Figure X:

Rate density

$$\Gamma(\vec{x}) = \sum_{\text{types of systems}} \Gamma_i(\vec{x})$$

for stars in selected volume of phase space

↓ "censored" by geometric transit prob and completeness, $Q_i = Q_{g,i} Q_{c,i}$

Detected rate density

$$\hat{\Gamma}(r, P, \ldots) = \sum_i Q_i \Gamma_i = \sum_i \hat{\Gamma}_i$$

↓ radius dilution (R_* miscalculated stars miscounted)

apparent radius probability distribn. (separated from rate density)

Detected apparent rate density

$$\tilde{\Gamma}(r_a, P, \ldots) = \hat{\Gamma}_0 + \hat{\Gamma}_1(P, \ldots)\, p_1(r_a) + \hat{\Gamma}_2(P, \ldots)\, p_2(r_a)$$

↓

Apparent rate density

$$\Gamma_a = \tilde{\Gamma}\, Q_{g,0}^{-1}$$

- ignores completeness
- incorrect geometric transit prob (for secondaries)