Towards Secure Internet e-Voting

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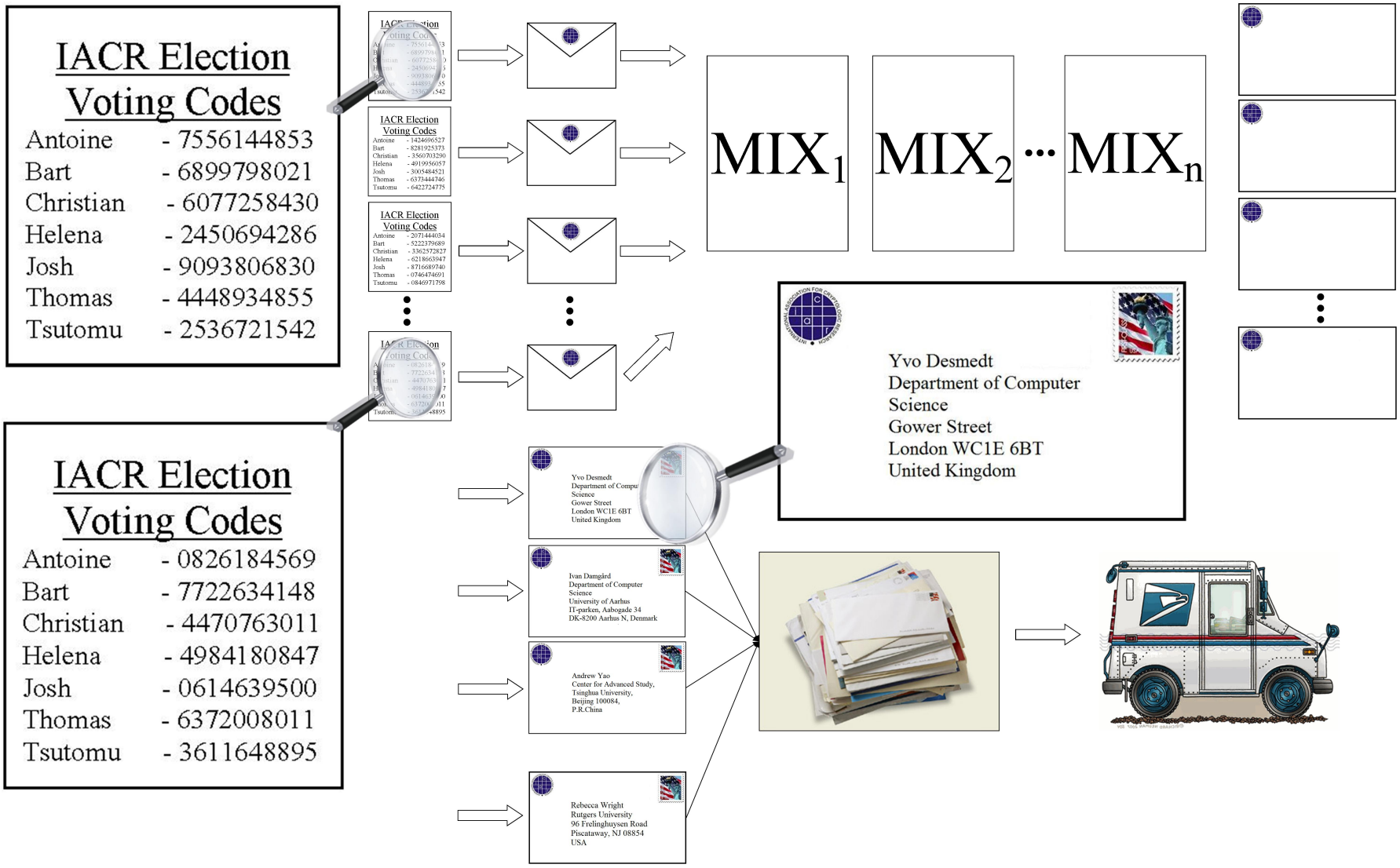
1. CODE VOTING



IACR Election Voting Codes

Antoine	- 8173472492
Bart	- 9287374672
Christian	- 0198291639
Helena	- 2373919017
Josh	- 2638939283
Thomas	- 1923872622
Tsutomu	- 8294729027

AIST

UCL

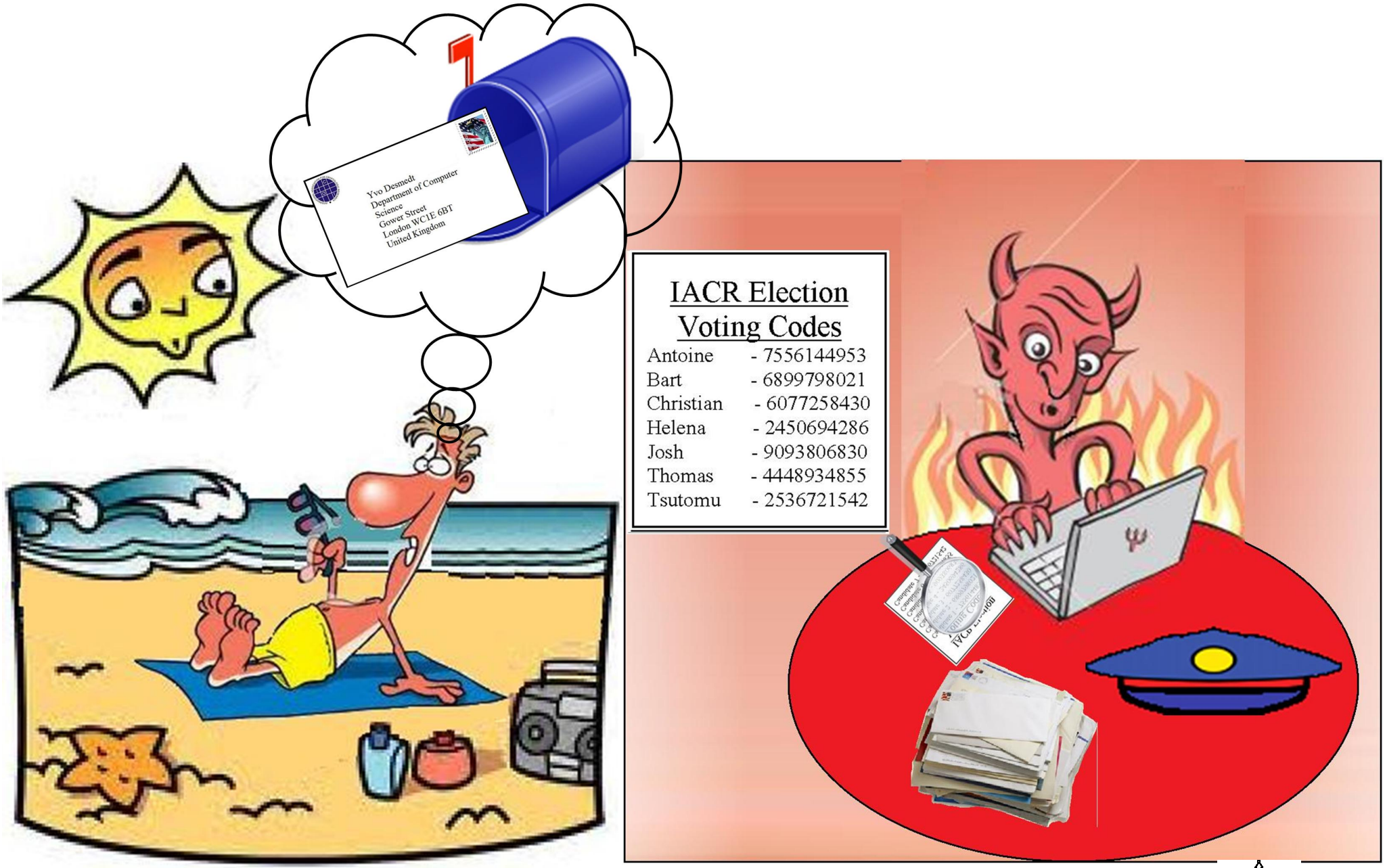
2. ADVANTAGES/DISADVANTAGES

Advantages of Code Voting: secure even if voter's machine hacked.

Disadvantages:

- requires IACR to send random numbers by postal mail, and
- no collusion between postal system (or sender of envelopes) and the party receiving the vote.

Ballot stuffing with Code Voting



3. VOTING USING OUR SOLUTION

IACR Election Voting Codes
Antoine - 2613
Bart - 9384
Christian - 8173
Helena - 6734
Tsutomu - 4832

IACR Election Voting Codes
Antoine - 1827
Bart - 9394
Christian - 0238
Helena - 9187
Tsutomu - 1829

IACR Election Voting Codes
Antoine - 1872
Bart - 3627
Christian - 9283
Helena - 7562
Tsutomu - 5147

IACR Election Voting Codes
Antoine - 8163
Bart - 2837
Christian - 9287
Helena - 6473
Tsutomu - 2517

IACR Election Voting Codes
Antoine - 7283
Bart - 2938
Christian - 9263
Helena - 1717
Tsutomu - 2839

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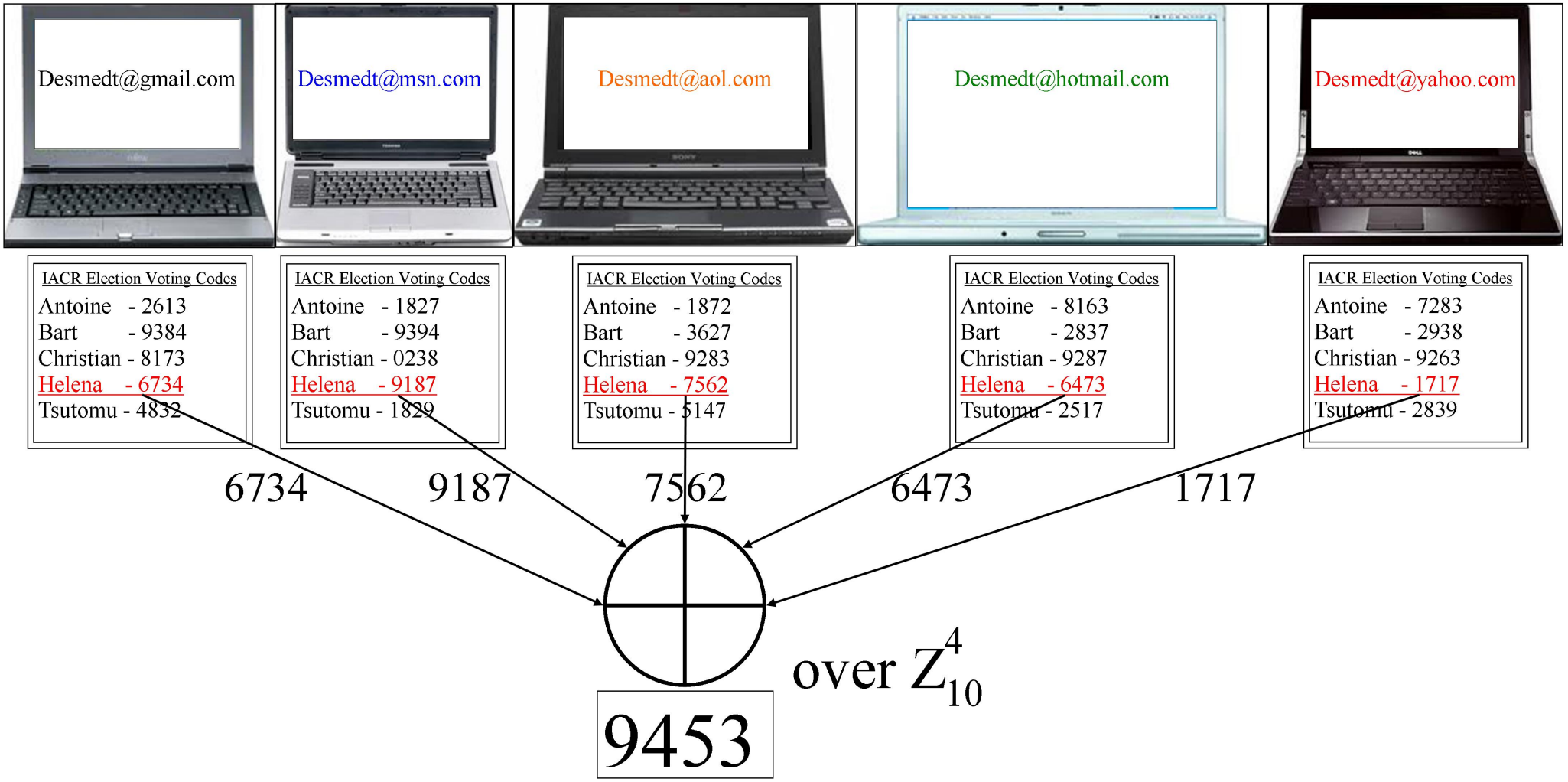

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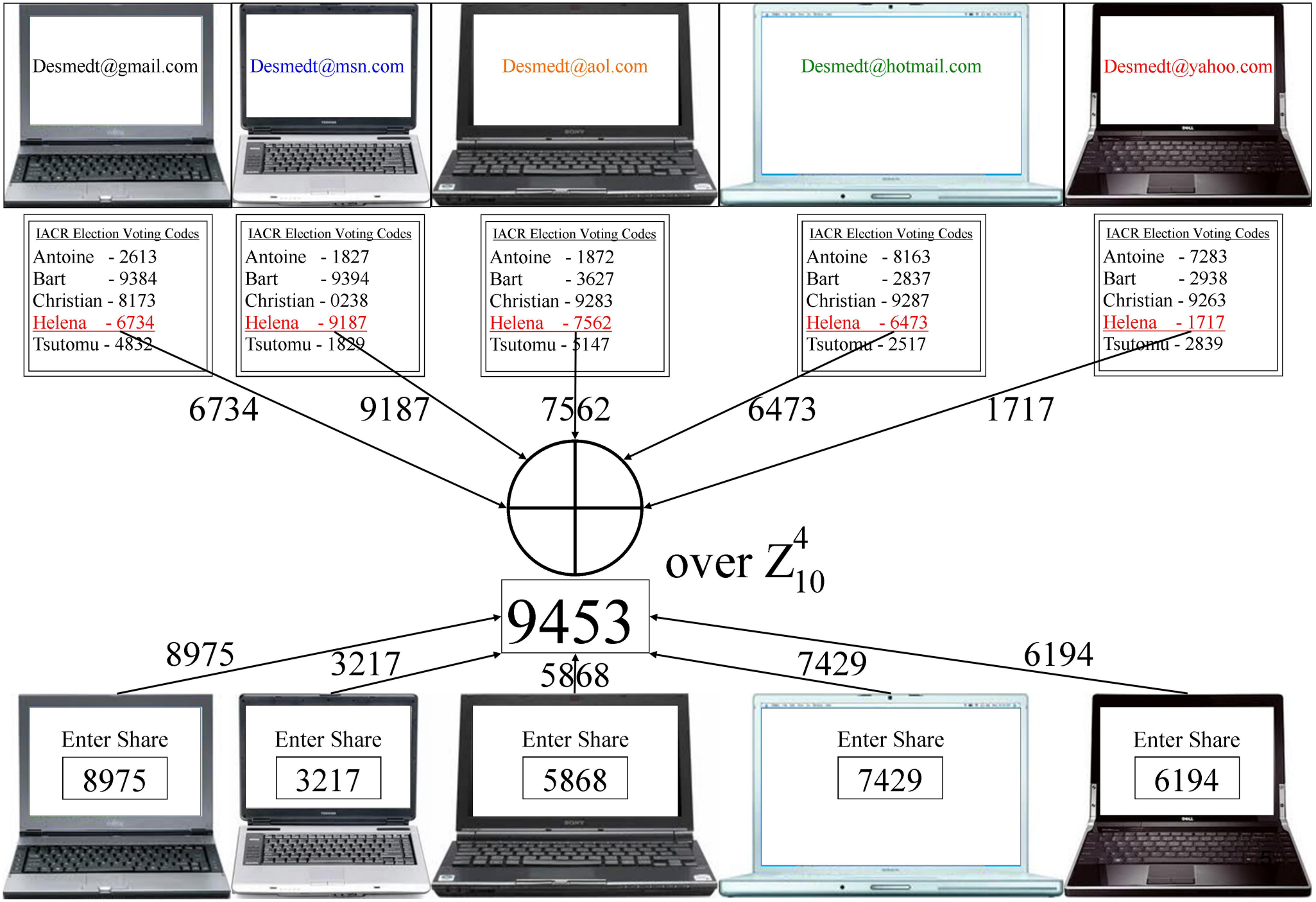

So main requirement for the voter:

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is to be able to add numbers mod 10.

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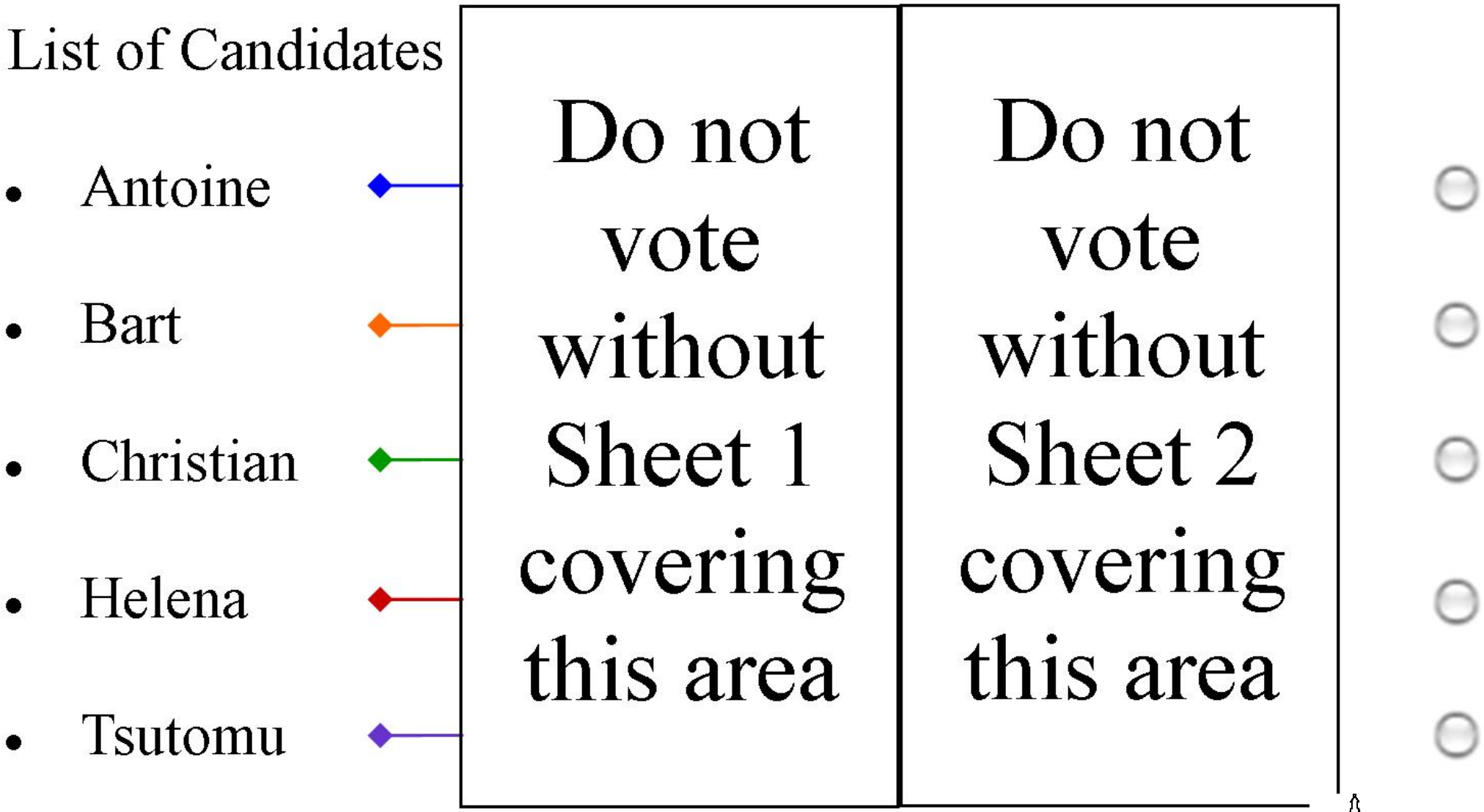
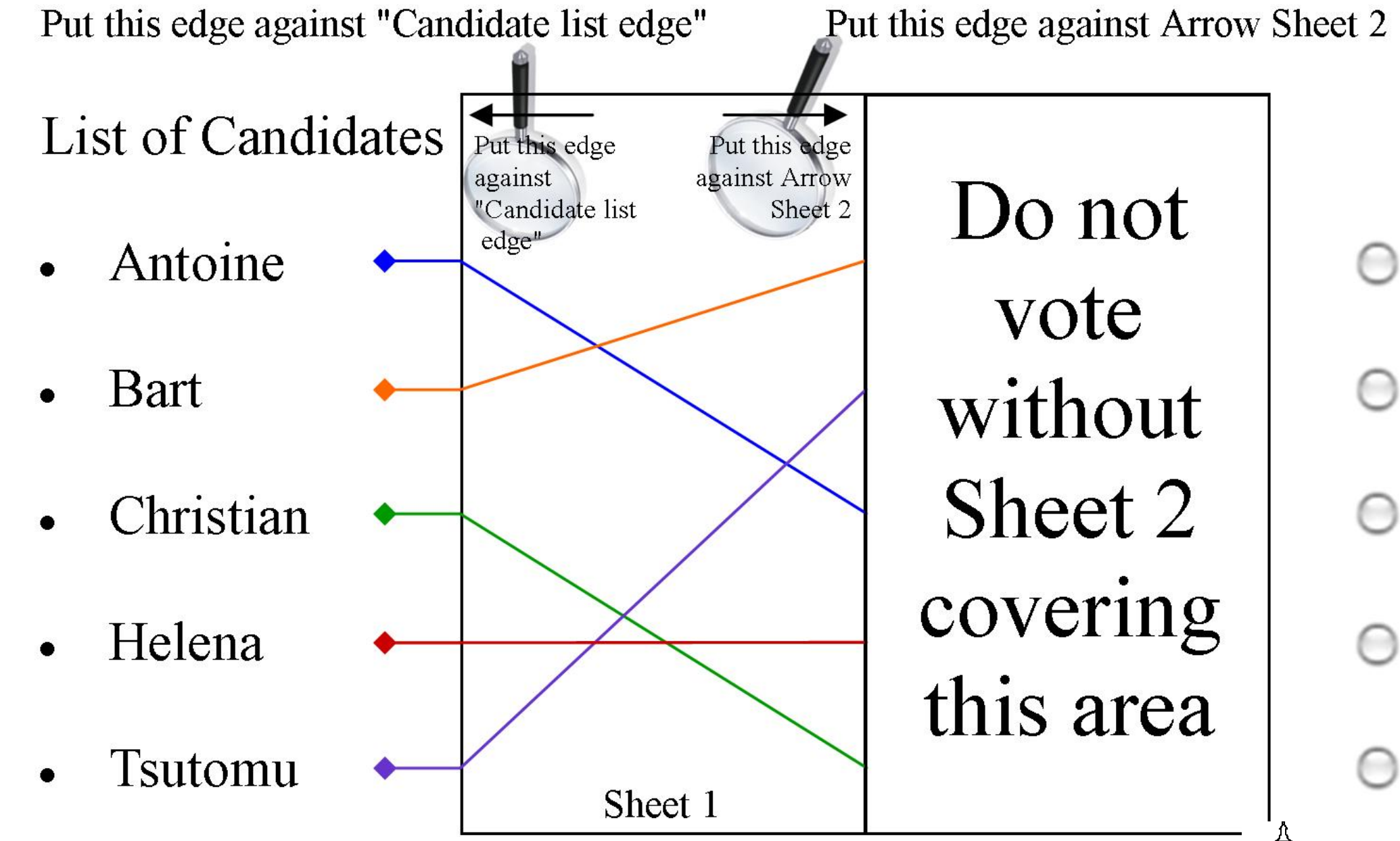
Cryptographers should be able to do this (otherwise they should not vote!).

4. AVOIDING MOD 10



4. AVOIDING MOD 10



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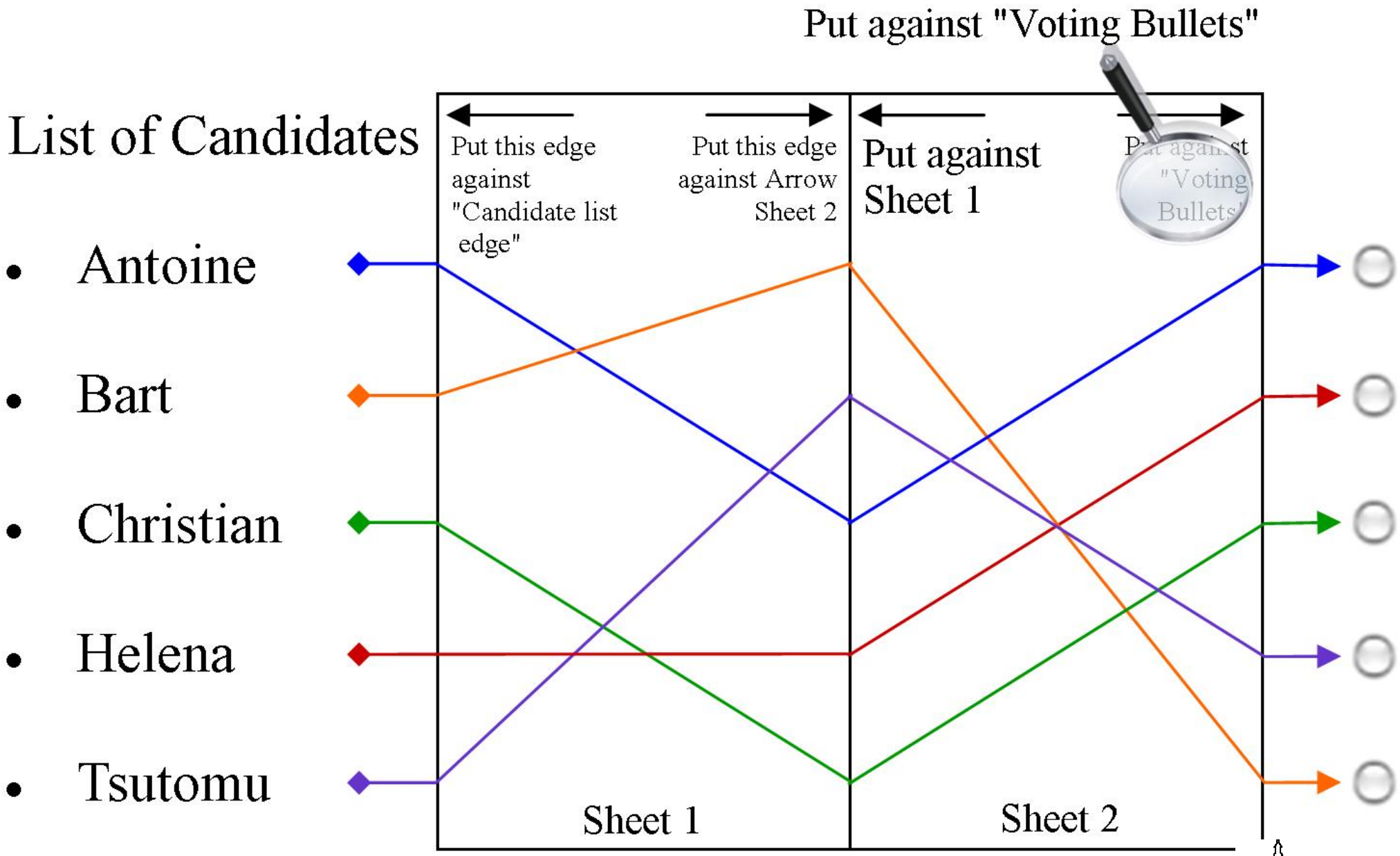

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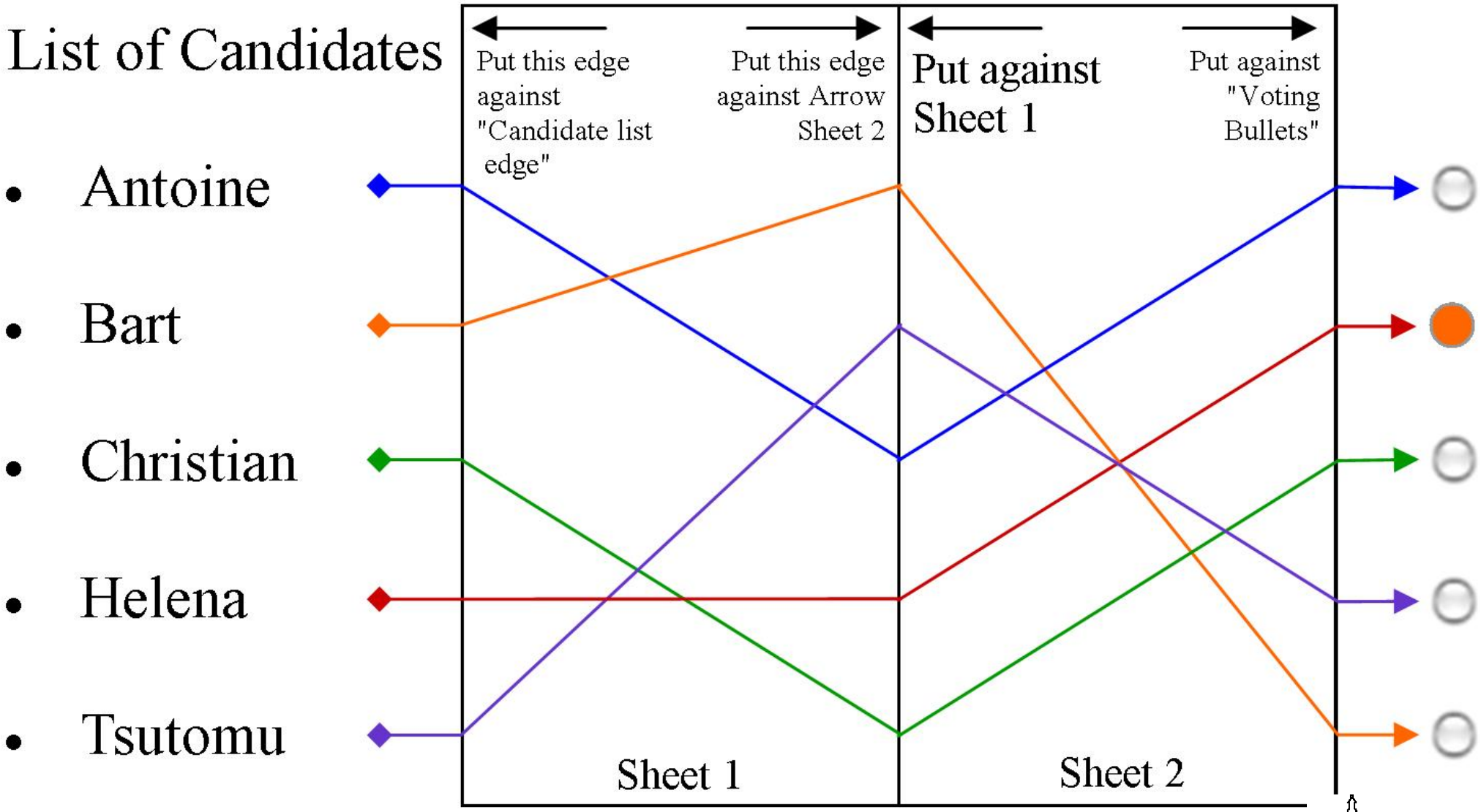

5. CORRECTNESS AND DETAILS

Using different secret sharing schemes and PSMT protocols, we can achieve 100% correctness against a t-limited adversary.

New primitives to achieve all this:

- (P)SMT with a Human, and
- Private Anonymous Communication.