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THE BALDWIN EFFECT AND THE Mg II - 3000 Å LUMINOSITY RELATION FOR BLAZARS

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This study investigates the relationship between the Mg II λ2798 Å emission line and the 3000 Å continuum luminosity, as well as the Baldwin Effect, in a sample of 40,685 radio-quiet (RQ) quasars and 441 Flat Spectrum Radio Quasars (FSRQs). We perform a comprehensive re-evaluation of the Mg II–3000 Å correlation, explicitly accounting for dispersion introduced by AGN variability. After excluding >3000 radio-loud sources, we employ a binning technique to mitigate variability effects, yielding a refined empirical relation. Our analysis reveals statistically significant differences in the slopes of the line–continuum luminosity relation between RQ quasars and FSRQs, with a parallel discrepancy in the Baldwin Effect. These findings imply either (1) intrinsic differences in the accretion disk spectra of RQ AGNs and FSRQs or (2) jet-induced continuum emission in FSRQs contributing to Broad Line Region (BLR) ionization. We further examine the Non-Thermal

Dominance (NTD) parameter, finding that a substantial fraction of both RQ quasars and blazars exhibit NTD < 1, suggesting that the accretion disk alone cannot fully explain BLR ionization. Finally, we demonstrate that the Baldwin Effect emerges naturally from the line–continuum luminosity relationship, requiring no additional physical mechanism to explain its origin.