



Niel's Chess - Hadamard Variant



Equal only

In the Hadamard variant of Niel's Chess, only equal superposition is used, but it can be of two types:

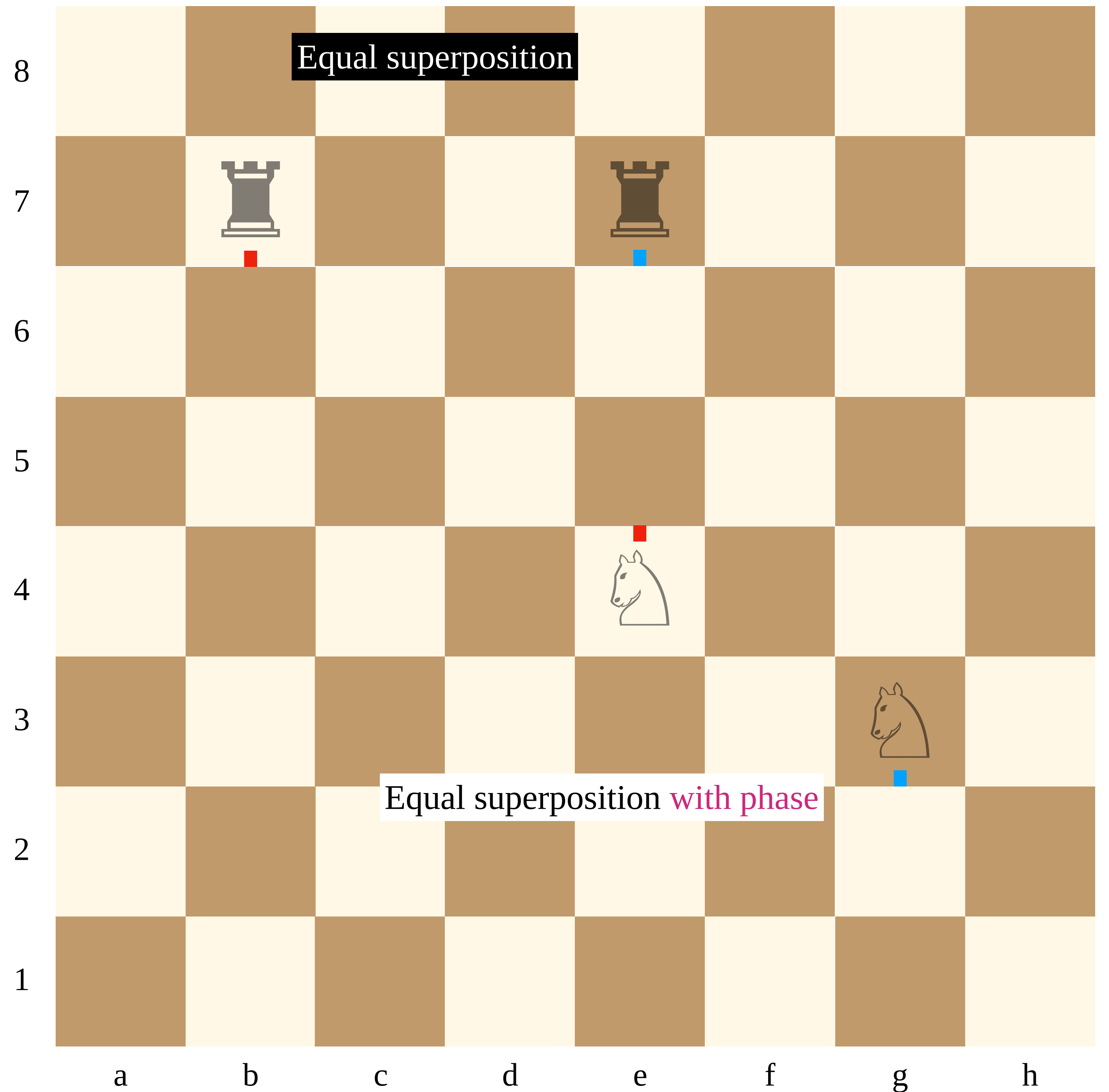
Equal superposition: both **red** and **blue** marks face the opponent.

Equal superposition "with phase": **red** mark faces the opponent, while **blue** mark faces the player.

Both the knight and the rook have a **50-50 chance** of collapsing to "**red**" or "**blue**."

Still, these two states are **qualitatively** different.

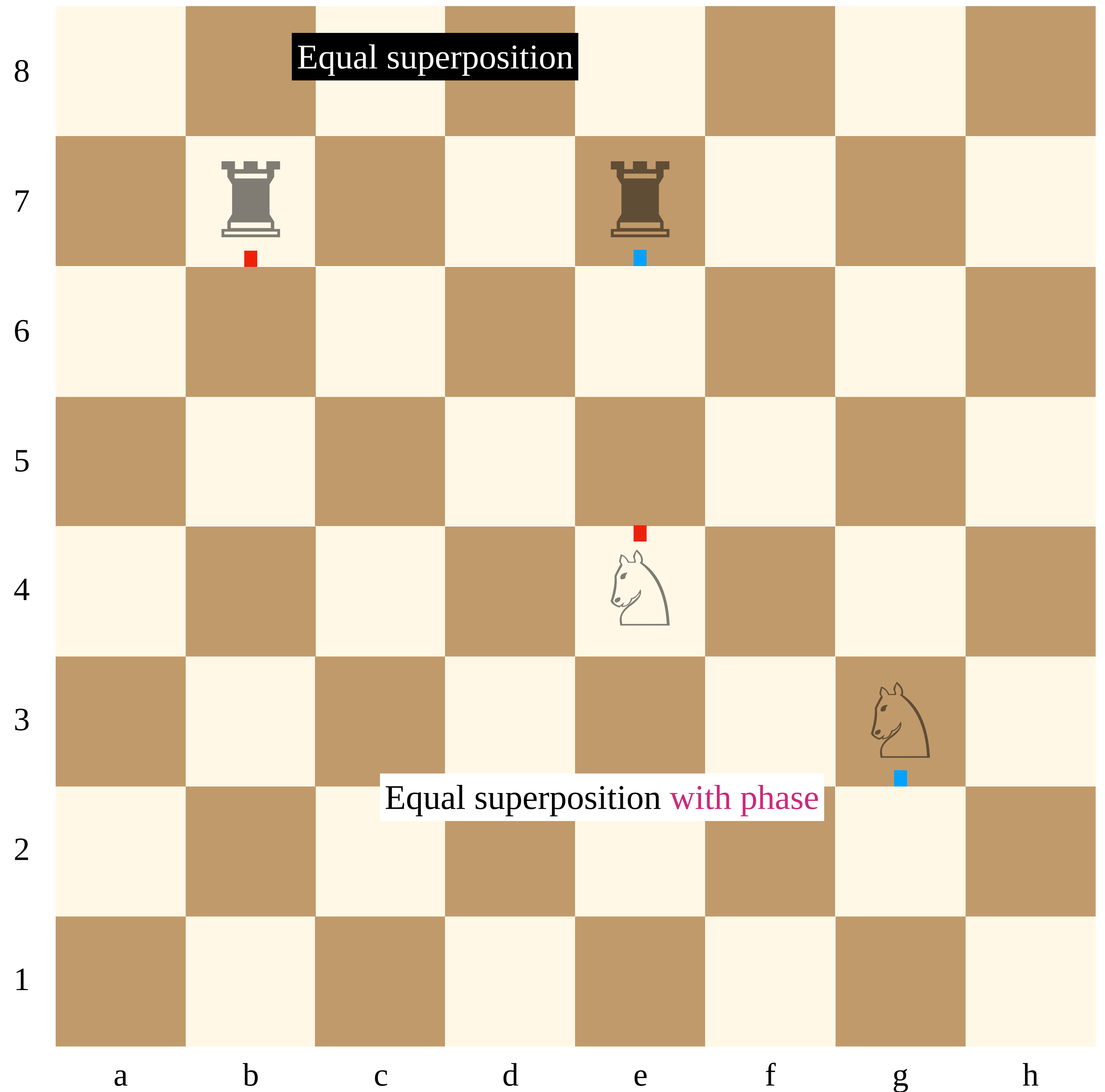
Let's see why...



Hadamard move

If an indefinite pair **isn't part of an entangled state**, and one of its pieces is “**one move away**” from the other, the player may apply the “**Hadamard operation**” to that pair.

Now, Black will apply the Hadamard operation to its rook...



Hadamard move

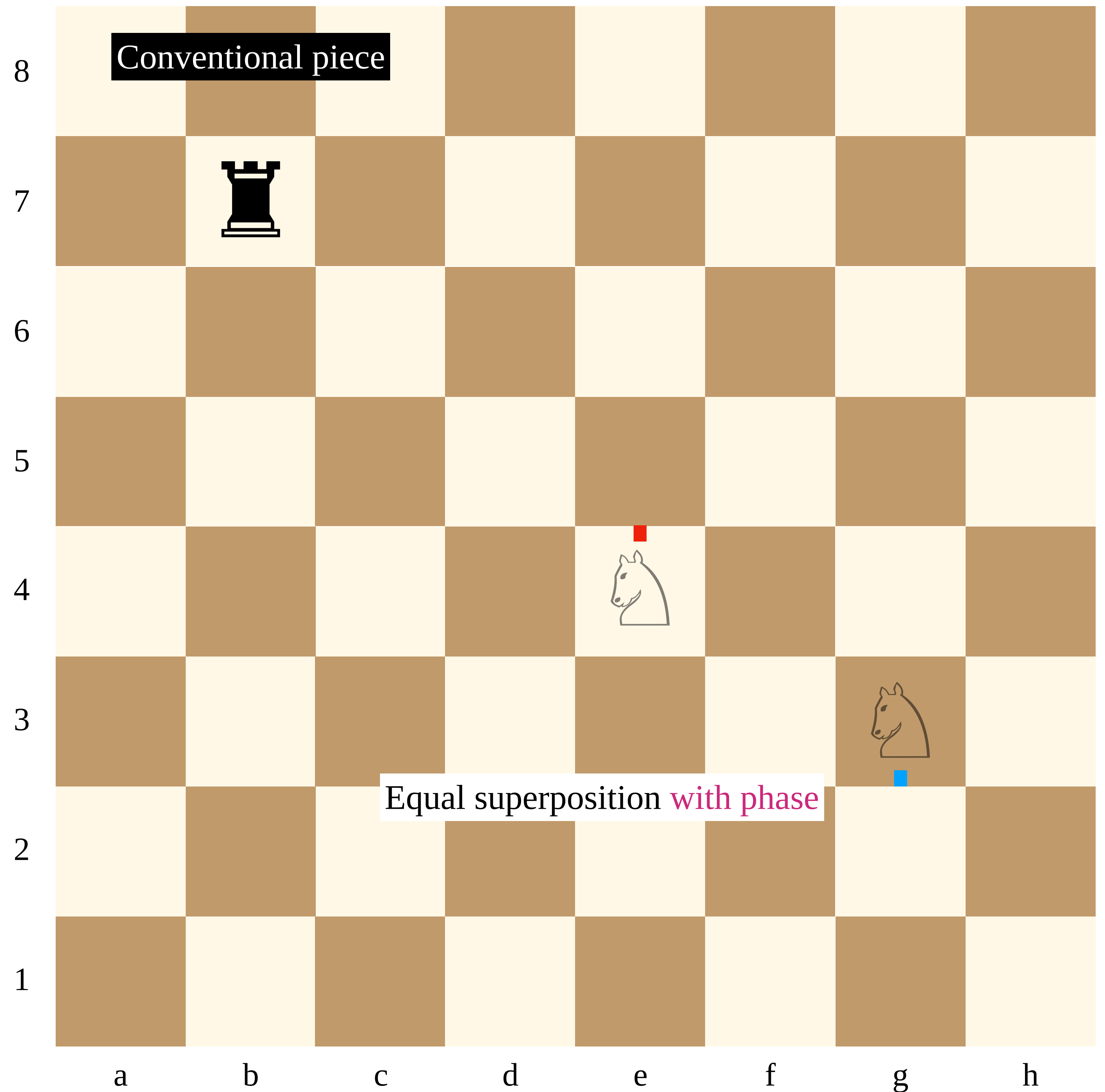
The rule:

Equal superposition: the piece ends up as a conventional piece on the “red” square.

So, the rook ended up on **b7**.

! *It wasn't a random collapse but a deterministic change of state.*

Next, let White apply the Hadamard operation to its knight...



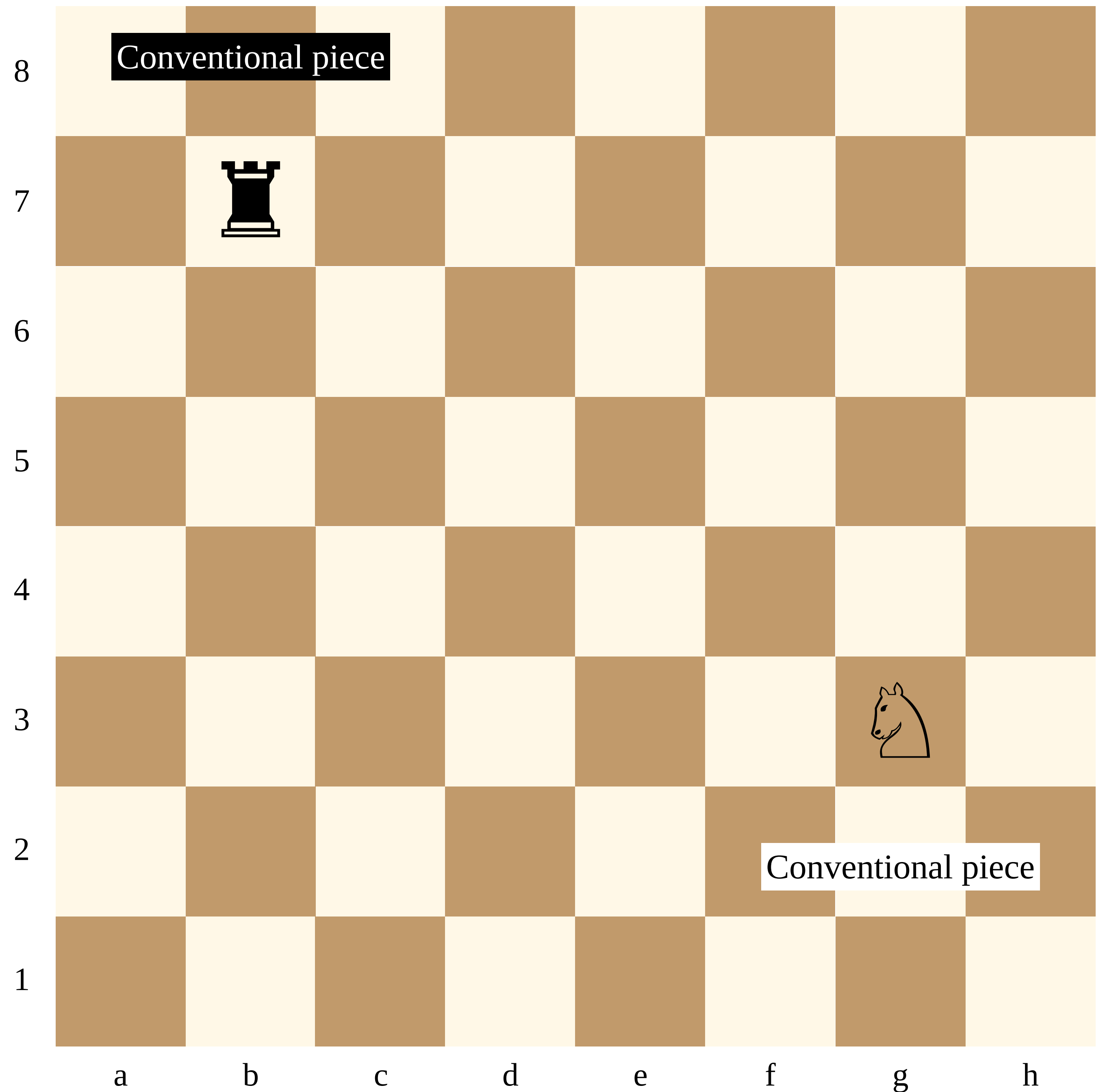
Hadamard move

The rule:

Equal superposition with phase: the piece ends up on the “blue” square.

So, the knight ended up on **g3**.

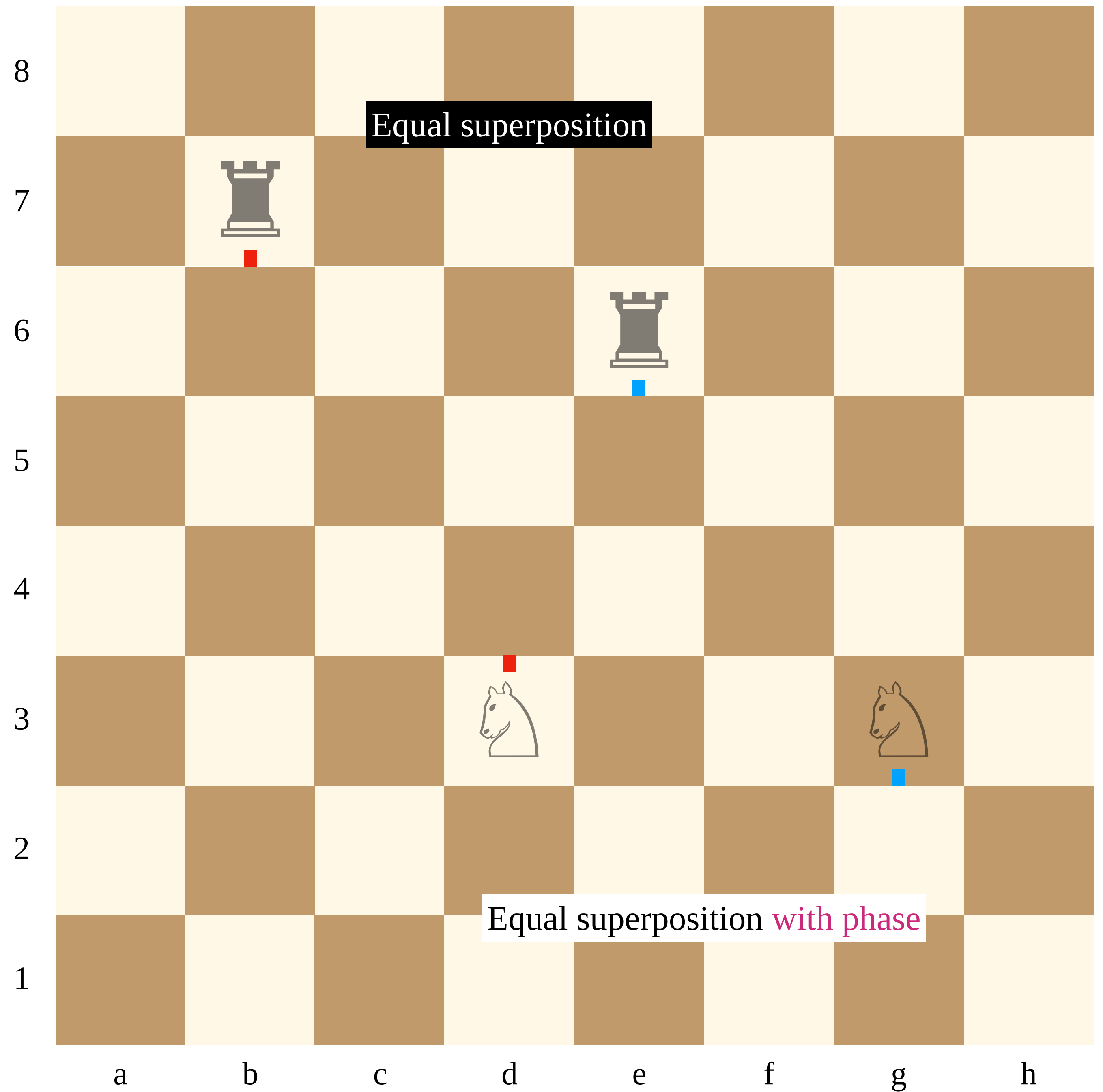
! *Again, it was deterministic, we didn't roll the dice.*



Z move

If an indefinite piece **isn't part of an entangled state**, and furthermore it has a **blue** mark, the player may apply the “**Z operation**” to it.

Now, Black will apply the Z operation to its rook on **e6**...



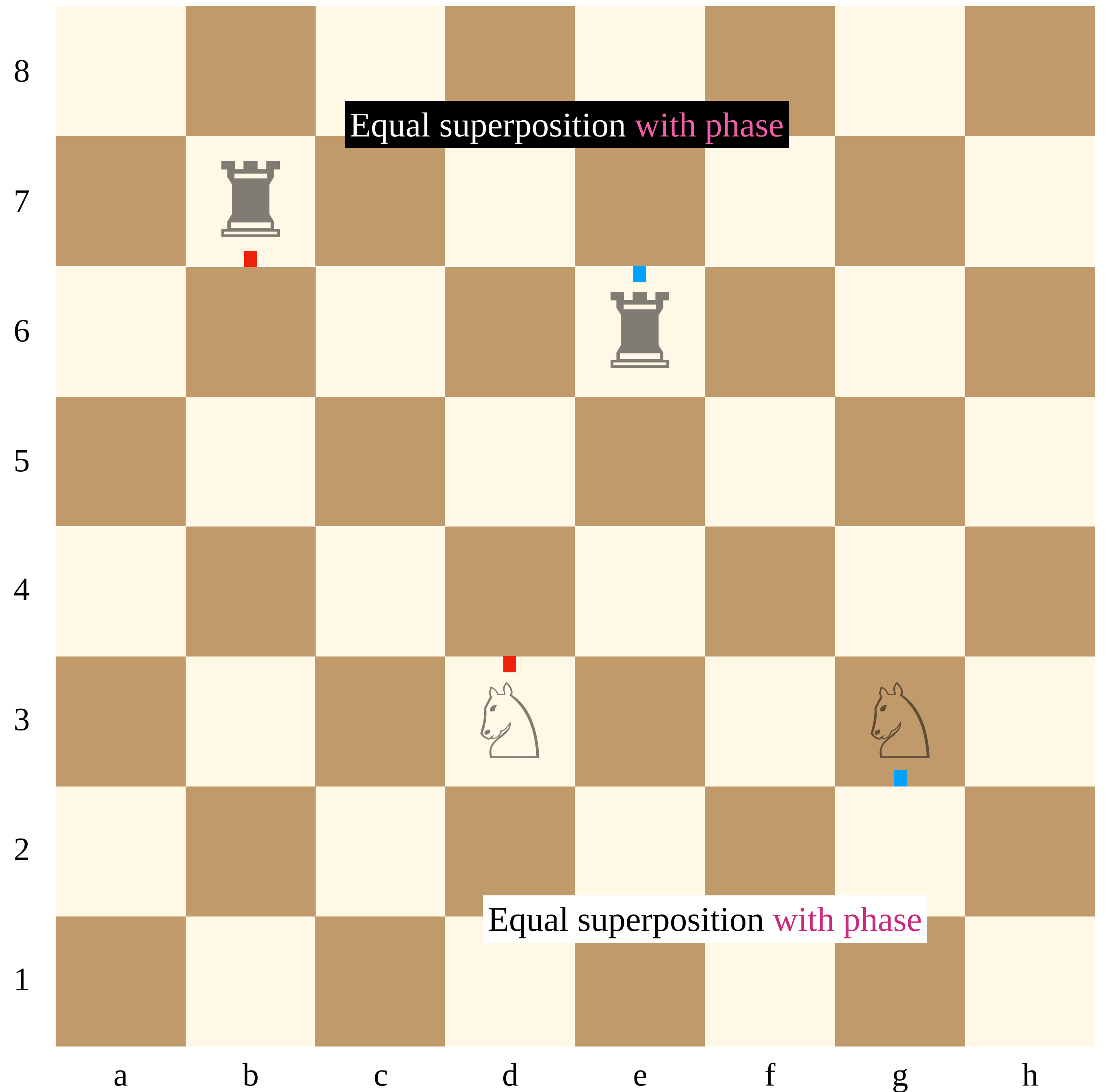
Z move

The rule:

The direction of the **blue** mark gets inverted. That is, the Z operation **toggles** between the two types of superposition.

Thus, the rook ended up in equal superposition with phase.

Next, let White apply the Z operation to its knight on **g3**...



Z move

The knight ended up in equal superposition.

💡 *The Z operation is another example of a deterministic change of state.*

