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Evolution of the Outer Galactic Disk via Chemical Abundance Patterns

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I review briefly simple models to explain chemical abundance gradients in the disk of our Milky Way Galaxy, and then discuss the observations of both iron, [Fe/H], where the bracket notation refers a logarithmic scale and 0.0 represents the abundances in our Sun, and other so-called "α" elements that to be produced primarily in Type II supernovae. I compare the results with the simple models, demonstrating unexpected behavior in the outer Galactic disk, and different behaviors in the old star clusters compared to the much younger Cepheid variables. I conclude that the evidence appears to support a steady growth of the Galactic disk over cosmic time.