









verified,

Digital Signatures











Fail!

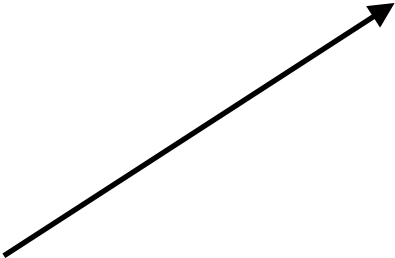






















verified,







Pass!

Desiderata

Security

Efficiency

**k bits of (multi-user)
security**

▷ **k bits of security:** attacker running in time t wins signature forgery game with prob. $\leq \frac{t}{2^k}$

▷ Multi-user security: 1-out-of- N setting

Given N public keys, \mathcal{A} wins if
it forges a signature that is valid
under *any one* of these public keys



preprocessing attacks























































short signatures

































V























































































