



Verify(

## Digital Signatures









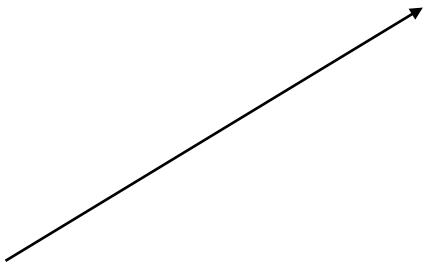
























































Verify(





















## preprocessing attacks

#### security

## k bits of (multi-user)



# efficient signing/

## short signatures

#### verification

riangleq k bits of security: attacker running in time t wins signature forgery game with prob.  $\leq rac{t}{2^k}$  $\triangleright$  Multi-user security: 1-out-of-N setting



















































