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Patterns in the Long Term Behavior of Eclipsing Binary Star System 44i-Bootis[1] CAITLIN BYRD-FISHER, JEANINE FALLEN BAILEY, THOMAS OLSEN, Lewis & Clark College, Portland, OR — Previously, we have assembled data on the binary star system 44i Bootis, collected by our group and others over nearly a century, concerning the timing of its primary eclipses. These have been previously modeled by an ephemeris equation, assuming a constant orbital period. We have previously shown that the system is slowing down a uniform rate. We present data demonstrating a small sinusoidal trend in the remaining differences between eclipse time observations and calculations (an O-C diagram). We sought to model the cause of this variation by the gravitational interaction of a planet orbiting the binary star pair. Such a planet would necessarily be a brown dwarf of 0.0475 solar masses, with a semi-major axis of 10.729 AU. We are examining the stability of such an orbit. We also present initial data for the binary star system VW Cephei.

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