



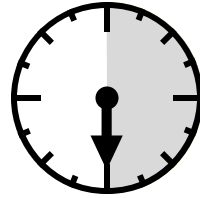
# The Universe as a State Machine

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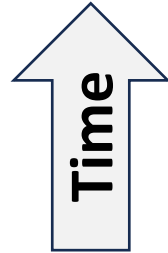
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# Physics As a Parallel-Execution State Machine

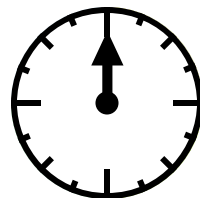
State 1



← “At rest” matter



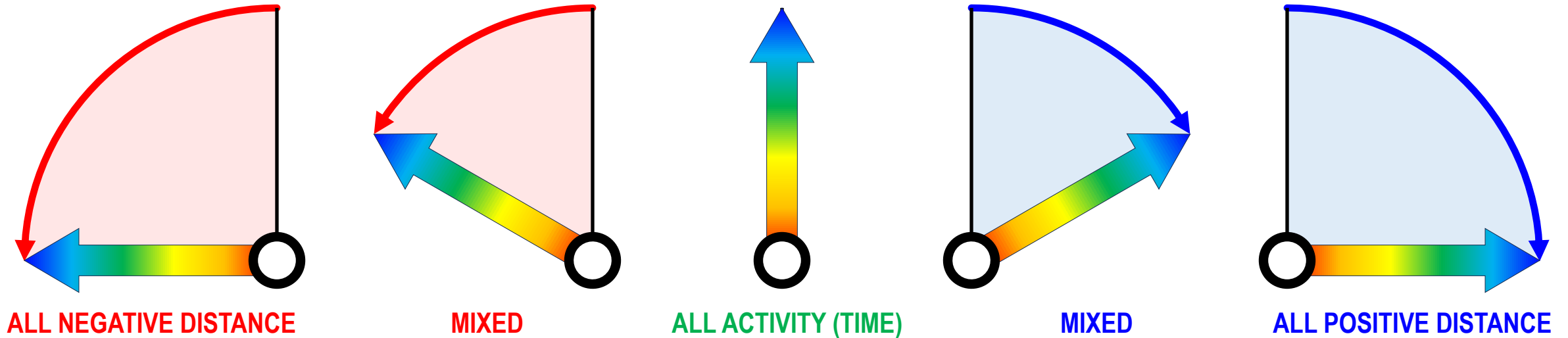
State 0



← “At rest” matter



# DAU = Distance-Activity Unit



- **1 fixed-length DAU “arrow” transforms its origin to a new state**
  - Vertical DAU = 100% **Activity** transformation (passage of time)
  - Horizontal DAU = 100% **Distance** transformation (relocation in space)
- **Driving Analogy: Activity = all “donuts,” Distance = straight driving**
- **Units are time** (e.g., year, ns), but they can transform into distance
  - DAU arrows are unit vectors in a 2D (light-year, year) or (light-ns, ns) plane

# “Rest State” DAU Transformers

## DAU 1 State

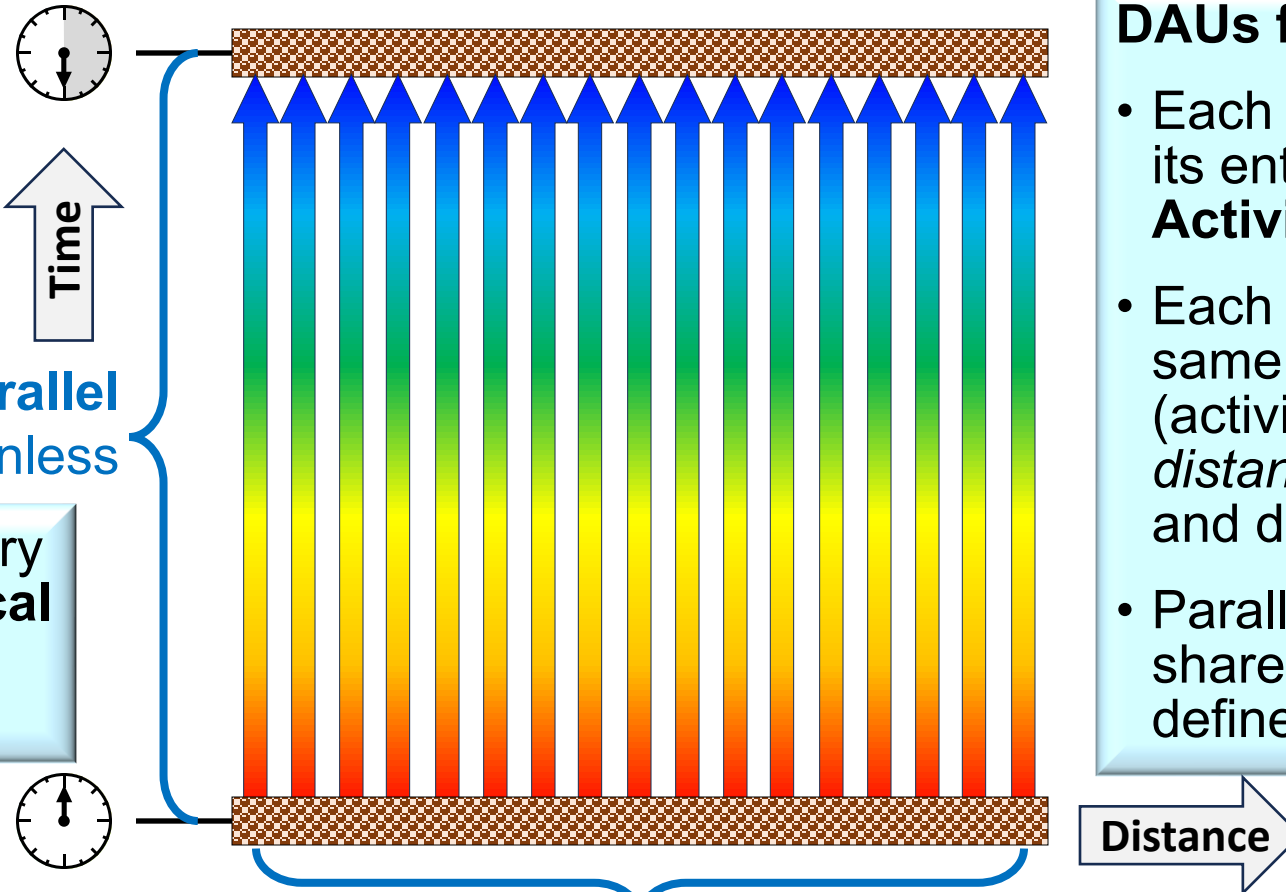
**DAU:** Units of time (**Activity**), but can convert to **Distance**

DAU arrows stay parallel when units are motionless

**DAU Dynamics:** Every point receives **identical** DAU units (e.g., 1 ns) for the next iteration

## DAU 0 State

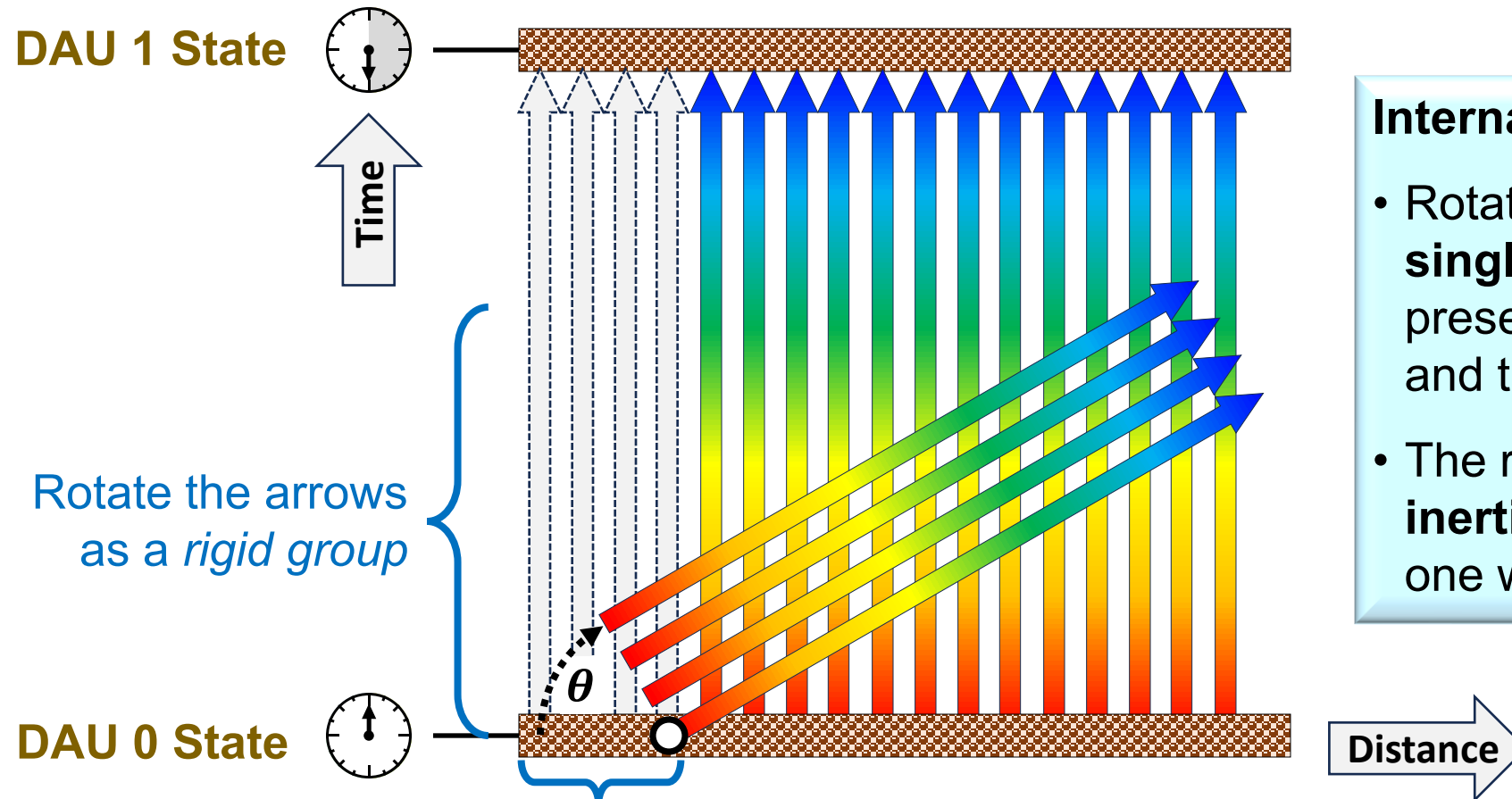
The DAU 0 State: All units in this example remain at rest relative to each other



## DAUs for the Rest State

- Each location “spends” its entire D-A unit on **Activity** (motion in time)
- Each location shares the same definitions of *time* (activity expended) and *distance* (relative spacing and direction)
- Parallel DAU units with shared space-like origins define an **inertial frame**

# Tilting DAU Arrows Converts Some Time to Distance



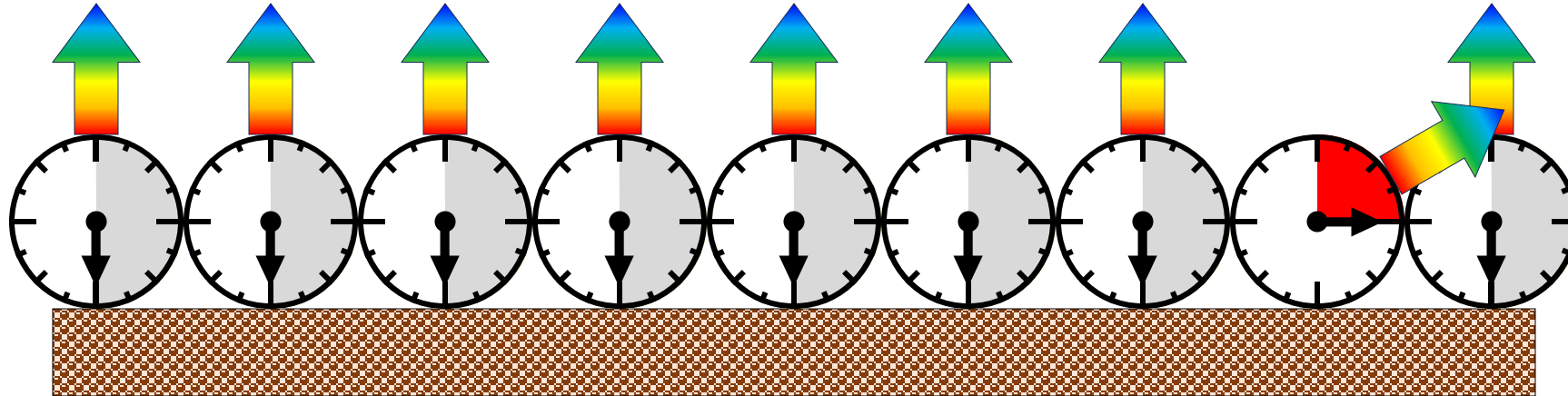
## Internal results:

- Rotating arrows as a **single rigid group** preserves their space and time relations
- The result is a **valid inertial frame**, but one with a *limited size*

**Items with grouped DAU arrows must be prepared in advance:**

They must be moved closer together, and their rear clocks must be set forward in time

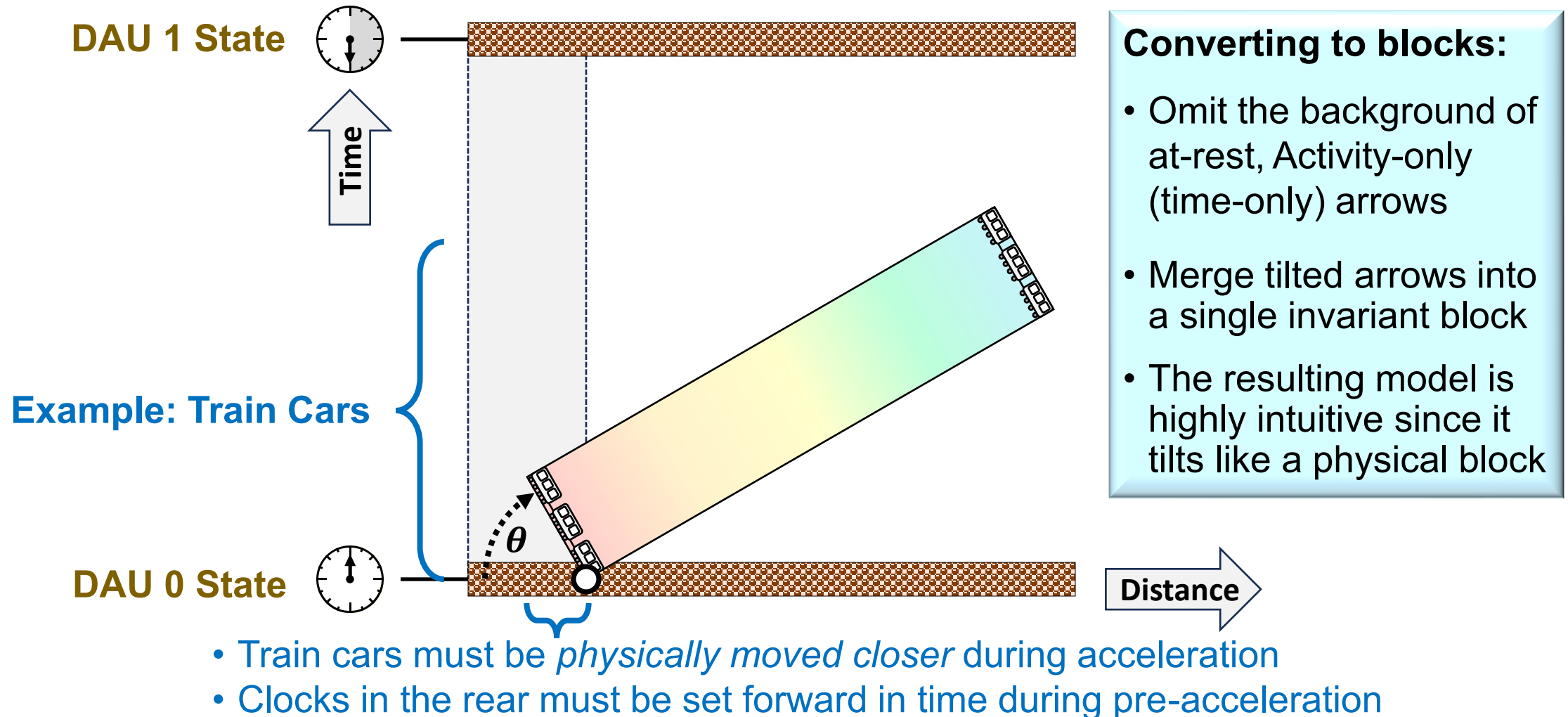
# The Universe as a State Machine



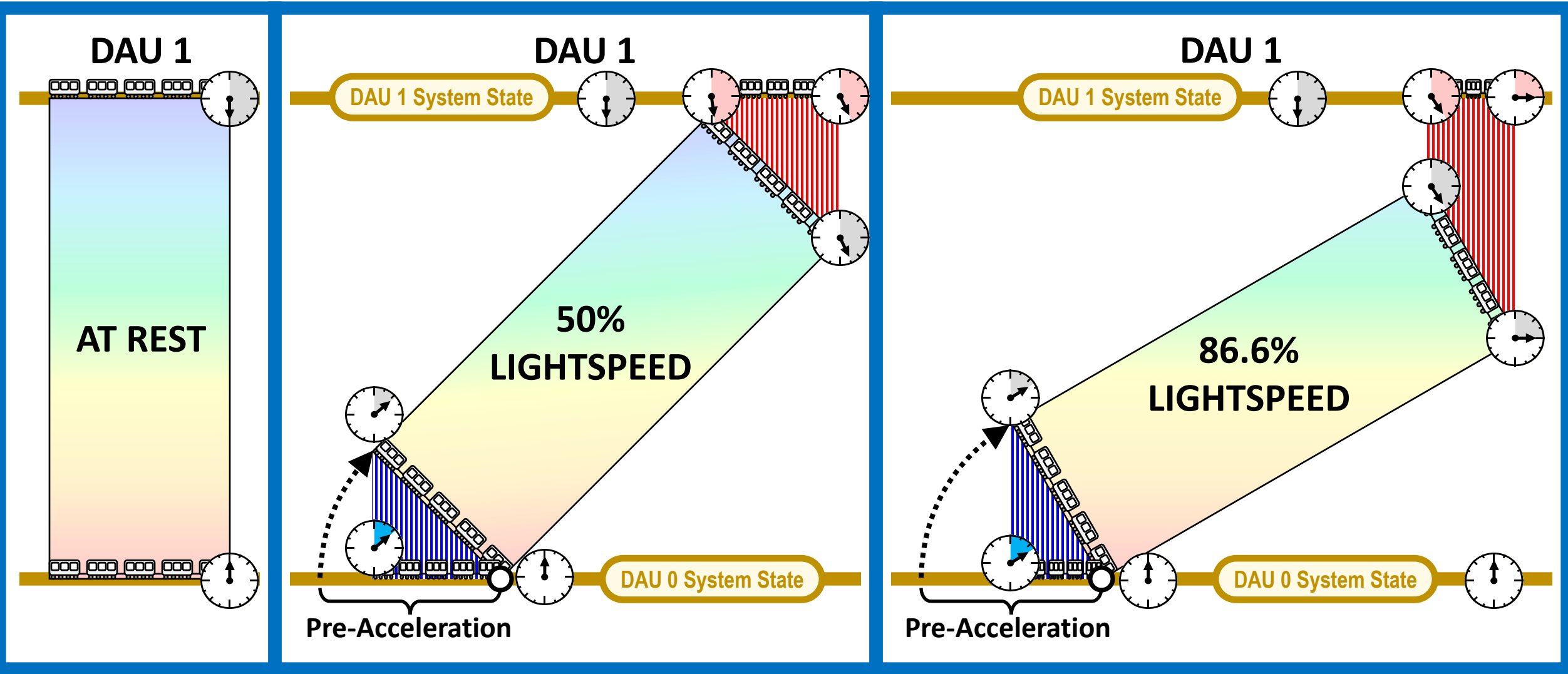
## The DAU model *is not* a “spacetime” model

- The DAU model is a *state machine* model
- The fermionic universe is the state machine, and is the *only* reality that exists. Physics drives its state transitions.
- Time and space exist only as *transformation operators*

# A Simpler Visual: The *Tilted Block* Formalism

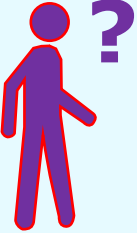


# Three Examples of Tilted-Block Relativity (TBR)



# Pre-Acceleration Requires Time and Effort

**(1) SELECT**



Select GPS satellites for boosting to a new shared inertial frame

**(2) SQUEEZE**



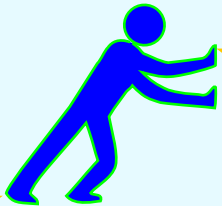
Squeeze (physically shorten) the distances between the satellites

**(3) SYNC**

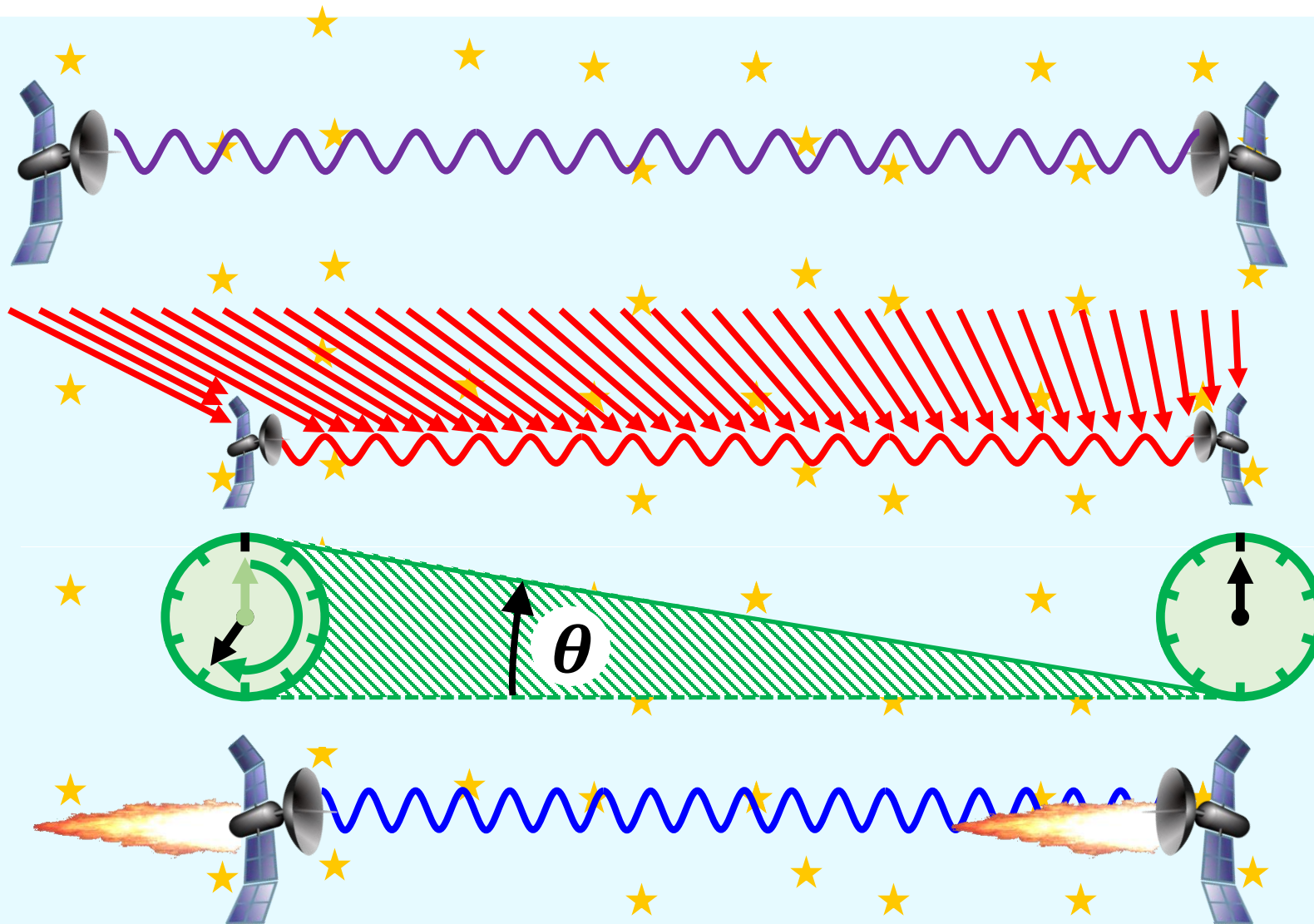


Sync their clocks by falsely "aging" (resetting) rearward clocks

**(4) SEND**



SEND the satellites by pushing each one separately



# Summary

- The universe as a state machine simplifies special relativity
  - All calculations are in Euclidean space
  - Lorentz contraction and time dilation become vector dot products
  - The largest rest frame becomes a universal coordinate system
  - Predictivity *increases* by enabling precise multi-frame tracking
  - All concept of space and time disappear as self-existent entities
- Poincaré symmetries apply only within transformed frames
- The universe outside the transformed “bubble” are covered by relativistic Doppler symmetries

