

Adam Langley
24 Grosvenor Square
W1A 1AE
agl@imperialviolet.org

Friday, May 29th, 2004

Mr Anthony Mayer
Greater London Returning Officer
London Elects
4 Brewery Square
London
SE1 2LF

Dear Mr Mayer,

I am writing to you to express my concern about the election system for the London Mayoral elections this year. It's not a system that I've come across before and I have to wonder exactly how much thought has been put into it. It seems to have a very arbitrary structure and it's not monotonic, which is the most basic requirement for it to be acceptable.

A monotonic system is one in which voting a candidate higher should never cause the candidate to lose, nor should voting a candidate lower ever cause the candidate to win. The mayoral elections fail to meet this minimum standard as shown by this example:

Let there be four candidates: A,B,C and D. A vote is written as (A, B) , which would be a first choice for A and a second choice for B. So assume votes are tallied thus:

Num of Votes	Vote
8	(A, C)
5	(B, A)
4	(C, B)

There are 17 votes and no one has a majority of first choices, so C and D are eliminated. Now B has the highest score and wins.

Consider the case where two votes change from (A, C) to (C, A) – that is *they rank A lower*. Now B and D are eliminated in the first round and A goes onto win. This violates the monotonicity criterion and should cause this election method to be rejected.

In fact, although I haven't shown this, I strongly suspect that this election method is strictly weaker than Instant Run-Off (IRV) as it restricts the ranking to only two individuals and only allows two rounds. Thus it would fail all the tests that IRV fails, which is pretty much all of them (including the monotonicity criterion).

Much better methods exist, such as the Condorcet system, but are considered too complicated to introduce without significant infrastructure in automatic counting machines etc. However you can drastically improve the representation of the electorate's opinion by switching to Approval Voting. In this system, electors simply vote for one or more candidates which they approve of. Votes are then counted as normal. I strongly hope that future elections will be made more representative. I am more than willing to answer any questions and to argue my case should it be needed.

Yours sincerely

Adam Langley