Negative (or Anti-) Time

A Theoretical Approach of Potential Use in Time-space Trajectory Analysis and Modeling

Keith Clarke

UCSB

My last slide is a picture of a tornado

=38 bytes
=how many anti-chronons?

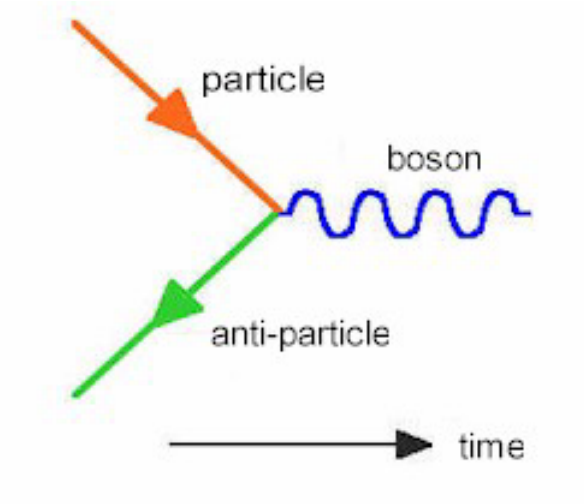
A half-worked idea, of no particular value, but…

- Thanks to John Nystuen
- Thanks to Mike Worboys

Question: Why do dimensions 1, 2, and 3 have omni-direction, but not 4?

"Time's Arrow"

Feynman Diagrams

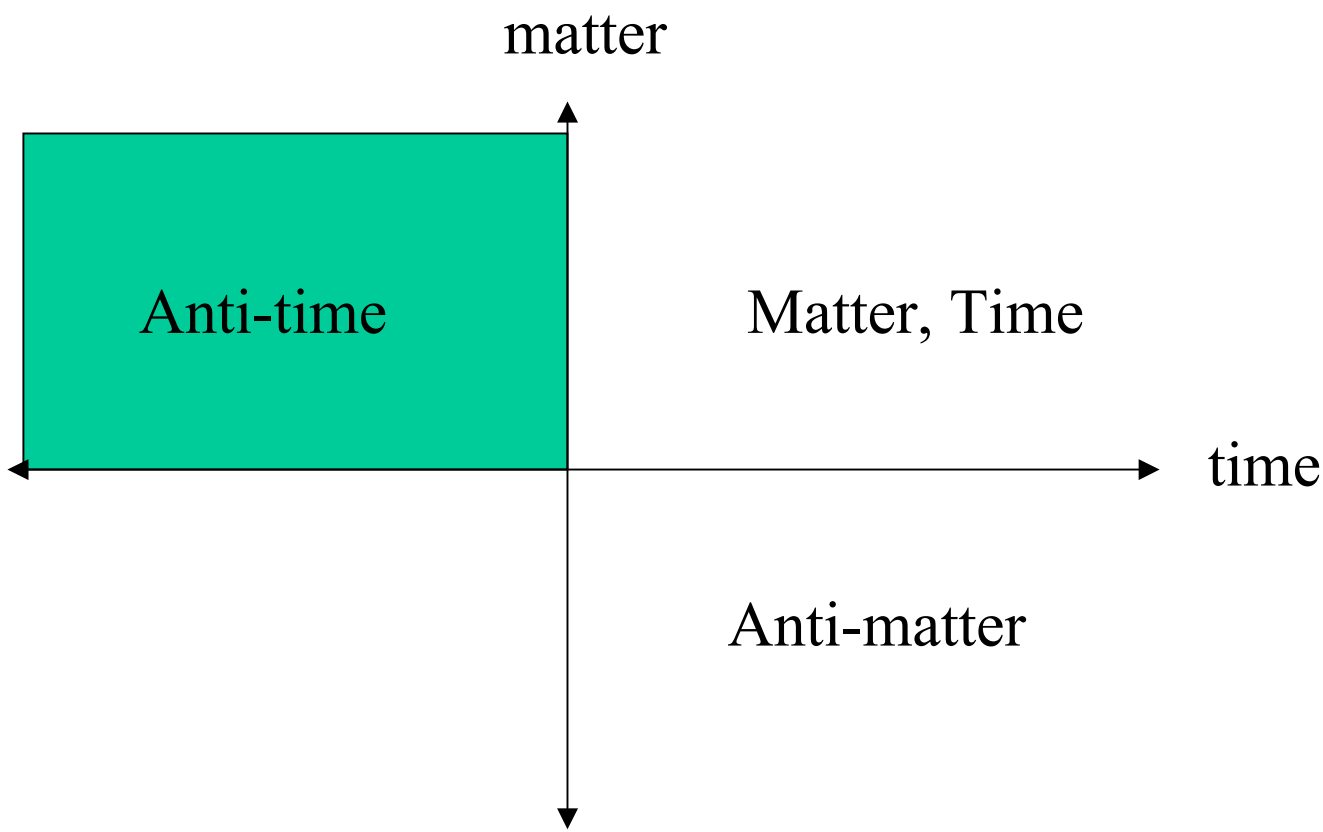


Feynman diagrams are used to represent particle interactions. They are made up of a series of *vertices* (interaction points) all of which involve *three* components.

The example shows a boson (shown blue) and two particle tracks. One of the particle tracks always points into the vertex and the other out of it. If a particle track points in the direction of time it is a *particle* (shown orange), however if it is in the opposite direction it is an *antiparticle* (shown green).

Straight lines represent leptons, quarks & their composite particles, hadrons.
Dashed lines are sometimes used to represent neutrinos.
Wiggly lines represent the force bosons , *W* & *Z*
Corkscrew lines represent gluons.

Quantum Physics



In databases

- Warboys and Duckham, 2004
- Instants (point) and intervals (line)
- Continuous, dense, discrete (real, complex, integer)
- Temporal unit = chronon (tick)=atomic
- Time can be linear, branching or cyclic
- Time is relative (and interacts with space)!

Excel Users Tips

Dealing with negative time values

- Because Excel stores dates and times as numeric values, it's possible to add or subtract one from the other.
- However, if you have a workbook containing only times (no dates), you may have discovered that subtracting one time from another doesn't always work. Negative time values appear as a series of hash marks (########), even though you've assigned the [h]:mm format to the cells.
- By default, Excel uses a date system that begins with January 1, 1900. A negative time value generates a date/time combination that falls before this date, which is invalid.
- The solution is to use the optional 1904 date system. Select *Tools, Options*, click the *Calculation* tab, and check the *1904 date system* box to change the starting date to January 2, 1904. Your negative times will now be displayed correctly, as shown below.

For DB handling

- Based on Transaction Time theory
- Data have timestamps
- Timestamps can be valid time or transaction time
- Objects have creation, disappearance, reappearance, destruction

Anti-time

- Freedom of movement in space after time (t) leads to divergent TS prism
- Constraints of future contract lead to forward convergence of space-time prism
- So the future passes information to the present
- Information flow or “force” increases as event approaches, then diminishes as it passes
- Space-time Gravity law?

Examples of Contracts

- Meetings and Appointments (Elections, travel to work)
- Mortgages (Specific contract)
- Wills (Influence future actions)
- Mission statements
- Scenario planning, insurance (Uncertainty)
- Equifinality
- Inevitabilities (Global warming)

Clarke's conjectures

- Events create information flows in both time and anti-time
- Chronons are like photons or resels
- Anti-time can be seen as matching transaction time from a DB perspective
- Contracts impose anti-time constraints on dimensions 1,2,3, maybe as an inverse-exponential
- Both time and anti-time form the Hagerstrand prism, are they symmetrical?