FLAWS OF APPORTIONMENT METHODS

The Alabama Paradox

An increase in the total number of electoral votes to be apportioned results in the loss of an electoral vote for a state.

History: After the 1880 census, it was discovered that, using Hamilton's method, increasing the members of the House of Representatives from 299 to 300 would cause Alabama to lose a seat, from 8 seats to 7 seats.

The Population Paradox

State A loses items to State B, even though the population of State A grew at a faster rate than that of State B.

The New-States Paradox

The addition of a new state changes the apportionments of other states.

History: In 1907 Oklahoma joined the union and the New States Paradox was discovered as a result.

Balinski and Young's Impossibility Theorem

There is no perfect apportionment method.
Any apportionment method that does not violate the quota rule must produce paradoxes, and any apportionment method that doe not produce paradoxes must violate the quota rule.

Recall the Quota Rule: A state's apportionment should be either its upper quota or its lower quota.