Alternate Voting Processes Study
Background Information

PREPARED FOR LEAGUE OF WOMEN VOTERS OF FLORIDA BY THE
LEAGUE OF WOMEN VOTERS OF THE ST. PETERSBURG AREA
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Alternative Voting Systems:

Facts and Issues: Part II

Here continues information about various voting systems for the LWVF study adopted in May 2005. Parts 1 through 6 are from the LWV of Minnesota study of 2004 when they adopted a position on the subject. Subsequent parts will deal with Florida's voting systems. We thank LWVMN Education Fund for permission to reprint this report.

Voting Systems

Plurality Ballot	
Vote for one candidate:	
Candidate A	❑
Candidate B	❑
Candidate C	❑

Plurality: An Unranked Voting System

Minnesota uses the Plurality system, also called First Past the Post, in which each voter chooses a single candidate, and the candidate with the most votes wins. In races with three or more candidates, it is possible for a candidate to win with fewer than 50 percent of the votes: in other words, the winner can be elected by a minority of the voters.[6] Recent examples include Minnesota's 1998 and 2002 gubernatorial elections and, at the national level, the presidential elections of 1992 and 2000.

The Plurality system originated in ancient Greece and Rome and evolved in England before the American Revolution. Outside the United States. the Plurality system is used in the United Kingdom and other former British colonies, such as Canada and India.[7]

Although the U.S. Constitution sets out a complicated process for electing the president via the Electoral College that requires a majority vote of electors, it permits the states to determine their own election procedures.[8] Minnesota state statutes. therefore, not the U.S. Constitution, dictate how elections in Minnesota are conducted,[9] but any changes to our existing Plurality system might require modifying the Minnesota Constitution and/or these statutes. The section on legal issues later in this document discusses these statutes.

Approval Voting (AV): An Unranked Voting System

Approval Ballot	
Vote for all candidates you approve of:	
Candidate A	❑
Candidate B	❑
Candidate C	❑

In the Approval Voting system, voters are allowed to vote for as many candidates as they wish. The candidate receiving the greatest total number of votes wins the election. Approval Voting was created in Venice in the 13th century when the Venetians used it to elect members to their Grand Council.[10]

Approval Voting did not surface again until the mid-1970s, when it was independently proposed by several scholars, including Steven J. Brams, professor of politics at New York University, who remains its champion to this day. Best known for its use in electing the secretary-general of the United Nations, Ap-

proval Voting is also used to elect officers of professional organizations such as the Institute of Management Sciences, the Mathematical Association of America. and the American Statistical Association.[11]

Interest in using this system to elect public officials is growing in the United States. An organization called 'Americans for Approval Voting' has formed to work for the adoption of Approval Voting for public elections in the United States.[12]

The following example shows how AV might work. Four professors in a college English Department are trying to choose a handbook (a text with rules for grammar and punctuation) for their students. They have narrowed the choice to three books, which are virtually the same except for the titles. They decide to use the Approval Voting system, so the professors vote for all of the handbooks of which they approve. The *Pocket Handbook of Grammar* is the winner.

Professor	*Pocket Handbook of Grammar*	*Great Big Picture Book of Grammar*	*Grammar and Videogames*
Angelou	YES	YES	
Tan	YES	YES	
Dickinson	YES		YES
Woolf	YES	YES	
Totals	**4**	**3**	**1**

A reverse form of the Approval Voting system (Brams calls it *Disapproval Voting)* has been used since 1987 in some Eastern European countries and the former Soviet Union. Voters cross off the names of candidates of whom they disapprove. Brams adds that this procedure is similar to Approval Voting in that "candidates not crossed off are. in effect, approved of, although psychologically there is almost surely a difference between approving and disapproving of candidates."[13]

Instant Runoff Ballot

Indicate your 1st and 2nd Choice

	1st	2nd	3rd
Candidate A	❑	❑	❑
Candidate B	❑	❑	❑
Candidate C	❑	❑	❑

And the Winner is — Kicked Out

"One of the earliest forms of democracy in Greece was introduced by Cleisthenes in 508 B.C. This was a rather negative form of an election. Each year voters were asked to cast a vote for the politician they most wished to exile for ten years. Votes were written on *ostraka,* which were broken pots, and from this comes our present word to *ostracize*. If no politician received more than 6,000 votes, then all remained, but if any received more than 6,000, then the one with the largest number was exiled. Requiring that someone had over 6,000 votes before being ostracized was an added feature to try to ensure that only when a person was unpopular with a large number of voters was exile the result. If there was a fairly even spread of votes, nobody would get over 6,000 and, although some would get the most, it would not matter in such a case." [14]

Instant Runoff Voting (IRV): A Ranked Voting System

In the United States, the terms *Instant Runoff Voting* and *Single Transferable Vote* (STV) are often used interchangeably, but STV also is used in elections that produce more than one winner. This study examines Single Transferable Vote as it is used in contests with a single winner among multiple candidates and uses the term *Instant Runoff Voting* for this process.[15]

In Instant Runoff Voting, voters rank the candidates on the ballot, marking their first, second, and third choices, depending on how many candidates are in the race; however, a voter does not have to vote for more than one candidate. In round one, the first-choice votes are counted. If a candidate gets 50% + I of the votes, he or she is declared the winner. If no one has a majority, the counting goes to round two. The candidate with the lowest number of votes is eliminated. The votes cast for the eliminated candidate are then transferred (or moved) to the second choice listed on each ballot. If someone gets a majority the election is over. If no one receives a majority, the counting goes to round three and continues until someone has 50 percent + 1 of the total votes. There is no need for a separate runoff election, thus explaining the term *Instant Runoff Voting,* and the winner always has a majority of the votes. [16]

A simple example illustrates how lRV works. One hundred citizens are voting for the most architecturally unique county courthouse in Minnesota. The candidates are Stearns County, Freeborn County, and St. Louis County (Duluth).

Round One

County Courthouses	First Choice	Second Choice
Stearns	41	6 for Freeborn 35 for St. Louis
Freeborn	40	10 for St. Louis 30 for Stearns
St. Louis Co. (Duluth)	19	15 for Stearns 4 for Freeborn

No courthouse has a majority, so the election goes to the next round. The lowest vote-getter, St. Louis, is eliminated, and the 19 votes are redistributed 15 for Stearns and 4 for Freeborn.

Round Two

County Courthouses	First Choice	Second Choice
Stearns	41+15	6 for Freeborrn 35 for St. Louis
Freeborn	40+ 4	10 for St. Louis 30 for Stearns
~~St. Louis Co. (Duluth)~~	~~19~~	15 for Stearns 4 for Freeborn

Now Stearns has 41+15 votes or 56. and Freeborn has 40 + 4 or 44. The Stearns County courthouse wins with the majority of the votes.

A national advocate of IRV is the Center for Voting and Democracy, and its Minnesota affiliate is FairVote Minnesota. These organizations sponsor extensive Web sites, which provide information about IRV and other voting systems.[17]

Instant Runoff Voting is not a new concept: "The key to development of Instant Runoff Voting (IRV) was the invention of the single transferable vote (SW) in the 1860s by Thomas Hare in England and Carl Andrae in Denmark. Instant Runoff Voting. using a preference ballot, was invented by W.R. Ware, a professor at Massachusetts Institute of Technology, around 1870."[18]

Four states — Florida, Indiana, Maryland, and Minnesota — used variations of Instant Runoff Voting in primary elections as early as 1912. Ireland and Australia currently use IRV in national elections,[19] and London uses it to elect its mayor.[20] San Francisco is implementing IRV for its November 2004 elections as well.[21] In 2003, at least 19 states, including Minnesota, introduced legislation to enact IRVI but the bills failed or were carried over in every instance.[22]

Other organizations also use Instant Runoff Voting. The Academy of Motion Picture Arts and Sciences uses it to determine the finalists, and the American Political Science Association uses it to elect its president.[23]

Borda Count Ballot

Indicate your 1st, 2nd and 3rd Choice

	1st	2nd	3rd
Candidate A	❑	❑	❑
Candidate B	❑	❑	❑
Candidate C	❑	❑	❑

Borda Count: A Ranked Voting System

In about 1428, a young German scholar named Nicolaus Cusanus devised an election system that assigned points to each candidate.[24] His invention was largely forgotten by 1770 when French mathematician Jean-Charles de Borda became concerned that the Plurality voting system caused the French Royal Academy of Science to make bad decisions. He proposed (or reinvented) Cusanus' voting procedure, which became the Borda Count system. The Royal Academy adopted this system, which stayed in place for the next 40 years.[25]

Borda's idea was to have voters rank order the candidates and assign points to each first place vote (perhaps three), each second place vote (perhaps two), and so on. If 30 Academy members were trying to decide which of three regions produced the best wine, for example, each member would vote on which region he liked best, which he liked second best, and which he liked least. The votes would be converted to points and totaled to determine the winner.[26] Alsace wins with 65 points. (See next page.)

Although Napoleon Bonaparte quashed the Borda Count election system in the nineteenth century,

twentieth century sports writers and fans revived a complicated version of it to determine who receives Major League Baseball's Most Valuable Player (MVP) award. Two sportswriters in each league city can nominate up to ten players to be the MVP. Each writer must rank the players from 1 to 10. The player getting a first-place vote receives 14 points, a second place vote counts 9 points, a third place vote gets 8 points, and so on to a 10th place vote, which is worth 1 point.[27]

Region	1st place–3pts	2nd place–2 pts	3rd place–1 pt	Total
Alsace	15 votes = 45 pts	5 votes = 10 pts	10 votes = 10 pts	65 pts
Bordeaux	5 votes = 15 pts	20 votes = 40 pts	5 votes = 5 pts	60 pts
Champagne	10 votes = 30 pts	5 votes = 10 pts	15 votes = 15 pts	55 pts

The Borda system is also used in "various scientific and technical applications such as handwriting recognition and space navigation, where the votes come from unbiased sensors or systems rather than people."[28] It is included in this study because some mathematicians believe it is the best way to measure the will of the voters." and in some situations it might provide citizens with a useful alternative to other voting systems. Businesses often use the Borda voting system to rank applicants as well. Donald G. Saari, a professor of mathematics at the University of California at Irvine, is an outspoken advocate of the Borda Count voting system.

Would the Borda Count Have Avoided the Civil War?

Abraham Lincoln's victory in the 1860 presidential election probably would not have occurred under a different voting system. Political scientists Alexander Tabarrok and Lee Spector speculate that the peculiarities of the Plurality voting system gave Lincoln the victory over Stephen Douglas and three other candidates. Lincoln was popular in the North but hated in the South. Douglas, who was Lincoln's closest competitor, was the second choice of nearly everyone — both Northerners and Southerners. According to Tabarrok and Lee, "On paper, Lincoln's victory looks overwhelming, but he actually didn't have broad-based support." Would there have been a Civil War if Douglas had defeated Lincoln? If so, how would it have ended? [29]

Condorcet Ballot

Indicate your 1st, 2nd and 3rd Choice

	1st	2nd	3rd
Candidate A	❑	❑	❑
Candidate B	❑	❑	❑
Candidate C	❑	❑	❑

Condorcet: A Ranked Voting System

Some mathematicians believe that the Condorcet system is superior to all others because it best identifies the candidate preferred over each of the other candidates, the "Ideal Democratic Winner."[30] Even though mathematician Donald Saari prefers the Borda Count system, he explains that the Condorcet system is the "standard used to compare other approaches."[31] We include this system in the study because many academic texts and journals refer to it as the "best" way to measure the will of the voters.

Marie Jean Antoine Nicolas Caritat, Marquis de Condorcet (1743 to 1794) was a French philosopher, mathematician, and early political scientist who is credited with inventing the Condorcet system of vote tabulation in elections,[32] although recent findings in the Vatican Library prove that the real credit goes to 13th century scholar and poet Ramon Llull.[33]

From the point of view of voters, the Condorcet system is another ranked system. Voters rank the candidates, marking their first choice, second choice, third choice (or more, depending on the number of candidates); they do not have to rank all of the candidates. Under the Condorcet system, the winning candidate is the person who "can top each of the others in a series of head-to-head contests."[34] The tabulation of votes, called "pairwise" contests by mathematicians, is more complicated than any of the other systems discussed in the study. The Condorcet winner is determined by pairwise comparisons of each candidate with all the other candidates.

Imagine an election held by 30 members of the Association of Fruit Producers. They want to decide which fruit to emphasize in their upcoming marketing campaign. They are considering apples, bananas, and cherries. They decide to use the Condorcet system to select the winner. The vote turned out as follows:

A. 4 voters ranked apples first, bananas second, and cherries third
B. 6 voters ranked apples first, cherries second, and bananas third
C. 4 voters ranked bananas first, apples second, and cherries third
D. 6 voters ranked bananas first, cherries second, and apples third
E. 6 voters ranked cherries first, apples second, and bananas third
F. 4 voters ranked cherries first, bananas second, and apples third

First is a pairwise comparison between apples and bananas. Here is how it works: apples are preferred over bananas by 4 voters in line A, 6 voters in line B, and 6 voters in line E for a total of 16 votes. Bananas are preferred over apples by 4 voters in line C, 6 voters in line D, and 4 voters in line F for a total of 14 votes. Total: apples are preferred over bananas 16 to 14.

The next pairwise comparison is between apples and cherries. Cherries are preferred over apples by 6 voters in line D, 6 voters in line E, and 4 voters in line F for 16 votes. Apples are preferred over cherries by 4 voters in line A, 6 voters in line B, and 4 voters in line C for 14 votes. Total: cherries are preferred over apples 16 to 14.

The last pairwise comparison is between bananas and cherries. Cherries are preferred over bananas by 6 voters in line B, 6 voters in line E, and 4 voters in line F. Bananas are preferred over cherries by 4 voters in line A, 4 voters in line B. and 6 voters in Line D for a total of 14 votes, Total: cherries are preferred over bananas 16 to 14.

Bananas does not win any of the pairwise comparisons. Apples wins only one pairwise comparison — against bananas. Cherries wins two pairwise comparisons — against bananas and apples, so cherries is the Condorcet winner.

Ramon Llull Sets the Record Straight

Dear Readers,

It is my distinct pleasure to respond 'from the beyond' to your kind invitation to set the historical record straight. I was born in 1232 on the Island of Mallorca in the Mediterranean Sea. It was my dream to persuade people of the virtues of Christian belief by relying, not on force, but on reason. Unfortunately, people did not find it easy to follow my arguments, so I was more than pleased to discover some down-to-earth applications, including an election system. My idea was to oppose every pair of candidates, one-on-one, and ask the electors whom of the two they would prefer — very much like a medieval jousting tournament. . . . I wrote three papers on the topic. More than a century after my death, in 1428, the young German scholar Nicolaus Cusanus journeyed to Paris to read my works in libraries there. . . . Reading my papers, Cusanus was inspired to invent his own electoral system. Did he not understand mine, or just find it inadequate? Who knows?

While I had been concerned with electing church officials, Cusanus sought a system to elect the Holy Roman Emperor. In his system, each elector assigns each candidate a rank score, with the lowest candidate getting a score of 1, the second lowest a score of 2, and the best candidate the highest score possible, e.g., 10 when there are 10 candidates. . . . My first electoral paper — actually the one which is longest and most detailed, written around 1280 or so — was rediscovered only in 2000 filed away in the Vatican Library. . . . My electoral writings are now on the Internet (in the original and in translations into English and German) at www.uni-augsbura.de/llull/"

Adapted from a "letter" by Friedrich Pukelsheim of the University of Augsburg, Germany.[36]

Although the pairwise comparisons of tallying votes is more difficult to follow, the use of computers and computer software makes the actual tabulation of votes in an election no more difficult than the tabula-

tion in the other voting systems. However, the Condorcet system does not always produce a winner. As a result, election officials must decide before the election on a method to break a tie.[35]

NOTES

6 David Farrell, Electoral Systems: A Comparative Introduction (Houndsmills, UK: Palgrave/St. Martins, 2001). 19.

7 J. O'Connor and E. F. Robertson, "The History of Voting," School of Mathematics and Statistics. University of St. Andrews, Scotland, http://www-history.mcs.st-andrews.ac.uk/indexes/Hist Topics alph.html

8 U. S. Constitution, Article 2, Section 1. "Each State shall appoint, in such Manner as the Legislature thereof may direct, a Number of Electors, equal to the whole Number of Senators and Representatives to which the State may be entitled in the Congress. . . ." [Emphasis added]

9 One exception is the 1967 federal statute requiring that members of Congress be elected from single-winner seats. http://www.fairvote.org/ra/sept99.htm

10 O'Connor and Robertson, "History of Voting."

11 Steven Brams, "Approval Voting: A Better Way to Select a Winner," What Matters: MIT Alumni Association, Sept. 2002, http://alum.mit.edu/ne/whatmatters/200211/

12 "Americans for Approval Voting is a nonprofit Texas corporation formed for the purpose of political action and seeking 501(c)(4) tax exempt status," http://www.approvalvoting.com/about.html

13 Steven Brams, "Approval Voting and the Good Society," Political Economy of the Good Society Newsletter (Winter 1993): 10-14, http://bcn.boulder.com.us/government/approvalvote/goodsoc.html

14 O'Connor and Robertson. "History of Voting."

15. Andrew Reynolds and Ben Reilly. The International IDEA Handbook of Electoral System Design, (Stockholm: International Institute for Democracy and Electoral Assistance, 1997), 37-38.

16 "A Simple Guide to Instant Runoff Voting." What Is IRV? http://www.lwvpasadenaarea.org/irv.html

17 "The Center for Voting and Democracy is a non-partisan and non-profit corporation incorporated in the District of Columbia for educational purposes. The Center researches and distributes information on electoral systems that promote full voter participation and fair representation, particularly alternatives that will enable more voters to elect candidates of their choice than in plurality or in traditional at-large elections." 6930 Carroll Ave., Suite 610, Takoma Park, Maryland. http://www.fairvote.org/ ; www.fairvote.org/vra/Amicus198.htm; FairVote Minnesota: http://www.fairvotemn.org

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21 "California's Voting Systems Panel Approves IRV-Compatible Equipment for Use in San Francisco," April 9, 2004, http://www.fairvote.org/irv/testing.htm

22 "Election Reform Legislation," National Conference of State Legislatures. http://www. ncsi. org/programs/legman/elect/elections search. cfm

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25 Donald Saari. "The Symmetry and Complexity of Elections,"

http:/lwww.colorado.edu/education/DMP/voting_b.html

26 Ibid.

27 HickokSports, http://www. hickoksports. com/history/basebmvb.shtml

28 "Borda Voting Explained" Election Methods Education and Research Group. ElectionMethods.org. http://www.electionmethods.org/Borda.html

29 Alexander Tabarrok and Lee Spector, "Would the Borda Count Have Avoided the Civil War?" Journal of Theoretical Politics 11, (1999): 261-262.

30 "Technical Evaluation of Election Methods." Election Methods Education and Research Group. http://www.electionmethods.org/evaluation.html

31 Ibid.

32 Donald Saari, Basic Geometry of Voting, (Berlin: Springer,1995), 26.

33 Garfunkel, All Practical Purposes, 418-419.

34 "Alternative Single Winner Systems," Center for Voting and Democracy. May 2002. http:www.fairvote.org/irv/various1.htm

35 Steven Brams and Peter Fishburn. Approval Voting (Boston: Burkhauser, 1983), 36-37.

36 Garfunkel, All Practical Purposes, 418-419. ◊

Alternative Voting Systems

League of Women Voters of Minnesota

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League of Women Voters of Florida

Issues Related to Alternative Voting Systems for the State of Florida