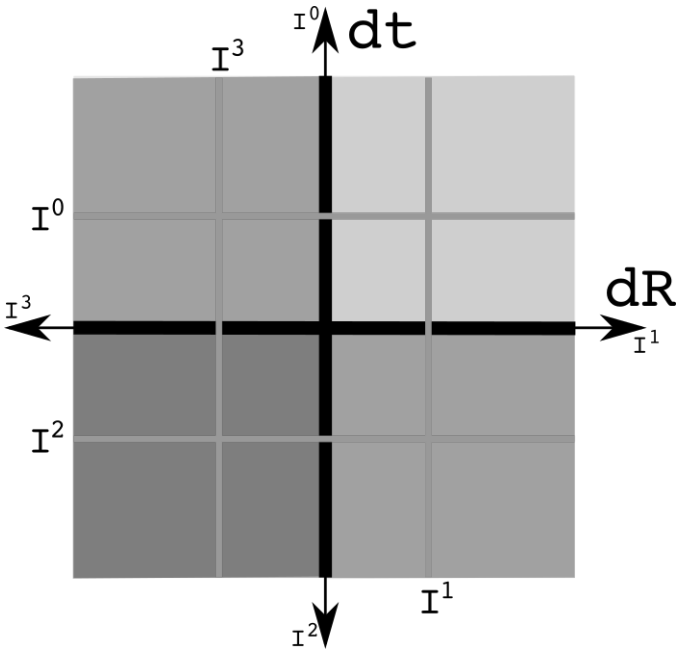
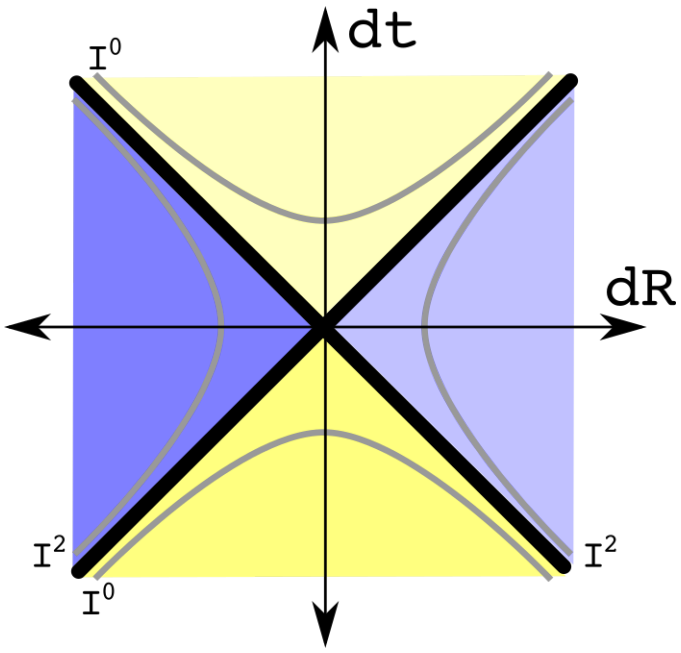
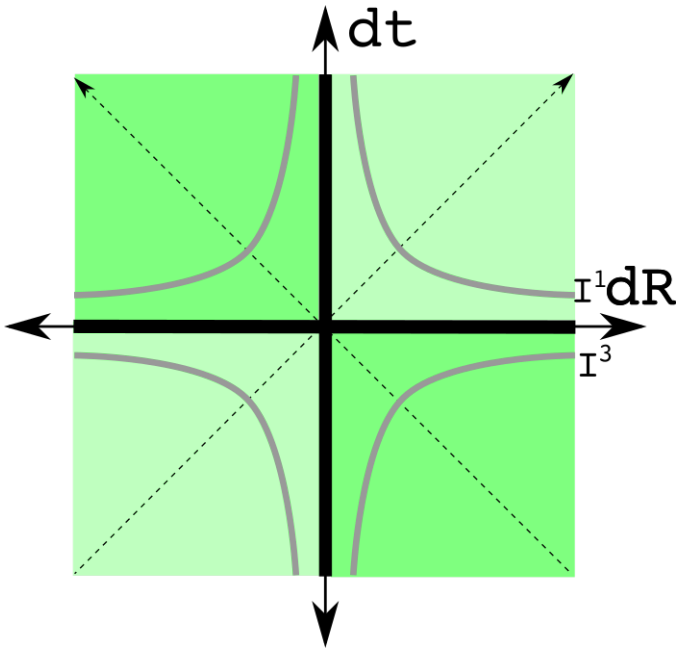


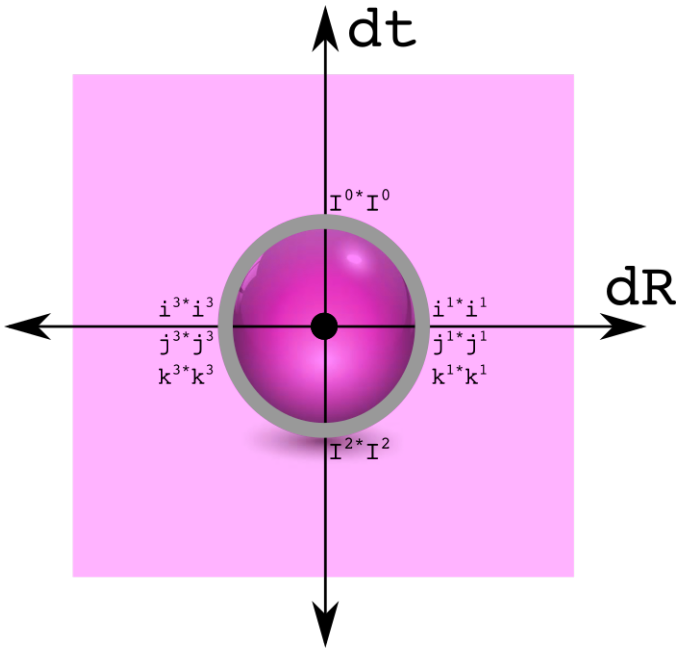
Classical



Fast Physics



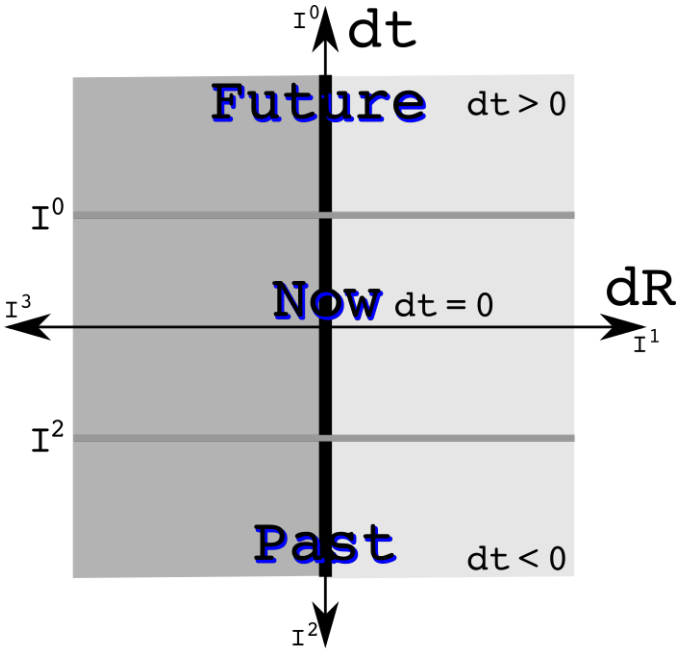
Gravity



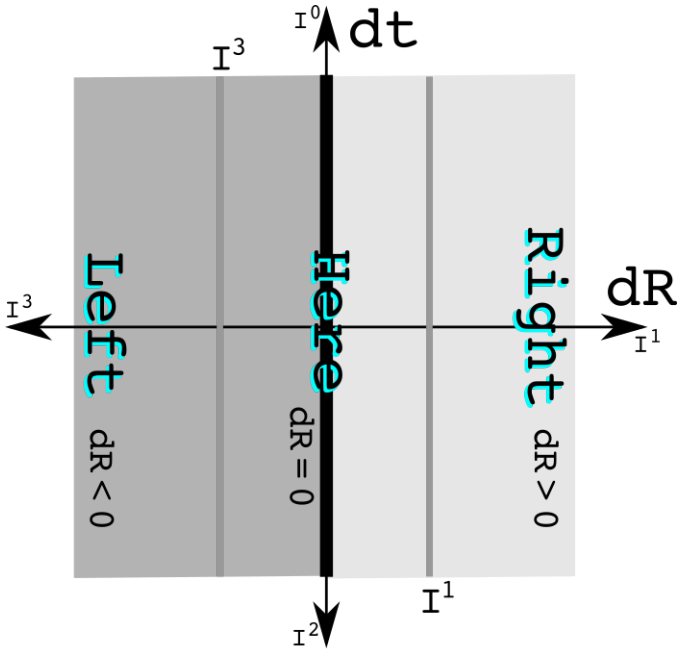
Light +

Space-time Geometries

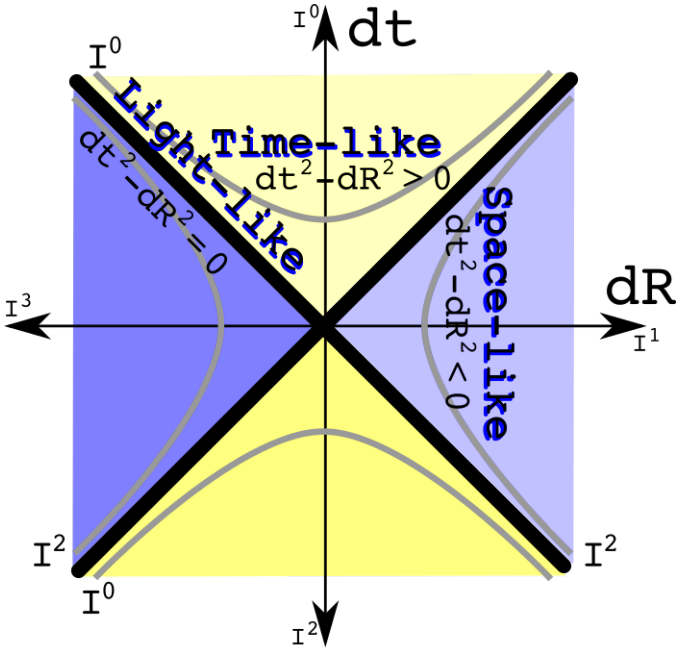
Space-Time Equivalence Classes



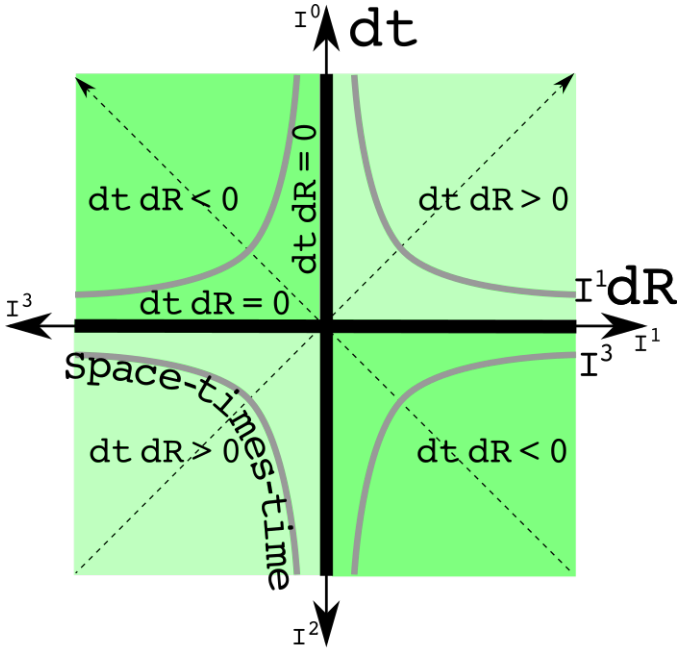
Time
dt



Space
dR

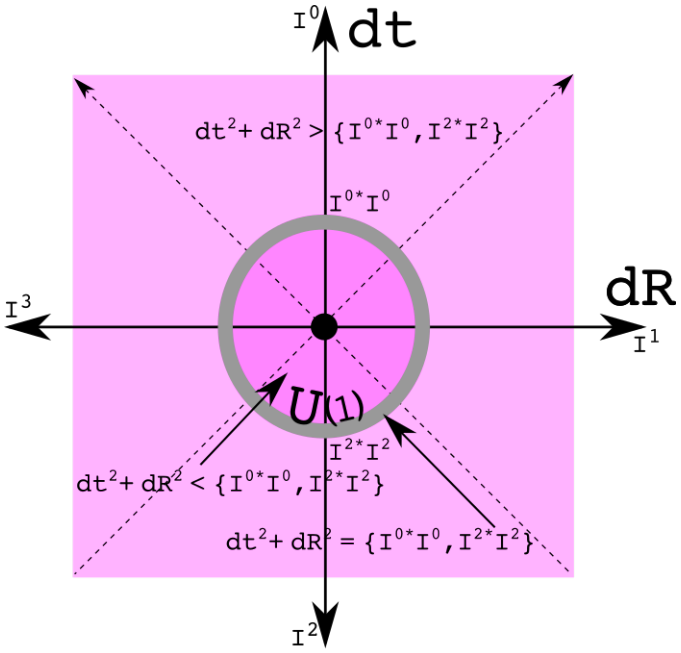


Causality
$dt^2 - dR^2$

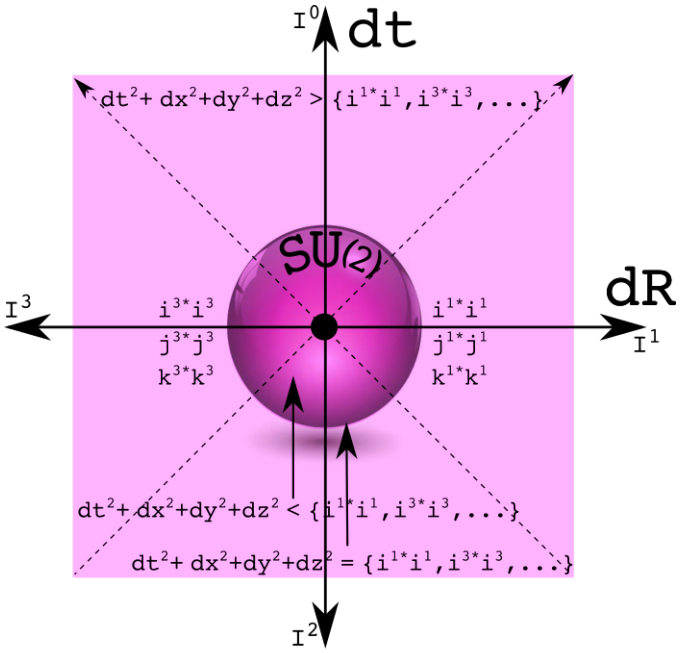


Gravity
dt dR

Space-Time Equivalence Classes

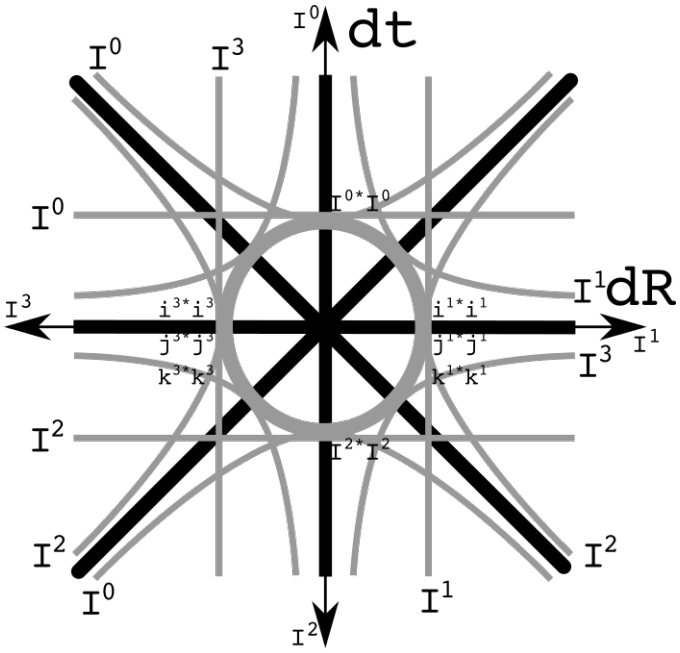


Light U(1)
dt^2+dR^2

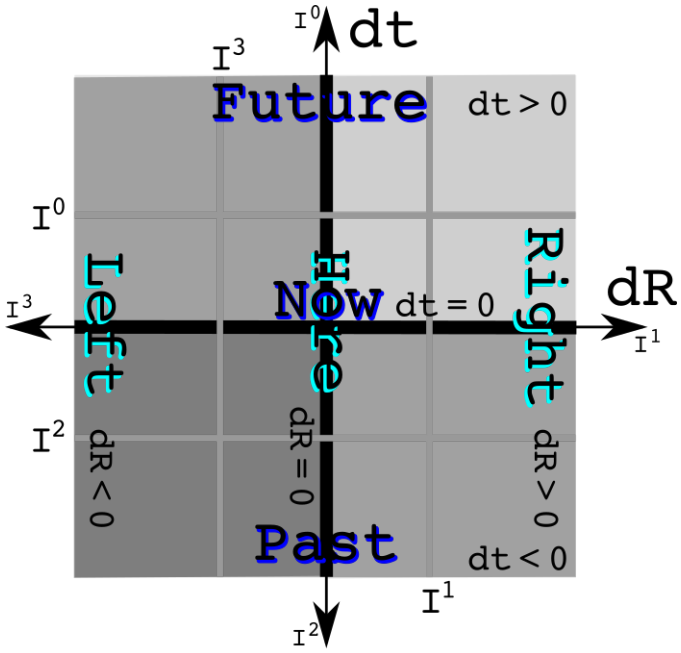


Weak Force SU(2)
$dt^2+dx^2+dy^2+dz^2$

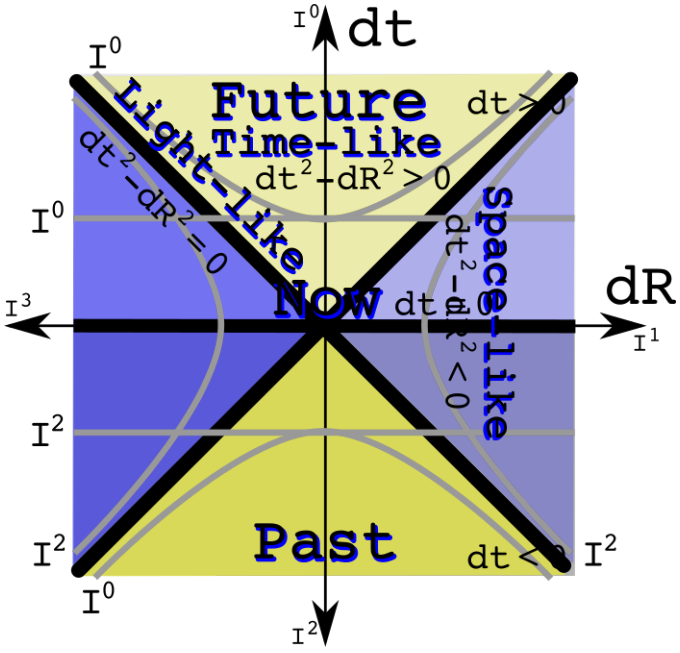
Overlapping Equivalence Classes



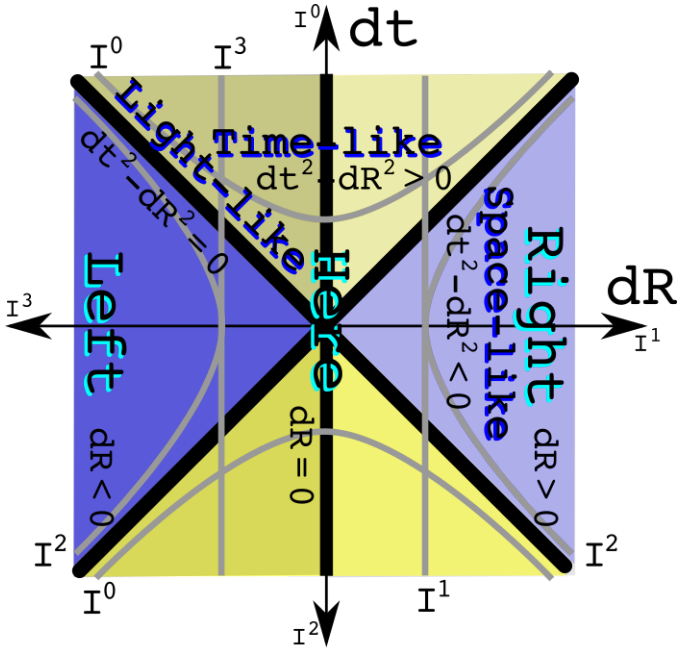
All
0's and 1's



Space + Time
dR + dt

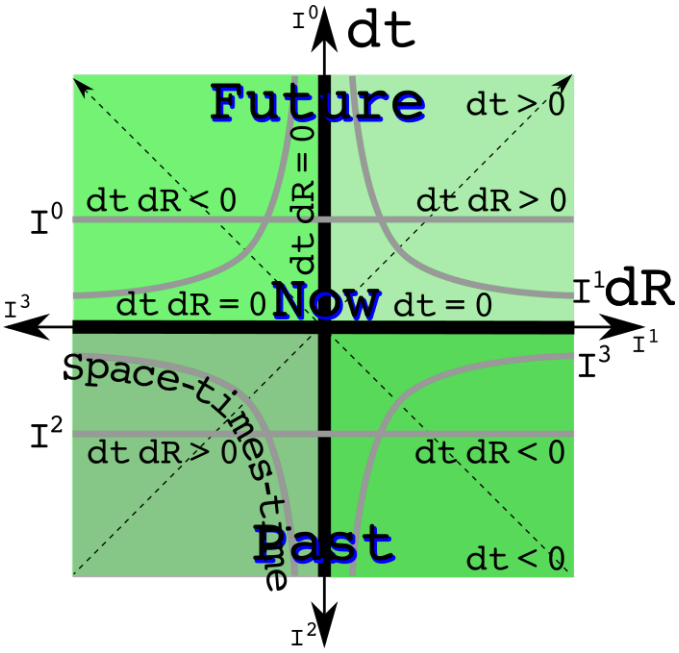


Two-tone
Space-like

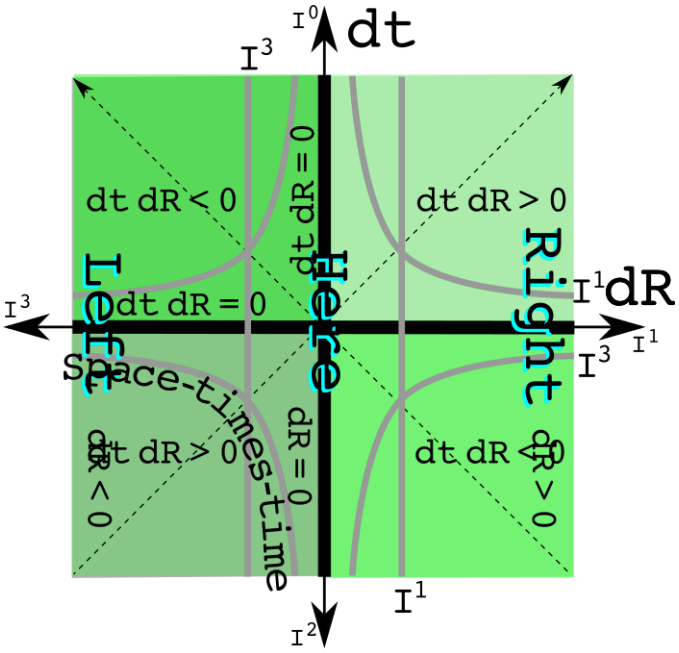


Two-tone
Time-like

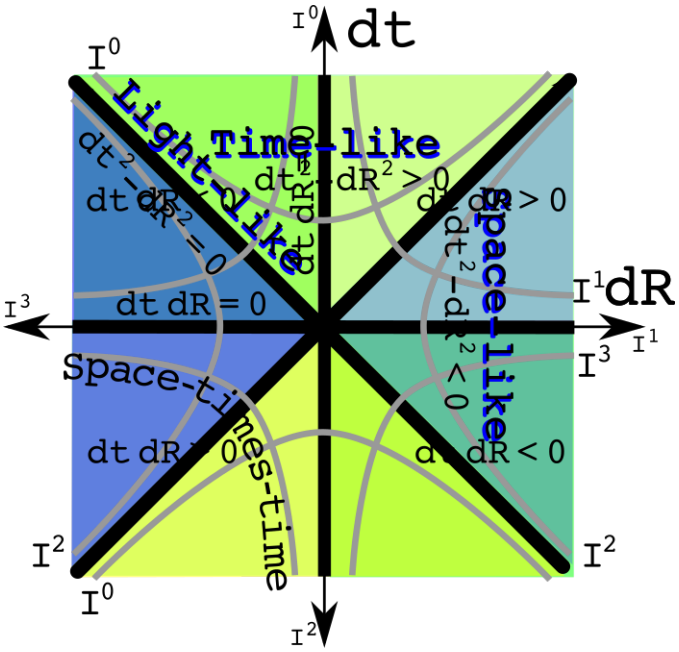
Overlapping Equivalence Classes



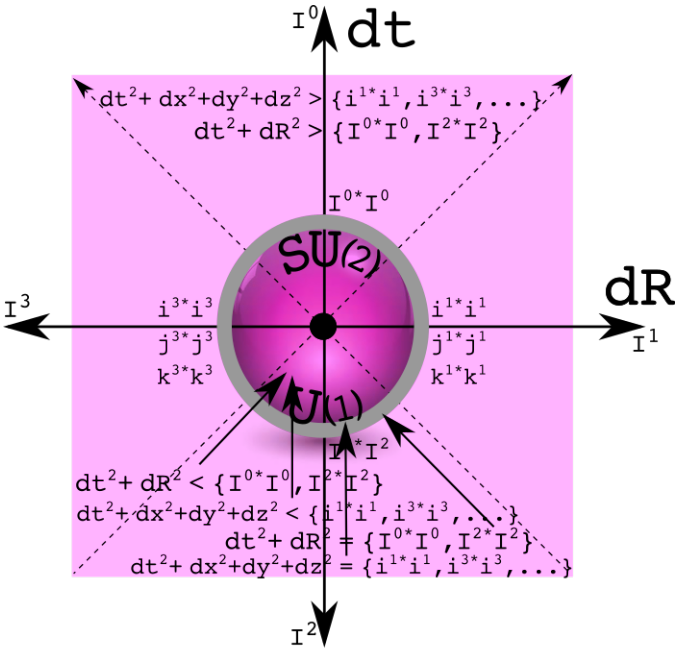
Gravity monotone



Gravity monotone

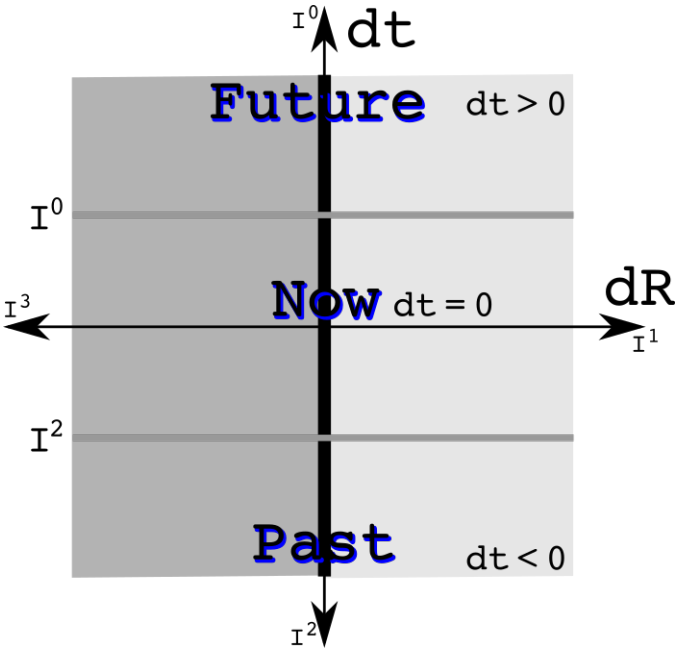


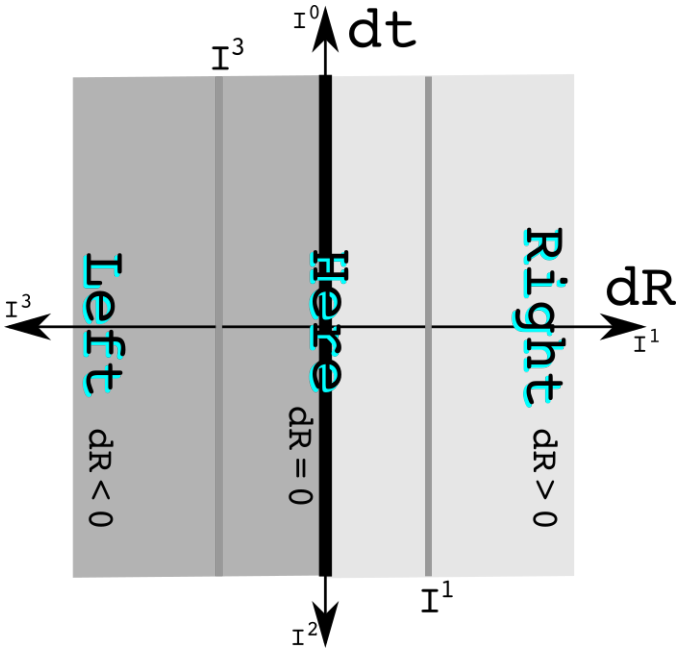
Light and Gravity
$(dt^2 - dR^2, 2dt\ dR)$

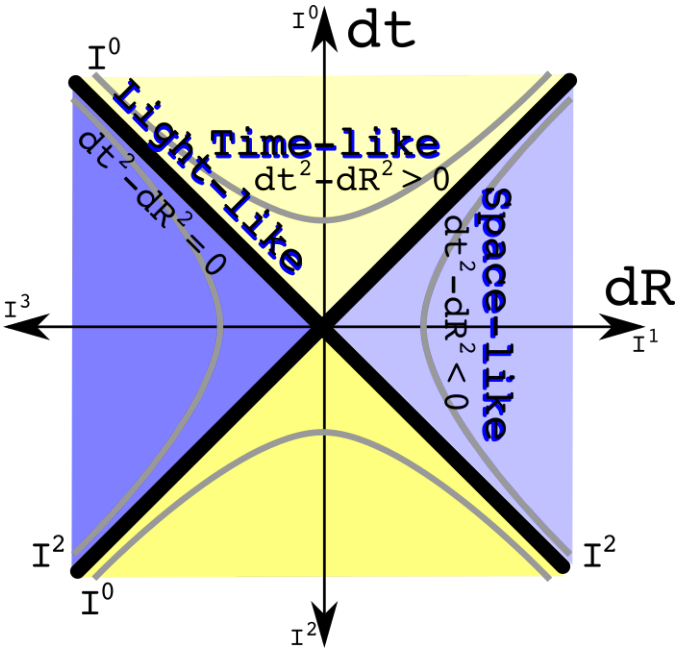


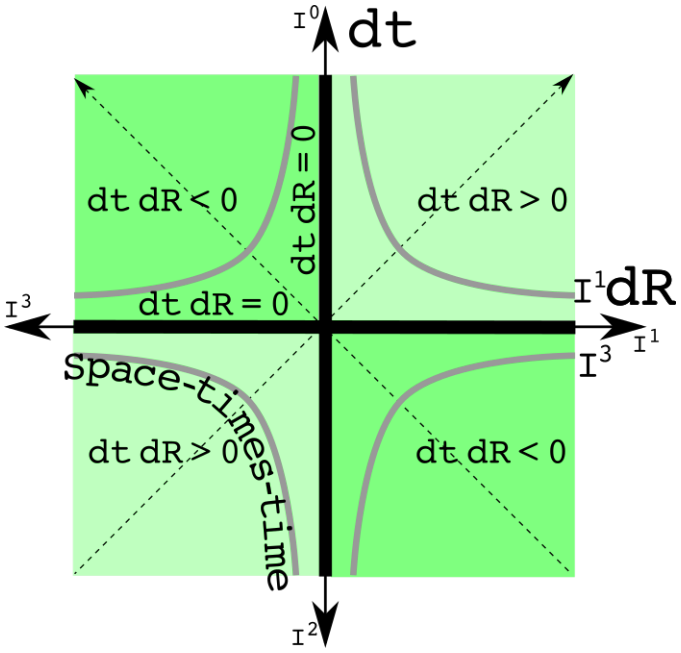
Electro-weak
$dt^2 + (dx^2 + dy^2 + dz^2)$

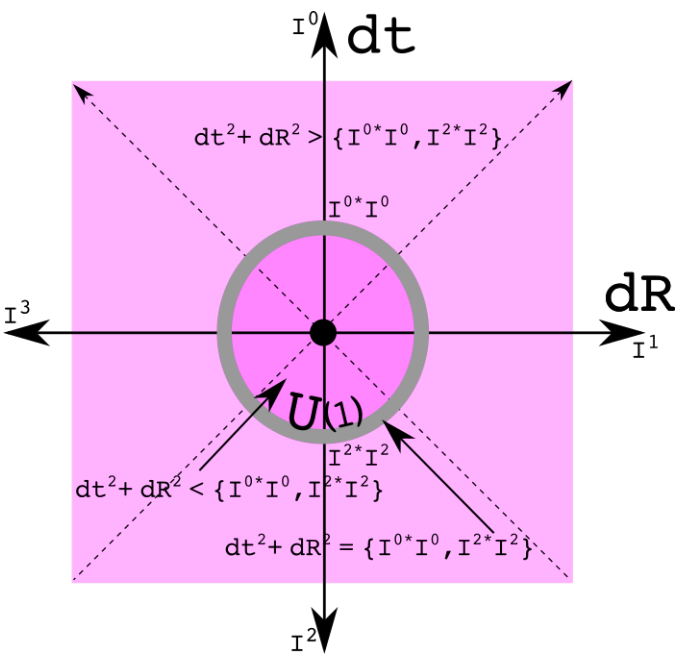
Space-Time Equivalence Classes

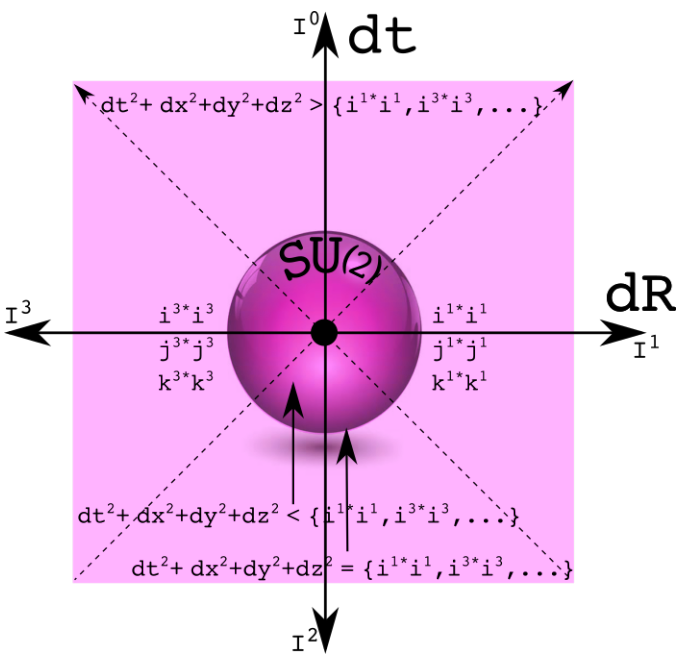




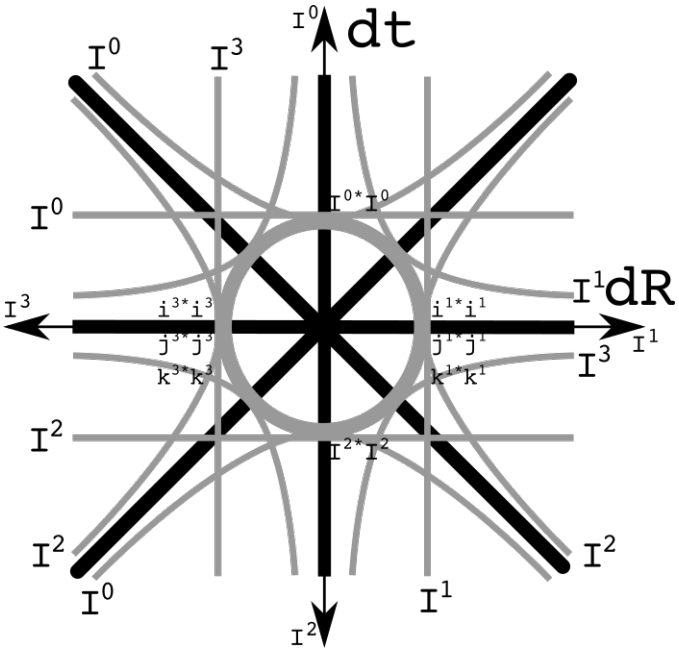


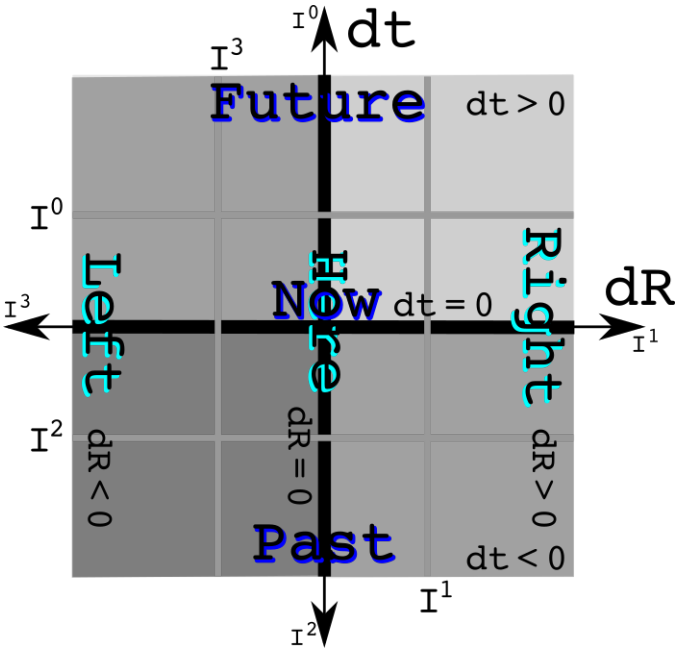


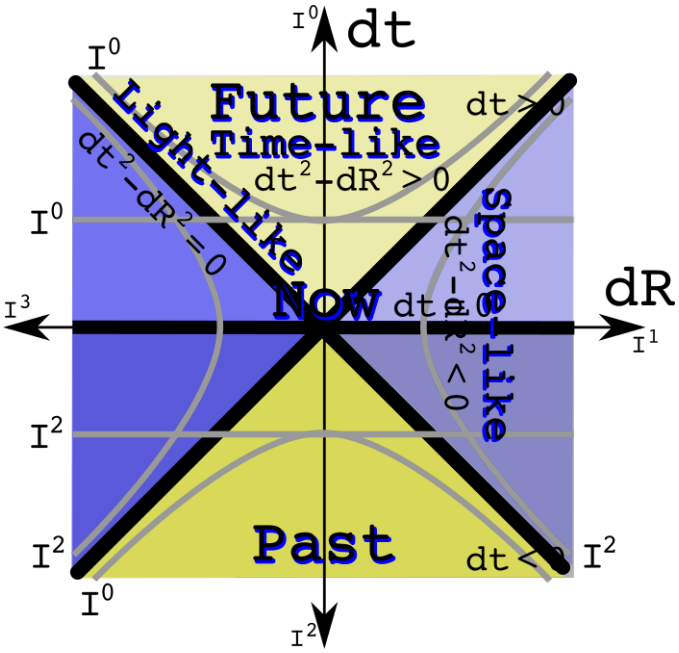


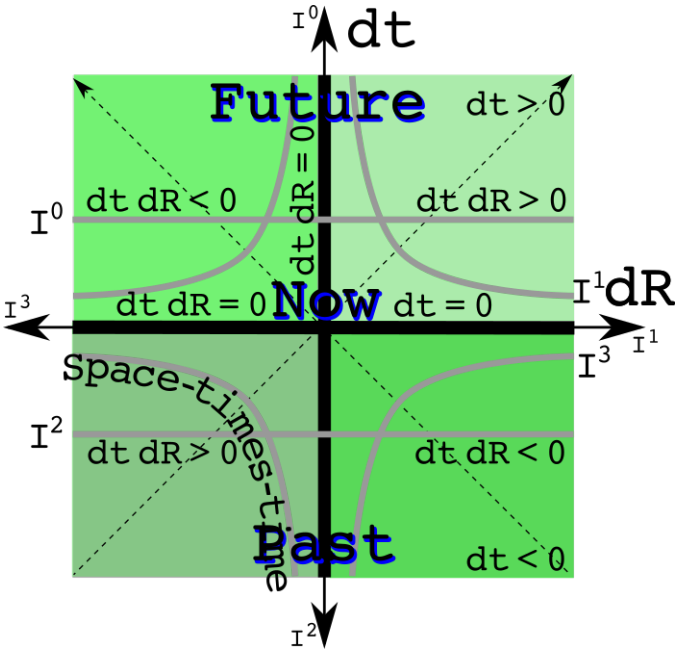


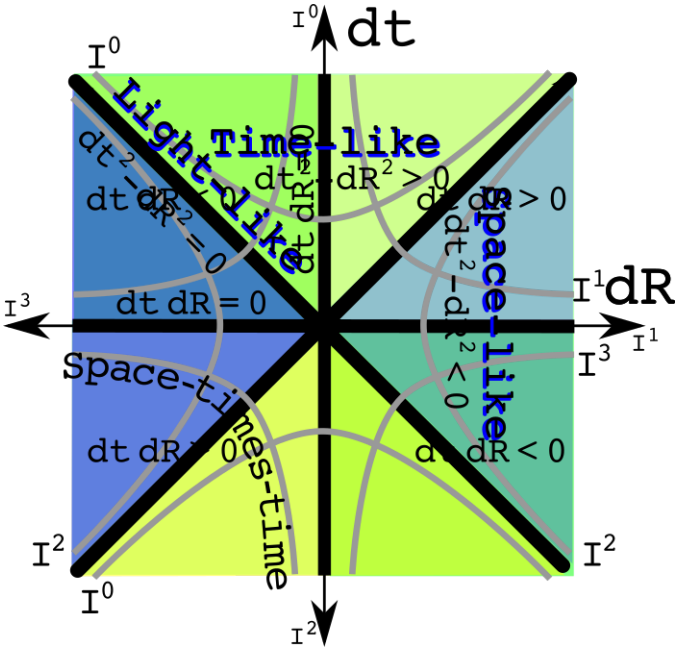
Overlapping Equivalence Classes

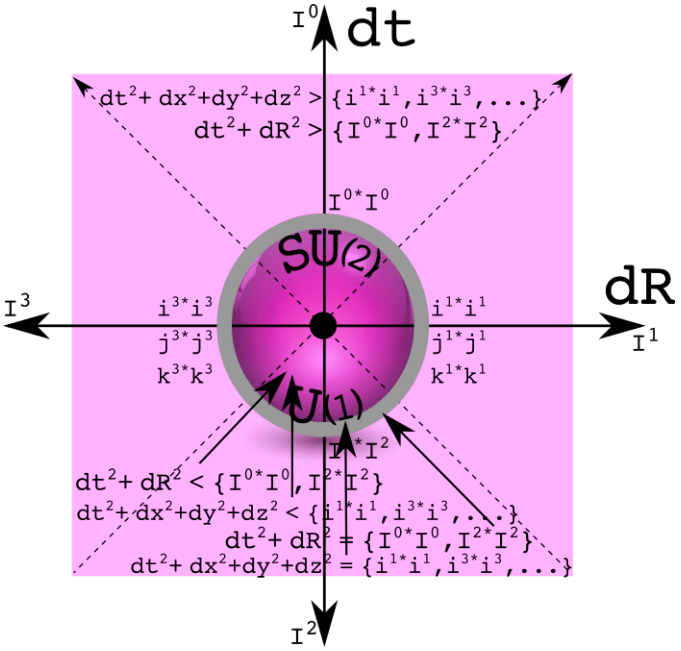


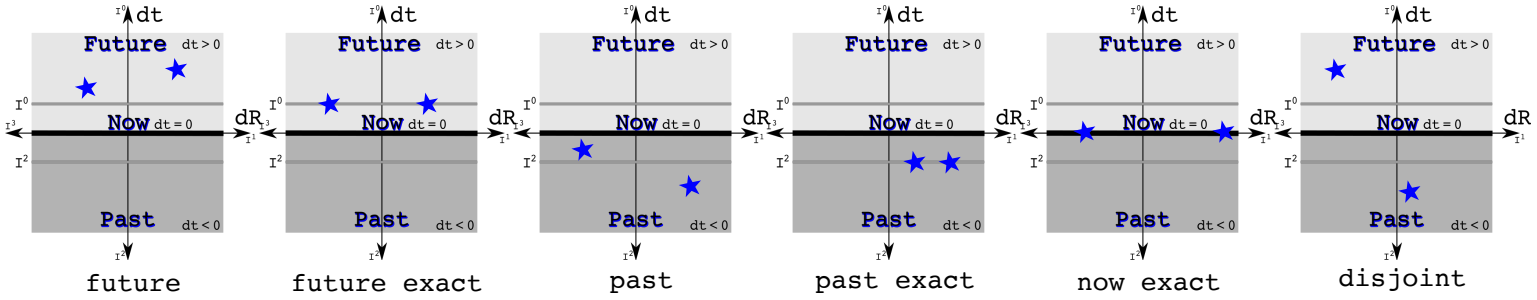






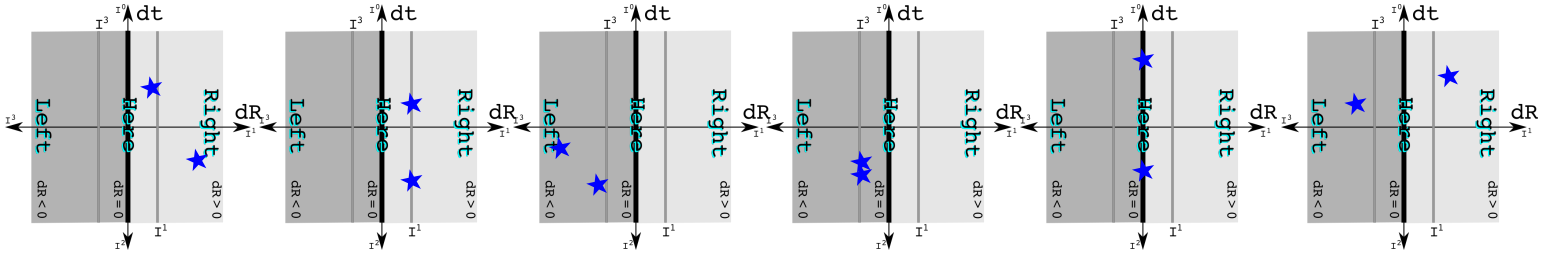






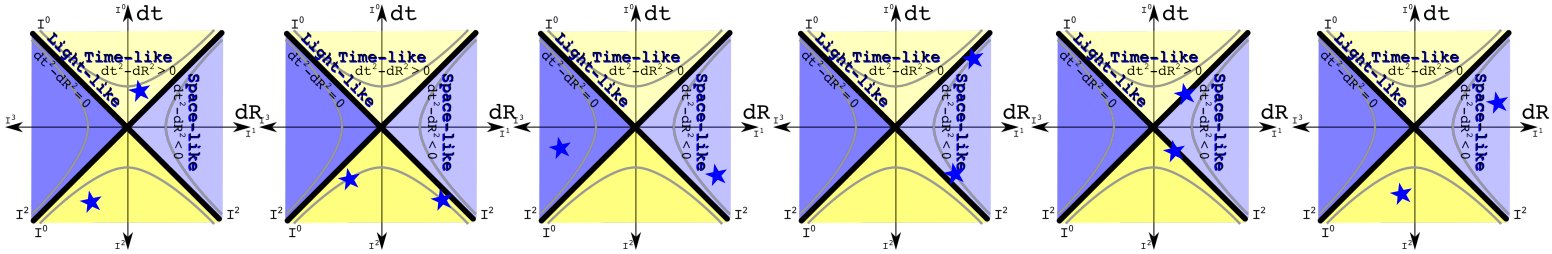
future | future exact | past | past exact | now exact | disjoint

Time equivalence classes



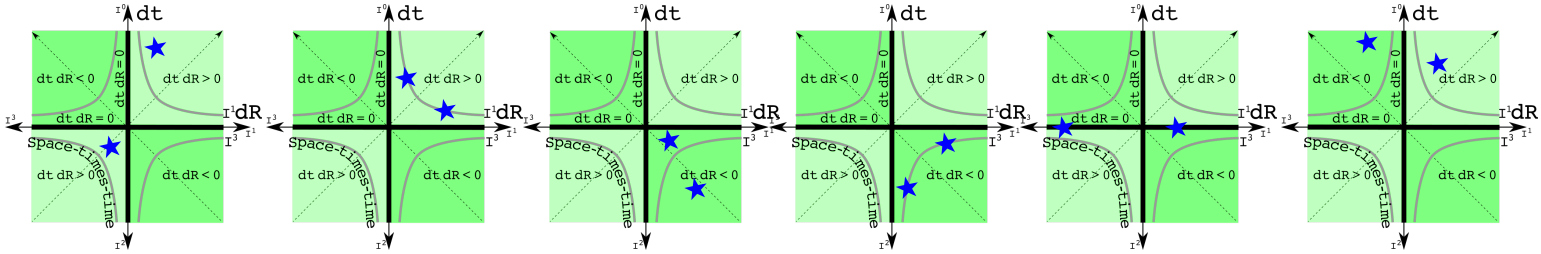
right | right exact | left | left exact | here exact | disjoint

Space equivalence classes



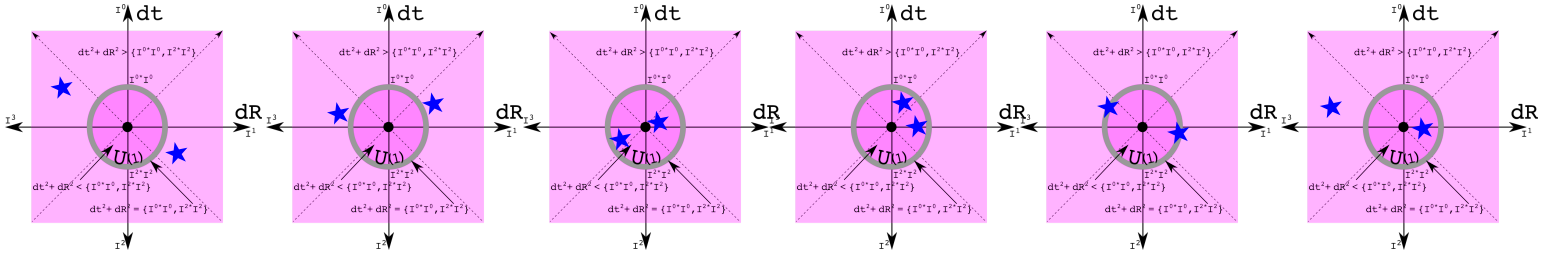
time-like | time-like exact | space-like | space-like exact | light-like exact | disjoint

Causality equivalence classes



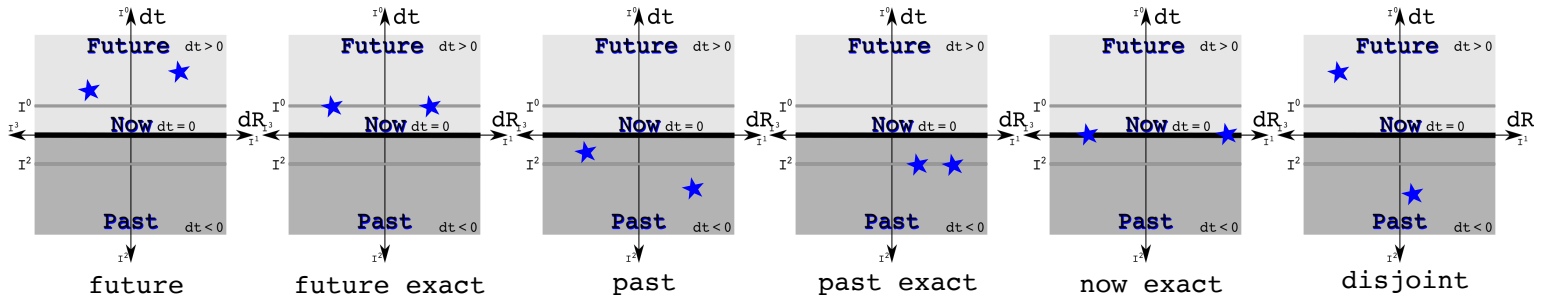
future-right/ past-left | future-right/ past-left exact | past-right/ future-left | past-right/ future-left exact | here-now exact | disjoint

Space-times-time equivalence classes

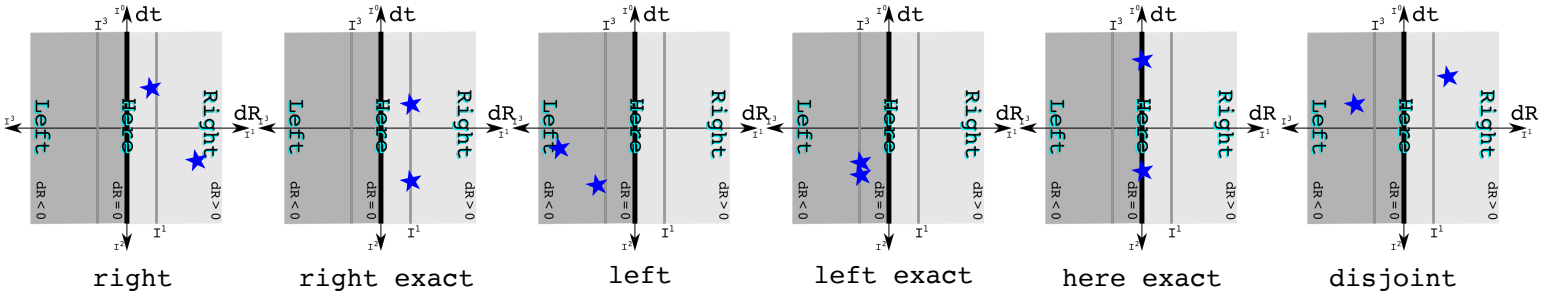


greater than unity | greater than unity exact | less than unity | less than unity exact | unity exact | disjoint

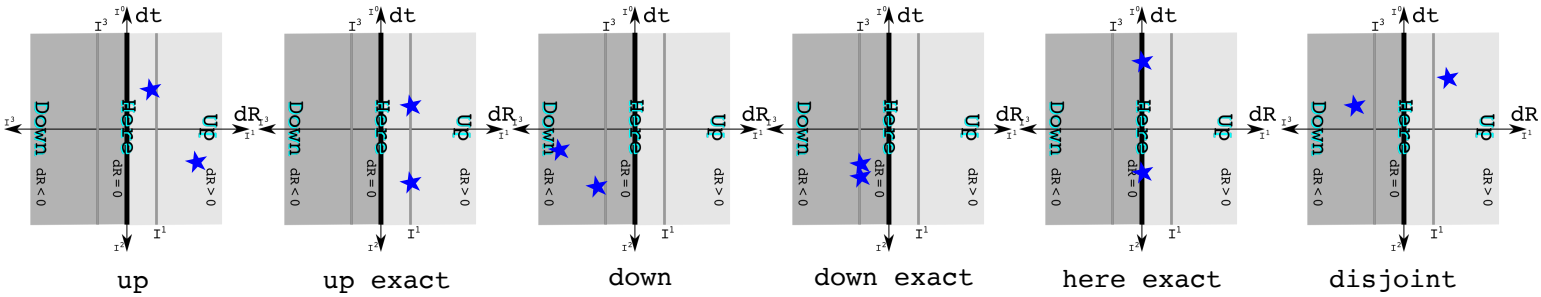
Norm of unity equivalence classes



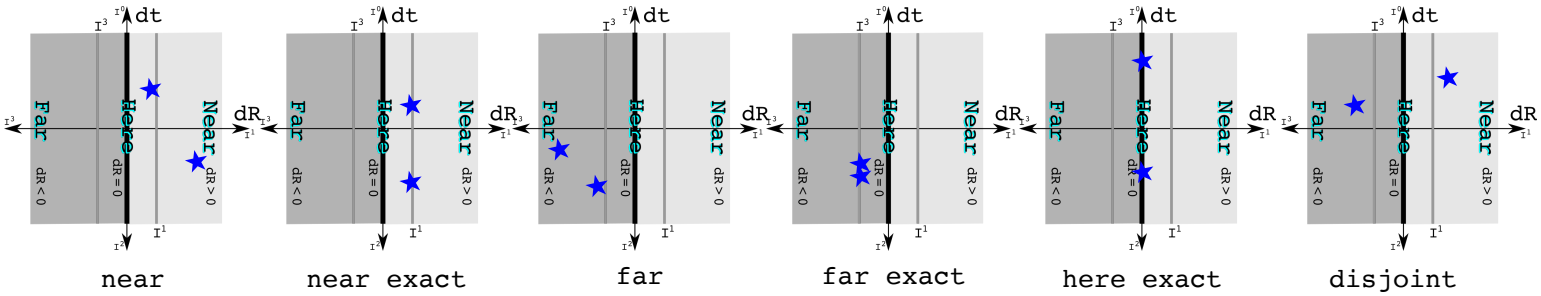
Time equivalence classes



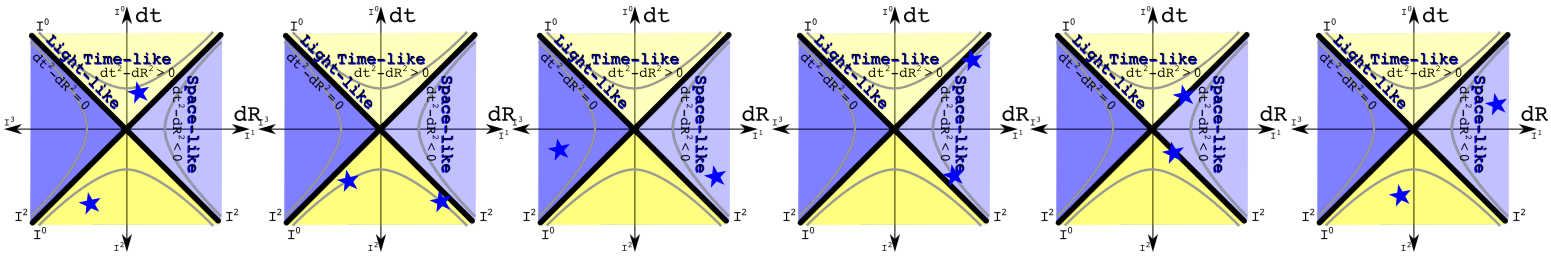
Right/Left space equivalence classes



Up/Down space equivalence classes

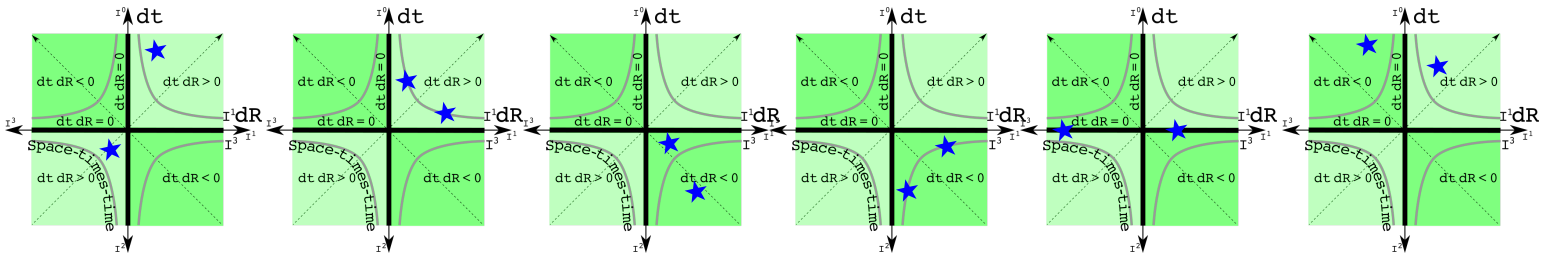


Near/Far space equivalence classes



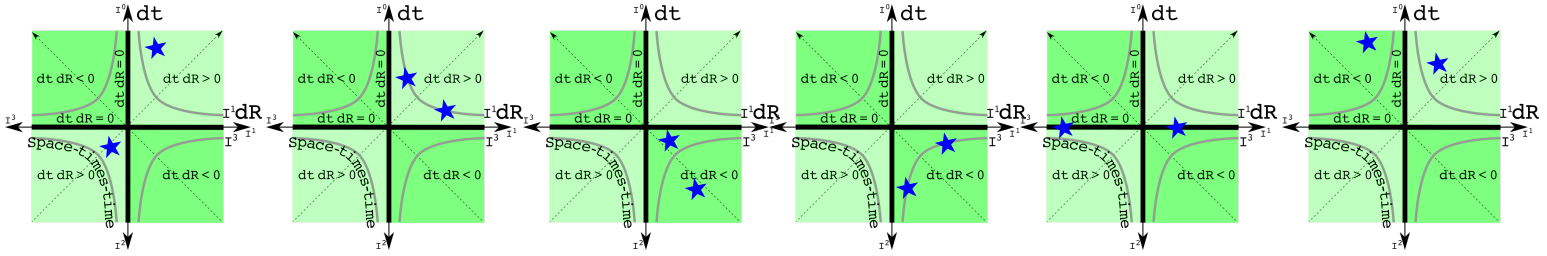
time-like | time-like exact | space-like | space-like exact | light-like exact | disjoint

Causality equivalence classes



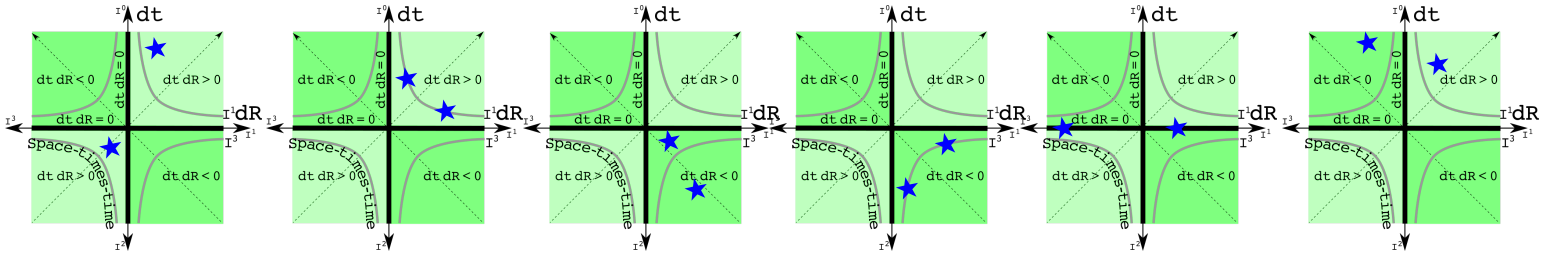
future-right/ past-left | future-right/ past-left exact | future-left/ past-right | future-left/ past-right exact | here-now exact | disjoint

Future-right space-times-time equivalence classes



future-up/ past-down | future-up/ past-down exact | future-down/ past-up | future-down/ past-up exact | here-now exact | disjoint

Future-up space-times-time equivalence classes



future-near/ past-far | future-near/ past-far exact | future-far/ past-near | future-far/ past-near exact | here-now exact | disjoint

Future-near space-times-time equivalence classes