Pledge’s Algorithm
– How to Escape from a Dark Maze

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“There must be some way out of here,” said the joker to the thief,
“There’s too much confusion, I can’t get no relief.”
from “All Along the Watchtower” by Bob Dylan

“Oh dear, the light’s gone out! How do I get out of here? Maybe exploring
the tunnels below the imperial Roman baths in Trier all alone was not such a
good idea. But wait! Recently, I read something about systematically search-
ing a maze with crossings and tunnels: depth-first search. But, unfortunately,
one needs some light and chalk for markings. So this does not work in the
dark. Do I really have to spend the night in here?”

What can we do in this situation? Let’s try something. We just follow our
nose, carefully moving forward until we hit a wall. Then we turn right and
follow this wall, always touching the wall with our left hand, until we reach
the exit. This works fine in a maze like this,

but if we hit some kind of pillar, we get into a loop!
So, our first idea does not work in general. We need to leave a pillar eventually. Next try! Follow our nose until we hit a wall; follow the wall until we can move straight ahead in the original “nose” direction. Now, the pillar is no longer a problem:

But this approach does not work in our first example.