

ASTR 512 Extragalactic Problem Set # 1 Solutions

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Problem 1. I would like to select “Cold gas in galaxies” as my specialization topic.

I’ve selected the following top 5 papers:

[Croton et. al. 2006](#)

[Kereš et. al. 2005](#)

[Tremonti et. al. 2004](#)

[Navarro et. al. 1997](#)

[Dekel et. al. 2009](#)

I am currently reading Kereš et. al. 2005 and [Hayward et. al. 2017](#) (for Journal Club).

Problem 2. I’m very glad the NED Database search came before the Classifying Galaxies. It was a far more efficient way of finding the real T-Types of the galaxies I was classifying.

Problem 3.

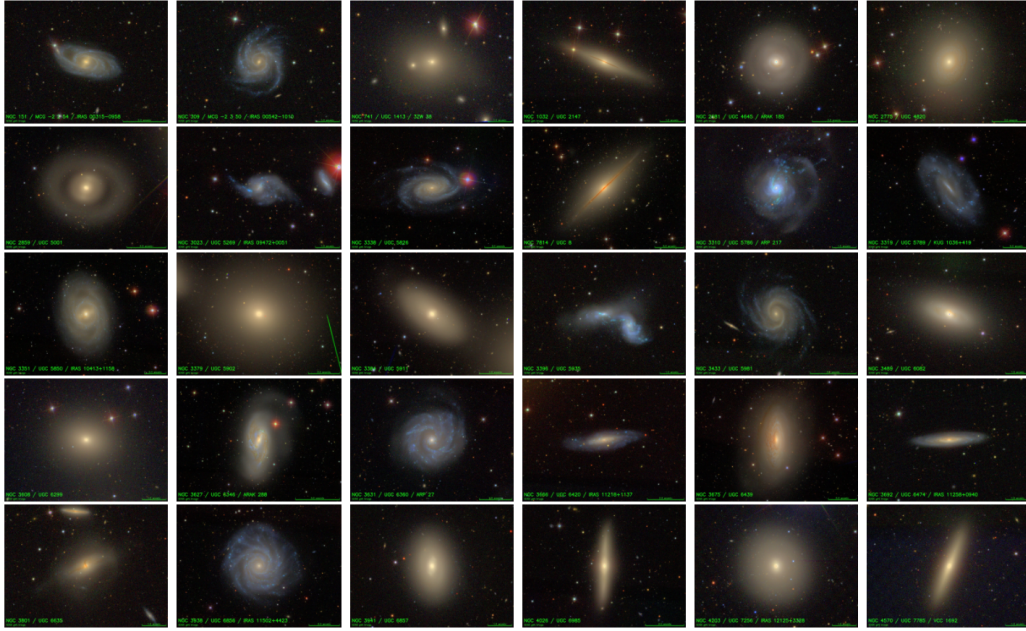


Figure 1: The 30 galaxies classified in Figure 2.

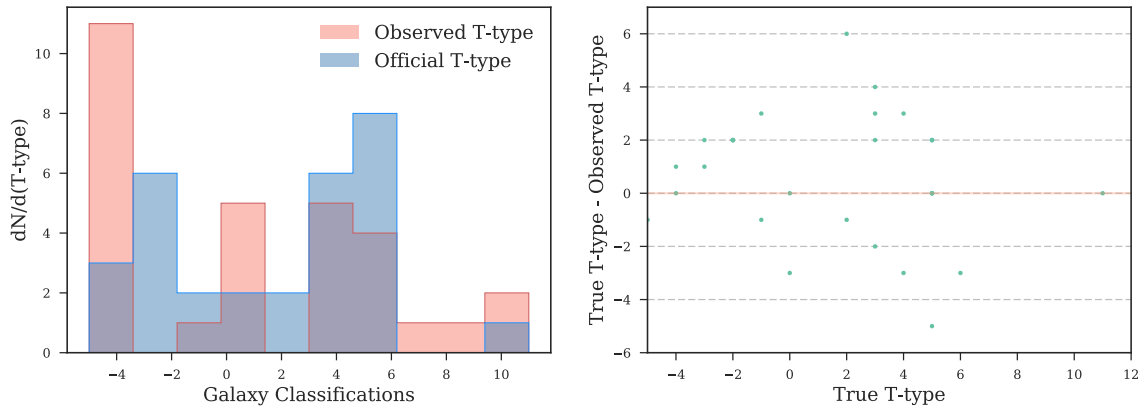


Figure 2: *Left* : Histogram of my observed galaxy classification (and corresponding T-Types) and the true T-Types for the 30 galaxies in Figure 1. *Right* : The difference between True and Observed galaxy T-Types as a function of their True T-Types.

Biases: My classifications tended to trend as Elliptical galaxies. When the official classification was often closer to an S0/a or S0 +/+/, I would be more likely to classify it as an Elliptical galaxy. I also classified my spiral galaxies more broadly, more often classifying them as c/d than the official classifications.

Problem 4.

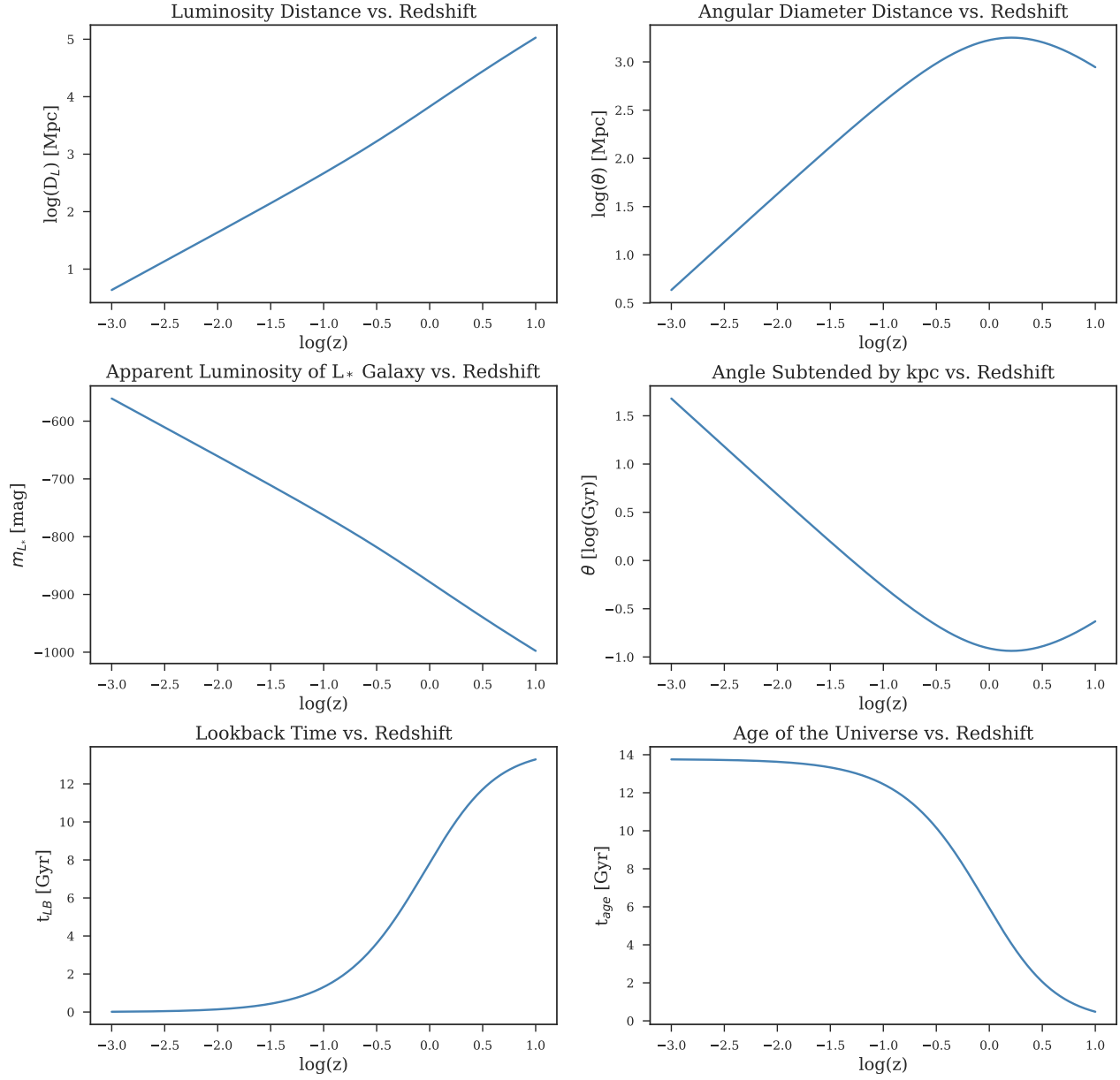


Figure 3: Plots of extragalactic scales as a function of redshift.

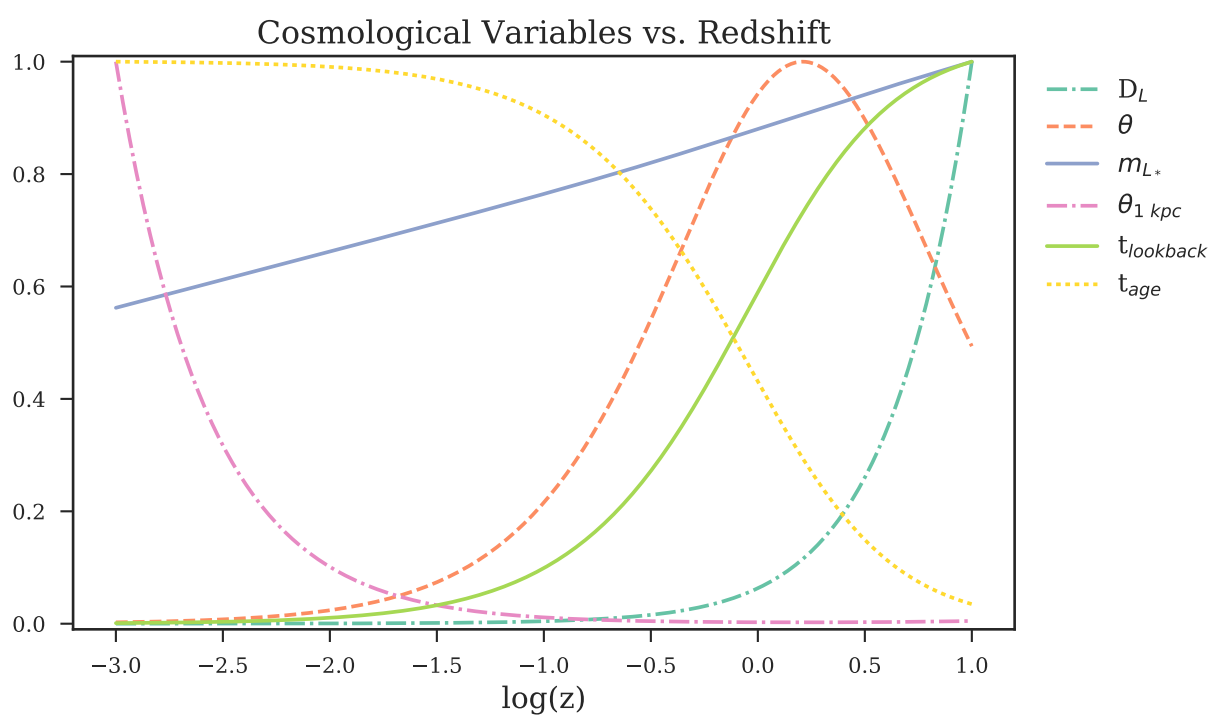


Figure 4: All extragalactic scales normalized to one and plotted against redshift.