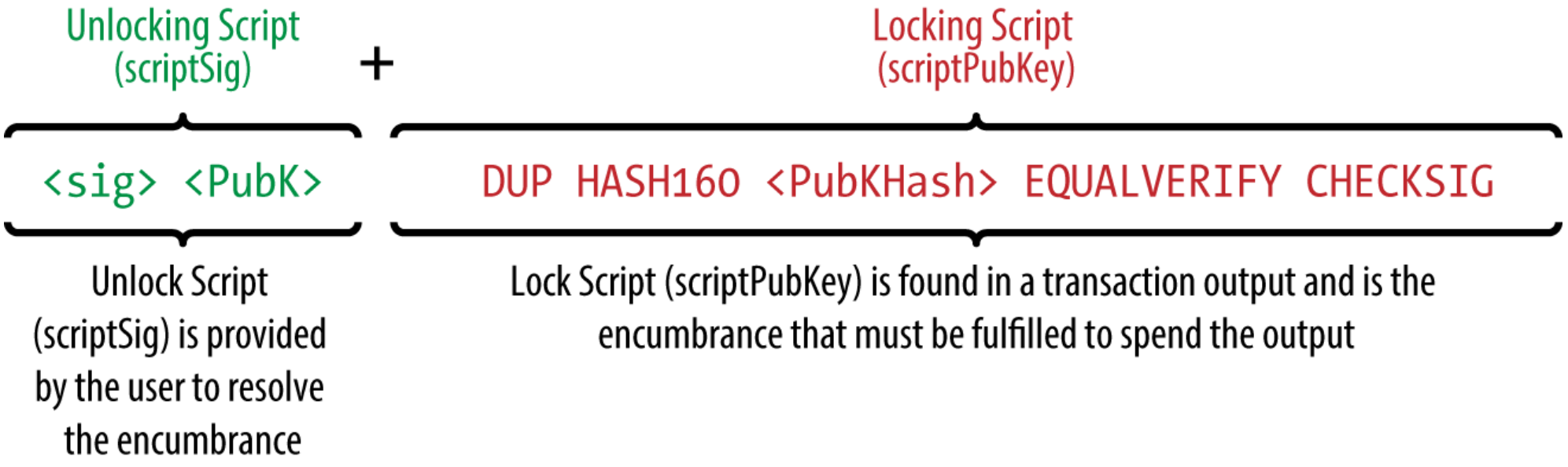
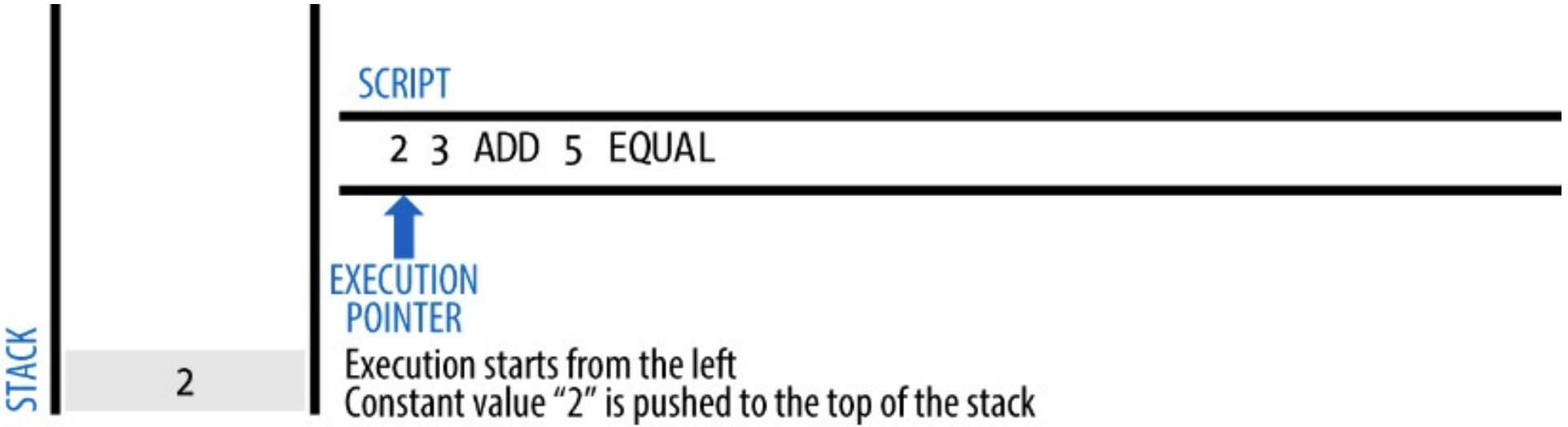
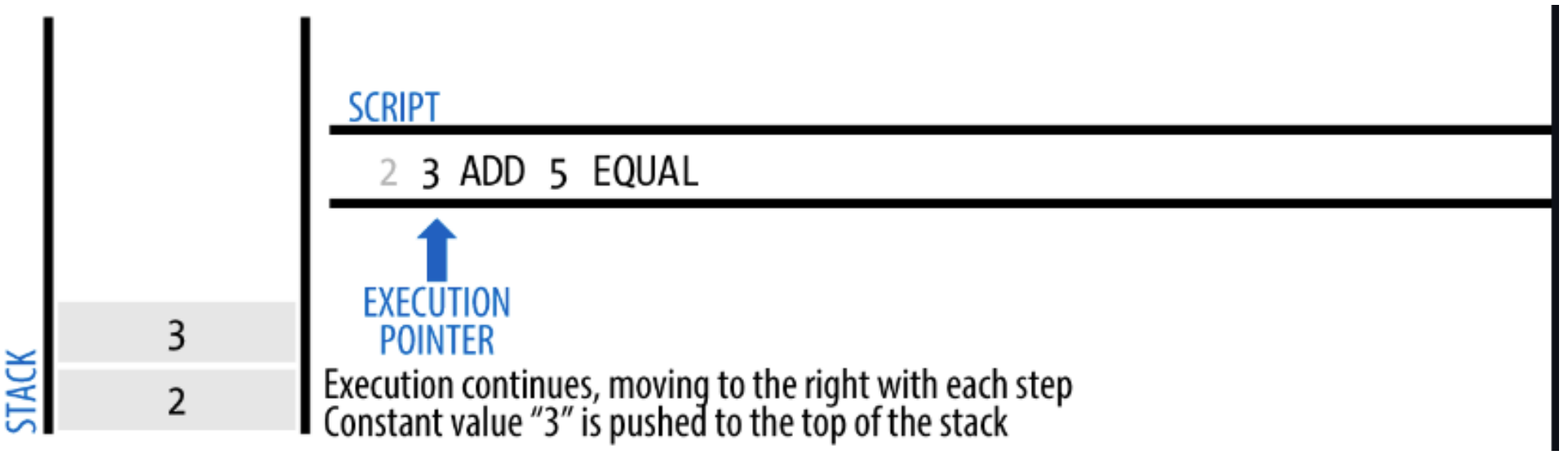
Bitcoin Script Execution

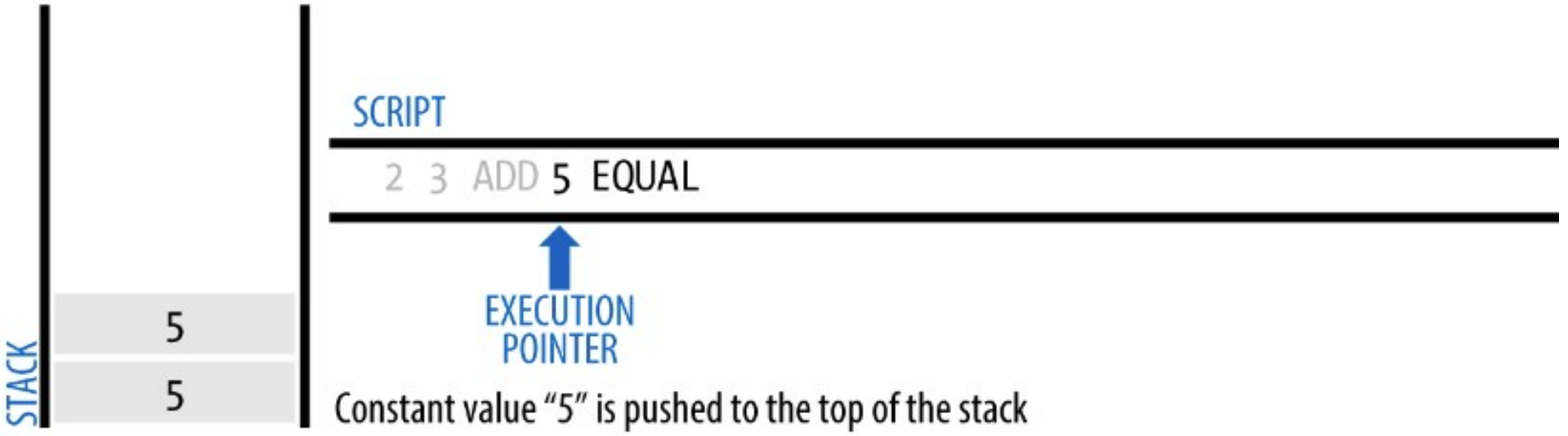
Unlocking an Unspent Output (UTXO)

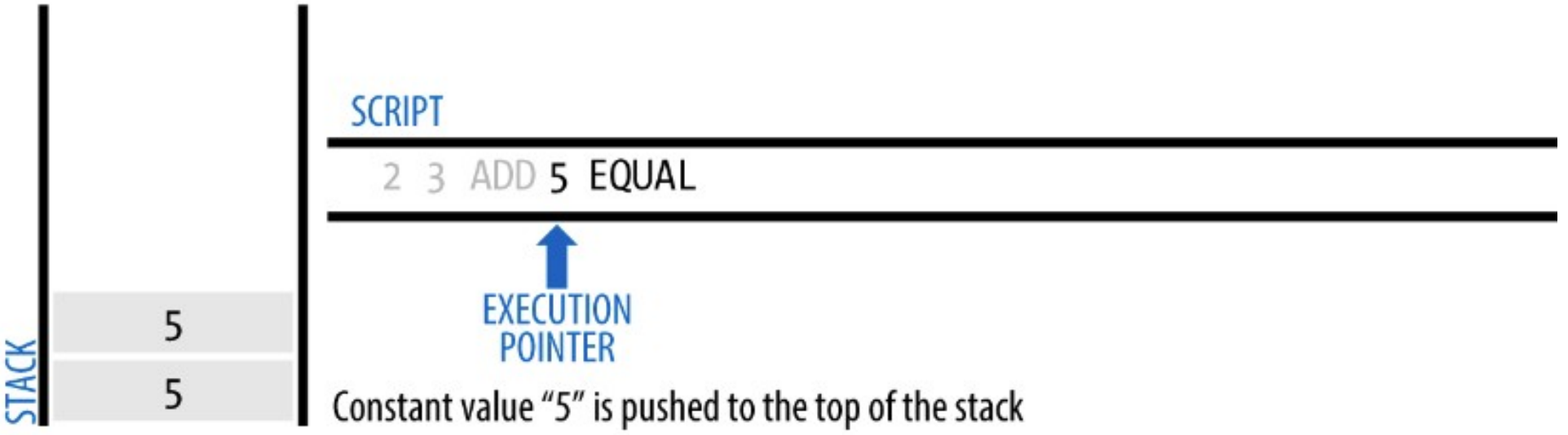


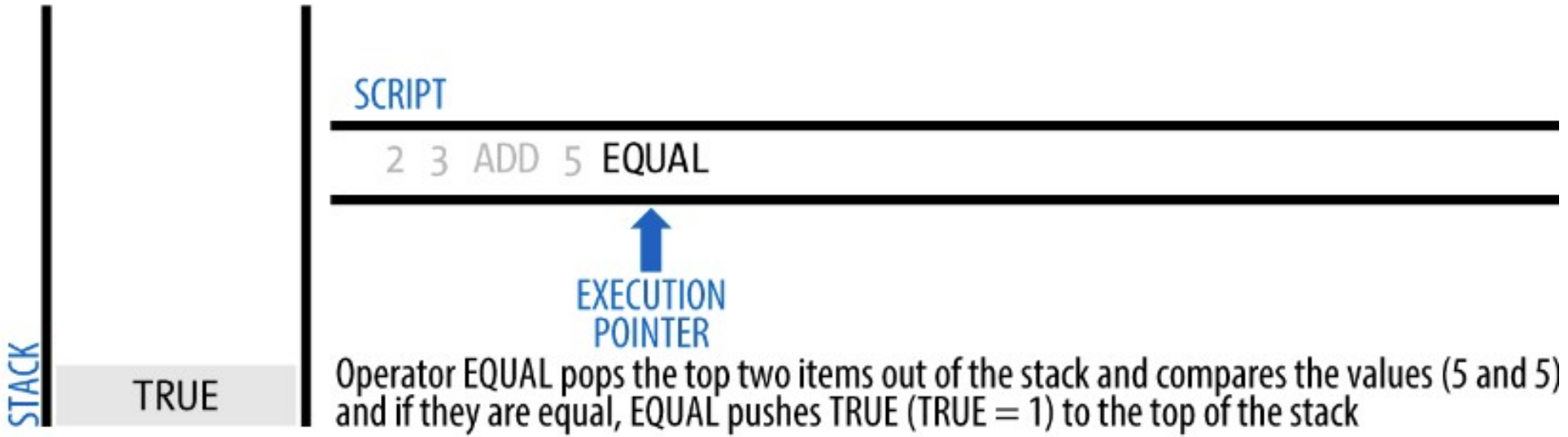
Basic Addition Script



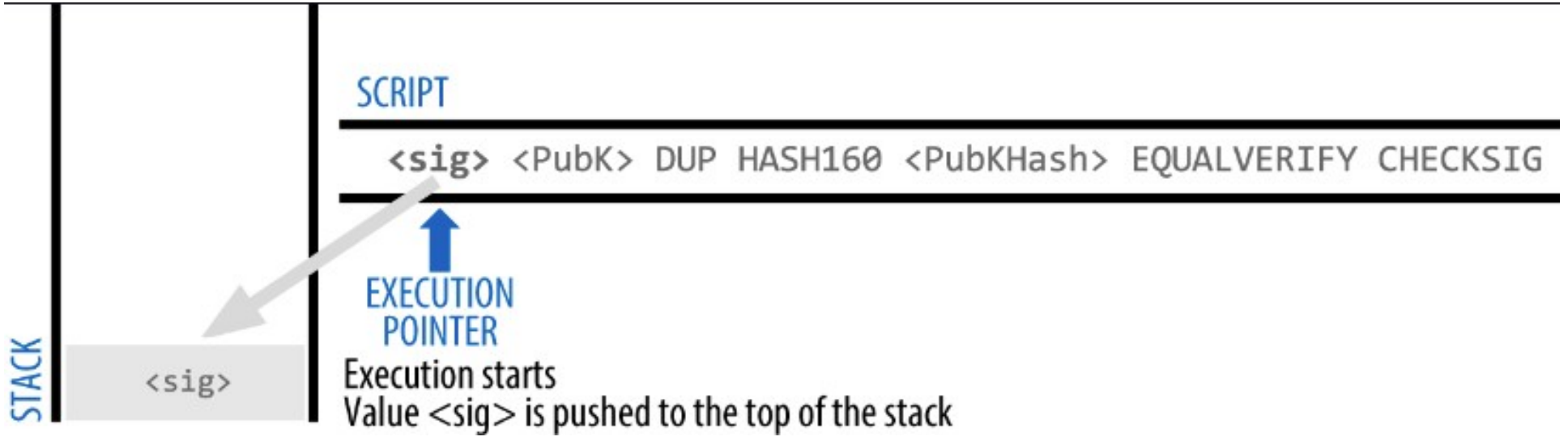

SCRIPT
2 3 ADD 5 EQUAL
EXECUTION POINTER
STACK
3
2
Execution continues, moving to the right with each step
Constant value "3" is pushed to the top of the stack

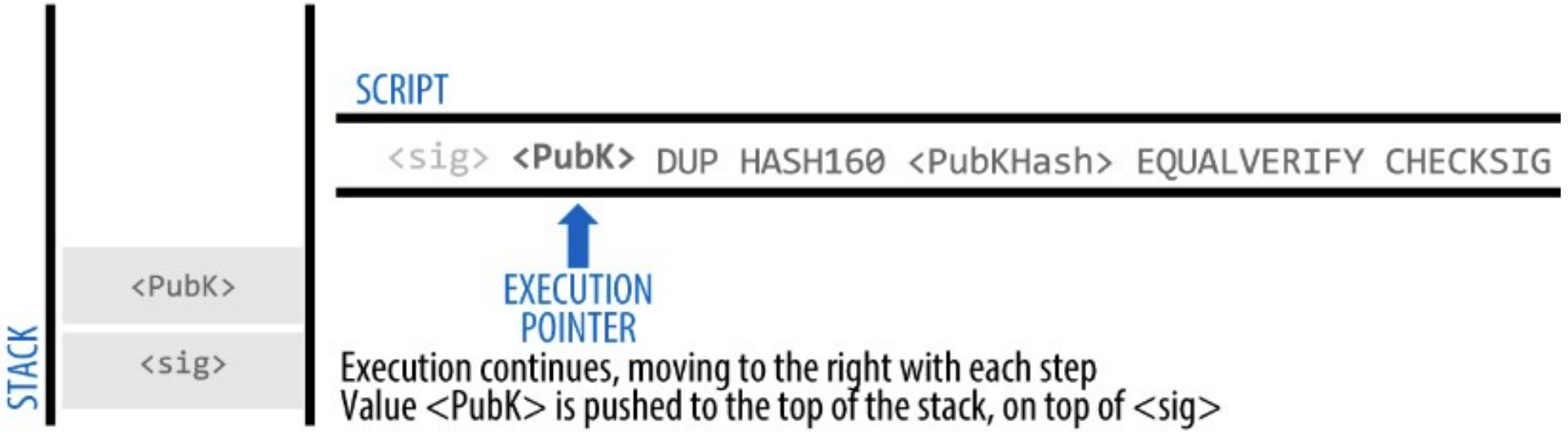

SCRIPT
2 3 ADD 5 EQUAL
EXECUTION POINTER
STACK
5
5
Constant value "5" is pushed to the top of the stack

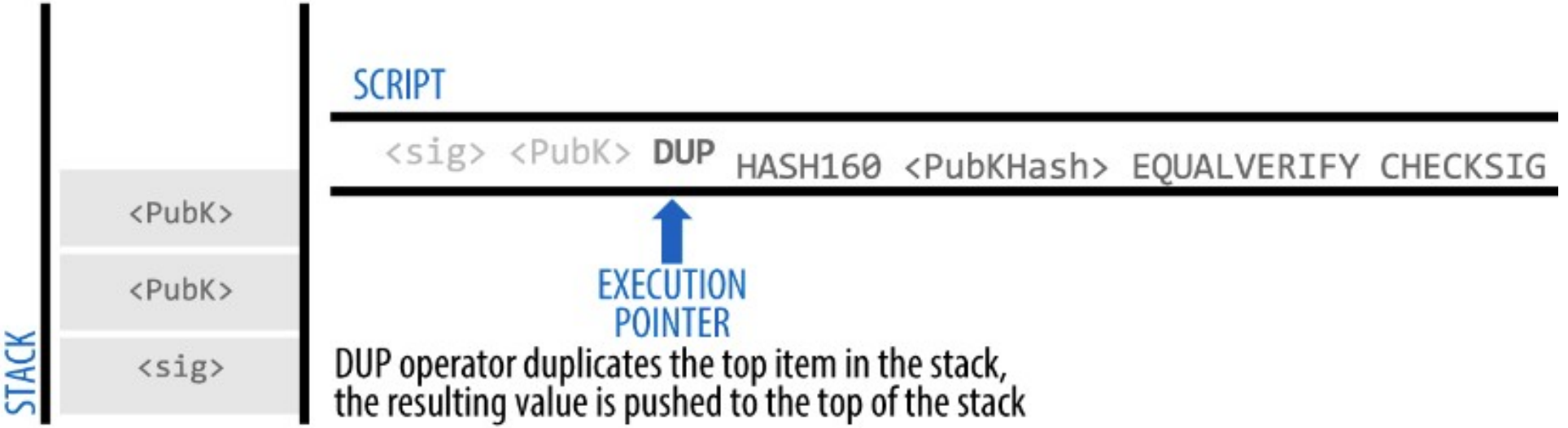

SCRIPT
2 3 ADD 5 EQUAL
EXECUTION POINTER
STACK
5
5
Constant value "5" is pushed to the top of the stack

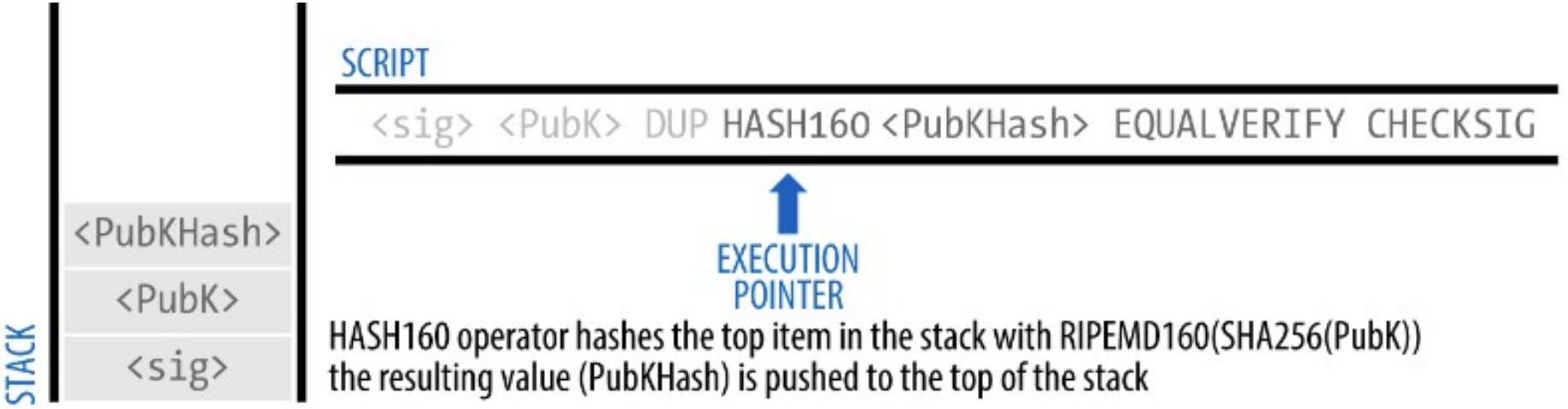

SCRIPT
2 3 ADD 5 EQUAL
EXECUTION POINTER
STACK
TRUE
Operator EQUAL pops the top two items out of the stack and compares the values (5 and 5) and if they are equal, EQUAL pushes TRUE (TRUE = 1) to the top of the stack

Pay To Pub-key Hash (P2PKH)

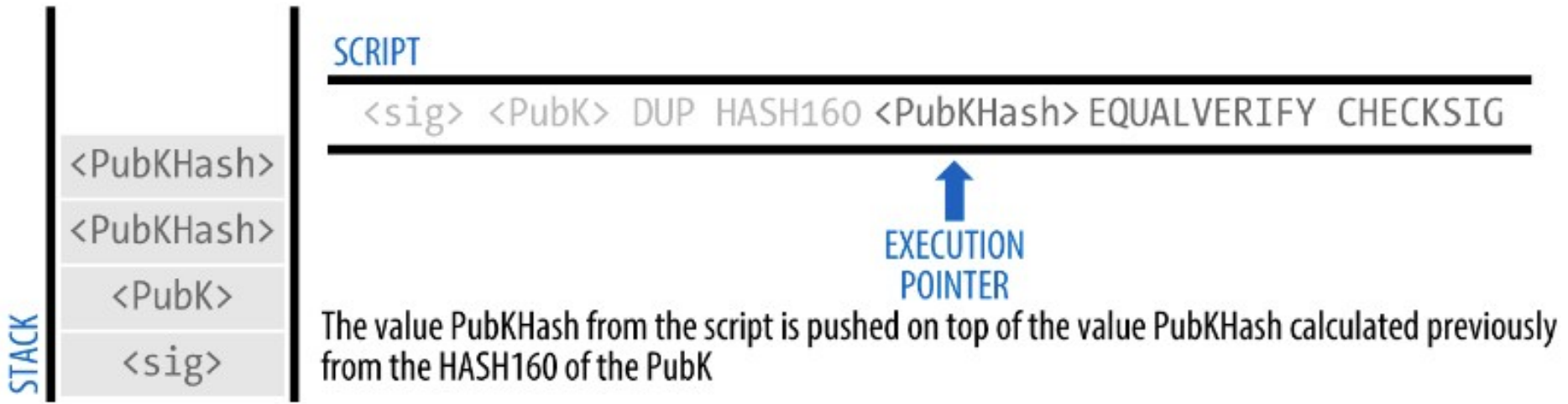


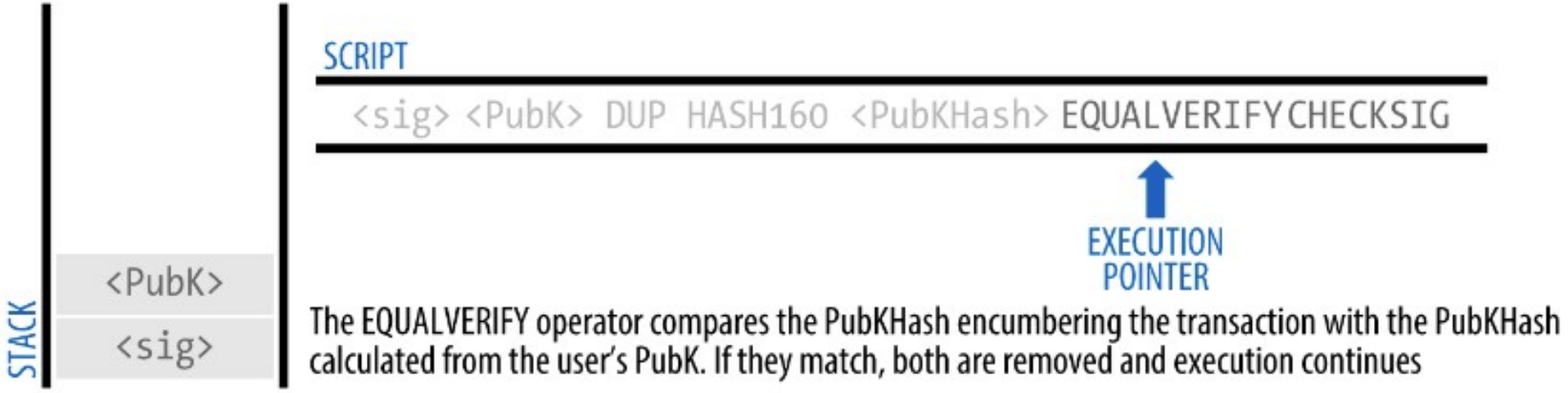

SCRIPT
<sig> <PubK> DUP HASH160 <PubKHash> EQUALVERIFY CHECKSIG
EXECUTION POINTER
STACK
<PubK>
<sig>
Execution continues, moving to the right with each step
Value <PubK> is pushed to the top of the stack, on top of <sig>


SCRIPT
<sig> <PubK> DUP HASH160 <PubKHash> EQUALVERIFY CHECKSIG
EXECUTION POINTER
STACK
<PubK>
<PubK>
<sig>
DUP operator duplicates the top item in the stack,
the resulting value is pushed to the top of the stack

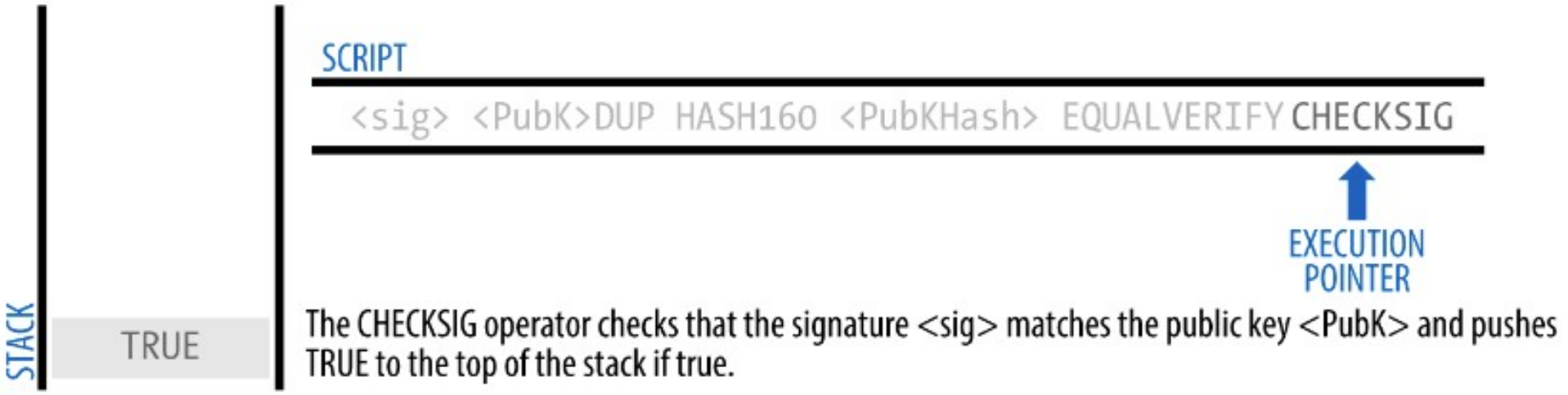

SCRIPT
<sig> <PubK> DUP HASH160 <PubKHash> EQUALVERIFY CHECKSIG
EXECUTION POINTER
STACK
<PubKHash>
<PubK>
<sig>
HASH160 operator hashes the top item in the stack with RIPEMD160(SHA256(PubK))
the resulting value (PubKHash) is pushed to the top of the stack

```
"vout": [
   {
     "value": 0.10000000,
     "scriptPubKey": "OP_DUP OP_HASH160
7f9b1a7fb68d60c536c2fd8aeaa53a8f3cc025a8 OP_EQUALVERIFY
OP_CHECKSIG"
   }
 ]
```





The EQUALVERIFY operator compares the PubKHash encumbering the transaction with the PubKHash calculated from the user's PubK. If they match, both are removed and execution continues


SCRIPT
<sig> <PubK>DUP HASH160 <PubKHash> EQUALVERIFY CHECKSIG
EXECUTION POINTER
STACK
TRUE
The CHECKSIG operator checks that the signature <sig> matches the public key <PubK> and pushes TRUE to the top of the stack if true.