benoit and Laver 2006; FNES 2003). In each of the figures the solid line depicts
the total expected votes at each position under the *partisan* type of simulations. The dashed line illustrates the total expected votes under the *apartisan* type.

Figure 3a. Total expected votes for the Left Alliance

Figure 3b. Total expected votes for the Green League
Figure 3c. Total expected votes for the Social Democratic Party

Figure 3d. Total expected votes for the Centre Party
**Figure 3e.** Total expected votes for the Swedish People’s Party

**Figure 3f.** Total expected votes for the Christian Democratic Party
Figure 3g. Total expected votes for the True Finns

Figure 3h. Total expected votes for the National Coalition Party
Table 3 replicates the optimal positions for each party when the degree of partisan attachment was set respectively at one and zero for the purposes of the partisan and the apartisan types of simulations.
Table 3. Parties’ ‘one-off’ optima under the *partisan* and *apartisan* type of simulations (data: Benoit and Laver 2006; FNES 2003)

<table>
<thead>
<tr>
<th>Political parties</th>
<th>Initial position (data: Benoit and Laver 2006)</th>
<th>Direction of party identification</th>
<th>Best relocation when ( b = 0 )</th>
<th>Absolute difference between relocations when ( b = 1 ) and ( b = 0 )</th>
<th>Best relocation when ( b = 1 )</th>
<th>Change of political side when ( b = 1 ) and ( b = 0 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Alliance (VAS)</td>
<td>1.84</td>
<td>3.39%</td>
<td>5.20</td>
<td>0.10</td>
<td>5.10</td>
<td>No</td>
</tr>
<tr>
<td>Green League (VIHR)</td>
<td>3.42</td>
<td>4.65%</td>
<td>3.80</td>
<td>0.30</td>
<td>3.50</td>
<td>No</td>
</tr>
<tr>
<td>Social Democratic Party (SDP)</td>
<td>3.89</td>
<td>12.36%</td>
<td>7.70</td>
<td>2.70</td>
<td>5.00</td>
<td>Yes</td>
</tr>
<tr>
<td>Centre Party (KESK)</td>
<td>5.79</td>
<td>10.24%</td>
<td>3.70</td>
<td>4.00</td>
<td>7.70</td>
<td>Yes</td>
</tr>
<tr>
<td>Swedish People’s Party (RKP)</td>
<td>6.74</td>
<td>7.17%</td>
<td>7.80</td>
<td>2.60</td>
<td>5.20</td>
<td>Yes</td>
</tr>
<tr>
<td>Christian Democratic Party (KD)</td>
<td>7.00</td>
<td>3.31%</td>
<td>7.30</td>
<td>0.50</td>
<td>6.80</td>
<td>No</td>
</tr>
<tr>
<td>True Finns (PS)</td>
<td>7.58</td>
<td>0.13%</td>
<td>5.20</td>
<td>1.80</td>
<td>3.40</td>
<td>No</td>
</tr>
<tr>
<td>National Coalition Party (KOK)</td>
<td>7.68</td>
<td>6.06%</td>
<td>5.10</td>
<td>2.70</td>
<td>7.80</td>
<td>Yes</td>
</tr>
</tbody>
</table>
The last column in Table 3 summarizes whether a party’s optimal position under the partisan type of competition belongs to a different side of the policy issue dimension – and as such is considered to be ‘strikingly different’ – compared to the apartisan one.

To distinguish among different political sides the left-right dimension is divided into three equal parts as in Figure 4. Since the dimension expands 0-10, the grid lines are set at every 3.33 increment. All parties to the left of 3.33 belong to the left side, between 3.33 and 6.66 to the centre, and all the rest to the right. One can see that four parties70 – the Social Democratic Party, the National Coalition Party, the Centre Party and the Swedish People’s Party – adopt positions that belong to different political sides, when party identification influences partisans’ choices and when it does not. The most ‘striking difference’ in positions is observed for the Centre Party, which has an incentive to relocate at 7.7 when $b=1$, and at 3.7 when $b=0$. The results of the partisan type of simulations also indicate that the Social Democratic Party and the Centre Party are responsible to their party identifiers by relocating to positions close to the peak of their partisans’ distribution71.

For four parties- the Christian Democratic Party, the True Finns, the Left Alliance, and the Green League - partisan attachments did not have a big impact on their optimal position taking. This is in contrast to Adams’ (1998; 2001a; b) finding according to which partisan attachments vastly affected all parties’ vote maximizing positions.

The source of this discrepancy can be plausibly explained by three reasons. Firstly, the Christian Democratic Party, the True Finns, the Left Alliance, and the Green League have more independent voters than partisans and so the impact of party identification is not as great as it is in the case of the British and French parties analysed by Adams (1998; 2001a; b). Secondly, simulations in this chapter have been operated under a fixed degree of party identification that is smaller than those used by Adams (1998; 2001a; b) for most

70 These are also the parties with the greatest number in party identifiers (see Table 3, column 3).
71 The National Coalition Party is not relocated at a position near the peak of his partisans’ distribution, but nor is he at time $t0$. 

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of his simulations. Thirdly, here parties take rivals’ positions as fixed while in Adams’ (1998; 2001a; b) simulations parties react sequentially to each other’s strategies.

![Graph showing parties' 'one-off' optima under the partisan and the apartisan type of simulations (data: Benoit and Laver 2006; FNES 2003)](image)

**Figure 4.** Parties’ ‘one-off’ optima under the *partisan* and the *apartisan* type of simulations (data: Benoit and Laver 2006; FNES 2003)

As has been argued already, the positions proposed by the simulations are products of a non-repeated competitive game among the parties. If the parties had a chance to respond to rivals’ position taking, then the parties in the centre – those squeezed by those on the periphery – would have abandoned their hapless middle positions for other more advantageous\(^\text{72}\) ones. The competition could continue for ever, with parties every time

\(^{72}\) Of course this holds true under the assumption that all parties have the same incentives to appeal to their partisans as assumed in this chapter.
being in the disadvantageous position of being squeezed by rivals to shift to positions just next to them.

Can equilibrium or equilibria ever be reached? Studies have shown that deterministic models are hardly capable of leading to equilibrium or equilibria even in a single policy issue dimension of party competition (Eaton and Lipsey 1975; Cox 1990). Adams (1998) proved that partisan attachements can facilitate equilibria but his analysis assumes modest to strong degrees of partisan attachment (greater than three). Smaller degrees of partisan attachment usually preclude the existence of equilibrium. The general reason for this is that “while voters’ biases motivate some parties to differentiate their policies, these biases motivate other parties to blur the distinctions between their own policies and those of their rivals” (Adams 2001b: 123).

**Significance of party identification**

In the earlier part of the chapter it was shown that under deterministic voting each of the partisan and the apartisan type of simulations propose different optimal positions for the Finnish parties. In the second part, voting is assumed to be probabilistic. The main reason behind this is to put to the test arguments evinced in the first part of the chapter where voting was assumed to be deterministic. Firstly, it is examined if the addition of one more variable that of party identification improves the fit of the proximity model. Secondly, the predicted probabilities when parties are placed at their optimal positions as pointed out by the partisan and the apartisan type of simulations are compared.

The equations used in the two types of simulations are statistically modelled as logit equations. The logistic regression, when competition is conducted under the ‘biased voting’ model of competition, has as a response variable vote for party $\theta$, $V_{i\theta}$. The independent variables are party identification $b_\theta$ and the distance between voter $i$ and party $\theta$. Party identification is treated as a dummy variable that equals a stable degree of partisan attachment $b_\theta=1$ when voter $i$ identifies with party $\theta$ and $b_\theta=0$ when she
does not. The variable distance, \( D_{i\theta} \), is discrete, and as seen is given by the quadratic function \((x_i - x_{\theta})^2\).

The response variable \( V_{i\theta} \) is binary, as it takes two values: one when voter \( i \) votes for party \( \theta \) and zero when she does not. The probability that a voter will vote for party \( \theta \) is a successful probability \( P(V_{i\theta} = 1) = p \). In juxtaposition, \( P(V_{i\theta} = 0) = 1 - p \) stands for the probability of voting for a party other than party \( \theta \) (Christensen 1997).

The logit equation of the ‘biased voting’ model is

\[
\text{Logit}P(V_{i\theta} = 1 | X_1, X_2) = \ln \left( \frac{P(V_{i\theta} = 1 | X_1, X_2)}{1 - P(V_{i\theta} = 1 | X_1, X_2)} \right)
\]

where \( X_1 = b_{\theta} \) and \( X_2 = D_{i\theta} \).

The logistic model of the proximity model is given by regressing the dependent variable vote for party \( \theta \), on the independent variable distance, \( D_{i\theta} \).

The logit equation of proximity model is:

\[
\text{Logit}P(V_{i\theta} = 1 | X) = \ln \left( \frac{P(V_{i\theta} = 1 | X)}{1 - P(V_{i\theta} = 1 | X)} \right)
\]

where \( X = D_{i\theta} \).

Before estimating the predicted probabilities, a coefficient test is conducted for each of the statistical models.

The results of the coefficient significance of the apartisan and the partisan logit equation are given in Table 4 and Table 5 respectively.
Table 4. A partisan logit equation predicting the vote (data: FNES 2003)

<table>
<thead>
<tr>
<th>Vote(i)VAS</th>
<th>Vote(i)VIHR</th>
<th>Vote(i)SDP</th>
<th>Vote(i)RKP</th>
<th>Vote(i)KD</th>
<th>Vote(i)KESK</th>
<th>Vote(i)KOK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Di_vas</td>
<td></td>
<td>Di_vihr</td>
<td>Di_sdp</td>
<td></td>
<td>Di_kd</td>
<td>Di_kok</td>
</tr>
<tr>
<td>0.141***</td>
<td></td>
<td>0.0991***</td>
<td>0.0610***</td>
<td></td>
<td>0.112**</td>
<td>0.166***</td>
</tr>
<tr>
<td>(0.0252)</td>
<td></td>
<td>(0.0271)</td>
<td>(0.0108)</td>
<td></td>
<td>(0.0366)</td>
<td>(0.0280)</td>
</tr>
<tr>
<td>_cons</td>
<td></td>
<td>_cons</td>
<td>_cons</td>
<td></td>
<td>_cons</td>
<td>_cons</td>
</tr>
<tr>
<td>-1.384***</td>
<td></td>
<td>-1.944***</td>
<td>-0.743***</td>
<td></td>
<td>-2.361***</td>
<td>-1.061***</td>
</tr>
<tr>
<td>(0.161)</td>
<td></td>
<td>(0.146)</td>
<td>(0.0929)</td>
<td></td>
<td>(0.176)</td>
<td>(0.125)</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>N</td>
<td>N</td>
<td></td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>955</td>
<td></td>
<td>920</td>
<td>956</td>
<td></td>
<td>922</td>
<td>920</td>
</tr>
<tr>
<td>pseudo R-sq</td>
<td></td>
<td>pseudo R-sq</td>
<td>pseudo R-sq</td>
<td></td>
<td>pseudo R-sq</td>
<td>pseudo R-sq</td>
</tr>
<tr>
<td>0.167</td>
<td></td>
<td>0.048</td>
<td>0.050</td>
<td></td>
<td>0.051</td>
<td>0.143</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses, * p<0.05, ** p<0.01, *** p<0.001
# Table 5. Partisan logit equation predicting the vote (data: FNES 2003)

\[
\begin{array}{lll}
\text{Vote}(i)\text{SDP} & \text{Vote}(i)\text{KESK} & \text{Vote}(i)\text{KD} \\
\hline
B(i)sdp & 3.475*** & B(i)kesk \quad 3.955*** \\
& (0.256) & (0.317) \\
Di_sdp & 0.0404*** & Di_kesk \quad 0.117*** \\
& (0.0111) & (0.0242) \\
_cons & -1.574*** & _cons \quad -1.475*** \\
& (0.123) & (0.124) \\
N & 956 & N \quad 961 \\
pseudo R-sq & 0.302 & pseudo R-sq \quad 0.347 \\
\hline
\text{Vote}(i)\text{KOK} & \text{Vote}(i)\text{VAS} & \text{Vote}(i)\text{VIHR} \\
\hline
B(i)kok & 2.615*** & B(i)vas \quad 3.316*** \\
& (0.293) & (0.396) \\
Di_kok & 0.119*** & Di_vas \quad 0.108*** \\
& (0.0262) & (0.0252) \\
_cons & -1.666*** & _cons \quad -2.040*** \\
& (0.155) & (0.203) \\
N & 920 & N \quad 955 \\
pseudo R-sq & 0.268 & pseudo R-sq \quad 0.327 \\
\hline
\text{Vote}(i)\text{RKP} \\
\hline
B(i)rkp & 1.988 \\
& (1.304) \\
Di_rkp & -0.0358 \\
& (0.0237) \\
_cons & -6.614*** \\
& (0.931) \\
N & 927 \\
pseudo R-sq & 0.071 \\
\end{array}
\]

Notes: Standard errors in parentheses, * p<0.05, ** p<0.01, *** p<0.001
When comparing the *apartisan* with the ‘biased voting’ model, the hypothesis reads as follows:

*The inclusion of party identification in a voting model that only regards distance will make the model significantly better.*

**Data and results**

Drawing on FNES 2003, the independent variable in both models is given by “If the parliamentary elections were held now, which party or group would you vote for?” [Q17_1]. Party identification was addressed in the questionnaire with the question “Do you feel close to any political party?” [Q41], and “If you answered yes, which party? (open-ended question)” [Q41A]. Data on the variable distance was provided by the questions: “How would you place the following parties on the left-right axis?” [Q43_1-7] and “How would you place your own political orientation on the left-right axis?” [Q47].

To test the effect that the inclusion of party identification has on a voting model that considers only distance, a likelihood ratio test is performed for the two nested models, the proximity and the ‘biased voting’ model. The results of the likelihood ratio test show that for all parties the differences in log likelihood between the proximity and the ‘biased voting’ model are statistically highly significant (df=1, p< .001) (Table 6). In other words, adding the variable party identification in a model that considers only the variable distance results in a statistically significant improvement in model fit.

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73 The Swedish People’s Party is excluded from the analysis due to the small number of voters reported voting for this party; only 3.
Table 6. Likelihood ratio test for the proximity and the ‘biased voting’ model (data: FNES 2003)

<table>
<thead>
<tr>
<th>Party</th>
<th>Log likelihood for the proximity model</th>
<th>Log likelihood for the ‘biased voting’ model</th>
<th>P</th>
<th>$LRX^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS</td>
<td>-210.68339</td>
<td>-170.24779</td>
<td>&lt;.001</td>
<td>80.87</td>
</tr>
<tr>
<td>VIHR</td>
<td>-249.65424</td>
<td>-196.13808</td>
<td>&lt;.001</td>
<td>107.03</td>
</tr>
<tr>
<td>SDP</td>
<td>-502.4487</td>
<td>-368.93701</td>
<td>&lt;.001</td>
<td>267.02</td>
</tr>
<tr>
<td>KESK</td>
<td>-469.64121</td>
<td>-333.56345</td>
<td>&lt;.001</td>
<td>272.16</td>
</tr>
<tr>
<td>KD</td>
<td>-184.48247</td>
<td>-127.80878</td>
<td>&lt;.001</td>
<td>113.35</td>
</tr>
<tr>
<td>KOK</td>
<td>-301.89775</td>
<td>-258.0164</td>
<td>&lt;.001</td>
<td>87.76</td>
</tr>
</tbody>
</table>

Notes: df = 1, $alpha = .05$

On finding that the inclusion of party identification in the proximity model improves the fits of the model significantly, the probabilities that voters will vote for a party when the latter articulates a position according to the two types of simulations are compared.

In order to find the predicted probabilities of voting when a party assumes his optimal position according to the partisan and the apartisan type of simulations, the variable of distance is replaced with the average difference between the voters’ and the party’s optimal position.

The probabilities of voting when parties are placed in their optimal positions according to the partisan and the apartisan type of simulations are presented in Table 7. The numbers in the parentheses stand for the squared values of the variable distance. The numbers above them give the predicted probabilities of voting for the party of preference, with a confidence interval of .95.

---

74 The voters’ average position is calculated for three types of voters, rival partisans, independents and the ‘challengers’ partisans. The voters’ average position is then subtracted from the ‘challenger’s’ optimal position and the difference is raised to the square to give the variable distance.
Table 7. Predicted probabilities of voting with parties positioned according to the partisan and the apartisan type of simulations (data: FNES 2003)

<table>
<thead>
<tr>
<th></th>
<th>VAS</th>
<th>VIHR</th>
<th>SDP</th>
<th>KESK</th>
<th>KD</th>
<th>KOK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Partisan type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.7815</td>
<td>.6603</td>
<td>.8696</td>
<td>.9067</td>
<td>.7219</td>
<td>.6822</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(3.61)</td>
<td>(0.09)</td>
<td>(1.77)</td>
<td>(0.06)</td>
<td>(1.55)</td>
</tr>
<tr>
<td><strong>Apartisan type</strong></td>
<td>.1996</td>
<td>.0845</td>
<td>.2978</td>
<td>.2157</td>
<td>.0844</td>
<td>.2542</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(4.42)</td>
<td>(1.88)</td>
<td>(4.20)</td>
<td>(0.21)</td>
<td>(0.09)</td>
</tr>
</tbody>
</table>

Notes: Entries in parentheses are the square of the distance between the voters’ and the parties’ optimal position, $alpha = .05$

The results indicate that for the given optimal positions the probability of voting for a party is higher under the partisan than under the apartisan type of competition. In other words the probability that a voter will vote for a party when the latter occupies a position, as recommended by the two types of simulations, is greater when the partisans vote on the premises of both partisan attachment and distance than when they vote solely on grounds of distance.

The average value of the predicted probabilities for the partisan type of competition equals .77 while those of the apartisan type equals only .19.

The fact that parties’ optimal positions can be more accurately predicted when simulations are conducted under the partisan type rather than the apartisan type should be no surprise. This is because the ‘biased voting’ model used in the partisan type of
simulations is a significantly better-fit model than the proximity type used in the 
apartisan type of simulations.

For two parties the Centre Party and the Social Democratic Party, the probabilities are
greatest as they are close to 91% and 87% respectively. A plausible explanation for the
abovementioned finding is that the party identifiers of both the Centre Party and the
Social Democratic Party are likely to vote for the party of identification.\textsuperscript{75}

**Chapter 5 Discussion**

This chapter aspires firstly to contribute to the empirical studies (Adams’ 1998; 2001a; b)
regarding the implications of party identification for spatial competition. Moreover,
assuming that parties take rival parties’ positions as fixed and working for scenarios in
which partisan attachments were small, an alternative account to Adams’(1998; 2001a; b)
spatial analysis was offered (The effect of these assumptions on the results of the study in
relation to Adams’ findings is discussed later).

Secondly, the chapter aspires to fill a gap in the literature regarding the study of Finnish
voting behaviour. Studies on Finnish voting behaviour have mainly focused on arguing
that most voters do not identify with parties, thus disregarding the effect that even small
degrees of partisan attachment can have on party strategies.

In this chapter it was argued that despite the large number of independents compared to
party identifiers in Finland, partisan attachments affect parties’ optimal positions. To
show this, the analysis was divided into two parts, each dealing with two different aspects
of voting behaviour.

\textsuperscript{75} As expected, in the case of these two parties party identification had the greatest impact when added to
the proximity model (see Table 6).
In the first part, it was assumed that voters vote deterministically for the party of choice. To show the effect of party identification in deterministic voting two different types of simulations were performed, the partisan and the apartisan types.

Under the partisan type of simulations, party choice was represented by Adams’ (1998; 2001a; b) ‘biased voting’ model. According to the ‘biased voting’ model, partisans’ voting behaviour was determined by their distance from the party and their attachment to the party of identification. On the other hand, under the apartisan type voters were assumed to vote solely on grounds of proximity for the party closest to them.

The results were consistent with the finding that partisan attachments make Finnish parties present in generally different optimal positions than they would if partisan attachments were not taken into account.

Especially for the Social Democratic Party, the National Coalition Party, the Centre Party and the Swedish People’s Party, optimal positions under the partisan type were ‘strikingly different’ compared to those indicated by the apartisan type of simulations. This result neatly complements Adams’ (1998; 2001a; b) past findings according to which partisan attachment significantly affected the British and the French parties’ vote maximizing positions.

For four parties, the Christian Democratic Party, the True Finns, the Left Alliance, and the Green League, the results showed that party identification affected their optimal position taking, but not vastly.

In the second part of the chapter, a random term was added to the voting models that made voters’ decisions uncertain. Initially, it was shown that the ‘biased voting’ model is significantly better than the proximity model, as the inclusion of party identification in a model that considered only distance, significantly improved model fit. Further work developed towards comparing the probabilities of voting under the partisan and the apartisan type of simulations. To compute the probabilities, parties were placed at their
optimal positions as recommended for the two types of simulations. The results showed that the probability that a voter will vote for a party was much higher when the party was positioned according to the partisan type of simulations than according to the apartisan type.

Proposals for further research

The analysis here assumed that all parties have the same incentives to appeal to partisans and independents. Further research could move in the direction of relaxing this assumption. For example, what would have happened if centrist parties had greater incentives to appeal to independents while ‘niche’ parties (Ezrow 2008) had greater incentives to appeal to partisans?

Future research could also investigate the actual difference in Finnish parties’ optimal positions if parties reacted sequentially to each other’s strategies instead of taking rival parties’ positions as fixed.

Lastly, in the chapter it was assumed that a voter who identifies with a party is not biased towards the rival parties. An interesting alternation of the former assumption would be to assume that voters have two degrees of biases; a strong bias towards their party of identification, and a weaker one towards the party with which they sympathize (this ‘bias’ can be labelled as ‘party sympathy’). In such a case, when two parties would articulate an identical attractive policy issue position in order to win rival partisans, the latter would be inclined to defect towards the party that they sympathize with the most with, instead of being equally split between the two of them.

In this chapter, however, the aim was to show the effect of a certain ‘bias’ that of party identification and therefore the inclusion in the analysis of another ‘bias’, such as ‘party sympathy’, would have added greatly to the complexity of the analysis.
See Appendices

1. A justification of why $b = 1$ should be considered as a small degree of partisan attachment (Appendix 5.1)
2. Part of the excel spreadsheet used for the simulations (Appendix 5.2)
3. Part of the matrix used to calculate parties’ votes (Appendix 5.3)
Probabilistic Voting
Chapter 6: The effect of party identification on Finnish optimal positions under a state of Nash equilibrium

Summary

In Chapter 4 and for the most part of Chapter 5, voting was assumed to be deterministic. Chapter 5 showed that under deterministic voting parties adopt different optimal positions when party identification affects the voters’ party choice and when it does not. In the second part of Chapter 5, the analysis tested this argument by adopting simple probabilistic models such as the binary logit.

This part of the thesis extends the analysis to more complex probabilistic models that assume a conditional logit function. The main aim of this chapter is to show the effect of party identification on Finnish optimal positions under a state of Nash equilibrium.

To locate Nash equilibrium, an algorithm developed by Merrill and Adams (2001; 2002) is used. According to this algorithm, voters’ party choice is conditional upon their partisanship and policy positions as well as upon unmeasured components that render their decisions indeterminate from the parties’ perspective.

The work in this chapter contributes to the existing literature in two ways. Firstly, despite the voluminous literature on Finnish voting behaviour, no other study has shed light on the effect that party identification has on Finnish Nash equilibrium positions. Secondly, this chapter by expanding the applicability of Merrill and Adams’ (2001; 2002) equilibrium analysis to the Finnish party system, offers a comparative perspective on this line of research.

This chapter reaches two surprising results: Firstly, that parties with large partisan constituencies maximize their votes when they adopt centrist positions and, secondly, that when party identification increases to levels greater than the empirical estimate, parties’
equilibrium positions converge more to the centre. These two results are surprising because they run counter to Merrill and Adams’ (2001; 2002) findings when they applied the algorithm to the French presidential elections.

Although the main aim of the chapter is to show the effect of party identification on Nash equilibrium positions, the results of the analysis come at the end of the chapter. This is because in the first section of the chapter attention is given to explicating the properties of the analysis.

I begin the analysis by reviewing some probabilistic voting models of voting that are related to the direction of competition. The following section explicates the properties of the algorithm used in the simulation analysis. Then follow the results of the equilibrium analysis. The next section examines the impact of the salience of party identification on party’s optimal positions. The final section concludes and proposes avenues for future research.

**Probabilistic voting and direction of competition**

The first probabilistic models that shed light on the nature of competition were presented by Enelow and Hinich (1981), de Palma, Ginsberg, Labbe and Thisse (1989), de Palma Hong and Thisse (1990), and Erickson and Romero (1990). Building on the early work of Downs (1957) and Shepsle (1972), Enelow and Hinich (1981) presented a model where American voters are uncertain of the two candidates’ positions. Enelow and Hinich (1981) showed that if voters are risk averse and if the candidate whom the average opinion places at the centre of the distribution creates the greatest uncertainty among voters as to his intentions, then parties have incentives to move centrifugally rather than towards the position of the median voter. Erickson and Romero (1990) argued that if probabilistic voting conditions prevailed in a two-party system, such as that in vogue in the United States, parties would converge on identical centrist positions. Alvarez and Nagler (1995) and Alvarez et al. (1999) expanded their analysis to multiparty systems and differed slightly from Erickson and Romero (1990) suggesting that parties would
adopt similar but not identical centrist positions. In a twelve-country cross sectional analysis Ezrow (2005) showed that parties placed near the centre of the voter distribution receive more votes than their counterparts at the extremes. Schofield and colleagues (Schofield 2003; Schofield and Sened 2005; 2006) also argued that high-valence\(^{76}\) parties have more to gain when they articulate moderate-centrist positions\(^{77}\). By the same vein de Palma, Hong and Thisse (1990) and Lin, Enelow and Dorussen (1997) showed that if voters’ uncertainty is large, parties have incentives to present equilibrium positions that are agglomerated at the centre.

In sharp contrast to the position advanced in the above-mentioned studies, Adams and Merrill (1999a; b; 2000) showed that parties in multiparty systems, such as those of Norway and the France, adopt extreme positions. In the same vein Schofield et al. (1998), after studying the German and the Dutch party systems, also argued that under proportional representation it is not rational for parties to converge on centrist positions.

As stated at the outset of the chapter, the analysis here argues for the effect of party identification on Finnish optimal positions under a state of Nash equilibrium. Nash equilibrium is reached when each political party’s strategy is an optimal reply to the others. Nash equilibrium is based on anticipations. An agent or party anticipates what the rival’s party strategy will be in response to its own strategy (Morrow 1994). If a party anticipates correctly then it will choose not to relocate to a position for which its payoff will diminish as a product of the rival party’s response.

\(^{76}\) The term ‘valence characteristic’ was first put forward by Stokes (1963) where the term ‘valence’ refers to non-policy items that influence voting behaviour such as e.g. corruption, crime etc. ‘High valence’ parties are those with a high valence image and parties that have a valence advantage in the election race.

\(^{77}\) By contrast, ‘valence disadvantaged’ parties are better off when they differentiate their positions from ‘valence advantaged’ parties and assume non-centrist positions. This is because if they present positions similar to ‘valence advantaged’ parties’, voters will choose based on the valence dimension, that is they will choose parties that have a better valence image.
To locate the Nash equilibrium positions, data was drawn from the latest Finnish National Election Study 2007\textsuperscript{78}. One might rightly assert that the study of a single election is not enough to draw conclusions on the drive of party competition, and that the study of more than one election is needed, yet the aim here is also to draw conclusions comparable to those drawn by Merrill and Adams’ (2001; 2002); since Merrill and Adams located equilibrium analysing a single election; this chapter too adopts the same approach.

Studying the 1998 French presidential elections, Merrill and Adams (2001; 2002) argued that:

1. Under Nash equilibrium conditions, parties with large partisan constituencies are better off when they present positions further from the centre.

2. Parties are motivated to take extreme\textsuperscript{79} positions in relation to the centre of the distribution as the salience of party identification increases.

In this chapter, contrary to Merrill and Adams’ (2001; 2002) assertions cited above, it was found that the three Finnish parties with the highest proportions of partisans, namely the Social Democratic Party, the Centre Party, and the National Coalition Party maximize their electoral share when they locate to centrist positions.


\textsuperscript{79} In Merrill and Adams’ (2002) study, the term ‘extreme’ refers to situations where the party is located in a position further away from the centre of the distribution.
Main hypothesis

Merrill and Adams’ (2002) argument that ‘candidate optima typically become more extreme as partisan salience increases’ (2002: 290) motivates the main hypothesis of this chapter which is:

Hypothesis: Party optima spread out as the party identification parameter increases

A conditional logit model analysis

To model voting behaviour, work draws on Merrill and Adams (2001) and Adams et al. (2005) according to which the utility that voter $i$ will vote for party $\theta$ is given by:

$$ U_i(\theta) = -a(x_i - s_\theta)^2 + Bt_{i\theta} + X_{i\theta} $$ (1)

(Merrill and Adams 2001; Adams et al. 2005)

$X_{i\theta}$ stands for a random term that renders decisions indeterminate from the party’s perspective, $a$ as the policy issue parameter, and $B$ as the party identification parameter. $x_i$ stands for the position of voter $i$, $s_\theta$ for the position of party $\theta$ and $t_{i\theta}$ for party identification. The larger the value of $a$ the greater the emphasis the voter places on policy issue considerations. The term $B$ is not subscripted with voter $i$ indicating thereby that partisan attachments have the same effect for all voters. This is a postulation that has been used before in the case studies of Britain (Adams 2001), Norway (Adams and Merrill 1999b), France (Adams and Merrill 2000), and Finland (Papageorgiou 2010a; b). Although this is a major simplification that has been criticized by Adams (1999), it facilitates the statistical analysis (referred to later) in which party identification is treated as a dummy variable that is equal to one when the voter identifies with a party and to zero when the voter does not.
The random term, $X_{i\theta}$, serves the purpose of ‘grasping’ unobserved items that influence voting behaviour such as valence issues (e.g. corruption), voters’ retrospective evaluations of parties’ past performances and the like (Merrill and Adams 2001). So, the probability that voter $i$ votes for party $\theta$ depends not only on quadratic distance, $(x_i - s_\theta)^2$ and party identification $t_{i\theta}$, but also on the distribution of the error term, $X_{i\theta}$ (2001).

To locate Nash equilibrium in the Finnish party system, Merrill and Adams’ (2001) algorithm is used that assumes a conditional logit function. According to this algorithm, the probability that voter $i$ will vote for party $\theta$ is given by:

$$P_{i\theta}(s,a) = \frac{\exp[-a(x_i - s_\theta)^2 + B_{i\theta}]}{\sum_\lambda \exp[-a(x_i - s_\lambda)^2 + B_{i\lambda}]}$$

(2)

Where $s$ is the vector of all parties’ positions, and $\lambda$ is a contestant of party $\theta$. A conditional logit analysis is justified by the fact that party choice $\theta$ is conditional upon an attribute specific to both the voter and the party, such as distance, $(x_i - s_\theta)^2$, and also upon an individual characteristic, such as party identification, $t_{i\theta}$.

Results

Using data from the Finnish National Election Study (FNES) 2007 the parameter estimates from maximum likelihood in a conditional logit (CL) model were found. A priori, data was arranged to fit the specifics of a CL model. The response variable choice was treated as a dummy variable that equalled one when a voter voted for the alternative and zero when she did not. Party identification was also treated as a dichotomous variable that equaled one when a respondent reported identifying with the alternative, and zero.
when she did not. Distance was measured on the left–right dimension\textsuperscript{80} which is the most important political dimension in Finland (Paloheimo and Raunio 2008). A party’s position was given by the mean respondent party placement along the left-right dimension.

Alternatives were presented under a nominal variable, indexing eight parties from which the voter had to choose. The analysis excluded those voters who could not place themselves on the left-right scale and who reported either voting for a party other than the main eight, or not voting at all (or refused to say/could not say). Respondents who did not answer whether they identify with a party or not were also excluded from the analysis. Eventually, the analysis considered 1,030 out of 1,422 voters.

The results of the conditional logit model indicated that the coefficients of both distance and party identification are highly significant at \( p < .001 \) level (Table 1). The coefficient of party identification is huge indicating that a respondent who identifies with a party \( \theta \), and who is equidistant between two parties \( \theta \) and \( \lambda \), will almost always prefer \( \theta \) to \( \lambda \).

This huge coefficient estimate likely arises because in Finland, survey respondents may view the party identification and vote intention questions as synonymous. A way around this problem would be to use recalled vote as a measure of current party identification. However, this technique would go against the true nature of party identification as a psychological tie that has been assumed throughout this work. Therefore, measuring party identification in the traditional way was retained.

\textsuperscript{80} This is the only policy issue dimension on which respondents were asked to place parties in the FNES 2007.
Table 1. Maximum likelihood estimates in a conditional logit model for Finland (N=8,240) (data: FNES 2007)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Estimations of parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>$a$ (Policy salience parameter)</td>
<td>0.0809*** (0.0101)</td>
</tr>
<tr>
<td>$B$ (Party identification parameter)</td>
<td>4.036*** (0.142)</td>
</tr>
<tr>
<td>McFadden $R^2$</td>
<td>0.517</td>
</tr>
<tr>
<td>McFadden Adj $R^2$</td>
<td>0.516</td>
</tr>
<tr>
<td>Count $R^2$</td>
<td>0.650</td>
</tr>
</tbody>
</table>

*Notes:*** $p < .001$, $\alpha = .05$, standard errors inside the parentheses

On replacing the values of parameters in Merrill and Adams’s (2001) algorithm, the positions that converge to Nash equilibrium were found. Table 2 reports the Nash equilibrium configurations for Finnish parties in 2007 for $a = 0.0809$ and $B = 4.036$.

For purposes of comparison column 2 gives the parties’ actual positions while column 3 gives the partisans’ mean positions. The mixing parameter $\beta$ was set at 1 for the purposes of the proximity model. Merrill and Adams’ (2001) algorithm can account for

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81 The algorithm is implemented in an excel worksheet. The spreadsheet that Merrill and Adams (2001) used in the case of France can be found at: http://course.wilkes.edu/merrill/.

82 In a previous paper (Papageorgiou, Achillefs. ‘Locating Nash equilibrium in Finnish party system. Paper presented at the XLI Annual Conference of Finnish Political Scientists, 12-13 March 2009. Unpublished results) the voter’s distance from the party was calculated by using as party positions voters’ perceptions of only those voters who were included in the CL analysis (1,030 out of 1,422 cases). The parameters were significant at $p < .001$ level with $a = .073$ and $B = 4.042$. The equilibrium positions were very similar with the ones obtained here: 5.88 for KESK, 5.22 for SDP, 6.19 for KOK, 5.29 for VAS, 5.50 for VIHR, 5.92 for RKP, 5.64 for KD, 5.61 for PS. However since the perceptions of ‘all’ respondents gives a more holistic view of the parties’ ideological positions, their views were taken into account here, instead of only those included in the CL analysis.
both proximity and mixed proximity models (proximity and directional) of voting behaviour.

For a $0 < \beta < 1$ the utility of the voter is written as:

$$U_i(\theta) = a[2(1-\beta)(x_i-N)(s_\theta-N) - \beta(x_i-s_\theta)^2] + Bt_{i\theta} + X_{i\theta}$$

where $N$ represents the neutral point of directional theory$^{83}$ (Rabinowitz and Macdonald, 1989). When $\beta = 1$, the utility reduces to a proximity model as the used here (for more details see Merrill and Adams 2001).

$^{83}$ For a presentation of the directional theory of voting, ‘see Appendices’.
Table 2. Parties’ actual positions, partisans’ positions and equilibrium positions (data: FNES 2007)

<table>
<thead>
<tr>
<th>Parties</th>
<th>Parties’ actual positions</th>
<th>Partisans’ positions</th>
<th>Equilibrium positions</th>
<th>Direction of party identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre Party (KESK)</td>
<td>6.51</td>
<td>6.59</td>
<td>5.89</td>
<td>14.1%</td>
</tr>
<tr>
<td>Social Democratic Party (SDP)</td>
<td>4.13</td>
<td>3.87</td>
<td>5.21</td>
<td>14.9%</td>
</tr>
<tr>
<td>National Coalition Party (KOK)</td>
<td>7.94</td>
<td>8.10</td>
<td>6.21</td>
<td>13.7%</td>
</tr>
<tr>
<td>Left Alliance (VAS)</td>
<td>1.86</td>
<td>1.87</td>
<td>5.27</td>
<td>3.9%</td>
</tr>
<tr>
<td>Green League (VIHR)</td>
<td>4.74</td>
<td>4.63</td>
<td>5.49</td>
<td>8.4%</td>
</tr>
<tr>
<td>Swedish People’s Party (RKP)</td>
<td>6.67</td>
<td>6.72</td>
<td>5.93</td>
<td>13.9%</td>
</tr>
<tr>
<td>Christian Democratic Party (KD)</td>
<td>5.98</td>
<td>6.00</td>
<td>5.64</td>
<td>3.1%</td>
</tr>
<tr>
<td>True Finns (PS)</td>
<td>5.78</td>
<td>5.43</td>
<td>5.61</td>
<td>3.0%</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td><strong>5.45</strong></td>
<td><strong>5.40</strong></td>
<td><strong>5.66</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td><strong>1.86</strong></td>
<td><strong>1.93</strong></td>
<td><strong>0.34</strong></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen in Table 2, the equilibrium positions are different from the parties’ actual positions. The standard deviation (SD) of the actual positions of Finnish parties in 2007 is 1.86, which indicates a wide diffusion of voters’ positions in comparison with the equilibrium positions that converge (mean: 5.66, SD: 0.34). The variance of the actual
positions is 3.48, while the variance of the equilibrium ones is 0.12. The error variance\(^{84}\) between the actual and equilibrium positions is 1.80. The error variance between the observed and the equilibrium positions might be “fog” created by the parties themselves. In a recent publication Jensen (2009) showed that if parties know that projection\(^{85}\) takes place, they have a strategic incentive to be ambiguous. In particular when a party is liked by some voters and not disliked by ‘too many’, it can then defeat the median voter position by being hazy regarding its policy issue position (2009).

However, it should be noted that the parties’ ordinal configuration remains the same as their actual positions, save for a solitary case. The exception involves the Left Alliance and the Social Democratic Party, who swap places. In equilibrium the order of parties is (1) the Social Democratic Party, (2) the Left Alliance, (3) the Green League, (4) the True Finns, (5) the Christian Democratic Party, (6) the Centre Party, (7) the Swedish People’s Party, and (8) the National Coalition Party. The utmost left equilibrium position belongs to the Social Democratic position that has an incentive to locate at 5.21, while the utmost right belongs to the National Coalition Party, positioned at 6.21.

A first observation concerns the Nash equilibrium position of the Left Alliance that was found to maximize his vote share at the centrist position 5.27. This finding was surprising given the actual ‘leftist’ position (1.86) of the Left Alliance and its correlation with the position of his party identifiers\(^{86}\) (\(r=0.71, p<0.001\)). However, the Left Alliance Party’s Nash equilibrium position is due to two reasons:

\(^{84}\) The error variance of two samples is also known as the ‘unexplained variation’ and it equals the average of the sample variances.

\(^{85}\) I assess whether Finnish voters project their own position to the parties in Chapter 8.

\(^{86}\) From those voters who reported that they feel close to a party and that they identify with the Left Alliance Party, 30.43% were self-placed at position 0 on the left and right scale, 13.04% were self-placed at position 1 on the left and right scale, 21.74% were self-placed at position 2 on the left and right scale, 19.57% were self-placed at position 3 on the left and right scale, 6.52% were self-placed at position 4 on the left and right scale, 6.52% were self-placed at position 5 on the left and right scale and 2.17% were self-placed at position 6 on the left and right scale.
1. The huge party identification coefficient in the conditional logit model suggests that voters will vote for the party regardless of his policy issue position. Therefore, the Left Alliance has an incentive to move to a centrist position to compete over independents whose vote is truly in play.

2. Out of 53.9% of the Finnish voters who reported that they identify with a political party only 3.9% mentioned the Left Alliance as their party of adherence. Therefore, even if the Left Alliance supporters would abandon the party on the grounds that the latter was ‘pandering’ or ‘selling-out’ by moderating his policy issue position, the gains on independent voters - who mount to 42.9% - would offset any possible loss of party identifiers. Of course the above-mentioned exegeses holds under the assumption that under a state of Nash equilibrium, the Left Alliance Party only cares - as any other party- to maximize his votes.

Another finding to report is that under equilibrium conditions party competition is highly centripetal. As will be argued in Chapter 7, this centripetal competition affects the low polarization observed in the Finnish party system. For now suffice it to observe that: Firstly, the parties that used to be found outside of the centre side of the policy issue dimension (the Swedish People’s Party, the National Coalition Party, and the Left Alliance) have equilibrium incentives to converge on positions within the vicinity of the centre side. Secondly, parties that were initially found within the centre side of the policy issue dimension present equilibrium positions that revolve around the middle point of 5.0 of the left and right dimension.

For the three major parties the Social Democratic Party, the National Coalition Party and the Centre Party, the analysis suggests that they maximize their electoral share when they converge on the centre. At this equilibrium position, the Centre Party is 0.89 increments away from the centrist position 5.0, the Social Democratic Party is 0.21 increments away from 5.0, and the National Coalition Party is 1.21 increments away from 5.0.\(^8\)

\(^8\) At their actual positions, the Centre Party was 1.51 increments away from the centrist position 5.0, and the National Coalition Party was 2.94 increments away from 5.0.
finding contrasts with the results reported by Merrill and Adams (2001; 2002) according to which the French candidates with the largest partisan constituencies had an incentive to present non-centrist Nash equilibrium positions. The discrepancy between Merrill and Adams’ results and those reported in this chapter is due to two factors:

Firstly, the policy issue parameter as calculated in the Finnish case was extremely weak, though highly significant, compared to both the party identification parameter and the policy issue parameter as computed by Merrill and Adams (2001)\(^8\). Secondly in the Finnish case, party identification was more salient than in the French presidential elections. For parties like the Social Democratic Party, the National Coalition Party and the Centre Party, with large partisan constituencies, the former means that those parties’ partisans are most likely to ‘slavishly’ vote for the party of identification.

For two parties, the Left Alliance and the National Coalition Party, the equilibrium positions are farthest from their actual positions (Table 2). Scholars (Adams et al. 2006; Ezrow 2005; 2008) who have studied the role of niche parties in party competition have proposed a theory of extreme positioning by parties.

Niche parties are those that adopt either an ‘extreme’ or a specific rhetoric that was previously outside the mainstream political agenda (Meguid 2005). A good example of the former is nationalist parties and the latter Green parties. Generally, niche parties are more policy issue oriented than are large ‘mainstream’ parties, and hence more reluctant to abandon their actual positions in attempts to siphon-off voters from other parties.

As Adams, Clark, Ezrow, and Glasgow (2006) have shown, niche parties do not usually change their strategies to match ideological shifts in the electorate as such moves would be penalised by their ideological clientele. These authors’ empirical work in Denmark, France, the United Kingdom, Greece, Italy, Luxembourg, The Netherlands, and Spain

\(^8\)Merrill and Adams (2001) found an \(a = 0.204\) and \(B = 2.14\), while here \(a\) equalled 0.0809 and \(B\) equalled 4.036.
concluded that ‘when niche parties moderated their policy positions to bring them more closely in line with the public opinion, their national vote shares dropped relative to their support in the previous elections’ (2006: 514). Ezrow’s (2008) sectional analysis based on data from twelve Western European countries from 1984-1988 also corroborates the abovementioned argument of Adams et al. (2006).

Regarding Finland, none of the Left Alliance or the National Coalition Party can be classified as a niche party. Although the Left Alliance has a leftist ideology, it is not a traditional communist party and so it does not fit the description of a niche party. Ideologically the Left Alliance is closer to the Social Democratic Party and the Green League than to the Communist Party of Finland. That the Left Alliance is not an extreme leftist party is borne out by the attempt made in 2005 by the previous party chairman of the Left Alliance and the vice chairman of the Central Organisation of Finnish Trade Unions (SAK), Matti Viialainen, to resolve the differences between the Left Alliance and the Social Democratic Party.

The National Coalition Party is anything but a niche party. Meguid (2005) classifies the National Coalition Party as a ‘center-right mainstream party’. Since World War II, The National Coalition Party has dominated Finnish political life along with the Social Democratic Party and the Centre Party (Paloheimo and Raunio 2008; Sundberg 2002a). In the elections of 2007, the National Coalition Party gained the most seats in Parliament after the Centre Party (Nurmi and Nurmi 2007). The National Coalition Party’s rhetoric covers all aspects of political life, which is enough to classify it as a ‘catch-all’ party. Although it occupies the farthest right position on the left–right classification, it is not a nationalist party (Raunio and Wiberg 2003).

At this point, it is apparent that the equilibrium positions have been computed on the premise that parties and voters are rational actors. From the viewpoint of parties, rationality means that they build their strategies based on anticipations. For voters,

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89 In Finnish: Suomen Kommunistinen Puolue.

90 For more on rationality see Chapter 2.
rationality means that they vote to maximize their utility, which – as we saw at the outset of this chapter – contains a policy issue and a psychological component. Of course, one might object that in reality voters neither approach elections *tabula rasa*, nor are they fools (Key 1966; Fiorina 1981). Voters are aware of parties’ past ‘utterances’ and current ‘deeds’.

For our analysis, this might imply that for parties such as the Left Alliance and the National Coalition Party, whose actual positions are found on a different side of the political dimension than those of their equilibrium, a leap to the latter might harm their reliability. Voters would not believe that parties that used to present non-centrist positions would be capable of effectively carrying out the responsibilities that their equilibrium-centrist positions entail. Albeit this being a fair argument that cannot be predicted by the equilibrium analysis, it should be stated that a leap to a different political side does not necessarily imply a lack of credibility for the party that attempts it.

A party is credible when voters can predict its plans (Downs 1957). Therefore, if a party relocates to an equilibrium position remote from its current position, it is credible if voters were expecting such a move by the party. Put differently, if voters expect that parties will respond rationally to other parties’ (rational) strategies, they have no reason to doubt their credibility.

A caveat of the analysis presented in this section is that the results are heavily based on the assumption that Finnish parties are vote seekers. Without this assumption, the fact that a party’s Nash equilibrium position is more centrist than its current one would not necessarily mean that the party is moving towards the centre, but only that the party has aims other than vote maximizing. Another caveat of the analysis is that the Nash equilibrium positions have been computed taking into account the voters’ distribution in a single year. This means that a Nash equilibrium might be a moving target when the distribution changes. In that sense the Nash equilibrium positions, as computed here, are
‘positions with no tomorrow’\textsuperscript{91}. This is especially true for the Left Alliance where the analysis suggested an unusual equilibrium position.

**The impact of party identification**

To test the impact of party identification on equilibrium positions, this chapter develops scenarios in which the party identification parameter, $B$, is varied from 0 to 10 for every 0.5 units\textsuperscript{92} while the policy issue parameter $a$ is retained unchanged at its empirical value.

For purposes of illustration, Figure 1 illustrates parties’ optima for different values of party identification ($0 \leq B \leq 10$). The results clearly reveal that the effect of party identification on Finnish parties’ optimal positions is curvilinear: As the parameter $B$ rises from 0 to 2 the equilibrium positions revolve around the centre yet there are slightly dispersed (also see column 4 of Table 3); as $B$ rises further, the equilibrium positions become more centrists\textsuperscript{93}. Thus, when $B$ increases to levels greater than the empirical estimate, parties’ equilibrium positions converge more to the centre. When $A = 0.0809$ and $B = 10$ the standard deviation of equilibrium positions equals 0. The centripetal effect of party identification runs counter to Merrill and Adams’ (2002) finding. Yet, three observations deserve attention:

Firstly, as Merrill and Adams (2002) acknowledge there is no clear cut relationship between the party identification parameter and the drive of competition when parties are in equilibrium. This is because Nash equilibrium positions are perturbed by random factors that appear indeterminate from the parties’ perspective.

\textsuperscript{91} I thank Heikki Pursiainen for pointing this out.

\textsuperscript{92} So $B = 0.0, 0.5, 1.0, ..., 9.0, 9.5, 10.0$.

\textsuperscript{93} For $B$ greater than 2, the standard deviations of equilibrium positions decrease constantly (Table 3, column 4).
Secondly, the generalization of Merrill and Adams’ finding reached for the 1988 French presidential elections is based on the usual empirical estimate of $B$ in historical elections that varies from 1 to 2.5. Here, the empirical value of $B$ exceeds that range.

Thirdly, as Adams, Merrill and Grofman stress in their 2005 publication, parties will converge towards centrist positions in a “party ID dominant scenario […] in which every partisan is so strongly biased that she votes for her party regardless of its policy positions”. In such a case parties converge on “similar policy strategies” since all parties target the same block of independent voters “whose support is truly in play” (2005: 68). In fact, Adams, Merrill and Grofman arrive at a curvilinear effect of partisanship on French candidates’ Nash equilibrium position similar to the present analysis when putting forward alternative assumptions about the salience of the party identification coefficient (2005)\textsuperscript{94}.

\textsuperscript{94} Fig. 4.3 in Adams et al. (2005: 69)
Figure 1. A curvilinear effect of party identification (data: FNES 2007)

Further insights into the curvilinear effect of party identification on Nash equilibrium positions can be gained from Table 3, which presents parties’ mean equilibrium positions for different values of $B$ (column 1). The third column of Table 3 shows the difference between the mean equilibrium positions and the mean partisans’ positions for different degrees of $B$. As can be seen, when the value of $B$ rises the difference between the mean partisans’ positions and the mean equilibrium positions diminished. In other words, the higher the value of $B$ the closer the average value of equilibrium positions approaches that of partisans’ positions. The more the parameter $B$ moves towards its
maximum value\(^{95}\) 10, the more the average value of equilibrium positions approaches 5.0. In other words, Finnish centrist partisans’ positions\(^{96}\) lead to centrist equilibrium positions. Paraphrasing Merrill and Adams’ argument, ‘the more centrist the position of a [party’s] candidate’s partisans, the more centrist the party’s optimal position’ (2002: 288).

Table 3. Mean equilibrium positions, mean differences and standard deviation for alternative values of party identification (data: FNES 2007)

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\(^{95}\) Actually the argument also holds for every \(B > 10\), as when \(B\) was given values greater than 10, Nash equilibrium stayed stable at 5.59.

\(^{96}\) The average value of Finnish partisans’ position is 5.40.
<table>
<thead>
<tr>
<th>B</th>
<th>Mean equilibrium positions</th>
<th>Absolute difference between average position of party identifiers (=5.40) and column (2)</th>
<th>Standard deviation of equilibrium positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>0.0</td>
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<td>0.35</td>
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<td>0.5</td>
<td>5.75</td>
<td>0.35</td>
<td>0.25</td>
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<td>0.45</td>
</tr>
<tr>
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<td>5.74</td>
<td>0.34</td>
<td>0.55</td>
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<tr>
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<td>0.58</td>
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<tr>
<td>3.5</td>
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<td>0.19</td>
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</tr>
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<td>5.59</td>
<td>0.19</td>
<td>0.01</td>
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<td>8.5</td>
<td>5.59</td>
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<td>0.01</td>
</tr>
<tr>
<td>9.0</td>
<td>5.59</td>
<td>0.19</td>
<td>0.01</td>
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<td>9.5</td>
<td>5.59</td>
<td>0.19</td>
<td>0.00</td>
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<tr>
<td>10.0</td>
<td>5.59</td>
<td>0.19</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Chapter 6 Discussion

The rationale for the study presented here is that the implications of party identification on Finnish party Nash equilibrium positions had received no scholarly attention in the past.

To find Nash equilibrium positions the algorithm developed by Merrill and Adams (2001) was applied. The algorithm was implemented under a conditional logit model where party choice was rendered by a quadratic loss function that measures the voter’s distance from the party and a ‘bias' element such as party identification. Upon finding the parameter estimates from maximum likelihood in a conditional logit model, the equilibrium values were computed.

The effect of party identification on equilibrium positions was assessed by varying the party identification parameter while keeping the policy issue parameter unchanged at its empirical value. The results revealed a curvilinear centripetal effect of party identification on parties’ equilibrium positions. This was because low levels of party identification lead to strong centripetal outcomes; medium levels of party identification lead to less strong centripetal outcomes; and high levels of party identification brought the parties back to a competition that was strongly agglomerated to the centre.

When the value of the party identification parameter increased to levels greater than the empirical estimate of the parameter, parties’ positions converged on the centre, a finding that departed from Merrill and Adams’ (2002) empirical finding. When the parameter was set at its maximum value, the average value of equilibrium positions was almost identical to that of the partisans.

Also, applying Merrill and Adams (2001; 2002) equilibrium analysis to Finland, this chapter offered a comparative perspective to the latter author’s findings relating to the 1988 French Presidential elections.
Surprisingly, the following two of Merrill and Adams’ (2002) arguments did not find support in the Finnish case:

1. Large parties have an incentive to present extreme- rather than centrist positions.
2. Increases in the value of the partisan-salience coefficient lead to more dispersed positions.

Proposals for further research

When the relationship between party identification and optimal positions was examined, the policy issue coefficient was kept unchanged. Further research could focus on the connection between party identification and the policy issue coefficient. In such a case, the policy issue coefficient would not be kept unaltered but would change according to the variations in the value of the partisan-salience coefficient.

It would be interesting to see how Nash equilibrium positions would be shaped assuming abstention due to alienation or indifference. Adams, Merrill and Gorfman (2005), who take into account the effect of abstention when studying the United States (Chapters 7 and 8 in their 2005 publication), show how “vote-seeking candidates are rewarded for presenting divergent policies that reflect the beliefs of voters who are biased toward them for nonpolicy reasons” (2005: 150). Would policy issue divergence also be reported in the case of a multiparty system such as the Finnish one when abstention is taken into account or would parties converge on the centre as it was shown in this chapter?

See Appendices

1. A review of the directional theory of voting (Appendix 6.1)
2. Part of the excel format used to compute the Nash equilibrium positions of the Finnish parties (Appendix 6.2)

97 For a discussion of these two concepts please see the Summary of Chapter 5.
**Chapter 7**: The effect of party identification and policy issue considerations on the level of polarization under Nash equilibrium: Finland and Sweden compared

**Summary**

This chapter shows the effect of party identification and policy issue parameters on the level of ideological polarization in Finland in comparison to Sweden. The chapter follows on from the equilibrium analysis described in the previous chapter where a comparison was made with the results of Merrill and Adams (2001; 2002) when applying the algorithm to France, and those of the present study when applying the algorithm to Finland.

This chapter utilizes the properties of the equilibrium analysis to argue on the role of vote maximizing incentives on Finnish polarization under a comparative perspective. Polarization denotes the ideological differences among political parties. When parties’ ideological differences are small, polarization is low, and when ideological differences are large, polarization is high. The concept of polarization became famous mostly through the influential work of Anthony Downs, ‘An economic theory of Democracy’ (1957) and the work of Giovanni Sartori, ‘Parties and party systems’ (1976). Since then a vast amount of literature has focused attention on the degree of polarization in different party systems (e.g. Sani and Sartori 1983; Sartori 1976; Ezrow 2008; Dalton 2008; Layman et al. 2006; Leyman and Carsey 2002a, b; Knutsen 1998; Pelizzo and Babones 2003; Pelizzo and Babones 2007). All before-mentioned studies examine the degree of polarization by examining parties’ ideological placement over a period. The aim of the present chapter is different. Studying two party systems such as the ones of Sweden and

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98 Therein after when we refer to polarization we mean left and right ideological polarization. However, depending on the party system examined, the electoral can be polarized on the basis of other characteristics such as race (Grofman and Migalski 1988; Grofman 1991), religion, class (Lijphart 1979) etc.
Finland, the aim is to link the concept of polarization with the parties’ vote maximizing incentives. We ask the question: Assuming that Finnish and Swedish parties are vote maximizers will they have incentives to articulate similar or distinct ideological optimal positions? Vote maximization entails that parties have incentives to relocate to their optimal positions. To find parties’ optimal positions this chapter adopts the same Nash equilibrium analysis as that implemented in Chapter 6. In addition, the chapter shows the incentives of polarization by studying the effect of two parameters: A policy issue parameter and party identification.

The results reveal that, as it was shown in the case of Finland also in the case of Sweden, parties have incentives to converge on the centre of the left and right dimension, decreasing thus the level of polarization. Prior to presenting the main analysis, it should be stated that when it is argued that parties have incentives for high or low polarization it implies that parties have vote maximizing incentives.

This chapter presents the analysis as follows. It begins by surveying the literature on polarization and on different types of measurement. In the next section, the two main hypotheses tested in this study are presented. The subsequent sections present the results of the equilibrium analysis and examine the effect that the policy issue and the party identification parameter have on the degree of polarization. The final section states the conclusions and proposes implications for future research.

**Polarization**

Polarization is defined as the ideological distance among parties’ policy positions: ‘If parties offer similar policies, the degree of polarization is low; if their policies are radically different, the degree of polarization is high’ (Klingemann 2005: 38). Bi-polarity is a special case of a polarized party system where parties are grouped in two blocks of competition (left and right).
The discussion on polarization is traced back to the two influential works of Downs’ (1957), ‘An Economic theory of Democracy’ and Sartori’s (1976) ‘Parties and party systems’. Downs (1957), as we have seen argues that in a two party system, parties have an incentive to converge on the centre of the distribution decreasing the degree of polarization. On the other hand, in multiparty systems as Downs (1957) asserts, parties have incentives to move centrifugally, increasing thus the degree of polarization. Sartori, (1976) also associates a party system with a large number of parties with centrifugal forces and thus a high degree of polarization. Yet, his analysis takes into account several other factors such as the existence of ‘anti-system’ parties, the presence of a centre party, the existence of ‘bilateral oppositions’ etc.

A plethora of approaches is available for measuring the degree of polarization on a party system. Here attention is restricted in reviewing some of them. In Sani and Sartori’s (1971) seminal work polarization is a measure of the parties’ and voters’ positions on the same ideological dimension, namely the left and right. Parties are placed on the left and right dimension using voters’ perceptions as emanate from mass survey data. Taylor and Herman (1971) measure the ideological difference between parties using the variance statistic. According to Taylor and Herman (1971) polarization is given by:

\[ \frac{1}{n} \sum_{i=1}^{N} f_i (x_i - \bar{x})^2 \] (1)

99 Although both Downs’ and Sartori’s study associate the number of parties (fragmentation) with polarization, these two are not always linearly correlated (Dalton 2008; Pelizzo and Babones 2007). Ezrow’s study (2008) also corroborates the argument that polarization does not always increase with the number of parties.

100 Other interesting measures of polarization can be found in Rehm and Reilly’s (2010) study that takes into account the size, the homogeneity and the distance between parties; Layman’s et al. (2006) study measures polarization by differentiating between the parties that belong in the government and those that do not; Knutsen’s (1998) study measures polarization by employing the standardized measure of eta-coefficient etc.
where \( n \) is the number of seats, \( N \) represents the number of parties, \( f_i \) is the number of seats held by \( N \) parties \((i = N)\), \( x_i \) is the position of party \( i \) on the left and right dimension and \( \bar{x} \) is the mean of parties’ left and right positions. Many studies have used different forms of Taylor and Herman’s (1971) typology to measure polarization. The first to adapt Taylor and Herman’s (1971) typology on the left and right dimension, were Sigelman and Yough’s (1978), who proposed a slightly modified form of (1) that reads as follows:

\[
\text{Left right polarization} = \sum_{i=1}^{N} f_i (x_i - \bar{x})^2 \quad (2)
\]

Dalton (2008) also adapted Taylor and Herman’s (1971) typology by adding the square root in the numerator\(^{101}\) of (1) and replacing the number of parties in the denominator with 5 that stands for the middle point on the 0-10 dimension. Ezrow (2008) also measured ideological disparity replacing the number of parties in (1) with the standard deviation of the voters’ distribution. Gross and Sigelman (1984) modified (1) by using the absolute values in the numerator and a measure of vote share in the denominator. Lastly, Klingemann (2005) used a standardized sum of absolute values in the numerator of (1) instead of the square.

Other studies have suggested formulas that depart from Taylor and Herman’s typology. A good example of the latter is Pelizzo and Babones’ (2007) study that suggested that polarized pluralism\(^{102}\) could be computed by subtracting the sum of the extreme (left and right) votes from the votes of the Centre Party. As the authors concede, their index is only appropriate for ‘cases that have already been recognized, on the basis of qualitative information, as polarized pluralist’ (2007: 66) and not for capturing the level of

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\(^{101}\) That was done in order to moderate the impact of extreme scores yield by the square difference in the numerator.

\(^{102}\) Drawing on Sartori (1976) the authors define a polarized pluralistic party system as one with many (above five) relevant parties and high levels of polarization. Relevant parties are those with governmental or coalitional potential.
polarization in general. Also, Bartolini and Mair (1990) examined the degree of polarization by measuring the mean policy distance between the utmost right and utmost left parties. The larger the difference is among extreme parties, the larger the degree of polarization.

All abovementioned studies employ data across time to argue on the degree of polarization in different party systems. The aim of the chapter at hand is different; the aim is to link the well-studied concept of polarization with the parties’ optimal positioning under a state of Nash equilibrium.

**Hypotheses**

Although the study relies heavily on the assumption that parties are vote-maximizers, the hypotheses draw on the literature that emphasizes the office seeking behaviour of the Finnish and Swedish parties. According to this line of literature (e.g. Pedersen 2004; Aylott and Bolin 2007), the existence of a centre pivotal party such as the Centre Party of Finland, coupled with electoral law supporting coalition governments, drives the strategic moves of parties towards the centre of the policy issue dimension. In contrast, coalition alliances in Sweden form a strong polarized system with two poles, the socialist and the anti-socialist. The socialist pole encompasses parties such as the Left Party, the Swedish Social Democratic Party and the Green Party. The anti-Socialist pole engulfs the Centre Party, the People’s Party Liberals, the Christian Democratic Party, and the Moderate Party. Here it is hypothesized that the observations made for Finland and Sweden regarding the type of polarization under the office seeking approach, will also hold under the vote-maximizing criterion. The reason to draw such an analogy is that the office seeking behavior is intuitively related to vote maximization (Müller and Strøm 1999). The more a party enhances its electoral share the more it also enhances its chances to be included in the governmental coalition (Strøm 1990). Therefore, the chapter’s two main hypotheses read as follows:
Hypothesis 1: *Under a state of Nash equilibrium, Finnish parties’ positions should converge to positions next to each other (low polarization).*

Hypothesis 2: *Under a state of Nash equilibrium, Swedish parties should present positions that are found in two opposite poles (high polarization).*

**Sweden and Finland compared**

To find the equilibrium positions, Merrill and Adams’ (2001) algorithm is used that assumes a conditional logit function\(^{103}\) (For more details on the properties of the algorithm see Chapter 6). The analysis conducted for Finland in Chapter 6 is repeated here for Sweden. The data are drawn from the 2006 Swedish Election Study (SND)\(^{104}\).

Table 1 presents the parameter estimates from maximum likelihood in a conditional logit (CL) model for Sweden. As in the case of Finland, distance was measured on the left–right dimension, which is the most potent political cleavage in Sweden (Bergström 1991; Grendstad 2003).

---

\(^{103}\) According to this algorithm the probability that voter \(i\) will vote for party \(\theta\) is given by

\[
P_{i\theta}(s,a) = \frac{\exp\left[-a(x_i - s_\theta)^2 + Bt_{i\theta}\right]}{\sum_j \exp\left[-a(x_i - s_j)^2 + Bt_{ij}\right]} \quad \text{(Chapter 6)}
\]

\(^{104}\) Swedish Election Study 2006. SND 0861 (2008-07-07). Holmberg Sören (Department of Political Science, University of Gothenburg) and Oscarsson Henrik (Department of Political Science, University of Gothenburg), Statistics Sweden.
Table 1. Maximum likelihood estimates in a conditional logit model for Sweden
(N=4,088) (data: SND 2006)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Estimations of parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>$a$ (Policy salience parameter)</td>
<td>0.085***</td>
</tr>
<tr>
<td>$B$ (Party identification parameter)</td>
<td>3.797***</td>
</tr>
<tr>
<td>McFadden $R^2$</td>
<td>0.786</td>
</tr>
<tr>
<td>McFadden Adj $R^2$</td>
<td>0.784</td>
</tr>
<tr>
<td>Count $R^2$</td>
<td>0.914</td>
</tr>
</tbody>
</table>

Notes: *** $p < .001$, $alpha = .05$, standard errors inside the parentheses

Table 2 reports the Swedish parties actual positions in 2006 along with their Nash equilibrium positions for $a = 0.085$ and $B = 3.797$
Table 2. Nash equilibrium positions for Sweden (data: SND 2006)

<table>
<thead>
<tr>
<th>Swedish parties</th>
<th>Parties’ actual positions</th>
<th>Equilibrium positions for</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006 (Pre and post election data).</td>
<td>$a = 0.085$ and $B = 3.797$</td>
</tr>
<tr>
<td>Left Party (V)</td>
<td>1.34</td>
<td>5.21</td>
</tr>
<tr>
<td>Swedish Social</td>
<td>3.61</td>
<td>4.73</td>
</tr>
<tr>
<td>Democratic Party (S)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centre Party (C)</td>
<td>6.18</td>
<td>5.61</td>
</tr>
<tr>
<td>The Liberal People’s Party (FP)</td>
<td>6.70</td>
<td>5.60</td>
</tr>
<tr>
<td>Moderate Party (M)</td>
<td>8.40</td>
<td>6.05</td>
</tr>
<tr>
<td>Christian Democrats (KD_SWE)</td>
<td>6.85</td>
<td>5.58</td>
</tr>
<tr>
<td>Green Party (MP)</td>
<td>3.55</td>
<td>5.41</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td><strong>5.23</strong></td>
<td><strong>5.46</strong></td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td><strong>2.46</strong></td>
<td><strong>0.41</strong></td>
</tr>
</tbody>
</table>

Two parties, the Left Party and the Green Party find their equilibrium by leapfrogging from left-wing positions to centre-right ones. The Left Party’s and the Green Party’s equilibrium position is interesting because since 1982 neither of them has occupied a position to the right of the middle position of 5.0 (Oscarsson and Holmberg 2007; Oscarsson and Holmberg 2008). As in the case of the Left Alliance in Finland, the discrepancy between the Green and Left Party’s equilibrium positions and their actual positions is mainly due to the small policy issue coefficient as opposed to the large party identification coefficient\(^\text{105}\).

\(^{105}\) For more on this see Chapter 7.
Regarding the type of polarization encountered in Finland and Sweden, the results support the hypothesis that was put forward in the case of Finland. As shown in the previous chapter, Finnish equilibrium positions have a mean of 5.66 with a standard deviation of only 0.34, thus indicating a small ideological difference among party positions when in equilibrium (results shown in Figure 1). Regarding Sweden, a similar pattern of results make us reject the hypothesis that Swedish parties will have incentives to cluster in polarized blocks (Figure 2). Akin to the case of Finland, Swedish parties have electoral incentives to present equilibrium positions that revolve around the centre (mean: 5.46, standard deviation (SD): 0.41).

**Figure 1.** Finnish polarization under Nash equilibrium (data: FNES 2007)

*Notes: VAS: Left Alliance, SDP: Social Democratic Party, VIHR: Green League, PS: True Finns (data available only for 2007), KD: Christian Democratic Party, KESK: Centre Party, RKP: Swedish People’s*
Not surprisingly the same observation regarding the Finnish and the Swedish polarization is obtained when using Bartolini and Mair’s (1990) and Sigelman and Yough’s (1978) approach. Using Bartolini and Mair’s (1990) approach, the results indicate similar degree of polarization in Sweden as in Finland. Under a state of equilibrium, the mean distance between the two peripheral Swedish parties is 1.32 while the mean distance between the two peripheral Finnish parties is 1.00.

When parties are in equilibrium, the Sigelman and Yough formula (1978) is modified as follows:
Left right polarization = \sum_{\theta=1}^{N} E(f\theta)(x_{\theta}^*-\bar{x}^*)^2 \quad (3)

where \( E(f\theta) \) stands for the expected vote share of party \( \theta \) when in equilibrium, \( x_{\theta}^* \) stands for the party’s equilibrium position and \( \bar{x}^* \) for the average of equilibrium positions.

From Merrill and Adams (2001) we know that at equilibrium the expected vote share for party \( \theta \) equals:

\[ \sum_{i} P_{i\theta}(s,a) \quad (4) \]

where \( a \) is the policy issue coefficient and \( s \) the vector of all parties’ strategic locations.

From (3) (4) the formula for the left and right polarization (\( POL \)) in a state of Nash equilibrium can be written as:

\[ POL = \sum_{\theta=1}^{N} \sum_{i} P_{i\theta}(s,a)(x_{\theta}^*-\bar{x}^*)^2 \quad (5) \]

Table 3 gives the results when applying Formula (5) to Finnish and Swedish equilibrium positions.
Table 3. Polarization in Sweden and Finland (data: FNES 2007 and SND 2006)

<table>
<thead>
<tr>
<th>Swedish Parties</th>
<th>Equilibrium position</th>
<th>Expected vote share (%)</th>
<th>Finnish Parties</th>
<th>Equilibrium position</th>
<th>Expected vote share (%)</th>
<th>POL Sweden</th>
<th>POL Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>5.21</td>
<td>10.64</td>
<td>VAS</td>
<td>5.27</td>
<td>9.23</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>S</td>
<td>4.73</td>
<td>31.01</td>
<td>SDP</td>
<td>5.21</td>
<td>17.01</td>
<td>0.16</td>
<td>0.03</td>
</tr>
<tr>
<td>C</td>
<td>5.61</td>
<td>10.48</td>
<td>VIHR</td>
<td>5.49</td>
<td>10.11</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>FP</td>
<td>5.60</td>
<td>10.04</td>
<td>PS</td>
<td>5.61</td>
<td>6.54</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>M</td>
<td>6.05</td>
<td>18.36</td>
<td>KD</td>
<td>5.64</td>
<td>7.64</td>
<td>0.06</td>
<td>0.00</td>
</tr>
<tr>
<td>KD_SWE</td>
<td>5.58</td>
<td>10.03</td>
<td>KESK</td>
<td>5.89</td>
<td>16.84</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>MP</td>
<td>5.41</td>
<td>9.44</td>
<td>RKP</td>
<td>5.93</td>
<td>16.25</td>
<td>0.00</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KOK</td>
<td>6.21</td>
<td>16.38</td>
<td>0.24</td>
<td>0.12</td>
</tr>
<tr>
<td>Mean</td>
<td>5.46</td>
<td></td>
<td></td>
<td>5.66</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The results reveal a similar polarization score for Sweden (0.24) and Finland (0.12), thus supporting the postulation that both Swedish and Finnish parties have electoral incentives to move towards the centre.

One observation is appropriate here: On comparing the expected vote shares as found in the equilibrium analysis with the actual support for parties, it appears that, although in some cases there is a considerable difference between the expected vote share and the actual vote choice (e.g. the Swedish People’s Party gets 16.25 per cent of the votes share when in equilibrium, while in real life its percentage does not mount over 5%), the expected vote shares nevertheless yield plausible results. For example, the Social Democrats have the biggest expected vote share among Swedish parties, while the Moderates have the second largest result. Also, the Social Democratic Party, the National Coalition Party and the Centre Party gain most votes in equilibrium, a result consonant with reality in Finnish elections.

The finding that both the Swedish and Finnish equilibrium positions revolve around the centre of the dimension, suggests a logical inquiry into the effect of voting parameters on equilibrium configurations.

Because parties’ strategies are affected by a policy issue and a party identification parameter, the equilibrium analysis is repeated for both Finnish and Swedish parties for two different scenarios.

According to the first scenario, the party identification parameter varies 0-10 in increments of 0.5 while the policy issue coefficient is held stable at its empirical value. Results are given in Figure 3a and Figure 3b for Sweden and Finland respectively. For the sake of clarity, the interpolation lines can also be seen in each of the figures. When the parties’ interpolation lines are close to one another, parties’ equilibrium positions coalesce. When the parties’ interpolation lines are far apart, the parties’ positions are polarized. Observing Figure 3a and Figure 3b, it is apparent that the impact of party identification in both Finland and Sweden has a similar curvilinear centripetal pattern.
As it was shown in Chapter 5 when studying Finland (Results are repeated in Figure 3b), also in the case of Sweden, parties’ optimal positions were found to be very close to each other for different values of $B$, and party identification was found to have a curvilinear effect on the Nash equilibrium positions.

**Figure 3a.** Swedish equilibrium positions for different values of party identification and $a = 0.085$ (data: SND 2006)
Figure 3b. Finnish equilibrium positions for different values of party identification and $a = .0809$ (data: FNES 2007)

Notes: This is the same figure so adopt the identical solution as that presented in Chapter 6 (Figure 1). The only difference is that the coordinate system has been transposed.

Under the second scenario, equilibrium positions are calculated by holding the party identification parameter stable at its empirical values and varying the policy issue coefficient. The results indicate that for this type of simulation both Finnish and Swedish parties articulate equilibrium positions that differ from one another. This is more marked in the case of Sweden (Figure 4a). In general, as can be seen in Figure 4a, the interpolation lines do not converge. Moreover, when the policy issue parameter reaches maximum, so when $a = 10$, Swedish parties are clustered in dispersed blocs, finding that neatly complements past studies (de Palma et al. 1990).
In Finland, equilibrium positions also indicate polarized ideological positions when $a$ takes values greater than zero (Figure 4b). When $a$ is at moderate to high levels (5.0–8.0), there is a tendency for some parties to converge while others retain their peripheral positions. Ideological differences among parties are the most marked when $a = 9.5$ and $B = 4.036$. For these parameters, the standard deviation equals $2.13$. The fact that the Finnish parties’ equilibrium positions spread out for scenarios in which the policy issue parameter is greater than its empirical value is to be expected. The Finnish voters are widely distributed on the left and right dimension. As the data shows, 23.8% of the voters are self-placed on the central position 5.0, 24.4% of the voters are self-placed on the left side (0–4.0) of the policy issue dimension and 51.8% of the voters are self-placed on the right side (6.0–10.0). As the salience of the policy issue parameter increases the more the party strategies are driven by the voters’ distribution on the left and right scale, and thus the more divergent the parties’ equilibrium positions, on the same scale, become.

106 The average standard deviation equals 1.57.
Figure 4a. Swedish equilibrium positions for different values of policy issue and $B = 3.797$ (data: SND 2006)
Recapping the results obtained in this section, for alternative types of simulations, the following observation emerges:

*Finnish and Swedish parties’ optimal positions always converge; the only exception to this is when the policy issue parameter is greater than its empirical value.*

The above-cited proposition can also be read as follows: The small—close to zero—level of the policy issue parameter makes Finnish and Swedish parties’ equilibrium positions similar to one another.
Chapter 7 Discussion

Polarization indicates the ideological differences between parties (Klingemann 2005). There are two degrees of polarization: low polarization, according to which the ideological distance between parties is small, and high polarization according to which ideological differences are distinct.

The literature on parties’ ideological polarization is voluminous. It includes studies that measured polarization by employing the standard deviation statistic to measure ordinal disagreement between parties’ positions (Taylor and Heyman 1971; Sigelman and Yough 1978; Dalton 2008; Ezrow 2008; Gross and Sigelman 1984; Klingemann 2005); studies that measure the distance between the extreme parties (Bartolini and Mair 1990); etc.

The common ground of the before mentioned studies is that they employ data over long periods. This chapter focused attention on something different. The aim was to compare the degree of polarization between Sweden and Finland assuming that parties adopt their Nash equilibrium positions. Working thus, the study revealed the role of vote-maximizing incentives on the degree of polarization. Results from an equilibrium analysis showed that under a state of Nash equilibrium both Swedish and Finnish parties have electoral incentives to converge on the centre.

In the last part of this chapter, the analysis revealed the reasons that make Finnish and Swedish parties adopt similar optimal positions. In this part, equilibrium configurations were computed for alternative scenarios of the policy issue and the party identification parameters. The results showed that Finnish and Swedish parties’ equilibrium positions converge because of the low level of the policy issue coefficient.

Proposals for further research

The low though highly significant level of the policy issue coefficient in the case of Finland and Sweden is not necessarily a sign that Finnish and Swedish voters do not put
emphasis on issues in politics. Proximity has been seriously challenged by directional theories (e.g. Rabinowitz and Macdonald 1991; Macdonald et al. 1991; 1997; Listhaug et al. 1990; 1994b) of voting that put the focus of the analysis on intensity and direction rather than on distance. Yet, by and large, replacing proximity with directional batteries in the equilibrium analysis for Finland and Sweden is work worth showing.

In addition, one can link parties’ incentives for polarization with whether a party is member of a popular governmental coalition or not. It can be hypothesized that a party that does not belong to a governmental coalition will have more liberty to differentiate from the governmental position and pursue a vote maximizing behaviour without constrains, as assumed here.

Interesting observations could be made if more countries were added to the analysis. The comparison could consider the other three Nordic countries, Denmark, Iceland, Norway or could be larger in scale and encompass more countries with multiparty systems. In either case, it would be interesting to observe how many countries would report findings similar to those on Finland and Sweden and how many countries would report findings similar to Adams and Merrill’s (2001) study on France. Put differently, it would be interesting to see for how many countries policy issue considerations would have a dramatic effect on the parties’ polarization (as in the case of France) and for how many countries policy issue considerations would be close to zero (as in the case of Finland and Sweden).

See Appendices

1. A note regarding the number of cases in the conditional logit analysis (Appendix 7.1)
**Chapter 8:** “Everyone says I love U”\textsuperscript{107}: Assimilation and contrast in Finnish voters’ perceptions of party positions

**Summary**

The data from the Finnish National Election Studies of 2003 and 2007 indicates that Finnish parties have maintained their positions unchanged through the course of these last two elections. Given that the Finnish party system consists of a large number of political parties, eight of which make it to the Parliament, it is quite surprising that voters do not see any difference in the party positions of 2003 and 2007.

Since party positions are based on voters’ judgements, it is assumed that either the respondents of the Finnish National Election Studies have been correct in their judgements – and the Finnish parties have indeed maintained their ideological positions unchanged from 2003 to 2007 – or that the respondents have failed to predict the party positions correctly.

Assuming that voters have been correct in their observation that the positions of parties have remained unchanged, it is likely that the parties have reached a state of equilibrium where no party has an incentive to change its ideological position unilaterally.

Chapter 6 showed that the former could not hold true as the Finnish party system is far from being in a state of equilibrium. Therefore, it is argued that there should be other reasons for the voters’ perceptions of the party positions in 2003 and 2007. This analysis considers the scenario in which Finnish voters project their own positions on the parties. According to the projection, the Finnish voters have misjudged the party positions by considering their preferred parties as being closer to their own ideological positions and by overestimating the distance to rival parties. A limitation of this study is that in order to

\textsuperscript{107} The phrase inside the quotation marks was inspired by Woody Allen’s film: “Everyone says I love you” (1996).
maintain cognitive consistency, the projection presumes that only the voters are to blame for misinterpreting party positions. Owing to this assumption, the present analysis does not recognize the fact that the source of misinterpretation may be the parties’ failure to provide clear and unambiguous information regarding their positions.

This is the first study to examine the ideological positions of the Finnish parties by combining an equilibrium analysis with the psychologically based concept of projection. Projection requires that there is a U shaped relationship between the voters’ selfplacement and the average perceived distance among parties. The result obtained in this chapter supports the hypothesis that Finnish voters project their own positions onto the parties.

In the last section of this chapter, an assessment of the direction of projection is presented by means of testing three hypotheses. The first hypothesis states that there is a positive correlation between a voter’s positions and the positions of the party of support. According to the second hypothesis, this correlation is stronger, as indicated by any pairwise comparison, than the correlation between the voter’s positions and the position of a rival party. The third hypothesis asserts that the correlation between the partisan’s position and the party of choice will be stronger than any other correlation with rival parties.

**Party placement**

It is important to place parties into positions not only for political analysts who subscribe to proximity theories but also for relevant discussions such as whether politics matters in real life and whether governments implement parties’ positions (Castles and Mair 1984; Schmidt 1996). The most common method of recording the positions of parties is to ask voters through mass surveys. The alternative methods for recording the positions of parties as summarized by Mair (2001) are: a) *a priori* judgements, b) secondary reading, c) manifesto analysis, d) analysis of government expenditure flows, e) elite studies and f) expert surveys.
a) *A priori judgements*

This method estimates party positions by scrutinizing the ideological identity of the party. The ranking takes the form of grouping parties into ideological families. Most common ideological families are the Communists, the Social Democrats, the Greens, the Liberals, the Christian Democrats and the Conservatives. Taylor and Herman (1971) distinguished two different groups of parties; the ‘anti-system’ and the ‘pro system’. The group of ‘anti-system’ parties included the communist and the fascist parties while the ‘pro-system’ group all other parties that did not pose a challenge to the party system. The deficiencies of the *a priori* judgements are straightforward. First, this method does not differentiate between parties that belong in the same party family. Therefore, this method fails to record ideological differences among parties belonging to the same ideological family. This method has been very little used by scholars of political analysis.

b) *Secondary reading*

One of the first methods to replace *a priori* judgements was that of the secondary reading. The method was based on authors’ personal estimates of party positions upon a thorough literature examination. The main caveat of secondary reading is that it cannot capture parties’ current positions due to the time required for a study to become available to the public.

Janda’s (1980) study was one of the first to implement this method and report the policy position of 158 parties in 53 countries. Taylor and Laver (1973) also used the method to test theories of government coalition formation. Taylor and Laver’s (1973) argument that differences among parties were reflected in their manifestos was the first reference to a method that was to have a major impact on the analysis of party positions: This method was the analysis of party programmes and manifestos, to which we turn our attention now.
Analysis of party programmes and manifestos

This method reached the peak of its publicity through the Manifesto Research Group. The Manifesto Research Group makes cross-national analyses by estimating the party positions upon analysing the programme and manifestos of political parties.

The Manifesto Research Group has developed a coding system where each “quasi-sentence of every election program is coded into one and only one” (Wüst and Volkens 2003: 5) of the 56 categories. The 56 categories are grouped into seven major policy areas (Budge et al. 2001). The salience figure for each category is given by dividing the number of sentences referring to a specific category by the total number of sentences. A party’s left-right placement can thus be estimated by adding the percentages of all the variables that stand for a leftist classification and subtracting them from the percentages of the variables that stand for a rightist classification (Laver and Budge 1992). A score of -100 means that the sentences on the party’s manifesto have left-wing themes, while a score of +100 means that the sentences have right-wing themes. The zero point indicates that the left-wing themes and the right-wing ones are in balance (Laver and Schofield 1990).

The Manifesto Research Group has launched the Comparative Manifestos Project (CMP) that covers 2,347 party manifestos issued by 632 democratic political parties after the Second World War.108 (Budge et al. 2001). The basis of CPM is the salience theory according to which “all party programmes endorse the same positions with only minor exceptions” (2001: 82). However, in practice, CMP never fully utilized the salience theory but it constructed a coding category that was largely ‘positional’ (Benoit and Laver 2006).

A drawback of the CMP relates to the way that parties are placed on the left-right dimension; that is parties are positioned relevant to the amount of left and/or right policy issues that are found in their manifestos. However, reality has shown that political parties

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108 CMP has covered more manifestos since 2001 when “Mapping Policy Preferences” was published.
may not refer to a policy issue in their manifesto even if this issue is an important component of their left-right placement. For instance, a thorny issue that creates mixed emotions across the electoral may be excluded from the party’s electoral manifesto. Also, the fact that the left-right dimension is composed of fixed scale components (Benoit and Laver 2007) is another shortcoming of the Comparative Manifesto Project for it fails to capture the subjective meaning of ‘left’ and ‘right’ in different contexts.

\textit{d) Analysis of Government Expenditure Flows}

Another way of capturing party positions is by studying their policies when in office. For instance, the flow of public expenditure may function as an indicator of the emphasis that political actors place on certain policy dimensions. Studies under this rubric have been conducted by Budge and Hofferbert (1990), Hofferbert and Klingemann (1990) etc. Although the preliminary studies reported a strong correlation between public expenditure and policy positions, this method has a limited range of applicability. First, it only reflects the incumbents’ policy position. The ideological platform of parties that have a small chance of participating in the governmental coalition cannot be estimated. Also, in countries such as Finland, where public expenditure is decided upon by consensus, an additional hurdle arises regarding estimating party positions separately.

\textit{e) Elite Studies}

There are three categories of elite studies. In the first one, parties’ positions are estimated by comparing parties’ legislative acts. An example of this approach is Attinà’s study (1990) estimating the positions of party groups in the European Parliament by studying their positions through legislative acts. Using this method Poole and Rosenthal (1997) tapped the position of 11,000 legislators in the U.S. Congress from 1789 to 1985. According to the second approach, party positions are estimated by conducting interviews with parliamentary elites. The third approach records party positions by studying the attitudes of ‘middle-level elites’ or party activists (Mair 2001). This third approach does not seem to have the shortcomings of the previous two. The results are not dependent on whether the party is in the government or not, as in the first approach, and interviews can
be scheduled faster than in the second approach. However, doubts can be raised as to whether party activists can adequately represent a party’s views.

f) *Expert surveys*

In expert surveys, as the name suggests, experts in the field of political science, who are “people with expertise in party politics in their own national contexts” (Benoit and Laver 2006: 72) locate political parties on a given dimension. Expert surveys have been conducted by Morgan (1976) Castles and Mair (1984), Huber and Inglehart (1995), Laver and Mair (1999), Benoit and Laver (2006), etc.

g) *Mass surveys*

The mass survey data method has a major advantage over all the other methods. If parties occupy positions to attract voters, then it is the voters’ opinions that count. Mass surveys collect voters’ opinions\(^{109}\) regarding party positions on the left and right scale or on any other synthetic scale such as protecting the environment by encouraging economic growth (Benoit and Laver 2006).

Inglehart and Klingemann (1976) were among the first to use mass survey data to capture party positions. Other similar studies were conducted by Sani and Sartori (1983). National election studies are the most popular example of capturing party positions through mass surveys. The method of using mass surveys for estimating party positions has some drawbacks. In general, the pitfall of this method lies in the fact that voters’

\(^{109}\) An alternative mass survey, which borrows characteristics from elite studies, is when politicians are asked to place themselves and others on a policy issue dimension. Yet this approach faces an obvious problem of reliability. Centrist MPs are likely to place parties that are not positioned in the centre in more extreme positions than they really are (Benoit and Laver 2006). Politicians will think the centre as their own exclusive domain, when the centre is associated with a dominant pool of voters. Another setback of this type of mass survey is that they face restrictions relevant to the party line. For example, MPs of the Finnish coalition government of Matti Vanhanen (2003-2010) were often instructed not to respond to surveys without the permission of the party’s executive organs.
opinions are characterized by subjectivity that could cloud voters’ judgements regarding party positions. The most common way through which the voters’ subjectivity clouds their judgements is through the effect of projection.

**The effect of projection**

According to projection, the voters’ selfplacement affects their perceptions of the party positions. The seminal work of Berelson, Lazarsfeld, and McPhee (1954) was the first to offer empirical evidence of voters’ perceptions of party positions. By studying the American electorate, the authors reported three important findings: Firstly, party preference does not affect the voters’ perceptions of candidates’ policy issues; secondly, voters who identify with parties tend to see the latter as standing closer to their own position than what might be the case in reality; thirdly, voters with a strong party choice are more likely to misinterpret the favorable candidate’s views as favorable to their own positions (Berelson et al. 1954). Numerous studies have dealt with the issue of projection and its connection with voting (Brody and Page 1972; Conover and Feldman 1982; Gerber and Green 1999; Granberg and Brent 1980; Granberg et al. 1981; Granberg and Holmberg 1988; Granberg and Brown 1992; Macdonald et al. 2007; Merrill et al. 2001; Jensen 2009; Page and Brody 1972; etc).

Projection yields two interrelated products of judgment: assimilation and contrast (Granberg 1982). The effects of assimilation and contrast were first mentioned in studies in experimental psychology (Sherif et al. 1958; Sherif and Hovland 1961). At an individual level, a person reacts to a stimulus by first categorizing it. Sherif and Hovland (1961) claimed that the process of categorization involves comparisons between at least two stimulus items. Subsequent to categorization, “individuals use their own attitude as an “anchor” or comparison stimulus, with the result that statements of attitude not too divergent from their own will be “assimilated” and those further away will be “contrasted”” (Eiser 1972: 148).
The strength of assimilation and contrast differs among individuals, as it is pertinent to the latitude of acceptance and to the range of items that are accepted (Sherif and Hovland 1961). Individuals with wide latitude of acceptance tend to assimilate several items. On the other hand, individuals with narrow latitude of acceptance (or with wide latitude of rejection) are prone to assimilate fewer items of observation. In general, individuals with narrow latitude of acceptance have extreme opinions.

In addition, the characteristics of assimilation and contrast have captured the attention of social psychologists using a different terminology to refer to the same effects (Tajfel 1957; 1959; Tajfel and Wilkes 1963; Eiser and Stroebe 1972). According to Tajfel (1957; 1959), the process of categorization produces an ‘accentuation effect’. This ‘accentuation effect’ occurs when members of a group exaggerate the differences from rival groups and also overestimate the similarity within the same group (Abrams and Hogg 1988). The main idea underlying the ‘accentuation effect’ is that individuals do not make judgements in a vacuum but use ‘peripheral dimensions’ to judge the ‘focal dimension’. For example, the correlation of ethnicity (‘peripheral dimension’) with the level of IQ (‘focal dimension’) leads to an ‘accentuation effect’. Thus, people of a certain ethnicity that is positively associated with a low IQ would be treated as having a lower IQ than they really have. According to Tajfel (1957), the ‘accentuation effect’ is more valid when members of a group are particularly interested in comparing their own group with a particular out-group which they perceive as a threat.

**Descriptive statistics**

The data– Finnish National Election Study (FNES) 2003 and FNES 2007– from the voters’ perceptions of Finnish parties’ positions in 2003 and 2007 are presented in Table 1. As is prevalent, the voters’ perceptions of the party positions were almost identical in 2003 and 2007. The greatest mean difference between the party actual positions in 2003 and 2007 was observed for the Social Democratic Party, which was equal to 0.57 increments on the 0-10 scale, whereas the smallest mean difference was recorded for the Green League, which was equal to 0.02. It was found that the Finnish party positions in
2003 had a mean of 5.34 with a standard deviation of 1.64, while in 2007 they had a mean of 5.45 with a standard deviation of 1.86. The average difference between the party positions in 2003 and 2007 was 0.35.

Table 1. Voters’ perceptions of party positions (data: FNES 2003 and FNES 2007)

<table>
<thead>
<tr>
<th>Party</th>
<th>Actual positions 2003</th>
<th>Standard deviation 2003</th>
<th>Actual positions 2007</th>
<th>Standard deviation 2007</th>
<th>Absolute difference between (1) and (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Alliance (VAS)</td>
<td>2.30</td>
<td>1.83</td>
<td>1.86</td>
<td>1.72</td>
<td>0.44</td>
</tr>
<tr>
<td>Social Democratic Party (SDP)</td>
<td>4.70</td>
<td>2.04</td>
<td>4.13</td>
<td>1.89</td>
<td>0.57</td>
</tr>
<tr>
<td>Green League (VIHR)</td>
<td>4.72</td>
<td>1.67</td>
<td>4.74</td>
<td>1.65</td>
<td>0.02</td>
</tr>
<tr>
<td>True Finns (PS)</td>
<td>NA</td>
<td>5.78</td>
<td>2.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christian Democratic Party (KD)</td>
<td>5.88</td>
<td>1.92</td>
<td>5.98</td>
<td>1.80</td>
<td>0.10</td>
</tr>
<tr>
<td>Centre Party (KESK)</td>
<td>6.19</td>
<td>1.65</td>
<td>6.51</td>
<td>1.53</td>
<td>0.32</td>
</tr>
<tr>
<td>Swedish People’s Party (RKP)</td>
<td>6.15</td>
<td>2.17</td>
<td>6.67</td>
<td>1.98</td>
<td>0.52</td>
</tr>
<tr>
<td>National Coalition Party (KOK)</td>
<td>7.46</td>
<td>2.11</td>
<td>7.94</td>
<td>1.94</td>
<td>0.48</td>
</tr>
</tbody>
</table>
The fact that the Finnish party positions in 2003 and 2007 were perceived to be almost identical raises the following question: Have the voters projected their own stable positions during 2003 and 2007 onto the parties? As has already been argued, projection yields two interrelated effects: assimilation and contrast.

**Assimilation or contrast**

In order to determine whether assimilation and contrast affect the Finnish voters’ opinions, the shape of the function between the voters’ and the parties’ perceived positions is considered.

*U Shaped relationship*

The assimilation and contrast effect depends on the relative position of the voter with respect to the parties’ positions. Extreme voters – the voters who occupy a position at either end of the political dimension – tend to “pull” extreme parties toward their own position and “push” away all the other parties that are further away. It is expected that voters will see the largest difference with parties that are the furthest away from their own positions. On the other hand, voters who represent centrist positions will tend to perceive the least distance between parties.

When depicted graphically, the process described above would result in a U shaped function between the voters’ selfplacement and the perceived distance of parties on the same dimension (Granberg and Brown 1992).\(^{110}\)

Therefore, in order for assimilation and contrast to affect the voters’ perceptions of Finnish party positions in 2007, it is hypothesized that:

\(^{110}\) If voters in the centre were to perceive more distance than the edge voters, the distribution would be ∩ shaped.
There is a U shaped function between voters’ selfplacement on an ideological dimension and the average perceived distance among parties on the same dimension.

To test the hypothesis, the voters and parties are placed on the left and right dimension which has the advantage of giving a holistic view of the parties’ ideology. The dependent variable is determined by the average distance between the parties. Since there are eight parties, the distance is calculated for twenty eight pairs\textsuperscript{111}. For each pair, the distance is defined as the quadratic difference between the two parties’ positions. Subsequently, the sum of the distances is divided by the number of contestant pairs (twenty eight) to obtain the average perceived distance. The independent variable is the voters’ selfplacement. The results obtained verify the hypothesis that there is a U shaped function between the voters’ selfplacement and the average perceived distance among parties (Figure 1).

\textsuperscript{111} The pairs are: (VAS, VIHR), (VAS, SDP), (VAS, KESK), (VAS, KOK), (VAS, RKP), (VAS, KD), (VAS, PS), (VIHR, SDP), (VIHR, KESK), (VIHR, KOK), (VIHR, RKP), (VIHR, KD), (VIHR, PS), (SDP, KESK), (SDP, KOK), (SDP, RKP), (SDP, KD), (SDP, PS), (KESK, VAS), (KESK, RKP), (KESK, KD), (KESK, PS), (KOK, RKP), (KOK, KD), (KOK, PS), (KD, PS), (KD, RKP), (RKP, PS).
The following steps are carried out to enhance the belief on the U shaped relationship between selfplacement and the average perceived distance. First, the average distance among parties is regressed with the variable selfplace and also with the square of selfplace (Table 2, Equation 1). It is found that the results yield a highly significant positive \( p < .001 \) coefficient for the selfplace squared and an R-square as high as 0.919, an outcome that indicates a very good fit for the quadratic regression\(^{112}\).

\[ D = -3.89 \cdot S + 0.36 \cdot S^2, \quad \text{where} \quad D \text{ represents the average perceived distance and} \quad S \text{ represents the variable Selfplace. As expected,} \quad \frac{\partial^2 D}{\partial S^2} = 0.72 > 0. \]

\(^{112}\) The equation can be written as \( D = -3.89 \cdot S + 0.36 \cdot S^2 \), where \( D \) represents the average perceived distance and \( S \) represents the variable Selfplace. As expected, \( \frac{\partial^2 D}{\partial S^2} = 0.72 > 0 \).
Second, the average perceived distance and selfplace are regressed, controlling at the same time for eleven variables\textsuperscript{113} (Table 2, Equation 2). The purpose here is not to create a sophisticated model for predicting the relationship between the average perceived distance and selfplacement but to enhance the certainty of the U shaped relationship between these two variables. The results obtained from the quadratic regression analysis indicate that out of the eleven variables, one has a significant effect at $p < .01$ level (parties should be banned) and one at $p < .05$ level (party identification). As shown on the last column of Table 2 (Equation 2), the variables of selfplace and the selfplace-squared continue to have a highly significant effect on the variable distance even when the effect of the other variables is considered. In addition, the positive sign in front of the quadratic term of selfplace coupled with an R-square as high as 0.923 testifies a good fit for the concave up function.

\textsuperscript{113} The variables represented demographic factors such as age and sex; political cognition and involvement in politics (party member, vote, interest in politics, follow campaigns, participate in public debates, party identification); ideological matters (differences among parties, coalitions should involve left and right parties); and the importance of political parties (parties should be banned).
Table 2. Testing the convexity of the quadratic variable (data: FNES 2007)

<table>
<thead>
<tr>
<th>Average perceived distance</th>
<th>Equation 1</th>
<th>Equation 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selfplace</td>
<td>-3.893***</td>
<td>-3.822***</td>
</tr>
<tr>
<td></td>
<td>(.035)</td>
<td>(0.044)</td>
</tr>
<tr>
<td>Selfplace squared</td>
<td>0.361***</td>
<td>0.355***</td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Age</td>
<td>0.105</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.061)</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td></td>
</tr>
<tr>
<td>Vote</td>
<td>0.050</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.053)</td>
<td></td>
</tr>
<tr>
<td>Party member</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.027)</td>
<td></td>
</tr>
<tr>
<td>Interest in politics</td>
<td>-0.003</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.093)</td>
<td></td>
</tr>
<tr>
<td>Follow campaigns</td>
<td>-0.052</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.080)</td>
<td></td>
</tr>
<tr>
<td>Participate in public debates</td>
<td>-0.005</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.041)</td>
<td></td>
</tr>
<tr>
<td>Party identification</td>
<td>0.022*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.043)</td>
<td></td>
</tr>
<tr>
<td>Differences among parties</td>
<td>0.151</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.060)</td>
<td></td>
</tr>
<tr>
<td>Coalitions should involve left and right parties</td>
<td>-0.039</td>
<td>(0.032)</td>
</tr>
</tbody>
</table>
Correlation analysis

The U shaped relationship supports the argument that assimilation and contrast have shaped the voters’ opinions concerning party positions in 2007.

Since it was shown that projection has taken place, this section focuses on the direction and strength of the relationship between the voters’ and parties’ positions according to the party of choice. In general one would expect that when voters assimilate their own positions to those of the party, the relationship would be positive whereas when the voters contrast their positions to the party, the relationship would be negative.

Earlier studies have indicated that while it is logical to expect a positive relationship between the position of the party of choice and the voter, it is not necessarily obvious that the relationship becomes negative when the party of choice is replaced by a rival party (Conover and Feldman 1982). Conover and Feldman (1982) found a weak contrast effect when the voters’ positions were correlated with the rival candidates’ positions in a series
of different policy issues. Moreover, they found that for some policy issues the sign of the relationship was not in the predicted direction (negative).

In the present study, it is expected that the contrast effect will be even weaker than in the study by Conover and Feldman (1982), mainly for two reasons.

Firstly, the study by Conover and Feldman (1982) focused on the American elections involving only two candidates. However, the present study focuses on the Finnish system involving eight parties and thus there is a high likelihood that some of the fifty-six pairs of correlations between the voters’ and the rival parties’ positions will not be in the predicted direction.

Secondly, in issues that demand a dichotomous stance on the party’s behalf, as would be the issue of taxes versus spending (more taxes/less taxes) for instance, or legalizing marijuana (yes/no attitude), the ‘side of the fence’ is clear in the voters’ minds. In such cases, the voter is likely to find a negative relationship between her position and the rival party’s position. Unfortunately, the Finnish National Election Study in 2007 asked voters to place parties and themselves only on the left and right dimension. Although the left and right dimension provides a good overview of the party’s ideology, it usually fails to capture the negative relationship between the voters’ and the rival parties’ positions. This problem is more acute in multiparty systems, where the distance among certain parties is in some cases trivial.

Three hypotheses are tested here, namely:

1. The correlation between the voter’s position and the party of choice will be positive [Hypothesis 1].
2. The correlation between the voter’s position and the party of choice will be stronger than any other correlation with parties on the opposite side of the policy issue dimension [Hypothesis 2].
3. The correlation between the partisan’s position and the party of choice will be stronger than any other correlation with rival parties [Hypothesis 3].

**Correlation results**

**Table 3.** Correlations between respondents’ position and position of party of support  
(data: FNES 2007)

<table>
<thead>
<tr>
<th></th>
<th>VAS</th>
<th>SDP</th>
<th>VIHR</th>
<th>PS</th>
<th>KD</th>
<th>KESK</th>
<th>RKP</th>
<th>KOK</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.53***</td>
<td>-06</td>
<td>.08</td>
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**Notes:** Significant at * p < .05, ** p < .01, *** p < .001. Parenthesized entries are number of cases.
The results obtained support the first hypothesis. The correlations between the voters’ positions and the position of the party of choice are presented in bold face in Table 3; it can be seen that all the correlations are positive. The largest correlation\textsuperscript{114} of 0.65 was observed for VIHR and PS, while the smallest correlation of 0.33 was observed for KOK. The average correlation between the voters’ selfplacement and the perceived position of the party of choice was found to be 0.54, a score that signifies a moderate relationship. Regarding the second hypothesis, the results clearly indicate that the correlation between the voter’s position and the position of the party of support is always greater in magnitude than when the party of support is replaced by a rival party\textsuperscript{115}.

As expected, the argument that the direction of relationship between the voters’ position and the position of rival parties will be negative found limited support. The sign of the relationship was found as anticipated in only 18 out of 56 pairs. For all the remaining pairs, the correlations were positive.

It was surprising that positive correlations were in pairs involving a voter and parties that were positioned on different political positions. To put it differently, a positive correlation between a voter’s position and a rival party’s position that belong to the same ideological sphere might not be as odd as one between a voter and a party that belong to opposite political positions\textsuperscript{116}.

Among the possible reasons for the abovementioned ‘paradox’ is the explanation that voters do not acquire the same information for all parties. Voters usually acquire more information, and consequently perceive more differences for parties placed on the same ideological side of the policy issue dimension than for parties that on the opposite side.

\textsuperscript{114} Correlations would be larger if the \textit{eta} was reported instead of the Pearson’s \textit{rho}. The reason for choosing to report the Pearson’s \textit{rho} is because the \textit{eta} is always positive and as such it fails to capture the direction of the relationship.

\textsuperscript{115} To observe this, compare every correlation in bold face with any other correlation found on the same row in Table 3. For each party, the correlation in bold face is the strongest across the row.

\textsuperscript{116} Parties in Table 3 are presented in a left-right order, so that the first three parties in a row and column are left wing parties and the other five are right wing parties.
In multiparty systems, such as the Finnish party system, ideological differences between parties are not always visible to the voters (Macdonald et al. 1991). The correlation results indicate that even though differences are clear between extreme parties that belong to different ends of the policy issue dimension, for example KOK and VAS, the same does not necessarily hold true for non-‘edge’ parties, for example between VIHR and KD.

In addition to this and in relation to Tajfel’s (1957) argument presented at the outset of this chapter, parties perceive more differences with those rival parties that they perceive as threat. The party which is perceived as a threat is not always one with a diametrically different ideological position. For example, a party may perceive as a bigger threat an adjacent party that threatens to siphon-off its followers than a party that belongs to an opposite ideological side of the policy issue dimension and which competes for a different pool of voters. This might be the case of the voters of PS whose position is positively correlated with the position of the two left wing parties —VAS and SDP— and negatively correlated with the position of KOK (Table 3). It could be explained that the voters of PS perceive KOK as a bigger threat than the left-wing parties of VAS and SDP, the reason being that since KOK is considered as the most right wing party in terms of ideology, it might siphon-off some extremist right wing voters who would normally vote for PS.

However, a negative correlation may also be explained by the fact that a party considers as a threat a traditional electoral rival. This is the case with the two largest political parties in Finland, SDP and KESK. As clearly shown in Table 3, the position of respondents voting for KESK is negatively correlated only with SDP, while for all other parties, the correlations have a positive sign.

The results also supported in general Hypothesis 3. As can be seen in Table 4, the correlations between the partisan’s position and the party of choice (in bold face) are stronger than any other correlation with rival parties, save only one case. The exception
involves PS. However, the number of observations is so small (only 12) that does not permit us to draw safe conclusions.

**Table 4.** Correlations between partisans’ position and the position of the party of support (data: FNES 2007)

<table>
<thead>
<tr>
<th></th>
<th>VAS</th>
<th>SDP</th>
<th>VIHR</th>
<th>PS</th>
<th>KD</th>
<th>KESK</th>
<th>RKP</th>
<th>KOK</th>
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*Notes: Significant at * p < .05, ** p < .01, *** p < .001, parenthesized entries are number of cases.*

If Finnish voters project their own positions to the parties, does not this pose a threat to the equilibrium analysis preceding in the previous chapters? In other words would not projection yield a distorted image of the reality of party positions and consequently of parties’ equilibrium positions?
Without entering into a lengthy discussion of what is ‘reality’ in political analysis, it should be argued that the situation is not as bleak as implied above. To make this clear suffice it to revert to the reason that gives a considerable advantage to mass surveys as a way to measure party positions. Since parties respond to voters’ opinions and since voters make up their minds by relying on their own views on party positions, it is the voters’ views that matter even if the latter constitute a distorted image of ‘reality’. Yet, paraphrasing the Greek philosopher Protagoras, ‘The way things appear to some voters, in that way they exist for some voters; and the way things appears to other voters, in that way they exist for the others’\textsuperscript{117}. In other words, what is ‘true’ or ‘reality’ is what voters perceive as such and in that respect the equilibrium configurations as based in voters’ perceptions mirror the reality.

\textbf{Chapter 8 Discussion}

The observation that the positions of the Finnish parties in 2003 and 2007 were almost identical coupled with the fact that Finnish parties are far away from a state of Nash equilibrium (Chapter 6) motivated the analysis of this chapter.

Projection yields two effects, assimilation, and contrast. For assimilation and contrast to occur, the distribution between selfplacement on the left and right dimension and the perceived distance between the political parties on the same dimension must be U shaped. The rationale for this is that voters will pull toward their own positions, parties that are closer to them (assimilation) and push away from parties that are placed further away (contrast).

The results obtained were found to support the U shaped assumption. Moreover, a quadratic regression analysis was performed between the parties’ average perceived

\textsuperscript{117} The phrase in print is actually ‘The way things appear to me, in that way they exist for me; and the way things appear to you, in that way they exist for you’ and it is quoted in Plato \textit{The Theaetetus}, par. 152(a), Focus Publishing/R. Pullins Co (ed. 2004).
distance and the voters’ selfplacement which confirmed the certainty of the U shaped relationship between the two variables.

Finally, the direction of the relationship between the voters’ positions and the parties’ positions was observed. Two types of correlations were presented: In the first one the parties’ positions were correlated with the voters’ positions, while in the second one the parties’ positions were correlated with the positions of the party identifiers.

The results indicated that the relationship between the voters and the parties’ positions was positive when the party was the party of choice (assimilation) and in some cases negative when it was a rival party. The reason that the relationship between the voter’s position and the party was not always negative —as one would logically assume due to the contrast effect— was mainly attributed to the following reason. Although the left-right dimension gives a holistic view of a party’s ideology it generally fails to capture the negative relationship between the voters and the rival parties’ positions. Lastly, the correlation between the partisan’s position and the party of choice was found to be stronger than any other correlation with rival parties, save only one case; the party of PS.

**Proposals for further research**

It will be interesting to see how voters would have perceived Finnish party positions if projection had not taken place and compare them with their Nash equilibrium positions\(^\text{118}\).

In addition, further research could move toward conducting the correlation analysis presented here for a policy issue dimension that would pose a clear dichotomous choice (e.g. support/do not support, agree/disagree). In such a case, it is possible that the correlation between the voters’ positions and the rival parties’ positions would be more often in the anticipated direction than it was in the case of the left-right dimension.

\(^{118}\) I thank Olga Shvestova for proposing this point and also John Ledyard for helpful discussion.
Lastly, an interesting avenue for further research would be to observe whether in future elections, the Finnish parties move towards their Nash equilibrium positions by making adjustment for projection.

See Appendices

1. An alternative U shaped relationship between the party positions and the voters’ placement (Appendix 8.1)
Chapter 9: Concluding remarks

The main aim of this thesis was to show that party identification has an effect on parties’ optimal position taking. The thesis considered two types of optimal positions: a) ‘one-off’ optima and b) Nash equilibrium positions. The results showed that the distribution of partisans does indeed have an effect on party strategies as regards either type of optimal position. Alongside with the former finding, the thesis reported a series of results that fall into the domain of formal political analysis and are related to the concept of party identification. This chapter summarizes the main results of the thesis in order of appearance in the respective chapters. The results are presented in two main categories: Namely the theoretical and the empirical results.

Theoretical results

1. In a three party system— or in a state of competition among three parties—the party in the middle is not always in a hapless position as Adams (1998; 2001a; b) suggests.

   (Chapter 4)

Adams (1998; 2001a; b) argues that in a competition among three parties where voting behaviour depends upon party identification and a policy issue component, the party that is placed in the middle is always in the hapless position of being squeezed by the rival peripheral parties. Adams (1998; 2001a; b) presents a repeated game of party competition where parties respond sequentially to each other’s optimal positions. In this chapter Adams’ (1998; 2001a; b) analysis was modified by assuming that competition is a ‘single shot’ game in the sense that parties have only one chance to respond to rival parties’ fixed positions.
It was shown that Adams’ argument is contingent upon three factors:

a) The strength of partisanship  
b) The distribution of the middle party’s identifiers  
c) The length of the middle party’s partisan constituency

In brief the former factors are summarized under the heuristic term ‘Value of Partisanship’ \( (VoP) \) defined as \( VoP = \frac{2\sqrt{b}}{|E - B|} \), where \( b \) stands for the degree of partisanship and \( |E - B| \) for the domain of the middle party’s identifiers.

The main finding of the analysis departed from Adams’ (1998; 2001a; b) assertion that the middle party in a tripartite competition always suffers from a strategic disadvantage. The results of a spatial analysis showed that under certain conditions the party in the middle enjoys a ‘breathing space’ and thus it is not always in a hapless position.

2. In a three party system—or in a state of competition among three parties—where \( L, CL, \) and \( C \) are the competing parties with an ordinal configuration \( L–CL–C \) the following propositions are true:

I) If party \( CL \) strongly presses \( C \) then the maximum votes he can win will equal the proportion of his own partisans.

II) If there is an interval with length \( b^{\frac{1}{2}} \) inside \( (P1, P2 - b^{\frac{1}{2}}) \) and if this interval has more voters than the interval of \( CL \)’s partisans then \( CL \) will ‘squeeze’ \( C \) but not tightly.

III) If \( P1 - P < P2 - P1 \) and \( P \in (P0, P0 + b^{\frac{1}{2}}) \) then \( CL \) has electoral incentives to choose a policy issue position that is found within the boundaries of his own partisans, rather than ‘squeezing tightly’ party \( C \).

(Chapter 4)
These propositions are explicated in Chapter 4.

3. **Assuming that there is no abstention, the percentage of the ‘challenger’s’ identifiers, voting actually for the ‘challenger’ will be those not defecting to the rivals.**

   (Chapter 5)

To reiterate this point, a party is a ‘challenger’ when he attempts to siphon-off rival party identifiers. A distinction is made among three forms of competitions:

a) All rival parties are found on the *left* of the ‘challenger’s’ position
b) All rival parties are found on the *right* of the ‘challenger’s’ position
c) Some rivals are found on the *left* and some on the *right* of the ‘challenger’s’ position

For either of these types of competition the logic is the same: For every position in the unidimensional space, the ‘challenger’ wins what he does not lose. The properties of this proposition were presented in Chapter 5.

**Empirical results**

1. **Finnish voters are likely to vote for the party of identification.**

   (Chapter 1 and Chapter 5)

This result stems mainly from two observations. First, as was shown in Chapter 1, the correlations between party identification and party of choice in 2003 are much stronger than any other correlation with a rival party (p<0.001). On average, the correlations were 0.8 indicating a strong relationship. The correlations also remained strong when controls were introduced. Second, the party identification coefficient from a maximum likelihood in a conditional logit model was so dominant in the voting model that supported a “party
ID dominant scenario […] in which every partisan is so strongly biased that she votes for her party regardless of its policy positions” (Adams et al. 2005: 68).

2. **Party identification affects Finnish parties’ ‘one-shot’ optima.**

(Chapter 5)

The Finnish National Election Study of 2003 revealed that in Finland most voters do not identify with parties and are self-described as independents. In this chapter it was asserted that partisan attachments affect Finnish parties’ ‘one-shot’ optima despite the large number of independents. To show this, the chapter was divided into two parts. In the first part, voters’ decisions were assumed to be deterministic. To show the effect of party identification under deterministic voting two different types of simulations were conducted; the partisan type, where the partisans’ voting behaviour depended on their distance from the party and on the degree of partisan attachment, and the apartisan type, where voting behaviour depended solely on policy issue distance. The results showed that partisan attachments drive parties generally to adopt different optimal positions than they would if party competition were solely based on policy issue distance. In the second part of this chapter, it was assumed that voters’ decisions are probabilistic in the sense that unmeasured components render their decisions uncertain from the party’s perspective. The binary logit was used to statistically model both the partisan and the apartisan equations. The results indicated that the probability that a voter will vote for a party is greater when the party is located at his optimal position according to the partisan than to the apartisan type of simulations.

3. **The inclusion of party identification in a voting model that considers only proximity improves the fit of the model.**

(Chapter 5)

To show this a likelihood ratio test was performed for the two nested models: the proximity model and the ‘biased voting’ model. According to the proximity model, party choice depends upon a prompt that measures the quadratic Euclidean distance between
the party and the voter. According to the ‘biased voting’ model, party choice depends not only upon proximity but also upon a ‘biased’ characteristic, such as party identification. The results of the likelihood ratio test showed that adding the variable of party identification in the proximity model, gave the latter model a statistically better fit (df=1, p<0.001).

4. **Party identification has a curvilinear effect on Finnish parties’ Nash equilibrium positions.**

   (Chapter 6)

Here the effect of party identification was assessed under the assumption that voting is solely probabilistic. Focusing on the Finnish party system, this chapter undertook equilibrium analysis of the 2007 elections by applying an algorithm developed by Merrill and Adams (2001). The algorithm was implemented under a conditional logit model where party choice depended on a quadratic loss function that measured the voter’s distance from the party and on a ‘bias’ element such as party identification. Upon finding the parameter estimates from maximum likelihood in a conditional logit model the impact of party identification on equilibrium configurations was assessed. The effect of party identification on equilibrium positions was evaluated by varying the party identification parameter while keeping the policy issue parameter unchanged at its empirical value. The results showed that party identification had a curvilinear effect on Nash equilibrium positions: Low levels of party identification led to strong centripetal competition; medium levels of party identification led to less strong centripetal competition; high levels of party identification brought the competition back to strong centripetal outcomes.

5. **Finnish party positions in 2007 are not close to a state of Nash equilibrium.**

   (Chapter 6)

The Finnish parties’ positions were almost identical in 2003 and 2007. This begs the logical question, whether the Finnish parties had reached a state of equilibrium whereby no party had an incentive to change its position unilaterally (Merrill and Adams 2001).
The results revealed that party positions in 2007 were different from the equilibrium configurations except in two cases. The exception involved the True Finns and the Christian Democrats. The equilibrium position of the True Finns at 5.61 was just 0.17 increments away from its actual position; while the equilibrium position of the Christian Democrats at 5.64 was just 0.34 increments away from the party’s actual positions in 2007. This result was in accordance with a study by Adams, Clark, Ezrow and Glasgow (2006), where it was shown that ‘niche’ parties have electoral incentives to keep their positions unchanged. In general, the Finnish parties’ equilibrium positions converged on the centre with a mean at 5.66 and a standard deviation at 0.34. On the other hand, the standard deviation of the Finnish parties in 2007 was 1.86, which indicated a wide diffusion of parties’ positions compared to the equilibrium positions.

6. **Parties with large partisan constituencies have electoral incentives to move centripetally.**

   (Chapter 6)

This result was surprising because it runs counter to Merrill and Adams’ (2001; 2002) finding when applying the algorithm to France. Merrill and Adams (2001; 2002) found that parties with large partisan constituencies are better off when they present positions further from the centre. In Finland it was found that the three parties with the biggest partisan constituency namely the Social Democratic Party, the National Coalition Party and the Centre Party have electoral incentives to present equilibrium positions that are agglomerated in the centre. The discrepancy between these results and those of Merrill and Adams’ (2001; 2002) was due to three reasons. First, the policy issue parameter as calculated in the Finnish case was weak compared to both the party identification parameter and the policy issue parameter as calculated by Merrill and Adams (2001; 2002). Second, in the Finnish case, party identification was more than in the French presidential elections. Third, as Merrill and Adams (2001; 2002) conceded there is no clear-cut relationship between the variable of party identification and the equilibrium positions.
7. Akin to the Finnish parties, also Swedish parties have incentives to adopt positions that revolve around the centre of the ideological dimension.

(Chapter 7)

Plethora of studies have approached the concept of polarization in different party systems. This chapter offered a different insight by linking the concept of polarization with the parties’ vote maximizing incentives. In the same fashion as in Chapter 6, the analysis considered a state of Nash equilibrium. A comparison was made with Sweden, an example of a bipolar party system. The results from the equilibrium analysis showed that there exist electoral incentives causing the Finnish and Swedish parties to converge on similar positions. Moreover, the effect of the policy issue and the party identification parameter was assessed in a series of simulations for both Finland and Sweden. The results showed that the Finnish and Swedish parties’ optimal positions always converge except in a single case. The exception involved the scenario in which the policy issue parameter was greater than its empirical value.

8. Finnish voters project their own positions onto the parties.

(Chapter 8)

Given that the computation of equilibrium positions was based on voters’ perceptions, the question arose as to whether voters’ perceptions of party positions in 2007 were affected by their own positions on the same scale. This phenomenon is known as projection and it yields two interrelated effects of observation: assimilation and contrast. According to assimilation, voters tend to “pull” parties towards their own positions while according to contrast voters “push” away from rival parties. To argue if assimilation and contrast affected Finnish voters’ opinions, the relationship between the voters’ and the parties’ perceived positions was scrutinized. For assimilation and contrast to exist, the function of the voters’ selfplacement and the average perceived distance among parties must be U shaped. The results confirmed the projection hypothesis. To enhance the credibility of the U shaped relationship two types of regression analyses were carried out. In the first, the average distance between parties was regressed with the variable selfplace and also with
the square of selfplace. The results indicated a good fit for the quadratic regression. In the second regression, the average perceived distance and selfplace were regressed, controlling at the same time for eleven variables. As in the first regression, the positive sign in front of the quadratic term of selfplace coupled with a high R-squared testified to a good fit for the concave up function.

9.

a) The effect of assimilation between the voter and the party of choice is stronger than with that for rival parties.
b) In general, the effect of assimilation between the voter and the party of identification is stronger than that for rival parties.

(Chapter 8)

The correlation results supported both hypotheses.

10. The relationship between the Finnish voters’ positions and the rival parties is not always negative.

(Chapter 8)

A negative relationship between the Finnish voters’ positions and the rival parties was only confirmed for 18 out of 56 pairs. A series of arguments was put forward to explain how voters’ positions are positively correlated with the positions of rival parties.

a) Voters usually acquire less information and hence perceive fewer differences for parties that are found on the opposite side of the policy issue dimension.
b) Although ideological differences are clear between peripheral parties, the same does not hold for rival parties that are not placed in the extreme left or right position.
c) A party may perceive an adjacent party as a greater threat that threatens to attract its followers, than a party found on an opposite ideological side of the policy issue dimension competing for a different pool of voters.
d) Although the left and right dimension gives a good image of a party’s ideology, it usually fails to capture the negative relationship between a voter and a rival party belonging to an opposite political side.
APPENDICES

Appendix 4.1

Notice that the inequality \( P_1 > \frac{P_2 + P}{2} \) has meaning only when \( P \in (P_0, P_1 - b_{cL}^{\frac{1}{2}}) \).

For \( P \in (P_1 - b_{cL}^{\frac{1}{2}}, P_1) \),

\[
P_1 > \frac{P_2 + P}{2} \Rightarrow (P_1 - P)P_2 - P_1 \text{ is obtained. It follows that if } P \in (P_1 - b_{cL}^{\frac{1}{2}}, P_1) \text{ then } P_2 \text{ should be placed in a distance smaller than } b_{cL}^{\frac{1}{2}} \text{ from } P_1. \text{ This is impossible by definition because } P_2 \in (P_1 + b_{cL}^{\frac{1}{2}}, P_3).
\]

Therefore, \( P_1 > \frac{P_2 + P}{2} \) cannot hold true for \( P \in (P_1 - b_{cL}^{\frac{1}{2}}, P_1) \).
Appendix 5.1

Why should a degree of party identification that equals one be considered a small degree of partisan attachment? When $b_o=1$, $U_i(\theta)=b_o-(x_i-x_\theta)^2$ can be written as $U_i(\theta)=1-(x_i-x_\theta)^2$. Since distance in the utility is given by a quadratic function any real difference in units between the voter’s position, $x_i$ and the party’s, $x_\theta$, is raised to the power of two. This means that for any other case than when $|x_i-x_\theta|=1$ or $|x_i-x_\theta|=0$, distance increases in a geometrical ratio. For a real difference of two units between the voter’s and the party’s position, distance in the utility equals four, for a real difference of three units, distance in the utility equals nine and so on.

Therefore, when we compare $b_o=1$ with all possible values that $(x_i-x_\theta)^2$ can give, we see that for all cases, except for two as explained above, the following is true: $(x_i-x_\theta)^2 > 1$. Since $(x_i-x_\theta)^2$ can take values up to one hundred, it is fair to argue that a degree of partisan attachment that equals one is a small degree of partisan attachment.
Appendix 5.2

This section presents as an example the gains of KESK over RKP. The same type of simulations were conducted for 56 pairs of contestant parties. Section b) presents KESK gains on independents and part c) the gains on his own partisans. The undelined points indicate the points where two parties take identical positions. For these points, the votes gained are equally divided between two parties. The positions superscripted with (*) indicate the positions at which a party is fixed at his optimal position.

a) KESK gains over RKP partisans

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c) KESK gains on own partisans

Numbers in bold face italic represent the point at which KESK loses the maximum over a rival. Depending on his position, KESK wins what he does not lose over rivals. Therefore, KESK wins the votes assigned left/right/in between the points in bold.

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Appendix 5.3

This matrix shows the distribution of the votes for each party. Each position from 0-10 represents 37 voters. For instance, position 1.0 represents all voters distributed in the interval [0.55, 1.45].

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Appendix 6.1

The directional theory of voting was first proposed in 1989 by George Rabinowitz and Stuart Elaine Macdonald and since then it has been applied in different party systems (e.g. see Listhaug et al. 1990; 1994b; Macdonald et al. 1991; 1997; 1998; 2001; 2007).

The directional theory of voting confronts the idea that what matters is the relative distance between the voter’s and party’s position and proclaim that what is important is the direction and the intensity. Direction is related to a cognitive process and shows the “side of the fence” on which a voter is leaning towards a dichotomous choice. Magnitude or intensity has to do with affections as it signifies how strong a person feels towards a policy issue.

*The distinction between the two types of responses is significant. In the classic spatial formulation, the response indicates preferred position along a continuum of policy alternative. There is no necessary implication with respect to intensity. Those [voters] at the centre may be just as intense as those at the extremes. In the directional formulation, the extent to which a respondent is on one side or the other of the centre conveys intensity rather than position on a scale* (Rabinowitz and Macdonald 1989: 95-96).

To calculate intensity in one policy issue dimension Rabinowitz and Macdonald (1989) proposed the following formula:

\[(\text{party location-neutral point}) \times (\text{voter location-neutral point})\]

or algebraically:

\[(X_{i\delta} - N) \times (X_{\theta\delta} - N)\] (1)

where \(X_{i\delta}\) is the position of voter \(i\) on an issue \(\delta\), \(X_{\theta\delta}\) is the position of party \(\theta\) on the same issue \(\delta\) and \(N\), the neutral point (or status quo).
For a single dimension that expands from $-a$ to $a$, a positive product score indicates that the voter and the party stand on the same size of the fence. A negative sign indicates that the voter and the party belong to different sides. In antithesis to the proximity theory where the middle position is usually the optimal one, in directional theory the middle position is merely a reference point that indicates neutrality. On a dimension that is defined at $[-a, a]$, the neutral point $N$ equals zero. (Listhaug et al. 1994b).

According to directional theory, the voter votes for the party that yields back the biggest product score (Rabinowitz and Macdonald 1989). Directional theory makes sense. Voters first choose a side and then they vote for a party relative to intensity. If the voters feel a lot of intensity then they will vote for the party that also places a lot of emphasis on the issue (Merrill and Grofman 1999).

To correct the deficiency, that the greatest product scores will always come from the party that occupies the most extreme positions, Macdonald and Rabinowitz (1989) introduced the concept of the ‘region of acceptability’. In their words:

*The driving force behind the directional model is the idea that people react to issues in a diffuse way rather than with a concern for the specifics of policy and the exact position the candidate advocates. A candidate, however, must convince voters of his or her reasonableness. Voters are wary of candidates who seem radical and project harshness or stridency. The label “extremist” can attach to such candidates and severely hamper the enthusiasm of potential supporters. The idea is incorporated in directional theory by introducing the concept of the region of acceptability (1989: 108).*

Thus, the ‘region of acceptability’ is defined as the area outside which the party suffers a penalty (Listhaug et al. 1994b). Voters usually penalise political parties that act unreasonably by taking extreme positions. If a party presents a position outside the range of the ‘region of acceptability’ then the actual votes that the party gets are reduced
relevant to a discounting factor. Taking into account the concept of the ‘region of acceptability’ the utility of the voter for a single policy $\delta$ can be expressed as follows:

$$U_{i\theta} = (X_{i\delta} - N) \times (X_{\theta\delta} - N) - P_{i\theta} \quad (2)$$

where $P_{i\theta}$ is the penalty that the voter $i$ imposes on party $\theta$ if the latter’s position falls outside the ‘region of acceptability’, $X_{i\delta}$ the position of voter $i$ on a single policy $\delta$, $X_{\theta\delta}$ the position of party $\theta$ on policy $\delta$, and $N$ the neutral point. If party $\theta$ is inside the ‘region of acceptability’, then $P_{i\theta} = 0$. In a dimensional metric of $-|\alpha| |\alpha|$ Equation (2) simplifies to $X_{i\delta} \cdot X_{\theta\delta} - P_{i\theta}$. All positions outside the ‘region of acceptability’ (grey area in Figure 1) are penalised by the voter.

![Neutral Point](image)

**Figure 1.** ‘Region of acceptability’ on a single dimension

The literature comparing the directional with proximity models is voluminous (see e.g. Warwick 2004; Westholm 1997; 2001; Merrill and Grofman 1997; Blais et al. 2001; Gilljam 1997a; b; Listhaug et al. 1990; 1994b; Macdonald et al. 1997; 1998; 2001; 2007 etc.) and it is beyond the purposes of this thesis to encapsulate it.

Authors such as Iversen (1994) counter that directional and proximity theory are not necessarily antithetical to one another but they can be combined in the same model of voting. Iversen’s (1994) model of ‘representational policy leadership’ is a mixture of both proximity and directional theory. Iversen’s (1994) model takes its name on the grounds of the belief that voters do not merely vote for parties that mirror their ideal policy positions.
but for parties that offer both policy issue *leadership* and *representation*. Iversen’s (1994) model retains the main argument of proximity theory, that voters vote for the party that is closest to their ideal position and enriches it with the idea of ‘symbolic politics’ that one meets in the directional theory of voting. In compliance with Iversen’s (1994) argument that the directional and proximity theory are not mutually exclusive, Merrill and Adams (2001) also developed, as seen in Chapter 6, a voting model that can potentially accommodate both components of the proximity and the directional theory of voting.
Appendix 6.2

The following presents a small part of the excel spreadsheet\textsuperscript{119} used in the case of Finland (The original excel can be found at Samuel Merrill’s homepage: \url{http://course.wilkes.edu/merrill/}). As seen in Figure 1 parties’ ‘starting locations’ have been replaced by the voters’ mean party placement. Note, however, that if someone assigns different values to parties’ starting locations, the parties’ equilibrium positions remain unchanged. To illustrate this point, observe the next figure (Figure 2) where party placement has been replaced by arbitrary assigned numbers (in yellow). In Figure 2 the starting position for KESK, SDP, KOK, VAS is at 5.0 and the starting position for VIHR, RKP, KD, PS, KOK, is at 2.0 (Actually any other number $\beta \in \mathbb{R} \cap [0,10]$ would do). The equilibrium positions do not change. This makes intuitive sense: Parties’ equilibrium positions remain the same regardless of the parties’ starting positions in the simulations.

\textsuperscript{119} Decimals are given with a comma (,) instead of a dot (.)
The original excel spreadsheet can be found at: http://course.wilkes.edu/merrill/. Here the excel has been modified for the case of Finland. Nash equilibria in a 1 dim. conditional logit spatial model.*

See "An Algorithm to Compute Nash Equilibria ..." for the model.

Set GO to 0 (in cell E27). If you get a warning about circular references, select CANCEL.

Go to the menu item: Tools ... OPTIONS ... CALCULATION and verify that the ITERATION box is checked. Hit OK.

You can replace the following values (in bold):
- Voters’ spatial locations (column A: one voter per line)
- Voters’ party IDs (column B: one voter per line)
- Parameters from MLE: A, B, and beta (cells are in column E; use beta = 1 for the proximity model)

If you add more voters, select M24 to AV24 and fill down (in Edit menu) to bottom voter.

If there are more than 1000 voters, adjust the range in the formulas in all cells from

W22 to AV22 so that they account for the full data set.

Enter starting locations (in row 29)
Set GO to 1 and wait for results.

To edit starting locations, set GO to 0, edit, reset GO to 1.

(The number of observations is limited only by the capacity of Excel.)

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<td>Neutral point - see note 17 in “Algorithm….”</td>
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</table>

**Figure 1.** Part of the excel spreadsheet (Merrill and Adams 2001: See Merrill’s homepage for the original spreadsheet) that was used in the case of Finland (data: FNES 2007)
The original excel spreadsheet can be found at: http://course.wilkes.edu/merrill/. Here the excel has been modified for the case of Finland.

Nash equilibria in a 1-dim. conditional logit spatial model.*

* See "An Algorithm to Compute Nash Equilibria..." for the model.

Set GO to 0 (in cell E27). If you get a warning about circular references, select CANCEL.

Go to the menu item: Tools → OPTIONS → CALCULATION and verify that the ITERATION box is checked. Hit OK.

You can replace the following values (in bold):

- Voters’ spatial locations (column A, one voter per line)
- Voters’ party IDs (column B, one voter per line)
- Parameters from MLE: A, B, and beta (cells are in column E, use beta = 1 for the proximity model)

If you add more voters, select M24 to AV24 and fill down (in Edit menu) to bottom voter.

If there are more than 1000 voters, adjust the range in the formulas in all cells from W22 to AV22 so that they account for the full data set.

Enter starting locations (in row 29)

Set GO to 1 and wait for results.

To edit starting locations, set GO to 0, edit, reset GO to 1.

(The number of observations is limited only by the capacity of Excel.)

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**Figure 2.** Part of the excel spreadsheet (Merrill and Adams 2001: See Merrill’s homepage for the original spreadsheet) used in the case of Finland for alternative starting positions (data: FNES 2007)
Appendix 7.1

A note regarding the number of cases in the conditional logit analysis of Sweden (Table 1 in Chapter 7)

The conditional logit (CL) analysis requires that the variables differ within the same case. To convert the variables from the case-specific format into the alternative-specific format required for a CL analysis, STATA 10 has written the case2alt command. This is not the only way to make such a conversion (e.g. the reshape long command can also be used but it requires slightly different data sorting); yet the case2alt command makes “the process easier and less prone to error” (Long and Freese 2006: 295). On converting the data to the alternative-specific format, the case2alt command generates $m \cdot n$ cases where $m$ is the number of choices and $n$ is the number of cases. In the case of Sweden there are 584 respondents (cases) multiplied by 7 which stands for the number of parties (choices). This gives the total number of cases $N=4,088$ shown in Table 1, (Chapter 7). By the same token in Finland we have $N=8,240$ $(1,030 \times 8)$ (see Table 1, Chapter 6). The almost double number of cases in the case of Finland compared to that for Sweden is due to the fact that many Swedish voters could not place themselves on the left-right scale or reported voting for a party other than the main seven or reported not voting at all (or refused to say/can’t say) or could not answer if they identified with a party. The large number of cases for both Finland and Sweden is beneficial mainly for two reasons:

a) It is likely to yield highly significant coefficients (as this is the case for both Finland and Sweden).

b) It permits a comparison of results between the two countries.
Appendix 8.1

An alternative U shaped function can be sketched by restricting the analysis to the average distance between the ‘left’ and ‘right’ wing parties (Papageorgiou 2010b). Since there are three left-wing and five right-wing parties\(^{120}\), the distance is calculated for 15 pairs instead of 28. The results obtained also verify the U shaped hypothesis (Figure 1).

![Graph showing an alternative U shaped function](image-url)

**Figure 1.** An alternative U shaped function between voters’ selfplacement and average perceived distance (data: FNES 2007)

On testing for convexity, the two regressions are performed as in Chapter 8. The regression of selfplace with distance yields an R-square as high as 0.84 (Table 1). The results obtained from the second quadratic regression analysis indicate that out of the

\(^{120}\) The left-wing parties are VAS, SDP, and VHIR; while the right-wing parties are PS, KD, KESK, RKP, and KOK.
eleven variables, two have a significant effect at \( p < .05 \) level (sex, party identification) and one at \( p < .001 \) level (parties should be banned). Also, the positive sign in front of the quadratic term of selfplace coupled with an R-square as high as 0.86 testifies to a good fit for the concave up function (Table 1)

**Table 1. Testing the convexity of the quadratic variable (data: FNES 2007)**

<table>
<thead>
<tr>
<th>Average perceived distance</th>
<th>Equation 1</th>
<th>Equation 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(-5.271^{***})</td>
<td>(-5.148^{***})</td>
</tr>
<tr>
<td></td>
<td>(.069)</td>
<td>(0.086)</td>
</tr>
<tr>
<td>Selfplace</td>
<td>0.498^{***}</td>
<td>0.488^{***}</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>0.248^{**}</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.120)</td>
<td></td>
</tr>
<tr>
<td>Vote</td>
<td>0.076</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.182)</td>
<td></td>
</tr>
<tr>
<td>Party member</td>
<td>-0.129</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.156)</td>
<td></td>
</tr>
<tr>
<td>Interest in politics</td>
<td>0.075</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.084)</td>
<td></td>
</tr>
<tr>
<td>Follow campaigns</td>
<td>-0.024</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.081)</td>
<td></td>
</tr>
<tr>
<td>Participate in public debates</td>
<td>0.046</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.053)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Party identification</td>
<td>0.304**</td>
<td>(0.118)</td>
</tr>
<tr>
<td>Differences among parties</td>
<td>0.069</td>
<td>(0.104)</td>
</tr>
<tr>
<td>Coalitions should involve left and right parties</td>
<td>-0.084</td>
<td>(0.063)</td>
</tr>
<tr>
<td>Parties should be banned</td>
<td>-0.225***</td>
<td>(0.061)</td>
</tr>
<tr>
<td>Constant</td>
<td>29.209</td>
<td>28.935</td>
</tr>
<tr>
<td></td>
<td>(0.18)</td>
<td>(0.611)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.8446</td>
<td>0.8553</td>
</tr>
<tr>
<td>Adj R-squared</td>
<td>0.8443</td>
<td>0.8527</td>
</tr>
<tr>
<td>N</td>
<td>1154</td>
<td>736</td>
</tr>
</tbody>
</table>

Notes: Significant at ** $p < .05$, *** $p < .001$, $\alpha = .05$, standard errors inside the parentheses.

Thus, the analysis of this alternative sorting between the voter and the party position yields results similar to those presented in Chapter 8 and confirms the U shaped assumption.
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