

TABLE I: This table presents results of running the Mathematica program of Appendix A for thirty-five choices of the inputs  $H_{\max}$  and  $Q(t_0)$ , all with  $H(t_0) = 72$  (km/sec)/Mpc. In each cell the output entries are (a) the minimum value reached by  $Q$ , (b) the time at which that minimum value was reached, (c) the time at which the scale factor  $R$  attained the 100th doubling of its minimum value at the bounce, (d) the time  $t_0$  of the present epoch, and (e) the number of doublings of  $R$  attained at the present epoch. All times are times elapsed since the bounce. The results in the center cell are from the sample run of Appendix A, for which  $H_{\max} = 5 \times 10^{60} H(t_0)$  and  $Q(t_0) = 1/2$ , and which produced the graph of Fig. 4. Every run produces a graph much like Fig. 4 in its overall shape. The results in the upper righthand corner cell, for which  $H_{\max} = 1 \times 10^{80} H(t_0)$  and  $Q(t_0) = 0.001$ , provide perhaps the best match to widely accepted inferences drawn from recent observational data.

| $H_{\max}/H(t_0) \rightarrow$<br>$Q(t_0) \downarrow$ | 1.0 × 10 <sup>50</sup>      | 1.0 × 10 <sup>55</sup>  | 5.0 × 10 <sup>60</sup>  | 1.0 × 10 <sup>75</sup>  | 1.0 × 10 <sup>80</sup>  |
|--|-----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 0.001  | (a) $2.7 \times 10^{-69}$   | $5.8 \times 10^{-76}$   | $1.5 \times 10^{-83}$   | $1.3 \times 10^{-102}$  | $2.7 \times 10^{-109}$  |
|  | (b) $5.8 \times 10^{-16}$ s | $2.7 \times 10^{-19}$ s | $4.2 \times 10^{-23}$ s | $1.2 \times 10^{-32}$ s | $5.8 \times 10^{-36}$ s |
|  | (c) $3.4 \times 10^{-3}$ s  | $3.4 \times 10^{-8}$ s  | $6.7 \times 10^{-14}$ s | $3.4 \times 10^{-28}$ s | $3.4 \times 10^{-33}$ s |
|  | (d) 13.6 Gyr                | 13.6 Gyr                | 13.6 Gyr                | 13.6 Gyr                | 13.6 Gyr                |
|  | (e) 166.8                   | 183.4                   | 202.3                   | 249.8                   | 266.4                   |
| 0.01   | (a) $1.3 \times 10^{-68}$   | $2.7 \times 10^{-75}$   | $6.8 \times 10^{-83}$   | $5.8 \times 10^{-102}$  | $1.3 \times 10^{-108}$  |
|  | (b) $3.9 \times 10^{-16}$ s | $1.8 \times 10^{-19}$ s | $2.9 \times 10^{-23}$ s | $8.5 \times 10^{-33}$ s | $3.9 \times 10^{-36}$ s |
|  | (c) $3.4 \times 10^{-3}$ s  | $3.4 \times 10^{-8}$ s  | $6.7 \times 10^{-14}$ s | $3.4 \times 10^{-28}$ s | $3.4 \times 10^{-33}$ s |
|  | (d) 13.6 Gyr                | 13.6 Gyr                | 13.6 Gyr                | 13.6 Gyr                | 13.6 Gyr                |
|  | (e) 166.8                   | 183.4                   | 202.3                   | 249.8                   | 266.5                   |
| 0.1  | (a) $5.8 \times 10^{-68}$   | $1.3 \times 10^{-74}$   | $3.2 \times 10^{-82}$   | $2.7 \times 10^{-101}$  | $5.8 \times 10^{-108}$  |
|  | (b) $2.7 \times 10^{-16}$ s | $1.2 \times 10^{-19}$ s | $2.0 \times 10^{-23}$ s | $5.8 \times 10^{-33}$ s | $2.7 \times 10^{-36}$ s |
|  | (c) $3.4 \times 10^{-3}$ s  | $3.4 \times 10^{-8}$ s  | $6.7 \times 10^{-14}$ s | $3.4 \times 10^{-28}$ s | $3.4 \times 10^{-33}$ s |
|  | (d) 14.1 Gyr                | 14.1 Gyr                | 14.1 Gyr                | 14.1 Gyr                | 14.1 Gyr                |
|  | (e) 166.9                   | 183.5                   | 202.4                   | 249.9                   | 266.5                   |
| 0.5  | (a) $1.7 \times 10^{-67}$   | $3.7 \times 10^{-74}$   | $9.3 \times 10^{-82}$   | $7.9 \times 10^{-101}$  | $1.7 \times 10^{-107}$  |
|  | (b) $2.0 \times 10^{-16}$ s | $9.5 \times 10^{-20}$ s | $1.5 \times 10^{-23}$ s | $4.4 \times 10^{-33}$ s | $2.0 \times 10^{-36}$ s |
|  | (c) $3.4 \times 10^{-3}$ s  | $3.4 \times 10^{-8}$ s  | $6.7 \times 10^{-14}$ s | $3.4 \times 10^{-28}$ s | $3.4 \times 10^{-33}$ s |
|  | (d) 16.9 Gyr                | 16.9 Gyr                | 16.9 Gyr                | 16.9 Gyr                | 16.9 Gyr                |
|  | (e) 167.3                   | 183.9                   | 202.8                   | 250.3                   | 266.9                   |
| 0.9  | (a) $2.5 \times 10^{-67}$   | $5.5 \times 10^{-74}$   | $1.4 \times 10^{-81}$   | $1.2 \times 10^{-100}$  | $2.5 \times 10^{-107}$  |
|  | (b) $1.9 \times 10^{-16}$ s | $8.6 \times 10^{-20}$ s | $1.4 \times 10^{-23}$ s | $4.0 \times 10^{-33}$ s | $1.9 \times 10^{-36}$ s |
|  | (c) $3.4 \times 10^{-3}$ s  | $3.4 \times 10^{-8}$ s  | $6.7 \times 10^{-14}$ s | $3.4 \times 10^{-28}$ s | $3.4 \times 10^{-33}$ s |
|  | (d) 26.0 Gyr                | 26.0 Gyr                | 26.0 Gyr                | 26.0 Gyr                | 26.0 Gyr                |
|  | (e) 168.4                   | 185.1                   | 204.0                   | 251.5                   | 268.1                   |
| 0.99   | (a) $2.7 \times 10^{-67}$   | $5.8 \times 10^{-74}$   | $1.5 \times 10^{-81}$   | $1.3 \times 10^{-100}$  | $2.7 \times 10^{-107}$  |
|  | (b) $1.8 \times 10^{-16}$ s | $8.5 \times 10^{-20}$ s | $1.3 \times 10^{-23}$ s | $3.3 \times 10^{-33}$ s | $1.8 \times 10^{-36}$ s |
|  | (c) $3.4 \times 10^{-3}$ s  | $3.4 \times 10^{-8}$ s  | $6.7 \times 10^{-14}$ s | $3.4 \times 10^{-28}$ s | $3.4 \times 10^{-33}$ s |
|  | (d) 40.9 Gyr                | 40.9 Gyr                | 40.9 Gyr                | 40.9 Gyr                | 40.9 Gyr                |
|  | (e) 170.1                   | 186.7                   | 205.6                   | 253.2                   | 269.8                   |
| 0.999  | (a) $2.7 \times 10^{-67}$   | $5.8 \times 10^{-74}$   | $1.5 \times 10^{-81}$   | $1.3 \times 10^{-100}$  | $2.7 \times 10^{-107}$  |
|  | (b) $1.8 \times 10^{-16}$ s | $8.5 \times 10^{-20}$ s | $1.3 \times 10^{-23}$ s | $3.9 \times 10^{-33}$ s | $1.8 \times 10^{-36}$ s |
|  | (c) $3.4 \times 10^{-3}$ s  | $3.4 \times 10^{-8}$ s  | $6.7 \times 10^{-14}$ s | $3.4 \times 10^{-28}$ s | $3.4 \times 10^{-33}$ s |
|  | (d) 56.4 Gyr                | 56.4 Gyr                | 56.4 Gyr                | 56.4 Gyr                | 56.4 Gyr                |
|  | (e) 171.8                   | 188.4                   | 207.3                   | 254.8                   | 271.4                   |