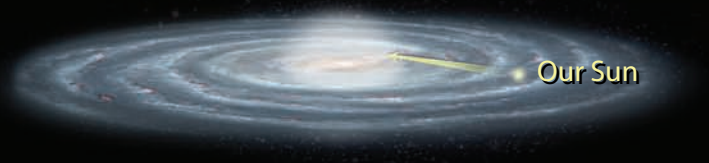
Probability of detecting transiting extrasolar planets

Hubble detects Jovian planets in very tight orbits as they transit their host stars. Astronomers extrapolate from a core sample to the galactic bulge of the Milky Way: For a galaxy of 100 billion stars, approximately 500 million have hot Jovian planets that orbit their star in 5 or fewer Earth days.

Hubble observed a core sample from the Milky Way's galactic bulge



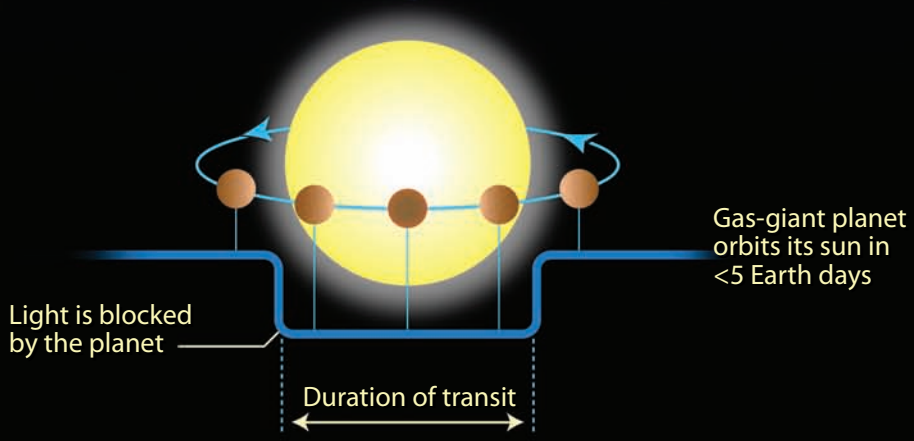
10,000* stars have 500 (5%) Jovian planets with periods of up to 10 years [detected from radial velocity].

10% (50) of these planets are hot Jupiters with periods of less than 5 days.

8% (4) of these planets will actually transit the star.

25% (1) of them are detectable.

To detect 1 planet, 10,000 stars must be monitored.



**Percentages and numbers are approximations.*