Week 12 Presentation

PHY 496

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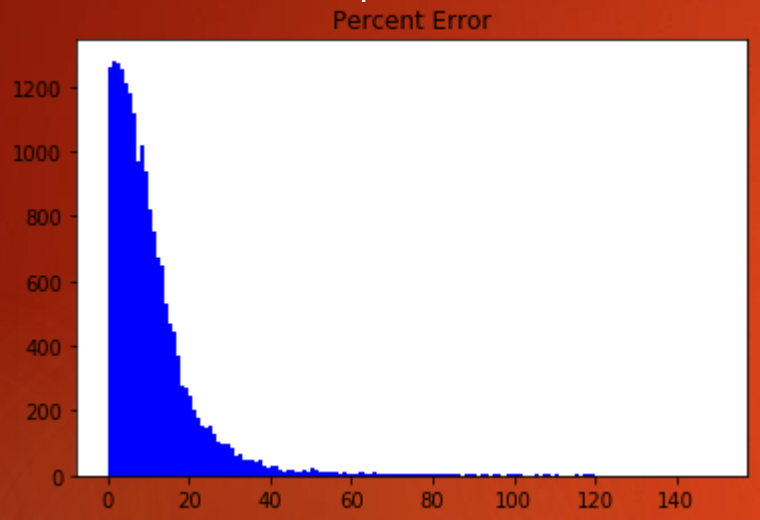
Summary

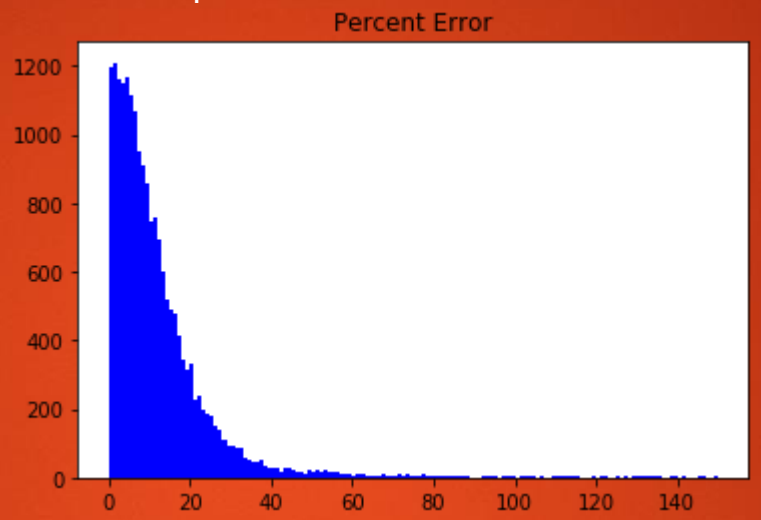
- Ran code to generate 50,000 networks, saving every 10
  - Code broke just before 40,000, still have 3,900 networks
- Started more general error analysis
  - Real vs. Predicted
  - Error from each input variable
- Started working on poster

General % Error

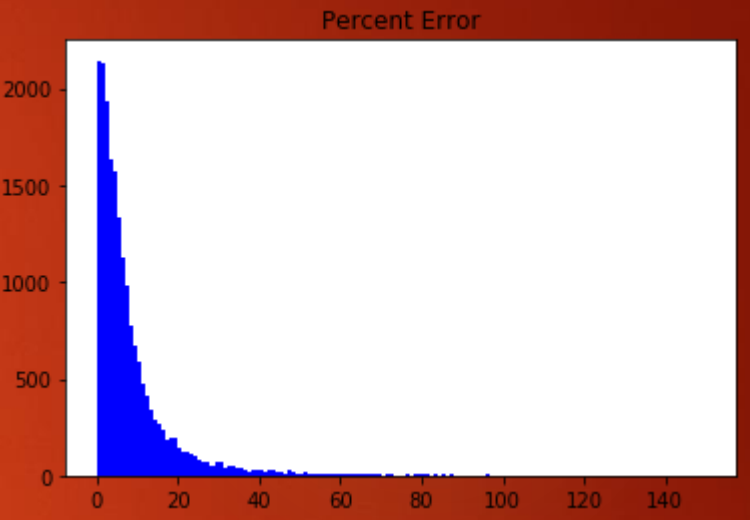
Flipout



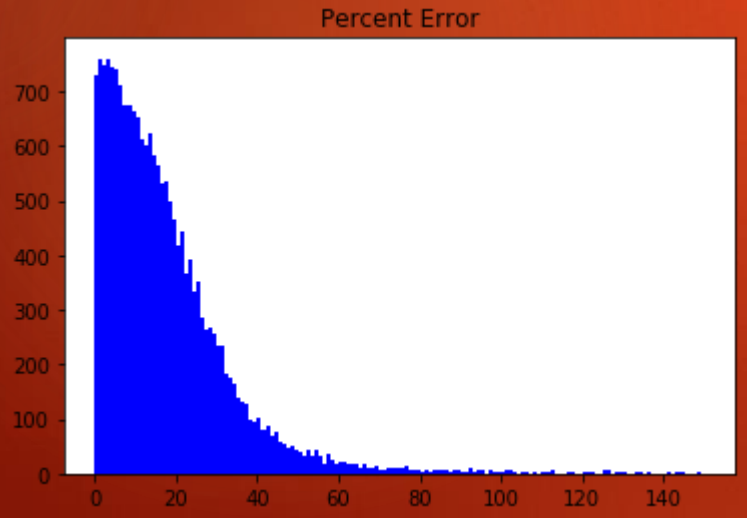
Reparameterization



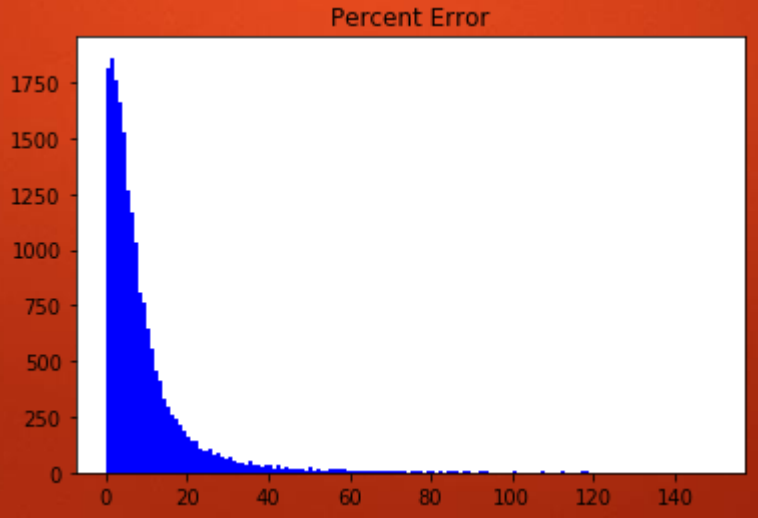
HMC 5000



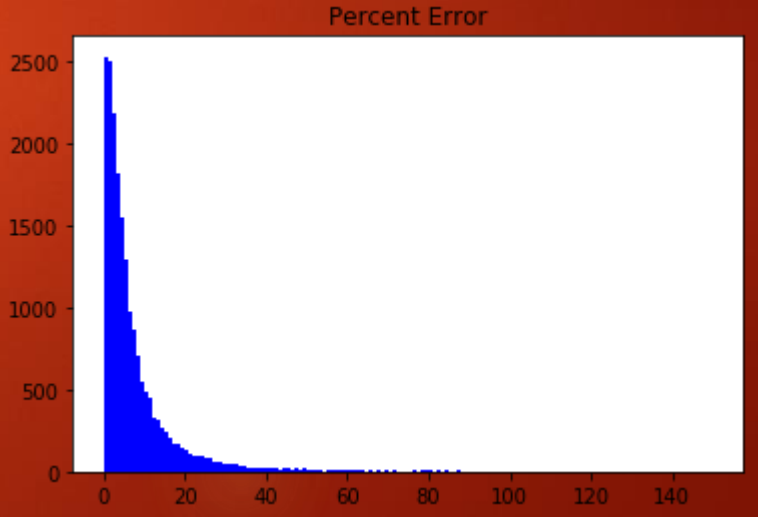
Normal



HMC 1000



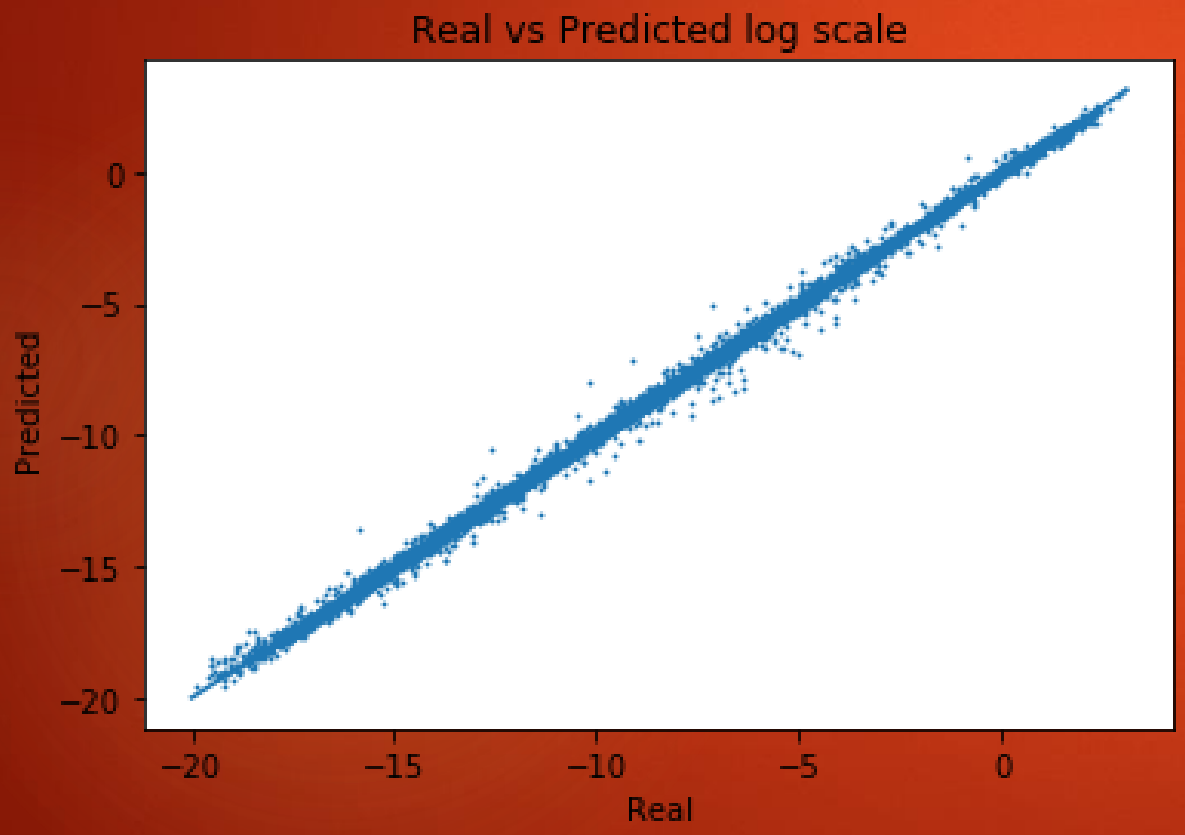
HMC 195 from 3900

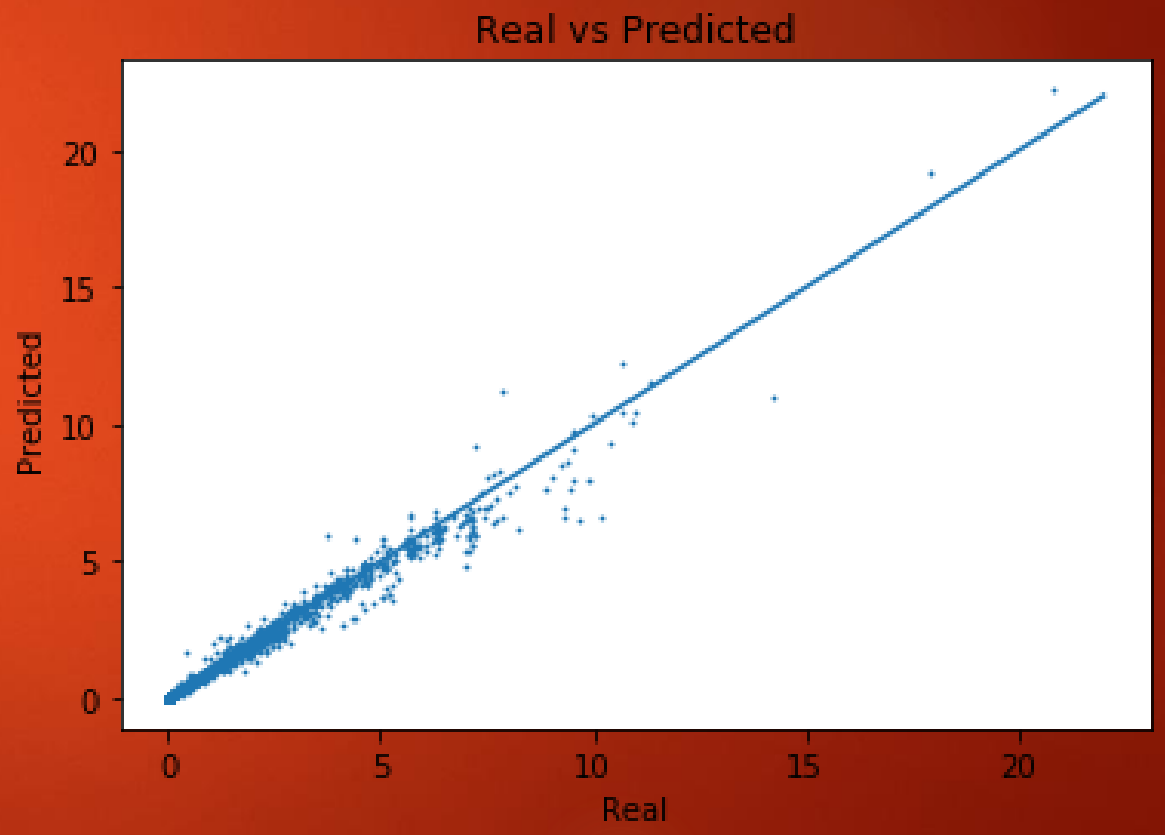


Summary

	Inside 1 SD	Inside 2 SDs	Inside 3 SD3	Outside of 3 SDs	Below min	Above max	Percent Error
Flipout Batched PRELU	25.59	48.12	65.86	34.17	9.01	22.04	11.40
Reparameterization Batched PRELU	39.31	67.16	83.00	17.00	5.02	9.65	13.21
Normal Dense PRELU	N/A	N/A	N/A	N/A	N/A	N/A	18.35
HMC Relu 1000	46.55	74.33	86.78	13.22	7.33	5.70	9.79
HMC Relu 5000	55.95	81.65	91.29	8.71	4.41	2.90	9.01
HMC Relu 195 from 3900	64.61	86.97	94.08	5.92	4.64	3.16	8.11

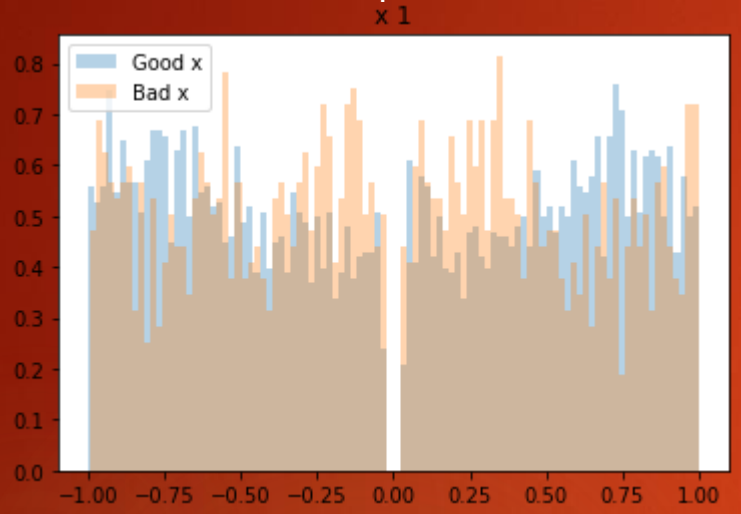
Real vs. Predicted



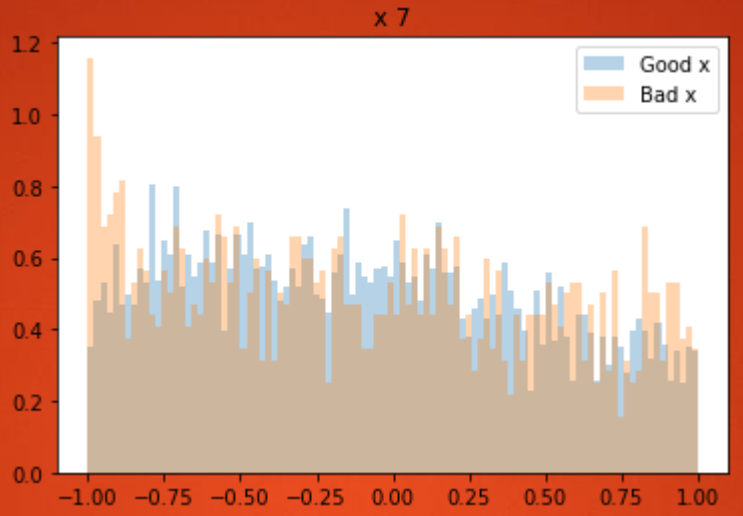


Error Analysis

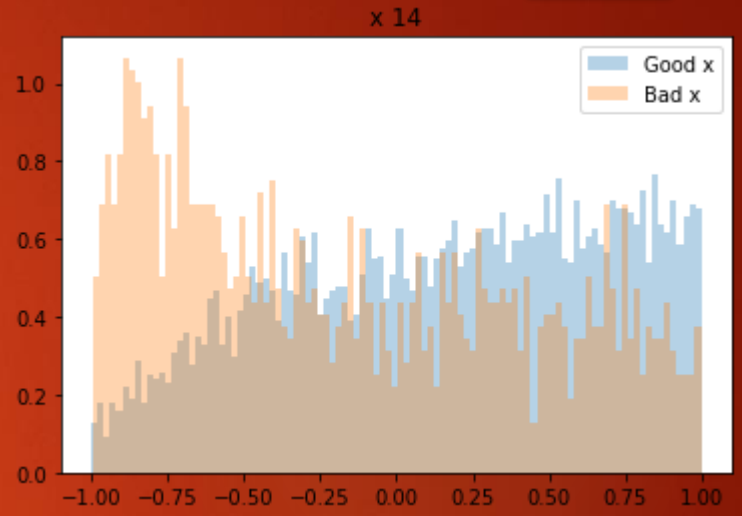
Wino mass parameter



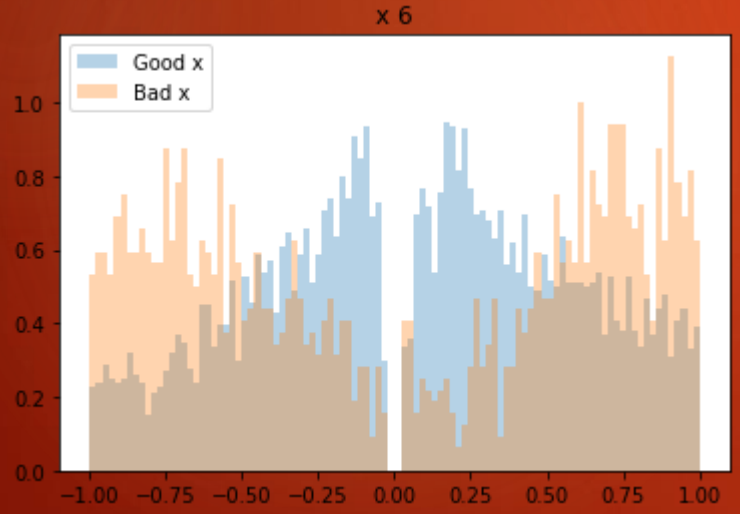
Ratio of the vacuum expectation values of the two Higgs doublets



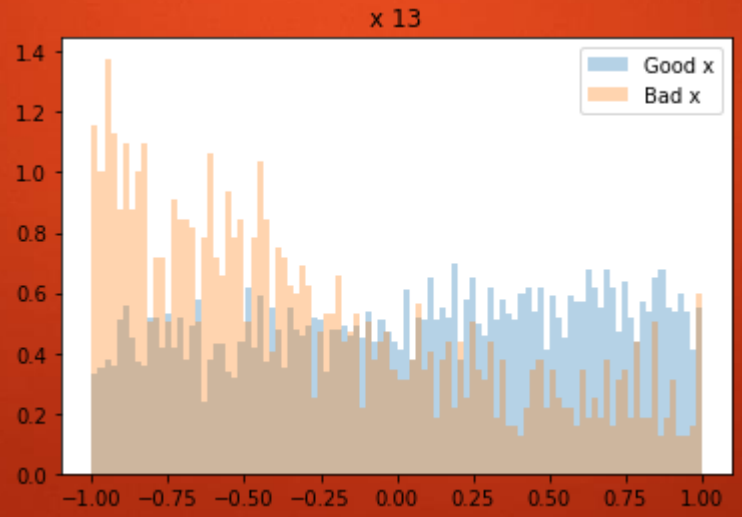
m_Q



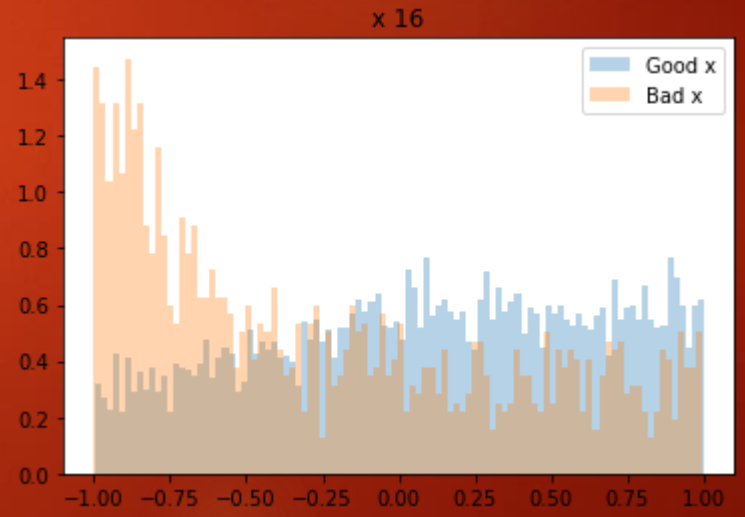
Higgsino mass parameter



m_q

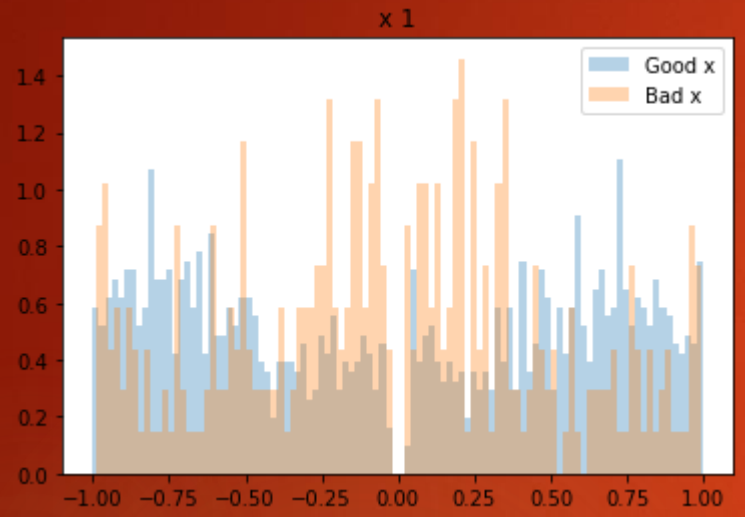


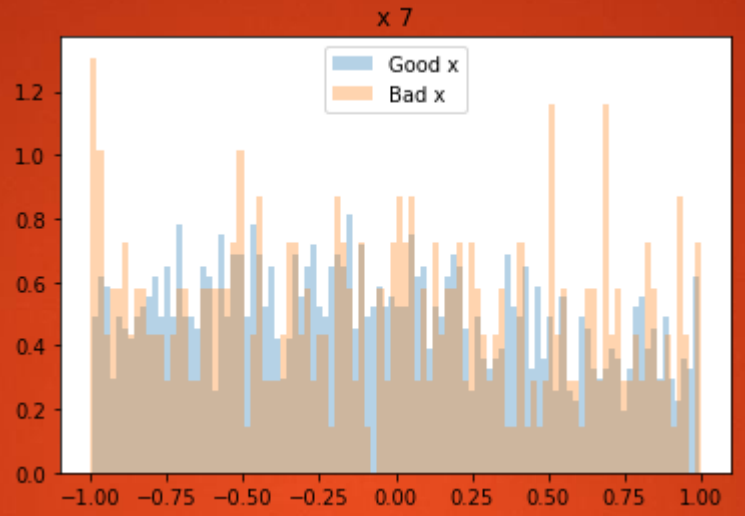
Stop quark mass parameter

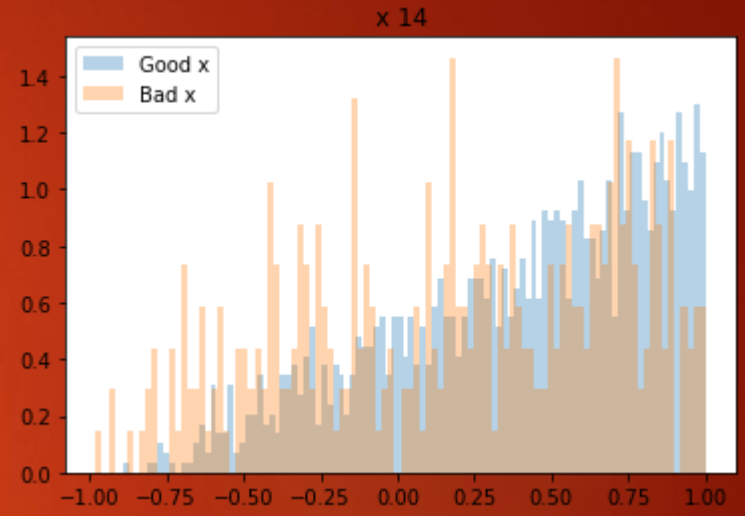


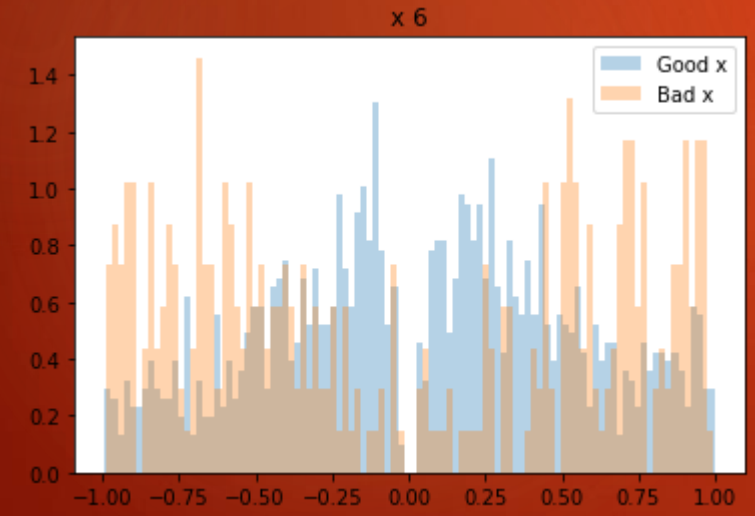
$m_q < m_Q$ and $m_u < m_t$

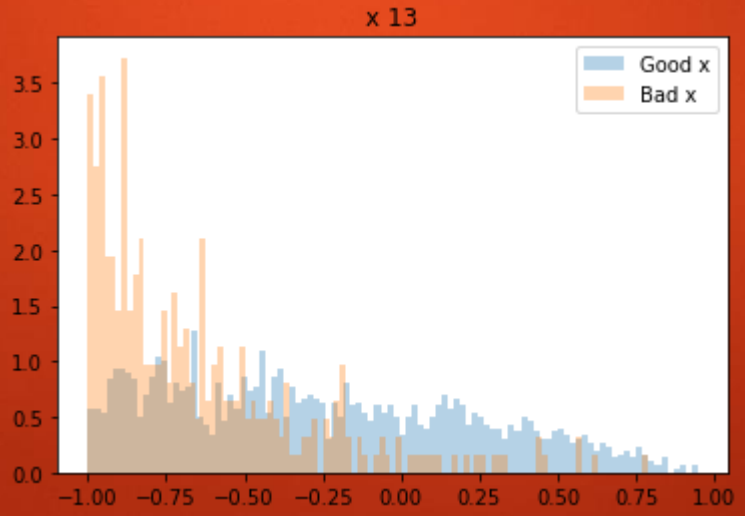
5,185 points
6.9 % Error

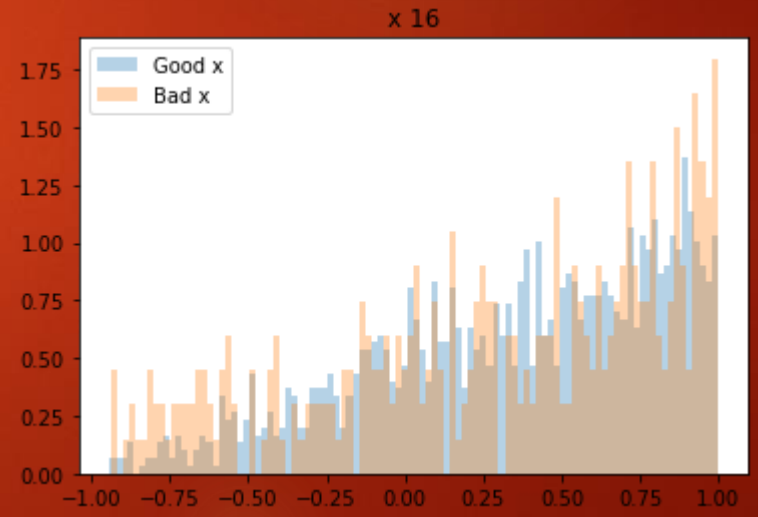












Goals for next week

- Finish poster
- Research parameter relationships and apply this to data analysis
- Fix non invertible error