

The Huntington-Hill Method – Version 2

Lecture 24
Section 4.5

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Wed, Oct 18, 2017

1 Version 2

2 Assignment

Outline

1 Verson 2

2 Assignment

The Huntington-Hill Method

- Initially, every state gets a quota $q = 1$ (as required by the Constitution).
- Then divide each state's population p by $D = \sqrt{q(q+1)}$, where q is that state's current quota (initially $D = \sqrt{2}$).
- The state with the largest such **quotient** gets one more seat, so add 1 to its quota q .
- Repeat the previous 2 steps until all the seats have been apportioned.

Example

Example (Example – Version 2)

- The populations of three states are 3, 7 and 10 million people, respectively.
- The total number of seats apportioned to those states is 7.
- Use Version 2 to determine how many seats each state should get.

Example

Example (Example – Version 2)

State	Population (p)	Seats (q)	$D = \sqrt{q(q+1)}$	p/D
A	3	1	$\sqrt{1 \cdot 2} = 1.41$	$\frac{3}{\sqrt{2}} = 2.12$
B	7	1	$\sqrt{1 \cdot 2} = 1.41$	$\frac{7}{\sqrt{2}} = 4.94$
C	10	1	$\sqrt{1 \cdot 2} = 1.41$	$\frac{10}{\sqrt{2}} = 7.07$

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- Suppose we had 3 states, with populations 2, 5, and 8 million, and 100 seats to apportion.
- Which method would be faster?

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- Suppose we had 8 states, with populations 1, 2, 4, 5, 8, 10, 13, and 14 million, and 9 seats to apportion.
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- Work this example with $M = 12$.

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2 Assignment

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- Chapter 4 Exercises 49, 50. Use Version 2 with $M = 10$.