

## Kenneth Arrow's Impossibility Theorem

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We have seen how each of the particular voting methods can *violate* one or more of the fairness criteria. That is to say, for that voting method, there are *some* preference schedules in which the fairness criterion under consideration is does not hold. In other words, we cannot guarantee that this fairness criterion is satisfied for *all* preference schedules.

Of course, we have also seen of each of the particular voting methods can *satisfy* some of the other fairness criteria. That is to say, for that particular voting method, the fairness criterion holds for *all* preference schedules.

Wouldn't it be nice to agree on a set of reasonable fairness criteria, and then to find a voting method that will satisfy *all* these fairness criteria for *all* preference schedules? Alas, Kenneth Arrow proved that this is impossible—*every* voting method is going to cause *some* preference schedule to violate some fairness criterion.

But we must nevertheless have elections, and so each organization makes choices on which particular voting method to use.