

Quasars and Gamma Ray Bursters - Surprise!

Like quasars, Gamma Ray Bursters (GRB's) are high redshift objects which emit copious amounts of high energy radiation in their outburst phases. Recently a startling observation for which experts have no plausible explanation was reported in Science (1). The new evidence (2) shows that supposedly intervening galaxies are 4 times more prevalent along lines of sight to GRB's than to quasars.

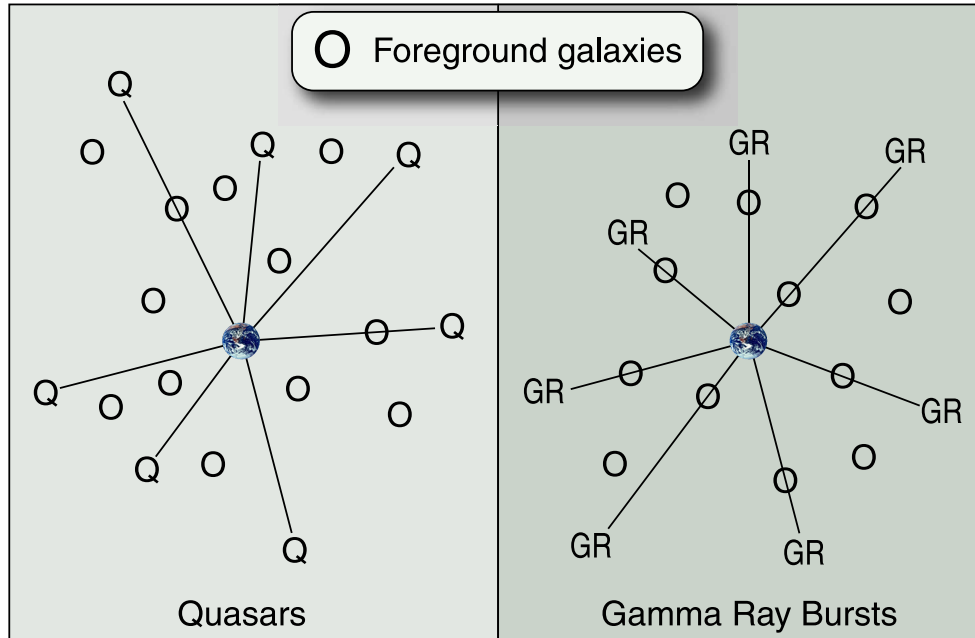


Fig. 1.— Sight lines from GRB's pass through 4 times as many MgII absorbing clouds as sight lines to quasars (Q's). Adaptation of Schilling (1).

Since quasars and GRB's of the same redshift are supposed to be at the same extraordinarily large distances we are sampling a given path length through the Universe in different directions. To put it most simply: If the only difference between these path lengths is that GRB path lengths have more absorbing clouds *then these Gamma ray Bursters and the absorbing clouds must be physically associated.*

But, because the absorbing clouds have variously lower redshifts we suddenly have a physical association of high and low redshift objects which were supposedly at much different distances. Where have we seen that before? Simply for 40 years in the association of high redshift quasars with lower redshift galaxies (3, 4).

What we appear to be seeing here is high intrinsic redshift GRB's at the closer distance of the absorbing clouds. Spatially the GRB's must be in closer proximity to their associated galaxies (or clouds of gaseous material ripped out in the process of explosive events). The difference between the quasars, which have also been shown to be much closer than their redshifts conventionally dictate, and the GRB's would then be that the GRB's tend to burst closer to and/or more violently, perhaps carrying gas clouds from their parent galaxies with them or in their wake. The quasars on the other hand would come out more cleanly, for example, along the minor axes of their ejecting galaxies(5).

The whole ensemble of quasars and GRB's with their galaxies/gas are much closer to the observer than

their redshifts would conventionally place them. We would then have nearby clusters and groups of a range of object types. They would have a mixture of different ages and differing intrinsic redshifts. This is what observations have found. What could the alternative be?

In support of this interpretation one can cite Stocke and Rector in 1997 (6) that BL Lac objects have excess MG II absorbers in their line of sight. The point here is that BL Lac objects are also like quasars but with their gaseous outer layers stripped away and only the continuum emitting surface spectroscopically observable. They could be considered the result of a collision with a gas cloud and thus as another variety of quasar as in the case of the GRB's. As further support for this interpretation the BL Lacs are observed to be found closer in angular separation from active parent galaxies (7).

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