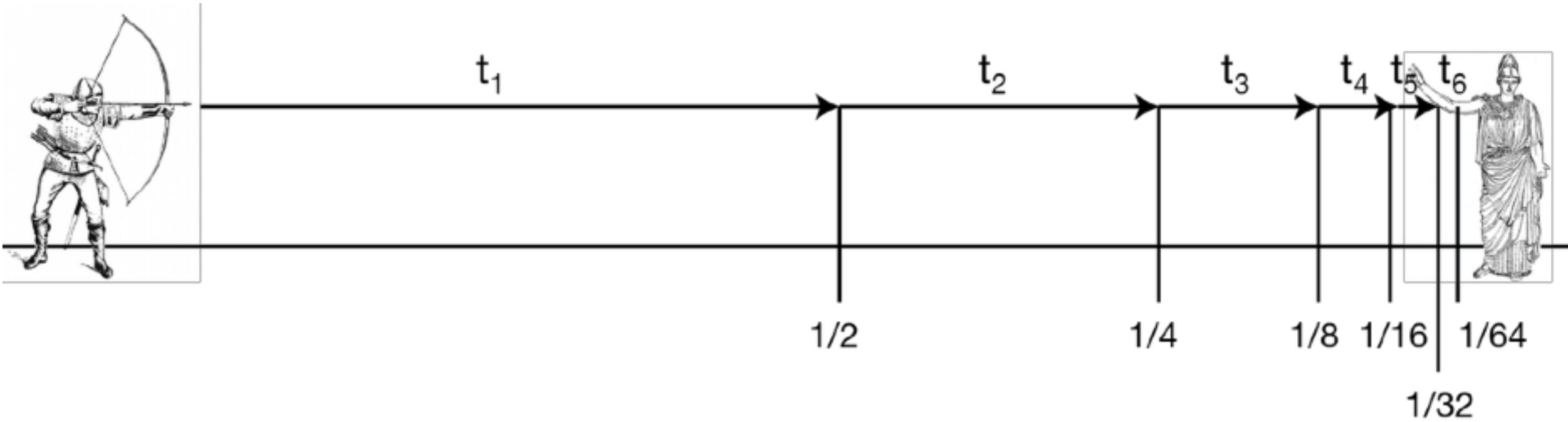


(One of) Zeno's Paradoxes



[illegible]

MY CLIENT COULDN'T HAVE
KILLED ANYONE WITH THIS
ARROW, AND I CAN PROVE IT!

I'D LIKE TO EXAMINE
YOUR PROOF, ZENO. YOU
MAY APPROACH THE BENCH.

—BUT NEVER REACH IT!

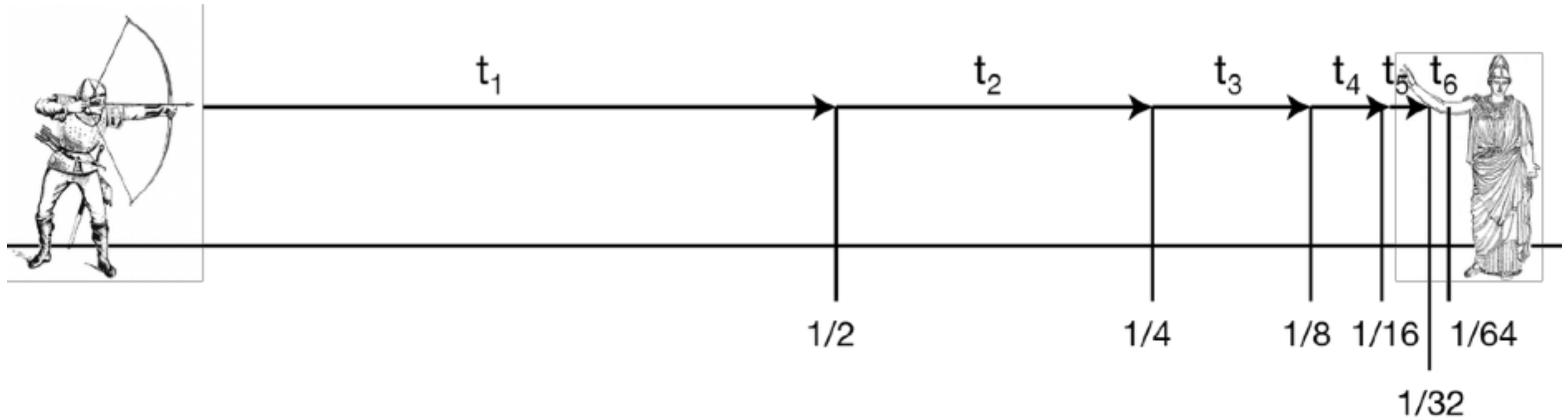


- the arrow travels half the distance;
half remains

- the arrow travels half of the remaining distance, $1/4$ remains

- something always remains: the arrow never reaches its target!

(One of) Zeno's Paradoxes



- the arrow travels half the distance; half remains
- the arrow travels half of the remaining distance, $1/4$ remains
- something always remains: the arrow never reaches its target!



Quantum Zeno Effect

Survival probability in a simple toy model (Rabi oscillations):

$$\hat{H} \doteq \begin{pmatrix} 0 & \kappa \\ \kappa & 0 \end{pmatrix} \quad P_{00}(t) = \left| \langle 0 | e^{-i\hat{H}t/\hbar} | 0 \rangle \right|^2 = \cos^2(\kappa t)$$

Key to QZE: Collapse of wavefunction resets clock

