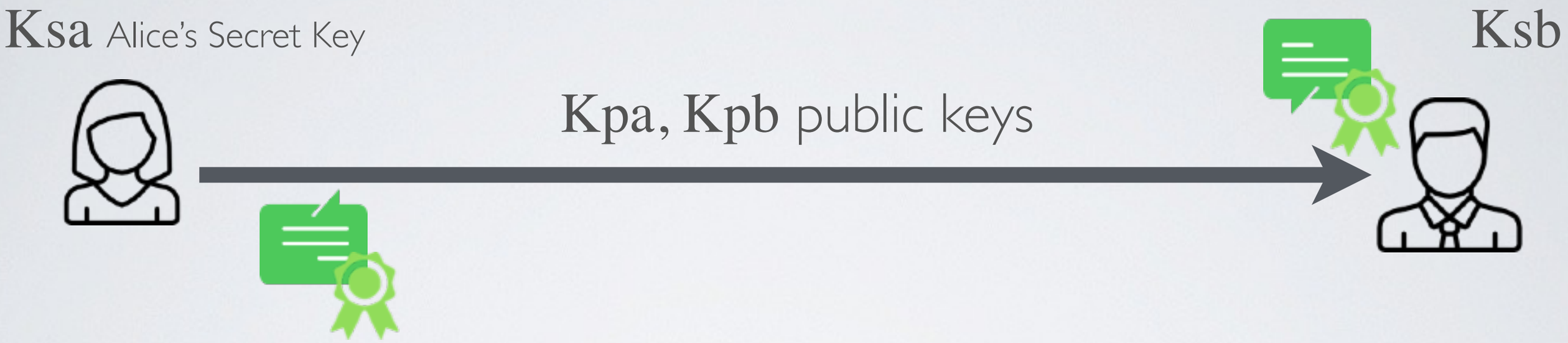
Digital Signatures and Confidentiality



1. Alice generates an asymmetric session key **k**
2. Use both symmetric and asymmetric cryptography to **encrypt, sign and verify** the message and the key

$$E_{Kpb}(k) \,||\, E_k(m \,||\, E_{Ksa}(H(m)))$$

This how GPG works

As of versions 2.0.26 and 1.4.18, GnuPG supports the following algorithms:

- Pubkey: RSA, ElGamal, DSA
- Cipher: IDEA (since versions 1.4.13 and 2.0.20), 3DES, CAST5, Blowfish, AES-128, AES-192, AES-256, Twofish, Camellia-128, -192 and -256 (since versions 1.4.10 and 2.0.12)
- Hash: MD5, SHA-1, RIPEMD-160, SHA-256, SHA-384, SHA-512, SHA-224
- Compression: Uncompressed, ZIP, ZLIB, BZIP2

More recent releases of GnuPG 2.x ("stable" and "modern" series) expose most cryptographic functions and algorithms Libgcrypt (its cryptographic library) provides, including support for elliptic curve cryptography (ECDSA, ECDH and EdDSA)[10] in the "modern" series (i.e. since GnuPG 2.1).

source *"GNU_Privacy_Guard"* on *Wikipedia*