

## **Chaotic Dynamics in N-body systems**

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### **Propositions**

#### associated with the thesis

### Chaotic Dynamics in N-body Systems

- 1. The N-body problem can be considered solved, if one uses arbitrary-precision arithmetic and sufficiently small time steps. (Chapter 2)
- 2. A general N-body problem can be solved by solving the two-body problem for every pair of particles in the system. (Chapter 3)
- 3. An ensemble of accurate solutions is equivalent to an ensemble of approximate solutions, in the case of three-body dissolution. (Chapter 4)
- 4. Gravity has the property of Nagh-Hoch, which implies that numerically diverged solutions behave quasi-ergodic. (Chapter 5)
- 5. The orbit of comet Halley has a Liapounov time scale of order 300 years, and not 70 years or lower. (Chapter 6)
- 6. We can always simulate reality, but it will always remain an approximation.
- 7. Pure N-body dynamics is crucial for the understanding of planetary systems, star clusters and galaxies.
- 8. Triple stars behave very similar to humans.
- 9. A super blood moon has absolutely nothing to do with the fate of human kind.
- 10. If a phone call is not answered, it does not mean nobody is home.
- 11. It is recommended that the United Nations develop an integration program for aliens.
- 12. Science is underrated on daily television.

Tjarda C. N. Boekholt Leiden, August 2015