

# HAWC Meeting April 6<sup>th</sup> 2018

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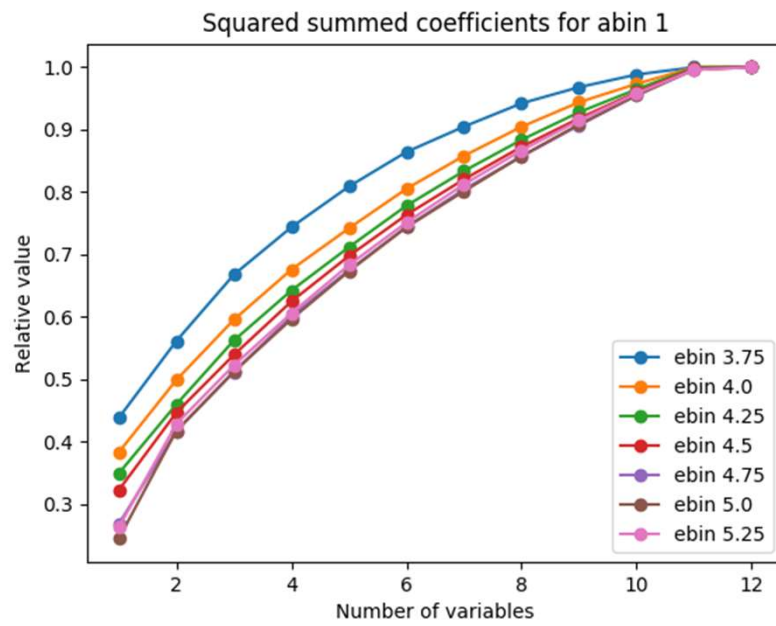
# PCA analysis

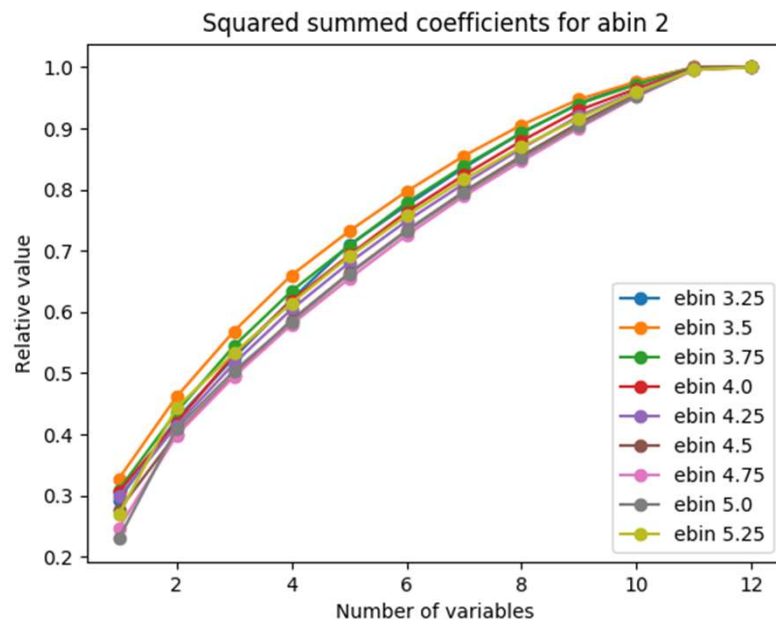
- ▶ Started looking at summing the squared coefficients for events.
  - ▶ Looked at distribution, looks like standard normal distribution
- ▶ How changing number of components changed average squared sum.
  - ▶ Looking for a stable point.

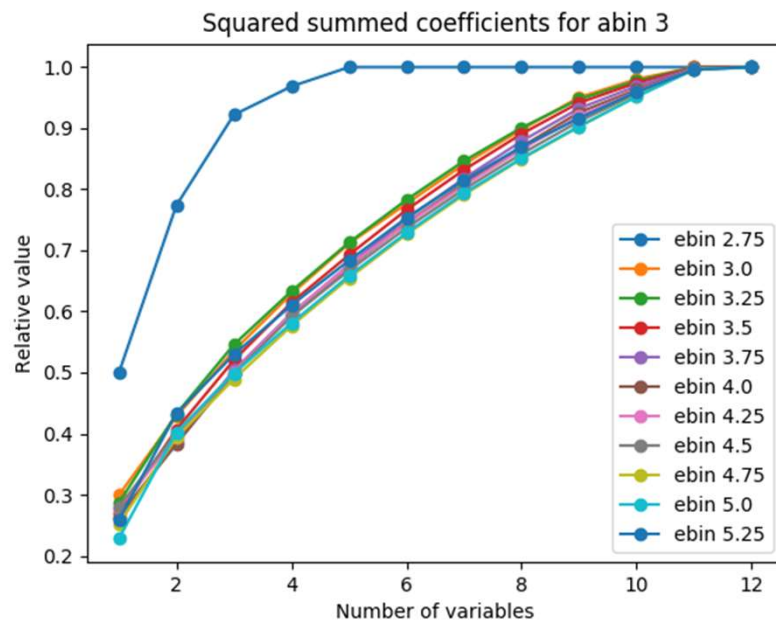


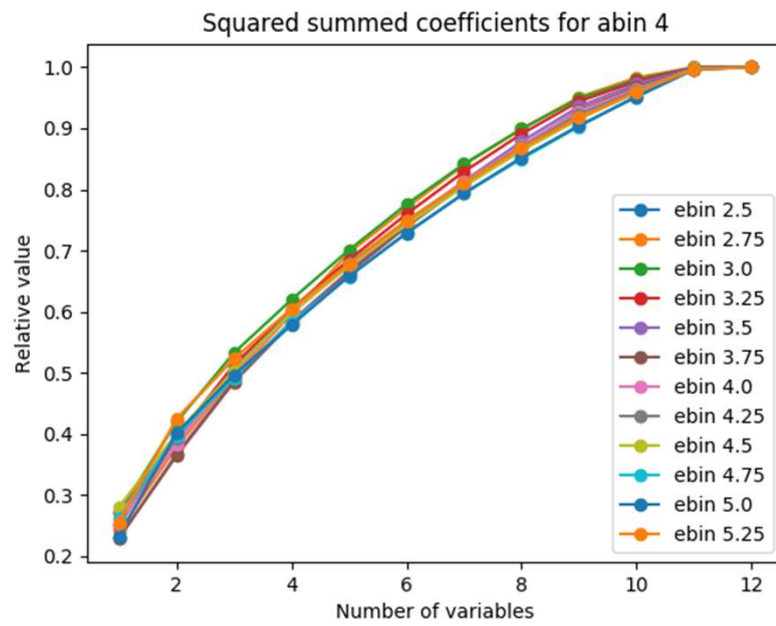
# Questions

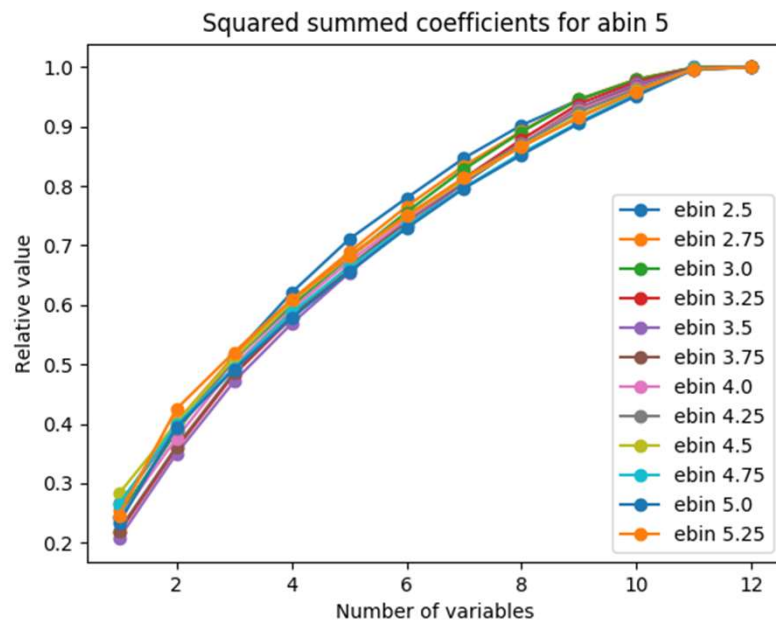
- ▶ Should we look at what the standardized set looks like or use the original data set that hasn't been standardized or only a partially standardized set (ie remove the mean but keep original variance)?
  - ▶ Plots shown are all with standardized set though I've experimented using the original data set. I believe original data set gets bogged down because some values are bigger.
- ▶ Currently not using any of the weights. Should these be factored in?



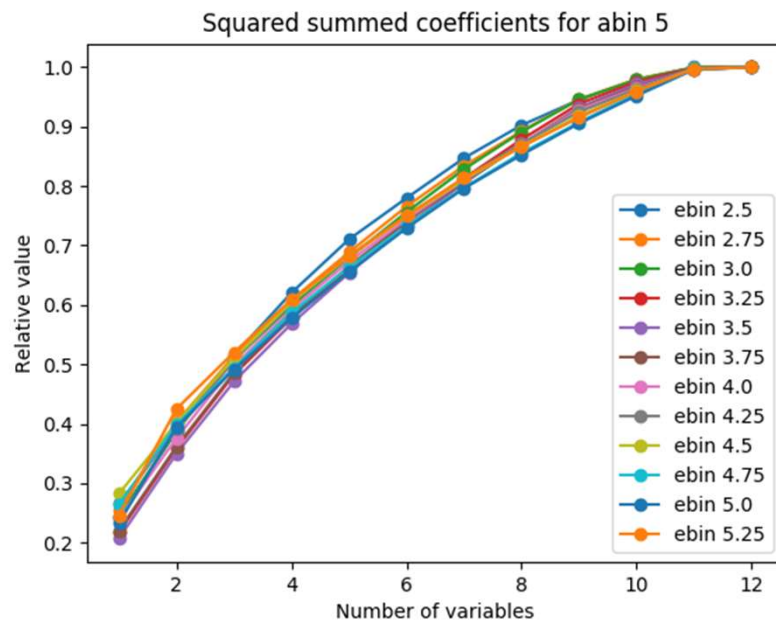


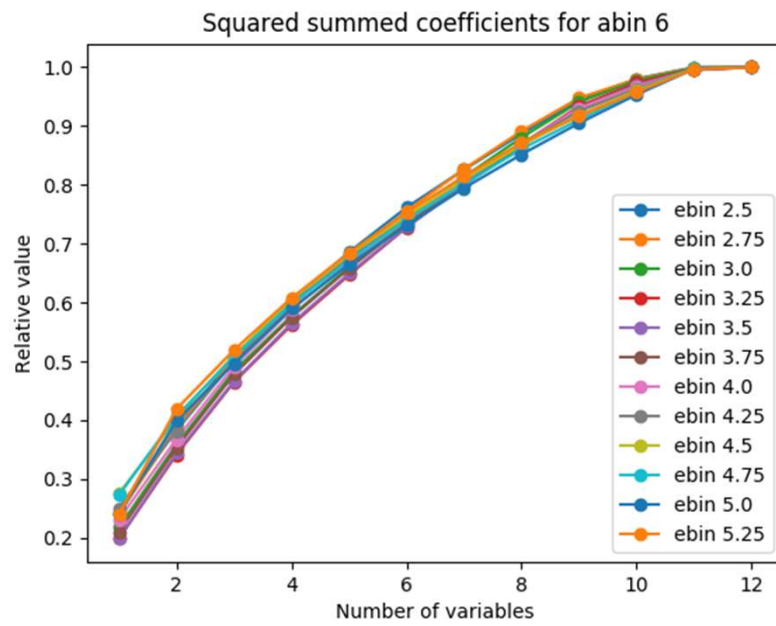


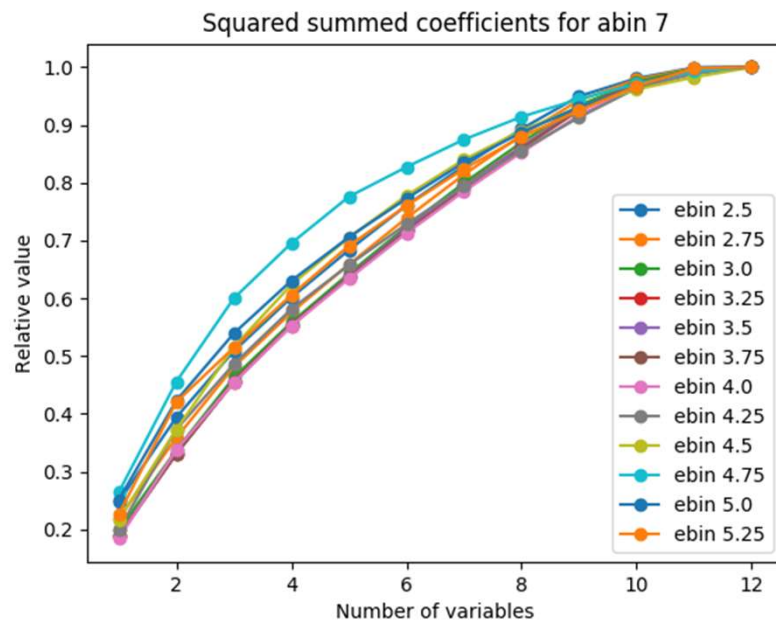


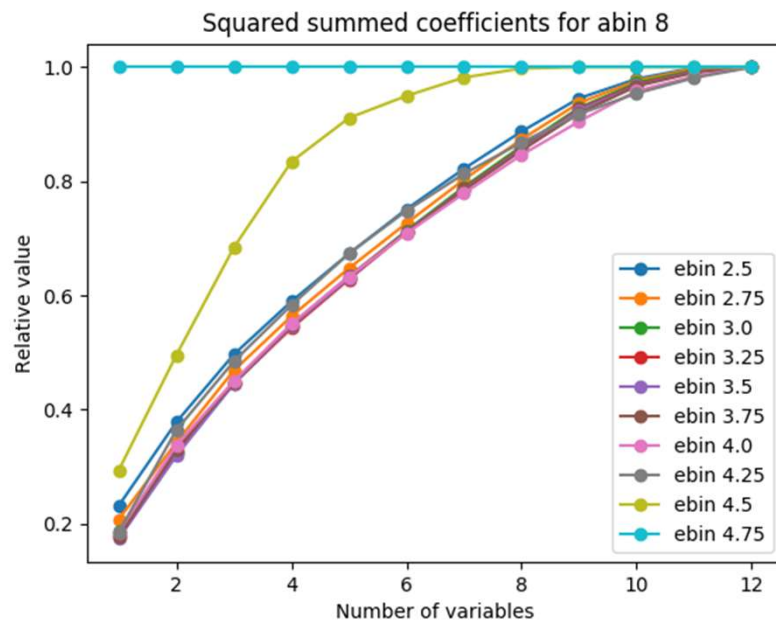


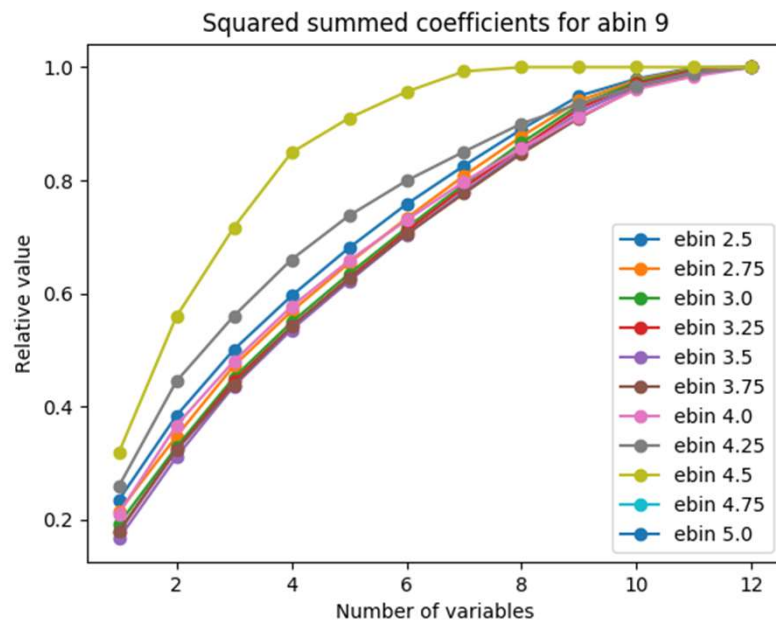












## Next Steps

- ▶ Experiment more, make more plots and try and decide how many to keep. Look more closely at bins which don't follow the norm
- ▶ Try using 5 or 10 components. Look at distribution of squared sums

