

What is meant by ‘monotonic’? What is meant by ‘AV’?

I. D. Hill

No email available.

It is said that, during the 1939-1945 war, Winston Churchill and President Roosevelt had a disagreement when Churchill wished to table a document and Roosevelt did not wish it to be tabled. It turned out that they both wanted the same thing: that to the British, tabling a document means putting it on the table for discussion; whereas to the Americans, it means putting it in a drawer and forgetting it. Such confusion, caused by language difficulties, can be serious.

1 Monotonic

Schulze [1] explains a method for single seat elections that finds the Condorcet winner if there is one, and has a strategy for choosing a winner where there is a Condorcet paradox. He claims that the method is “monotonic and clone-independent”.

The main purpose of this note is to warn others who may have been misled, as I was myself at first, by that claim. The trouble lies in definitions, because I am told that his usage of ‘monotonic’ is as normally used in the social choice literature, but it is a much narrower definition than is often taken as the meaning in electoral reform literature.

He gives an example where his method certainly violates the condition that Woodall [2] calls mono-add-top: “A candidate x should not be harmed if further ballots are added that have x top (and are otherwise arbitrary)”, but Schulze is only claiming to meet mono-raise: “A candidate x should not be harmed if x is raised on some ballots without changing the orders of the other candidates”.

I am not seeking to cast any blame. If that usage of the word is widely employed, he is fully entitled to follow it, but a clash of definitions may cause misunderstanding if we do not take great care.

2 AV

Brams and Fishburn [3] give an example of the use of a system called Approval Voting, and they use AV as an abbreviation for it. In this country AV has been used for many years to mean the system called Alternative Vote.

Approval Voting is a system in which a voter uses X-voting for as many candidates as desired, even when there is only one seat to fill. The winner is the one who gets the most Xs. Alternative Vote is what STV reduces to in the single-seat case, voting by preference number, with eliminative counting.

It is not my purpose in this note to examine the relative merits, or lack of merits, of these two systems, but only to warn that they are very different, and that the name AV is, unfortunately, being used for both of them. Again, this may cause misunderstanding if we do not take great care.

3 References

- [1] Schulze M. A new monotonic and clone-independent single-winner election method. *Voting matters*, 17, 9-19. 2003.
- [2] Woodall D.R. Properties of preferential election rules. *Voting matters*, 3, 8-15. 1994.
- [3] Brams S.J. and Fishburn P.C. A nail-biting election. *Social Choice and Welfare*, 18, 409-414. 2001.

A special thanks to David Hill for checking this issue.