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(rudyak@math.ufl.edu), Department of Mathematics, 358 Little Hall, PO Box 118105, University of Florida, Gainesville, FL 32611-8105. Causality, refocusing and linking.

To x in a space-time X one associates the sphere of all null-geodesics through x called the sky S_x of x. Low observed that if the link (S_x, S_y) in the space of all null geodesics of a globally hyperbolic spacetime is nontrivial, then x, y are causally related. We show that x, y in a nonrefocussing globally hyperbolic spacetime are causally unrelated if and only if (S_x, S_y) can be unlinked by an isotopy through skies. Low showed that if a globally hyperbolic (X^{m1}, g) is nonrefocussing then its Cauchy surface M is compact, we show that the universal cover of M is also compact. (Received July 27, 2008)