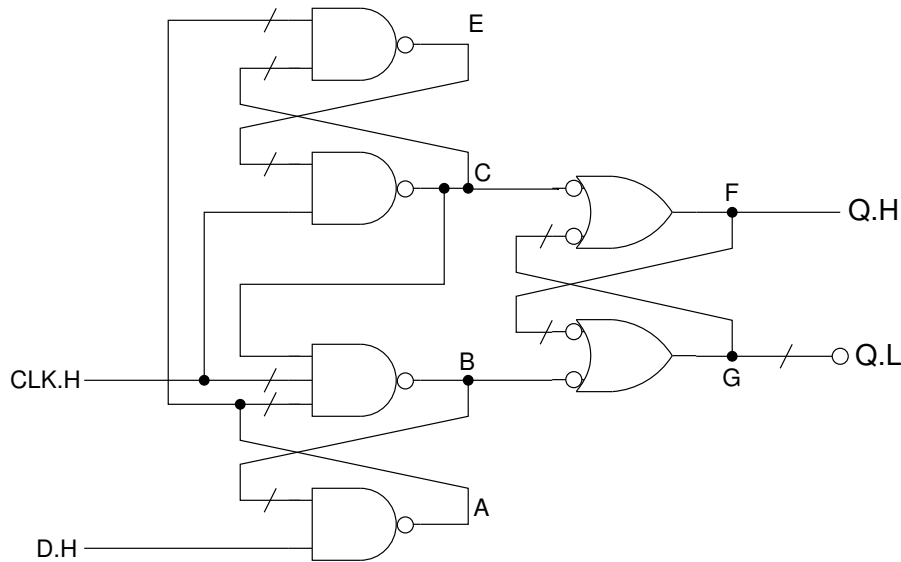


The D Flip-Flop

Simplified Logic



D Flip-Flop Model

```

|
| Gate models for a 3-valued "trit" type, {0, 1, ?}
| Map a table lookup over input streams.
|
AND = fc:[and *] where and = \[a b]. (idx:a):(idx:b):[[0 0 0] [0 1 2] [0 2 2]]
|
| D flip-flop model.
|
DFF = \[CLK D [a b c e f g]].
rec
  A = a ! AND:[D NOT:B]
  B = b ! AND:[CLK AND:[NOT:A NOT:C]]
  C = c ! AND:[CLK NOT:E]
  E = e ! AND:[NOT:C NOT:A]
  F = f ! OR:[C NOT:G]
  G = g ! OR:[NOT:F B]
in
  [CLK D A B C E F G [NL *]]]

```



```
[ 0  0  1  1  1  1  0  0 ] | <--+
[ 0  0  1  1  1  1  1  1 ] <--+ |
[ 0  0  1  1  1  1  0  0 ]   <--+
[ 0  0  1  1  1  1  1  1 ]
[ 0  0  1  1  1  1  0  0 ]
[ 1  0  1  1  1  1  1  1 ] <-- clock edge
[ 1  0  1  1  1  1  0  0 ]
[ 1  0  1  0  1  1  1  1 ]
[ 1  0  1  0  1  1  1  0 ]
[ 1  0  1  0  1  1  1  0 ]
[ 0  0  1  0  1  1  1  0 ]
[ 0  0  1  0  1  1  1  0 ]
[ 0  0  1  1  1  1  1  0 ]
[ 0  0  1  1  1  1  1  0 ]
[ 0  0  1  1  1  1  1  0 ]
```