

Galaxy Name	Halo Mass (1e12 Msun)	Disk Mass (1e12 Msun)	Bulge Mass (1e12 Msun)	Total Mass (1e12 Msun)	Baryon Function
Milky Way	1.975	0.075	0.01	2.06	0.041
M31	1.921	0.12	0.019	2.06	0.067
M33	0.187	0.009	0	0.196	0.046

Questions

1. The total mass of the Milky Way and the total mass of M31 turn out to be the same. The mass component that dominates both galaxies is the Halo Mass.
2. The stellar mass of the Milky Way comes out to 0.085 Msun, and the stellar mass of M31 comes out to 0.139 Msun. Because M31 has more stellar mass, this implies that it probably has more stars, or at least more massive bright stars. Therefore, M31 is expected to be more luminous.
3. The total dark matter mass of MW is 1.975e12 Msun and for M31 it's 1.921e12 Msun. This ratio gives us: 0.973, a nearly 1:1 ratio. This is not surprising because M31 only appears brighter from our point of view due to gravitational lensing from the dark matter between us and M31.
4. The Baryon functions for all three galaxies are given in the table above. Adding up all the Baryon functions in the table give us: 0.154 or 15.4%. this is accurate compared to the current value of the Baryon function for the Universe: ~16%.