

RESEARCH DRAFT

HOW TO TAKE VOTES: NEW IDEAS ON BETTER WAYS TO DETERMINE THE WINNERS

Lowell Bruce Anderson

March 1994

Institute for Defense Analyses
1801 North Beauregard Street
Alexandria, Virginia 22311-1772

703-845-2148 (Author)
703-845-2255 (FAX)
landerso@ida.org (e-mail)

This material is a professional communication from the author to other individuals interested in voting theory. This material is not a publication or product of the Institute for Defense Analyses. The Institute's name and address are given for affiliation purposes only.

RESEARCH DRAFT

ABSTRACT

Voting situations (e.g., elections) involving more than two alternatives (candidates) have often occurred, and likely will continue to occur with even greater frequency. The outcomes of such elections logically depend on the strengths of major candidates; but arguably these outcomes should be independent of the presence of minor or nuisance candidates who have little support. In spite of Arrow's Impossibility Theorem, these outcomes can be independent of "truly" irrelevant alternatives—provided that a correct method is used to determine the winner. Several voting methods have this independence property, but one family of such methods has a number of significant advantages over the others. This monograph explains how to make Arrow's Impossibility Theorem into a possibility result. It describes this particular family of "possibility" methods and discusses the advantages that this family has over alternative voting schemes. All but one of the methods in this family are new. In addition to defining these new voting methods, this monograph discusses how to choose among them. Highly questionable aspects of some other voting methods, such as approval voting, are discussed. In some elections, such as for boards or councils, multiple winners are desired. This monograph describes a new voting method for these elections that combines the advantages of the family of "possibility" methods with the capabilities of Hare's voting method to give fair representation to minorities. Many of the concepts in this monograph are described in terms of analogies between voting and sports. In terms of persuading non-theorists to change voting systems, these analogies may be the most significant aspect of the monograph.