

In Very Simple Terms - What is Cryptography?

How many of you can trace an early memory of cryptography to a movie called "A Christmas Story?" Ralphie faithfully listens to the Orphan Annie radio show where they reveal a code by giving out a set of numbers. He then sends off for their decoder ring. The Orphan Annie show tells him to set his ring to B-2. He does so and painstakingly decodes the message, certain it is of monumental importance - only to be disappointed when it turns out to just be the statement "Be sure to drink your Ovaltine."



How is it Applied to an Election System?



For this election system, we will be using a much more complex version of Orphan Annie's coding system.

Cryptography is a technique used to protect the security of information by converting it to an unreadable format called ciphertext. This is accomplished using mathematical formulas or algorithms.

These algorithms include the use of a "keys." A key is a large binary number (consisting of 0's and 1's). Because these numbers are so long (40 to 256 bits in length), it makes it virtually impossible to guess the correct number during an election process.

The election system being proposed uses two different kinds of keys meaning that there is one public key and one private key.

To visual how this works, imagine that the public key puts the encrypted data into a safe and just closes the door to lock it. On election night, when a certain number of trustees convene together, they form a private key that knows the combination to the safe, removes the data, and decrypts it.