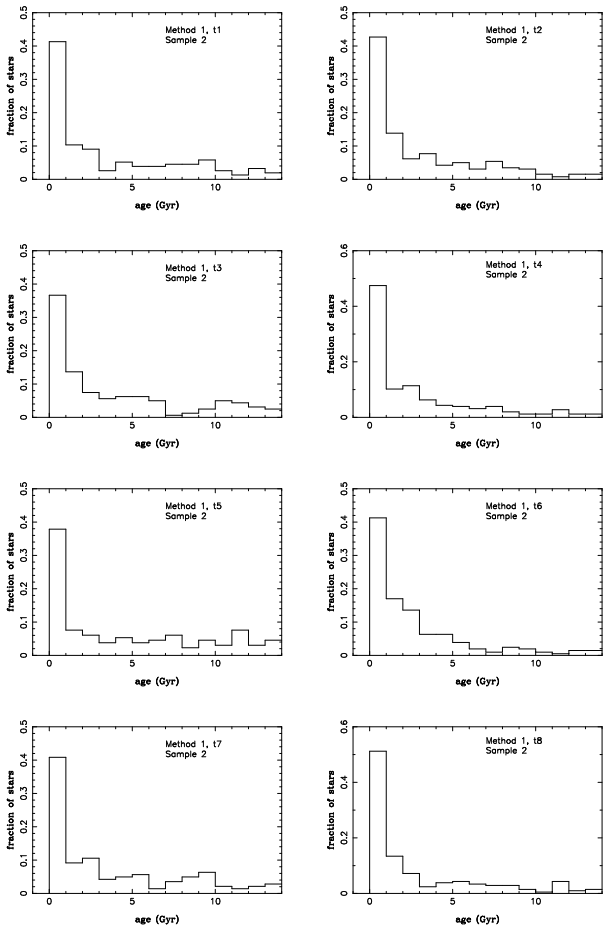


Fig. 3. Age distribution of CSPN, Method 1, Sample 2.

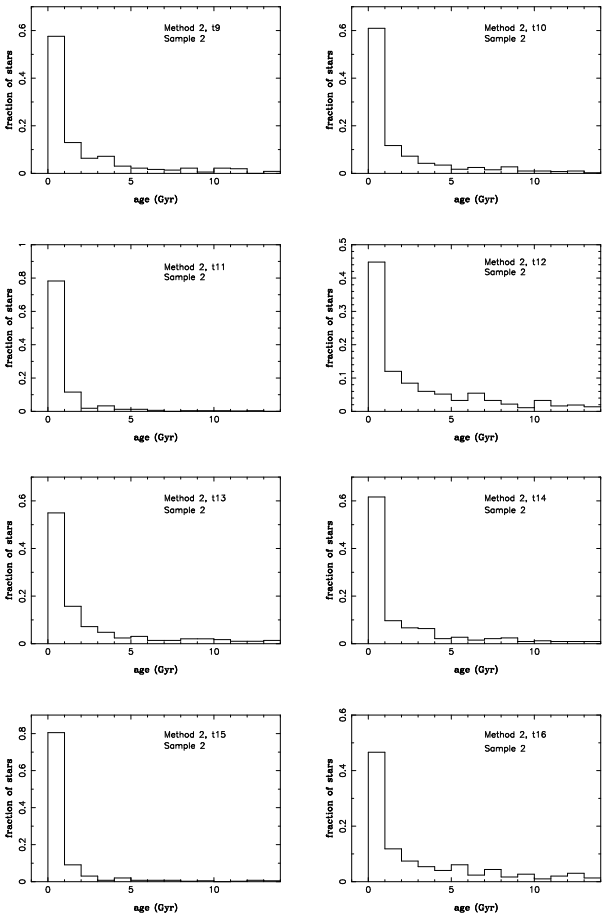


Fig. 4. Age distribution of CSPN, Method 2, Sample 2.

for these quantities ($\mu_\alpha \simeq \mu_\delta \neq 0$), either the $V$ or $W$ component distributions become slightly less concentrated at the first few age bins, but most objects still have ages under about 4 Gyr. Again, the application of the SVD technique could be useful to confirm these results.

The uncertainties in the distances of the Milky Way PN are difficult to estimate, but the procedure adopted here ensures that the obtained age distributions are not particularly affected by the individual distances of the objects in the samples. As mentioned in § 2, we have adopted two very different statistical scales, and the derived age distrbutions are essentially the same in both cases. The individual distances may depend on the particular scale, but the results shown in Figures 1–4 and in Table 5 do not depend on the choice of the distance scale. This can be seen by comparing the results for the timescales $t_1 - t_4$ with those for $t_5 - t_8$, or the results for $t_9 - t_{12}$ with those for $t_{13} - t_{16}$.

The uncertainties in the radial velocities also do not seem to have an important effect on the age distributions. In the catalogue by Durand et al. (1998), most objects (∼90%) have uncertainties smaller than 20 km s$^{-1}$, and many objects have much lower uncertainties. Concerning Method 1, from Maciel & Lago (2005), the average rms deviation in the rotation velocity is about 50 km s$^{-1}$ for PN, which can be compared with the values of about 20 km s$^{-1}$ for HII regions (see also Clemens 1985, and Maciel & Dutra 1992).

Probably the main uncertainty of the age distributions is due to the calibration between the stellar ages and the velocity dispersions, given by equation (4), which affects both Method 1 and 2. From the Geneva-Copenhagen Survey, this relation has a dispersion of about 20 km s$^{-1}$ in average, which corresponds roughly to an age uncertainty of about 25%, amounting to less than 1.2 Gyr for the objects of Figures 1–4. Therefore, the uncertainties