A Discussion of the Merits of Evaluative Voting

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Introduction

This paper argues that there is not only theoretical support that evaluative voting (EV) is superior to other voting methods but also that there is empirical evidence on certain aspects of EV that, while not conclusive, offer valid support for its implementation. First, the theoretical advantages of EV when compared to the alternatives of plurality voting (PV) and instant runoff voting (IRV) are presented. Next, four setbacks to EV are raised that must be overcome in order to argue that EV is superior to both PV and IRV. Two papers are then examined which provide varying degrees of support for overcoming three of these aforementioned setbacks. An empirical investigation demonstrates how EV, if implemented, would have changed the outcome of the 2011 Canadian Federal Election. Finally, the paper argues that the election results under EV would have been more favourable in terms of accurately reflecting voters' preferences.

What is Evaluative Voting?

Evaluative voting is a voting system under which voters assign values to candidates based on the utility that would be provided by those candidates if they were elected. EV uses a uniform, standardized scale to allow voters to express their cardinal utility: voters rate each candidate according to their preferences. Claude Hillinger proposes an EV-3 scale for general elections. EV-3 means that voters can rate candidates on a three-point scale: -1 for disapproval, 0 for indifference, and 1 for approval. In an election, the points from each voter are aggregated, and the candidate with the largest sum is elected. Hillinger restricts the scale to three values for the reason that there is a limit on human capabilities to preferentially differentiate among many alternatives (2004, 7). For the purposes of this paper, EV-3 will be referred to simply as EV.

This paper assumes that there are at least three candidates in any election. Since the scope of this paper is the Canadian federal government, two-party elections are not discussed.

Evaluative and Plurality Voting

Under plurality voting (PV), a voter is given a ballot with two or more candidates, and he must choose a single candidate whom he would like to elect into the government. A defect of PV is that the presence of a third party candidate can influence the election in such a way that the winning candidate is strongly disliked by the majority. Consider the following table.

Table 1: Plurality Voting Defect

Number of Voters	Preferences
3	A>B>C
2	C>B>A
2	B>C>A

In Table 1, Candidate A wins the election under PV with three votes, and yet the other four voters prefer both B and C over A. Therefore, the candidate that makes the majority worst off is elected. Arguably, this flaw occurred in the 2011 Canadian federal election, but that is discussed later in this paper. Suppose EV was used in the above election. Assuming that a voter with preferences A>B>C would rate A with a value of 1 (approval), B with 0 (indifference), and C with -1 (disapproval), B wins the election receiving a net value of 2. Candidates A and C each receive a net value of -1. B is not strongly disliked by the majority; in fact, B is the second choice of two preference sets and the top choice of one. Therefore, the election of B appears to be a more widely preferred and representative outcome.

Hillinger claims that voter turnout would likely increase if EV was implemented (2004, 16-17). Since the probability of a single voter affecting the outcome of an election is extremely small, and yet people still vote, there must be, at least in part, an element of expressive voting. If people do vote expressively, then a voting system that allows individuals to express both their negative and positive feelings is desirable. Many voters have more negative feelings towards politicians, so under PV, these voters may choose to abstain from voting altogether (Hillinger 2004, 16). Since EV gives voters a chance to express both negative and positive feelings, such a system would likely increase voter turnout.

Hillinger also argues that EV reduces the incentive for strategic voting. A voter votes strategically if, under PV, he "choose[s] the candidate he prefers among the two that are leading in the polls" (Hillinger 2004, 15). Under EV, "a voter has no strategic incentive to withdraw his vote from the candidate he likes best" (Hillinger 2004, 15). A voter with preferences A>B>C has no strategic incentive to vote insincerely in regard to A or C. He awards the maximum number of points to A and the minimum to C. Only the B rating may be strategically motivated. If he feels as though A has no chance of winning, he may award B the maximum points as well. The point is that even if the voter feels as though A has no chance of winning, he has no incentive to take points away from A. Under PV, the voter may choose to give up his first preference and vote for B to minimize the chances of C winning. In other words, PV provides incentives to vote insincerely. Even though EV allows for strategic behaviour, it does not encourage insincere voting with regard to first and last preferences. Therefore, strategic behaviour is less obtrusive under EV.

Evaluative And Instant Runoff Voting

Hillinger also compares EV to instant runoff voting (IRV). Under IRV, each voter submits a preferential ranking of candidates where a voter's most preferred candidate is

given one point. All the points are added up, and if no candidate wins a majority, then the candidate with the lowest sum of votes is eliminated and its votes are transferred to voters' second preferences. The process is repeated until a majority is obtained. However, Hillinger claims that IRV fails to eliminate numerous paradoxes such as the No-Show Paradox. Consider the following table.

Table 2: No-Show Paradox I

Number of Voters	**Preferences**
3 (*unsure whether to vote or abstain*)	*A>B>C*
3	A>B>C
5	B>C>A
7	C>A>B

The three voters with preferences A>B>C are unsure whether to vote or abstain. Table 3 represents the case in which they abstain and Table 4 in which they vote.

Table 3: No-Show Paradox II

Three Voters Abstain		
Number of Voters	**Preferences**	
3	A>B>C	
5	B>C>A	
7	C>A>B	
Votes	**Round 1**	**Round 2**
A	3 (eliminated)	N/A
B	5	**8**
C	7	7

Table 4: No-Show Paradox III

Three Voters Vote		
Number of Voters	**Preferences**	
6	A>B>C	
5	B>C>A	
7	C>A>B	
Votes	**Round 1**	**Round 2**
A	6	6
B	5 (eliminated)	N/A
C	7	**12**

B and C are the winners respectively. The paradox occurs because voters preferring A to both B and C influence whether B or C wins simply by voting or abstaining. This should not occur as it provides incentives for voters to make calculations on whether to vote or not, when ideally, everyone should vote.

Voters choose to vote or abstain under EV as well, but EV does not provide incentives to abstain. The paradox does not occur under EV. Suppose X wins but a voter, who prefers Z to both X and Y, did not vote. Had he voted, the outcome under EV could change from X to Z but not from X to Y. That is, the voter does not influence the outcome relative to his less-preferred candidates, regardless of whether he votes or not. Under PV, this is not the case. Therefore, Hillinger concludes that EV is superior to IRV.

Setbacks Of Hillinger's Argument

In his paper, Hillinger assumes that people behave evaluatively without offering evidence. Hillinger's claim that some preferences are stronger than others makes intuitive sense, but empirical evidence demonstrating that this is true would offer Hillinger and his

arguments support. Bart R. Salisbury conducted an experiment on evaluative behaviour, which provides strong support to Hillinger's paper and is discussed in the next section.

Hillinger also fails to provide evidence that the No-Show Paradox occurs frequently under IRV. If the probability of the paradox occurring is small, then this issue becomes insignificant. However, IRV also fails the More-Is-Less Paradox (monotonicity criterion), which is examined in the section following Salisbury's experiment. In fact, Joseph Ornstein and Robert Norman find that "three-way competitive races will exhibit unacceptably frequent monotonicity failures under IRV" (2014, 10). Therefore, there is good reason to reject IRV in favour of EV.

A third setback of Hillinger's paper is that it fails to provide evidence that EV actually increases turnout. Unfortunately, such data is not readily available because EV has not been implemented yet in researched general elections.

A final setback addressed in this paper is that Hillinger does not offer empirical research and evidence on whether strategic voting is in fact less severe under EV than under PV. The discussion provided in this paper on the 2011 Canadian federal election addresses this problem, and offers some empirical support to Hillinger's claim.

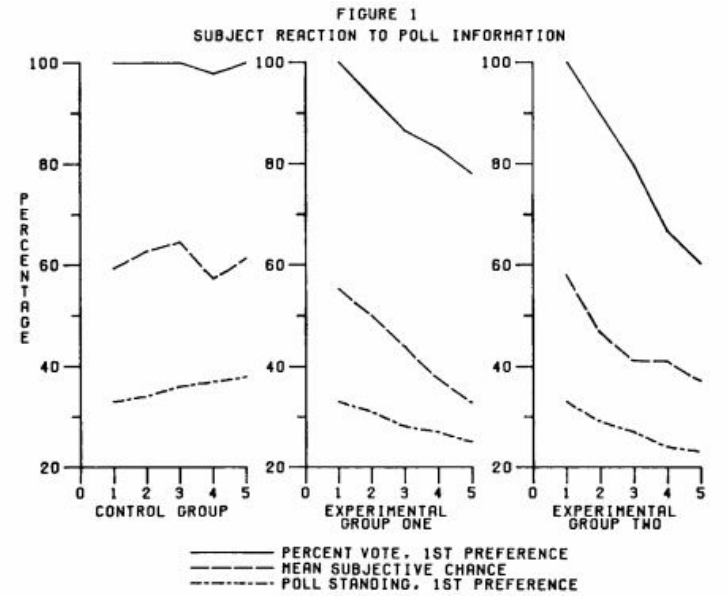
Salisbury On Evaluative Behaviour

The purpose of Bart R. Salisbury's paper is to examine how voters behave when faced with three candidates in an election. He uses a computer assisted election simulation to generate five separate polls during a hypothetical campaign leading up to election time. A sample of 183 students is selected for the experiment, and each student is given a handout describing three candidates' positions on five issues.

The students are then divided into a control group (CG) and into two experimental groups (EG-1 & EG-2), and each group is given different polling data. CG's polls indicate that the voters' first preference is in a close race with their second preference while the third is far behind. EG-1's polls indicate that their second preference is well ahead of the other two. EG-2's polls indicate that the second and third preferences are in a close race with each other while their first is far behind. Salisbury claims that if a voter "exercises evaluative behaviour, each context will result in a predictable outcome" (1983, 89). In CG, voters will choose their first preference. In EG-1, voters may abstain, vote for their first preference, or vote for their second preference. In EG-2, voters will choose their second preference.

After each poll, the students are asked which candidate they would vote for if the election were held at that moment. Given a scale of 0 to 100, students indicate the chances they feel their most preferred candidate has of winning as well as who they would vote for. The former is the mean subjective chance (MSC). The effect on voters' first preferences, as the five poll results become known, is presented in Salisbury's Figure 1, as shown below.

Figure 1: Subject Reaction to Poll Information



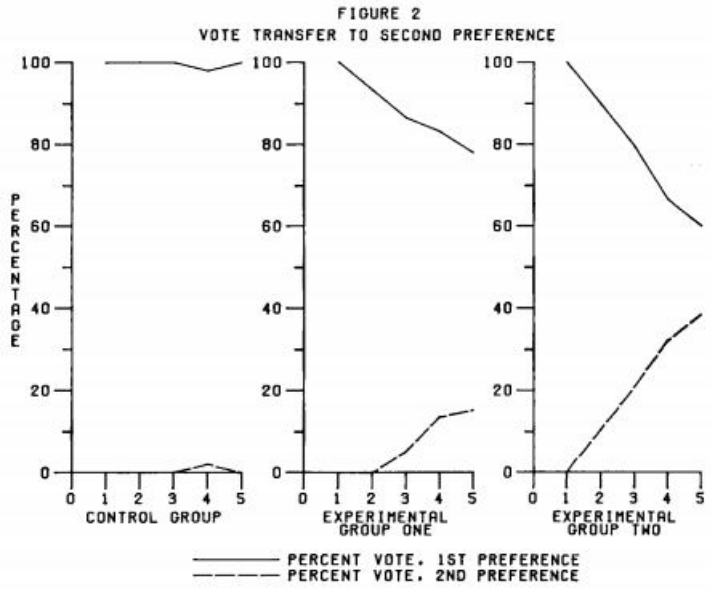
Source: (Salisbury 1983, 91)

In CG, nearly all the students selected their first preference. In poll 4, some students did not select their most preferred candidate, but this makes sense because there was a drop in MSC as well. In other words, voters thought the chances of their candidate winning had decreased. Also, the drop is minimal, so it does not reflect major changes in voters' behaviour. In EG-1, where voters' second preferences are well ahead of the other two, the number of students voting for their first preference decreases as the polls approach election time. Similar results are observed in EG-2, where the chances of voters' first preferences being elected are slim. But the effect on first preferences is not sufficient to show that evaluative behaviour exists. A decrease in voting for their first preference must coincide with an increase in their second preference. As shown in Figure 2 below, Salisbury finds that this is true.

In both EG-1 and EG-2, it is clear that as voting for first preferences decreases over time, voting for second preferences increases. From this figure, it is evident that vote transferring occurs.

Salisbury makes two observations from his experiment. The first is that the voters in EG-1 and EG-2 recognize time constraints (Salisbury 1983, 93). At first, voters are more sincere, as indicated by their intention to vote for their most preferred candidate. However, as the polls progress and approach election time, voters become strategic and transfer votes to their second preference as it becomes clearer that their first preference will lose. The second observation is that even if there is clear evidence that the preferred candidate will lose, some still continue supporting their preferred candidate. Salisbury has three explanations for this. First, if a voter's second and third preferences are very close

Figure 2: Vote Transfer to Second Preference



Source: (Salisbury 1983, 92)

to one another, then they will likely continue to support their most preferred candidate (Salisbury 1983, 94). Second, people process information differently; it is unlikely that a consensus will be reached on the time when the first preference becomes an obvious loser (Salisbury 1983, 94). Third, voting for an obvious loser can be interpreted as expressive voting (Salisbury 1983, 94), meaning that voters receive a consumption benefit from voting for their most preferred candidate.

Salisbury's experiment shows that individuals make strategic decisions when voting: voters often give up their most preferred choice in order to make a stronger impact on the election. Under EV, there is no need to take away from their most preferred candidate. An individual can approve or disapprove of each candidate independently from others. If people do in fact engage in evaluative behaviour as Salisbury claims, then a voting system that allows voters to accurately convert their preferences into their vote, such as EV, is desirable.

Ornstein And Norman On Monotonicity

In addition to IRV suffering from the No-Show Paradox (as shown before), IRV also has the defect of nonmonotonicity. The authors define monotonicity failure as a "situation in which the IRV winner would lose if ranked higher by some subset of voters" (Ornstein and Norman 2104, 2). In their paper, Ornstein and Norman calculate the frequency of the occurrence of this paradox, and conclude that instances of nonmonotonicity are more frequent in 3-candidate elections than widely presumed.

As a case study, the authors present the 2009 Burlington, Vermont mayoral election. The actual results of the election are presented in the table below where Republican,

Democrat, and Progressive are represented as R, D, and P, respectively:

Table 5: 2009 Burlington, Vermont Election I

	Number of Voters								
Ranking	1513	495	1289	1332	767	455	2043	371	568
1st	R	R	R	D	D	D	P	P	P
2nd	D	P		P	R		D	R	
3rd	P	D		R	P		R	D	

Source: (Ornstein and Norman 2014, 2)

Under IRV, a voter submits a preference ranking, but only their first preference is awarded a point. Therefore, in the first three columns in Table 5, in which the Republican candidate is ranked first, voters award a point to the Republican candidate in the first round of elections. Similarly, the next three columns represent the preference rankings in which the Democratic candidate is ranked first. In those columns, the Democratic candidate receives points. In the final three columns, the Progressive candidate receives points. The candidate with the least votes is eliminated, and the eliminated votes are transferred to voters' second preferences. If the votes in Table 5 are added up, the Democratic candidate receives the least number of votes, as shown in Table 6.

Table 6: 2009 Burlington, Vermont Election II

	Republican Votes	**Democrat Votes**	**Progressive Votes**
Round 1	3297	2554 (eliminated)	2982
Round 2	3297 + 767 = 4064	N/A	2982 + 1332 = 4314

The Progressive candidate wins with 4314 votes because even though the Republican candidate received more votes in the first round, more Democrat supporters prefer the Progressive over the Republican candidate than vice versa. Therefore, the Progressive candidate receives more votes in the second round and wins the election.

Monotonicity tells us that if a candidate receives more votes, he cannot be any worse off. Accordingly, if the Progressive candidate had received even more votes, he would still win. However, under IRV, this is not necessarily the case. Consider a hypothetical situation where 750 Republican supporters had actually voted for the Progressive candidate. Table 7 shows the results of the hypothetical election.

Adding up the results in Table 7, we find that the Republican candidate is eliminated as shown in Table 8.

Table 7: More-Is-Less Paradox I

	Number of Voters								
Ranking	1513	**195**	**839**	1332	767	455	2043	**1121**	568
1st	R	R	R	D	D	D	P	P	P
2nd	D	P		P	R		D	R	
3rd	P	D		R	P		R	D	

Source: (Ornstein and Norman 2014, 3)

Table 8: More-Is-Less Paradox II

	Republican Votes	**Democrat Votes**	**Progressive Votes**
Round 1	2547 (eliminated)	2554	3732
Round 2	N/A	2554 + 1513 = 4067	3732 + 195 = 3927

In this modified situation, the Democratic candidate wins the election. In other words, increasing the Progressive candidate's vote share makes him lose the election. Furthermore, as the authors claim, "it is telling that out of the only two IRV elections in Burlington, Vermont, there has already been one recorded instance of nonmonotonicity" (Ornstein and Norman 2014, 9).

The authors then develop a spatial model of voter behaviour in which they calculate the frequency of the occurrence of the paradox, and they conclude that they are more frequent in 3-candidate elections than widely presumed. In fact, in each of the 5000 simulated elections, the frequency of this phenomenon ranged from between 0.7 percent to 51 percent (Ornstein and Norman 2014, 6). However, in closely contested elections, the frequency ranged from 15 percent to 51 percent (Ornstein and Norman 2014, 6). In other words, as the election gets closer, the likelihood of a monotonicity failure occurring increases. Based on these results, the authors caution against the use of IRV in elections.

EV cannot fail the monotonicity criterion because this voting method is not based on ranking. Rather, candidates are considered independently from each other, and thus the value assigned to a candidate does not affect the value a voter can assign another candidate. Therefore, in the context of paradox failure, EV is superior to IRV.

Evaluative Voting In The 2011 Canadian Federal Election

Currently, the Conservative Party holds a majority government in Canada, as determined by the federal election in 2011. However, there are at least two theoretical flaws associated with this election outcome. First, only a minority of voters supports the Conservative party, with a popular vote of 39.62 percent. Second, there are massive gaps between the seat and popular vote percentages. Consider the results in Table 9 from Elections Canada.

Table 9: 2011 Canadian Federal Election Results

Party	Seat Vote Percentage	Popular Vote Percentage	Absolute Difference
Conservative	53.90	39.62	14.28
Liberal	11.04	18.91	7.87
NDP	33.44	30.63	2.81

The problem with such large differences between the two percentages is that the seat vote fails to accurately reflect citizens' preferences. Accordingly, a voting system that bridges the gap between the seat vote and the popular vote is desirable because it results in a more accurate aggregation of individuals' preferences.

A proportional representation system (PR) solves this problem, as parties acquire a proportion of seats in Parliament equivalent to their popular vote. However, PR has accountability issues: since citizens vote for a party rather than for a candidate, candidates are less loyal to the population than to their party (which places their name on the ballot). If a candidate wishes to be on the ballot, he must gain the favour of the party. In essence, PR trivializes the purpose of having ridings that represent a certain district's view. EV promotes the use of ridings and yet has similar outcomes to what PR would achieve.

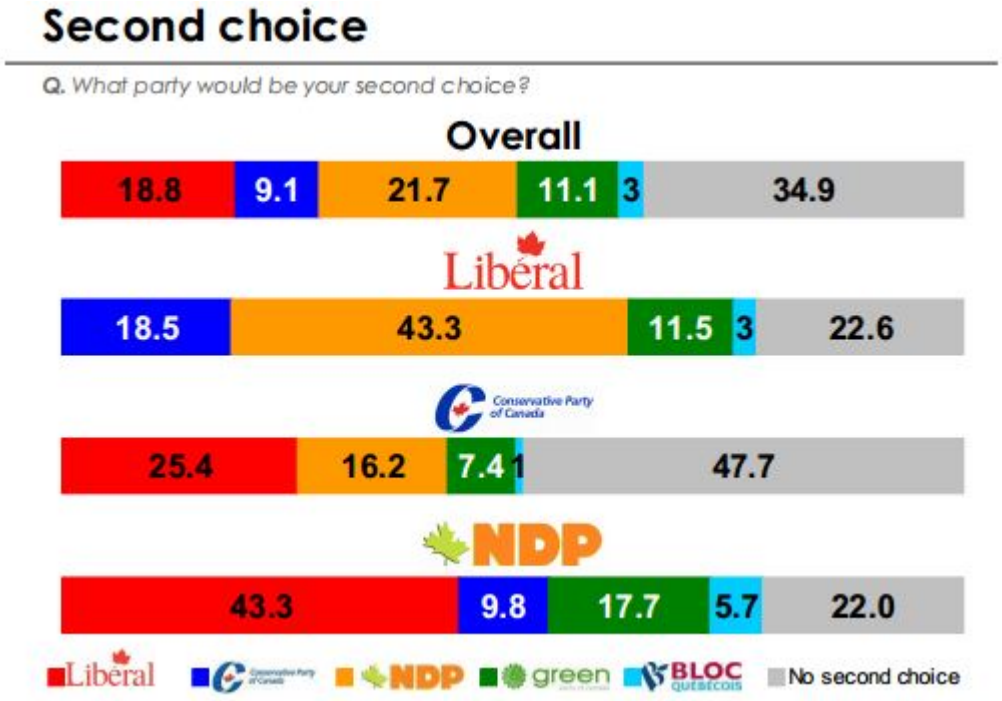
This paper examines the closely contested ridings in the 2011 Canadian Federal Election and models the elections of the MPs in those ridings under EV. The model is simplified to include only the three dominant parties, the Conservatives (C), the Liberals (L), and the NDP (N). Since the Bloc Québécois and the Green Party won 5 seats combined, the total seats of 308 were reduced to 303. The voting population was also reduced to 13 124 050, those who voted for the three dominant parties which accounts for 89.16 percent of the total voting population. Using the adjusted population, new popular vote percentages were calculated. The adjustments are summarized in Table 10.

Table 10: Adjusted Results

Party	Number of Seats	Seat Vote Percentage	Popular Vote Percentage	Absolute Difference
Conservative	166	54.79	44.44	10.35
Liberal	34	11.22	21.21	9.99
NDP	103	33.99	34.35	0.36
Total	303	100.00	100.00	20.70

Ekos Politics conducted a survey that posed several questions including the following: "what party would be your second choice" (2013)? The results of this survey were compiled and yielded the data shown in Figure 3 below.

Figure 3: Second Choice



Source: (Ekos Politics 2013)

The model for the 2011 Canadian Election under EV uses Ekos Politics' data on the Conservatives, the Liberals, the NDP, and the 'no second choice.' The percentages of the dominant parties are added up in each row (except in the row labelled 'overall'), and the sum is taken to equal 100 percent. Using this adjusted 100 percent, new percentages are computed to determine the proportions of the population corresponding to each particular preference relation. For example, to determine the proportion that have a preference relation C>L>N, the following steps are taken. First, we add up 25.4 percent, 16.2 percent, and 47.7 percent, which equals 89.3 percent. Then we set 89.3 percent to 100 percent and calculate the new percentages for the second choices: 25.4 percent becomes 28.44 percent, 16.2 percent becomes 18.14 percent, and 47.7 percent becomes 53.42 percent. The 28.44 percent represents voters with a preference relation C>L>N, the 18.14 percent represents C>N>L, and the 53.42 percent represents C with no second choices. Similar calculations are made for the other columns. The results are summarized in Table 11.

Table 11: Preference Relations

	Percentage of Voters								
Ranking	28.44	18.14	53.42	21.92	51.30	26.78	13.05	57.66	29.29
1st (+1)	C	C	C	L	L	L	N	N	N
2nd (0)	L	N		C	N		C	L	
3rd (-1)	N	L	L,N	N	C	C,N	L	C	C,L

Out of those individuals who selected C as their first choice in a particular riding, under EV, the model assumes that 28.44 percent would rate L as indifferent and disapprove of N, 18.14 percent would rate N as indifferent and disapprove of L, and 53.42 percent would disapprove of both L and N. A candidate ranked first receives 1 point, one who is ranked second receives none, and one who is ranked third receives -1 point.

To calculate the total points for each candidate, these percentages were then applied to specific ridings. Consider the riding Fleetwood Port Kells where the Conservatives won. 23 950 people voted Conservative, so 6811 people, 28.44 percent of 23 950, represent those with the preference relation C>L>N. Tables 12 and 13 show the results of the riding under EV.

Table 12: Fleetwood Port Kells I

Number of Voters								
23950			8041			16533		
6811	4345	12794	1763	4125	2153	2158	9533	4843
C>L>N	C>N>L	C>L,N	L>C>N	L>N>C	L>C,N	N>C>L	N>L>C	N>C,L
Approval, Indifference, and Disapproval Points								
6811	4345	12794	0	-4125	-2153	0	-9533	-4843
0	-4345	-12794	1763	4125	2153	-2158	0	-4843
-6811	0	-12794	-1763	0	-2153	2158	9533	4843

The bottom three rows of Table 12 represent the number of points each party receives, the first row being Conservative, the second Liberal, and the third NDP. For instance, 1763 people have the preference relation L>C>N, so they each award the Liberals +1 point, the Conservations 0, and the NDP -1. Therefore, the Liberals receive 1763 points, the Conservatives 0, and the NDP -1763. If the preference relation does not include a second choice, the model assumes that the voter disapproves of all other candidates. Consider the 4843 voters with the preference relation N>C,L. Each of these voters would award +1 point to the NDP, and -1 point to both the Conservative and the Liberal. Therefore, the NDP would receive 4843 points, while both the Conservatives and Liberals would receive -4843 points. Adding up the horizontal sums of the bottom three rows, the Conservatives win the riding with 3296 points, as shown in Table 13.

Table 13: Fleetwood Port Kells II

Party	**Total**
C	**3296**
L	-16099
N	-6987

However, in more closely contested ridings, this was not always the case. For example, the riding “Etobicoke Centre” was also won by the Conservatives, but under EV, the Liberals would have won as shown in Tables 14 and 15.

Table 14: Etobicoke Centre I

Number of Voters								
21644			21618			7735		
6156	3926	11562	4739	11090	5789	1009	4460	2266
C>L>N	C>N>L	C>L,N	L>C>N	L>N>C	L>C,N	N>C>L	N>L>C	N>C,L
Approval, Indifference, and Disapproval Points								
6156	3926	11562	0	-11090	-5789	0	-4460	-2266
0	-3926	-11562	4739	11090	5789	-1009	0	-2266
-6156	0	-11562	-4739	0	-5789	1009	4460	2266

Table 15: Etobicoke Centre II

Party	**Total**
C	-1961
L	**2855**
N	-20511

In the riding "Etobicoke Centre", the Liberals win with 2855 points under EV. Using a Microsoft Excel spreadsheet, the results were computed in 38 closely contested ridings. Out of the 38 ridings that were modeled under EV, the Conservatives retained 19 of the ridings, the Liberal gained 15 of the ridings and the NDP gained 4 of the ridings. The results are summarized in Table 16.

Table 16: Model Results

Party	**Number of Seats**	**Seat Vote Percentage**	**Popular Vote Percentage**	**Absolute Difference**
Conservative	147	48.51	44.44	4.07
Liberal	49	16.17	21.21	5.04
NDP	107	35.31	34.35	0.96
Total	303	100.00	100.00	10.07

There are two main observations derived from the results. First, the Conservatives will only be able to win a minority as they obtained 48.51 percent of the total seat share. Second, the total difference between the seat and the popular vote percentages decreased from 20.70 to 10.07. Therefore, in the 2011 Canadian Federal Election, the gap would have been reduced by about half had EV been used.

The model has at least three setbacks. First, the survey by Ekos Politics was performed in 2013, but the election took place in 2011. If voters' preferences changed significantly over those two years, then there could be distortions in the model and consequently the survey and thus the experiment may not accurately reflect actual preferences in 2011. Regardless, Ekos Politics' second choice graph makes intuitive sense because in 2011, the Liberal and NDP platforms were more similar than in other years.

Second, Ekos Politics' second choice results are averages across ridings, so they are not specific to each. For example, 25.4 percent of Conservative supporters consider the Liberal Party as their second choice. However, whether or not these results are uniformly distributed across ridings remains unknown. In some ridings, this percentage may be much higher but much lower in others. Since the model inherently assumes that these second choice results are uniformly distributed across ridings, the outcome of certain ridings may be distorted. In the future, second choice surveys should be conducted in each specific riding to account for the differences in preferences across Canada.

Third, the exclusion of the Bloc Québécois (BQ), the Green Party (GP), and other smaller parties leads to some discrepancies in the results. However, the BQ and the GP had more similar platforms to the NDP and the Liberals than to the Conservatives. In Quebec, there was a massive rise in NDP votes from places where BQ is usually supported. Furthermore, since the GP supports environmental causes, they were likely opposed to the oil sands in Alberta, which the Conservatives, in general, endorse. Therefore, had the BQ and the GP been included in the model, they may have actually decreased the Conservative vote share, further minimizing the gap between their seat and popular vote percentages.

It is important to note that the Conservatives still won the election as a whole. The reason why the outcome under EV is more desirable than the outcome under PV is that the gap between the seat and the popular vote percentages are reduced, reflecting individuals' preferences more accurately. It is also interesting that under EV, the Liberals gained more seats than the NDP. This makes sense because, ideologically, the Liberals are the second choice of both the Conservatives and the NDP.

The results from the model are not conclusive, but they are telling. If similar second choice polls are conducted before the 2015 Canadian Federal Elections, then EV should be tested again because further research is needed before it can be concluded that EV is in fact superior to other voting methods. Future models should also include the BQ, the GP, and other parties to obtain more accurate results.

Conclusion

This paper first presents Claude Hillinger's theoretical support for EV, particularly EV's superiority relative to PV and IRV. Next, Bart Salisbury's experiment is presented showing that people do in fact engage in evaluative behaviour and often vote strategically. Since EV allows for a more accurate reflection of individuals' preferences, it reduces the incentive to vote strategically in regard to their most and least preferred candidates. Joseph Ornstein's and Robert Norman's paper is then discussed which shows that the frequency of IRV's paradox failures is significant and that such a failure already occurred in Burlington, Vermont. Such failures cannot occur under EV due to its nature of rating candidates. Finally, the paper examines an EV model of the 2011 Canadian Federal Election. The results are significantly different than in the actual election, though they are more desirable because they reflect individuals' preferences more accurately. The evidence presented in this paper is clearly not conclusive in showing that EV is

superior to other voting methods. Further research is needed, but nevertheless, this paper has succeeded in providing at least some support for EV's implementation over the presented voting alternatives.

References

Ekos Politics. 2013. *Political Landscape Freezes with Winter Cold*. December 19. Accessed November 25, 2014. http://www.ekospolitics.com/index.php/2013/12/political-landscape-freezes-with-winter-cold-december-19-2013/

Elections Canada. 2011. *General Election – May 2, 2011*. Gatineau: Elections Canada. Accessed November 25, 2014. http://www.elections.ca/content.aspx?section=ele&document=index&dir=pas/41ge&lang=e

Hillinger, Claude. 2004. "Voting and the Cardinal Aggregation of Judgements." University of Munich: Department of Economics 9: 1-25. http://epub.ub.uni-muenchen.de/353/1/hillinger_voting.pdf

Ornstein, Joseph and Robert Norman. 2014. "Frequency of Monotonicity Failure Under Instant Runoff Voting: Estimates Based on a Spatial Model of Elections." *Public Choice* 161 (1): 1-9.

Parliament of Canada. 2011. *History of Federal Ridings Since 1867: General Elections: 41st Parliament*. Ottawa: Parliament of Canada. Accessed November 25, 2014. http://www.parl.gc.ca/About/Parliament/FederalRidingsHistory/hfer.asp?Language=E&Search=Gres&genElection=41&ridProvince=0&submit1=Search

Salisbury, Bart R. 1983. "Evaluative Voting Behaviour: An Experimental Examination." *Political Research Quarterly* 36 (1): 88-97.