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**BCS**  
**Computer**  
**Systems**

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October 22, 2009



# Bowl Championship Series

Do you not know that in a race all the runners run, but only one receives the prize?

– 1 Corinthians 9:24



- An “event”, not an entity.
- National championship matchup
- Rose, Sugar, Orange, Fiesta bowls
- Weekly ranking:  
human polls and computers.

# BCS History

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- 1992-95: Bowl Coalition
- 1995-97: Bowl Alliance
- 1998-present: Bowl Championship Series
- 1999: Massey joins, and VT plays FSU
- 2000: Was beat Mia beat FSU
- 2001: poll #2 Ore snubbed for Neb vs Mia
- 2002: computers ignore margin of victory
- 2003: poll #1 USC snubbed for OK vs LSU
- 2004: current formula settled



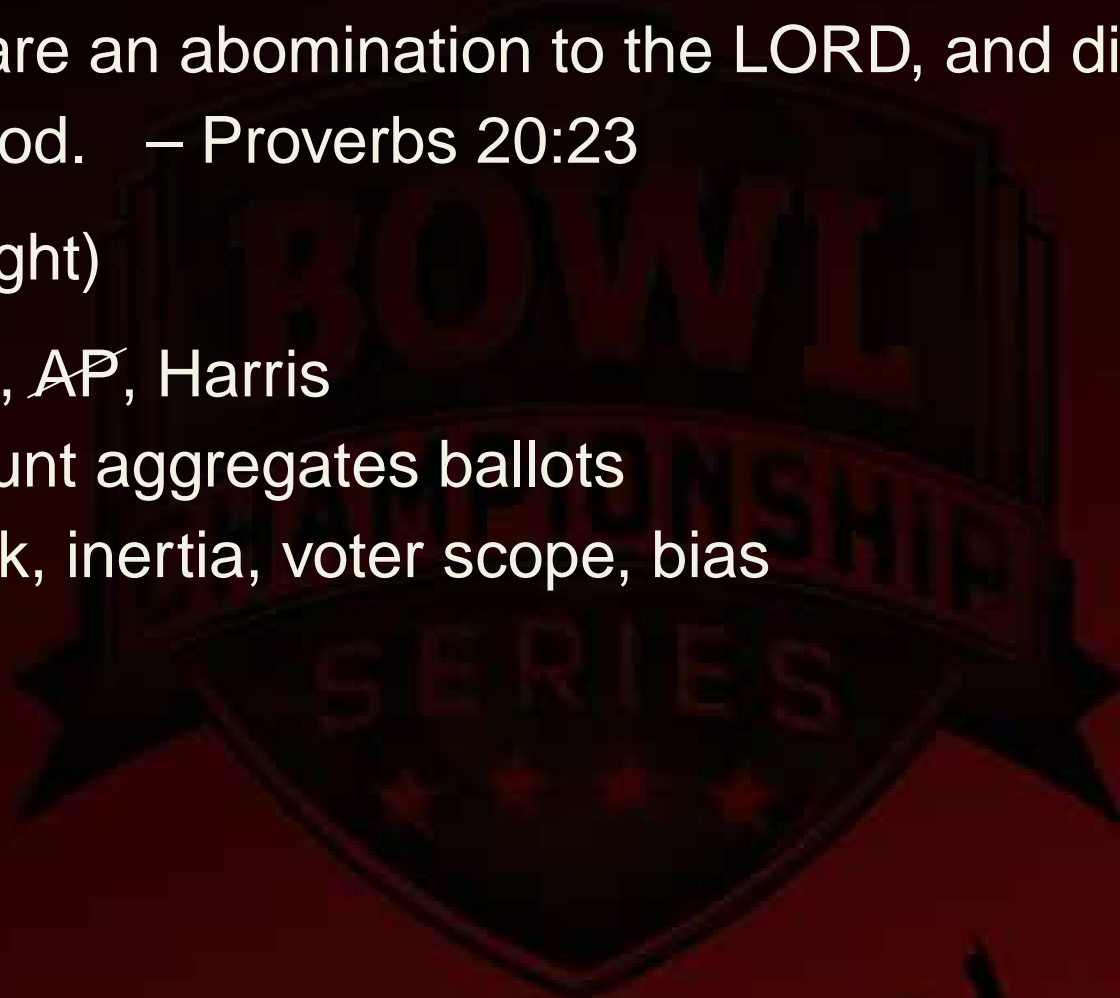
# Polls & Computers

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Diverse weights are an abomination to the LORD, and dishonest scales are not good. – Proverbs 20:23

- Polls (2/3 weight)

- Coaches', AP, Harris
- Borda count aggregates ballots
- groupthink, inertia, voter scope, bias



# Polls & Computers

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Diverse weights are an abomination to the LORD, and dishonest scales are not good. – Proverbs 20:23

## ■ Polls (2/3 weight)

- Coaches', ~~AP~~, Harris
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## ■ Computers (1/3 weight)

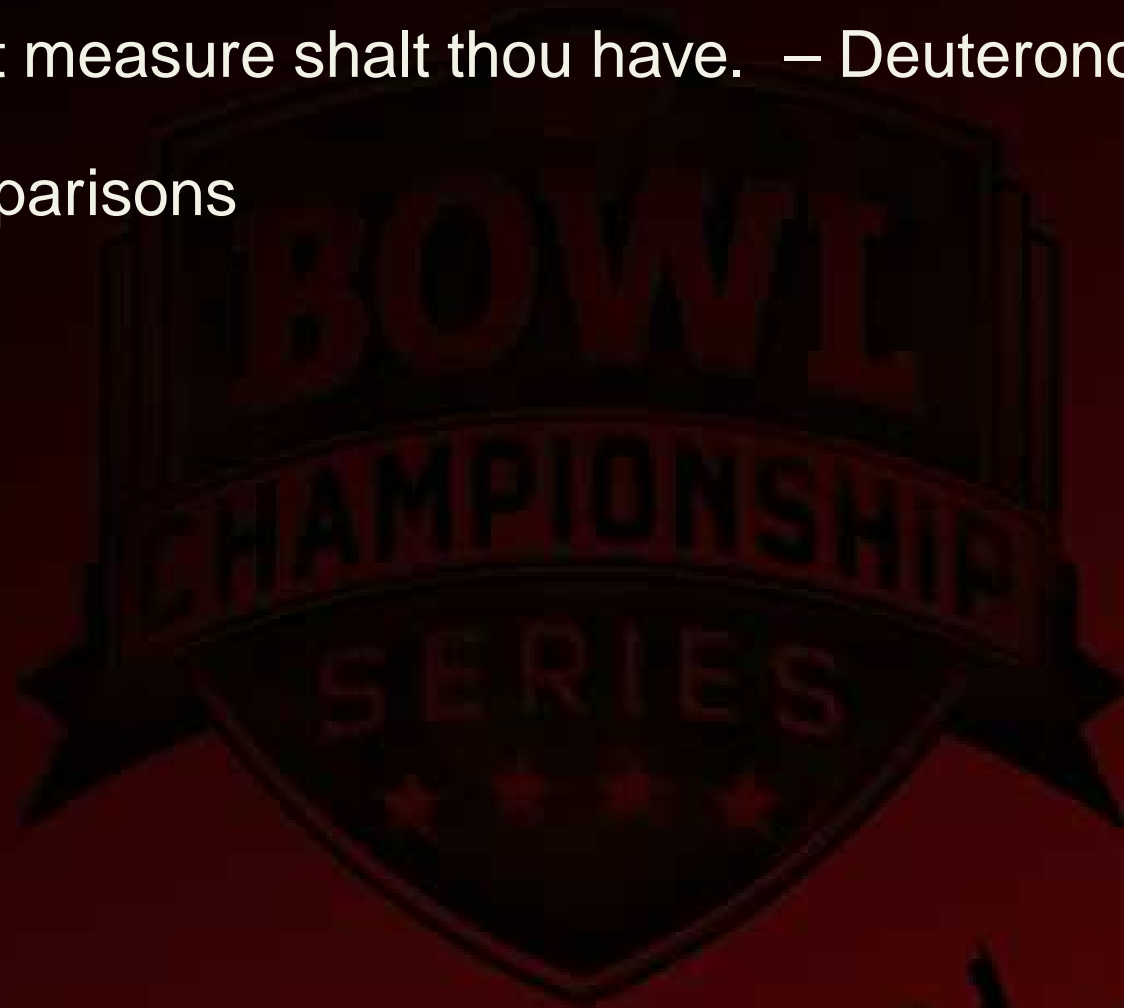
- Anderson, Billingsley, Colley, Massey, Sagarin, Wolfe, ~~Rothman~~, ~~Matthews~~, ~~Dunkel~~, ~~NY Times~~
- objective implementation, not design

# Computers

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A perfect and just measure shalt thou have. – Deuteronomy 25:15

- pairwise comparisons

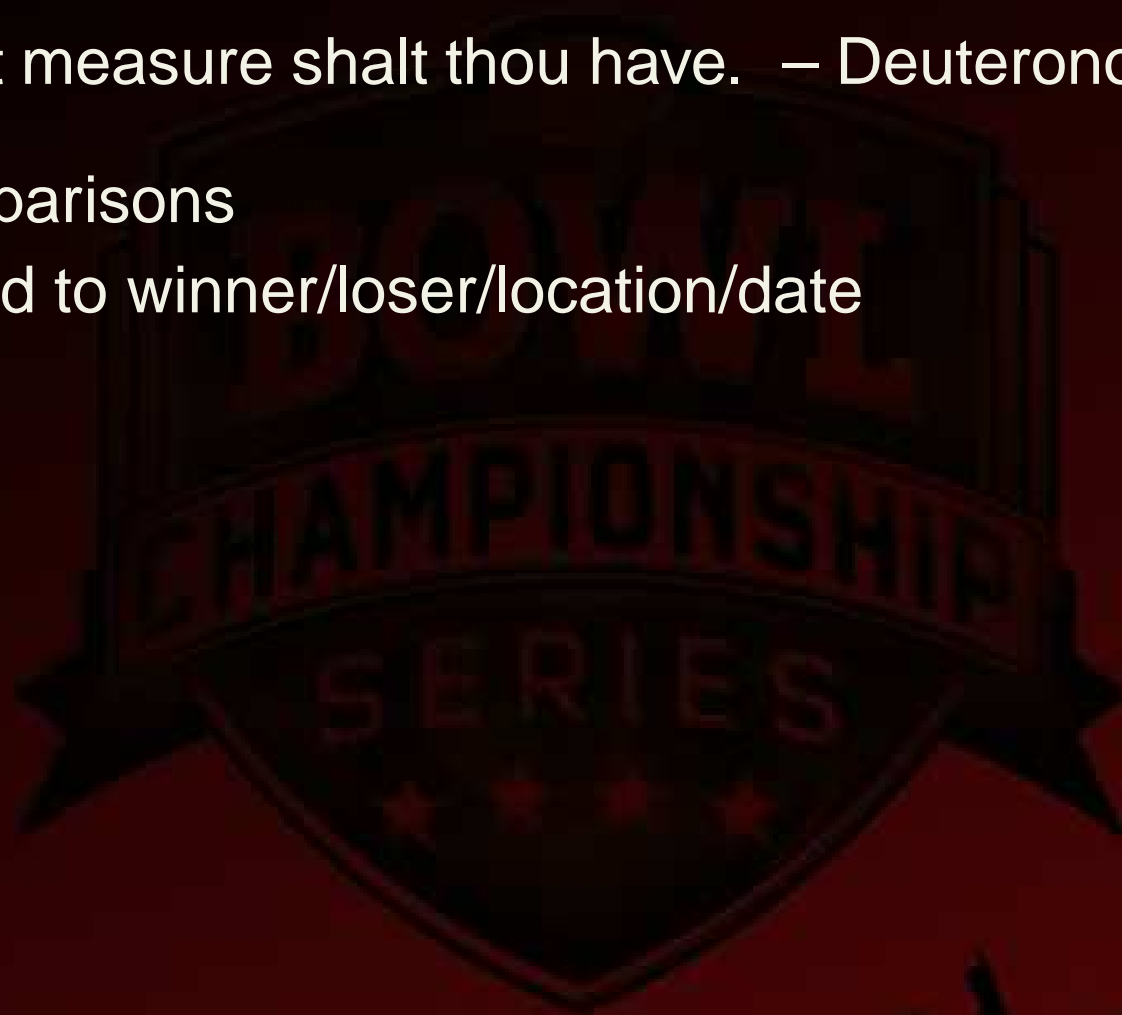


# Computers

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- input censored to winner/loser/location/date

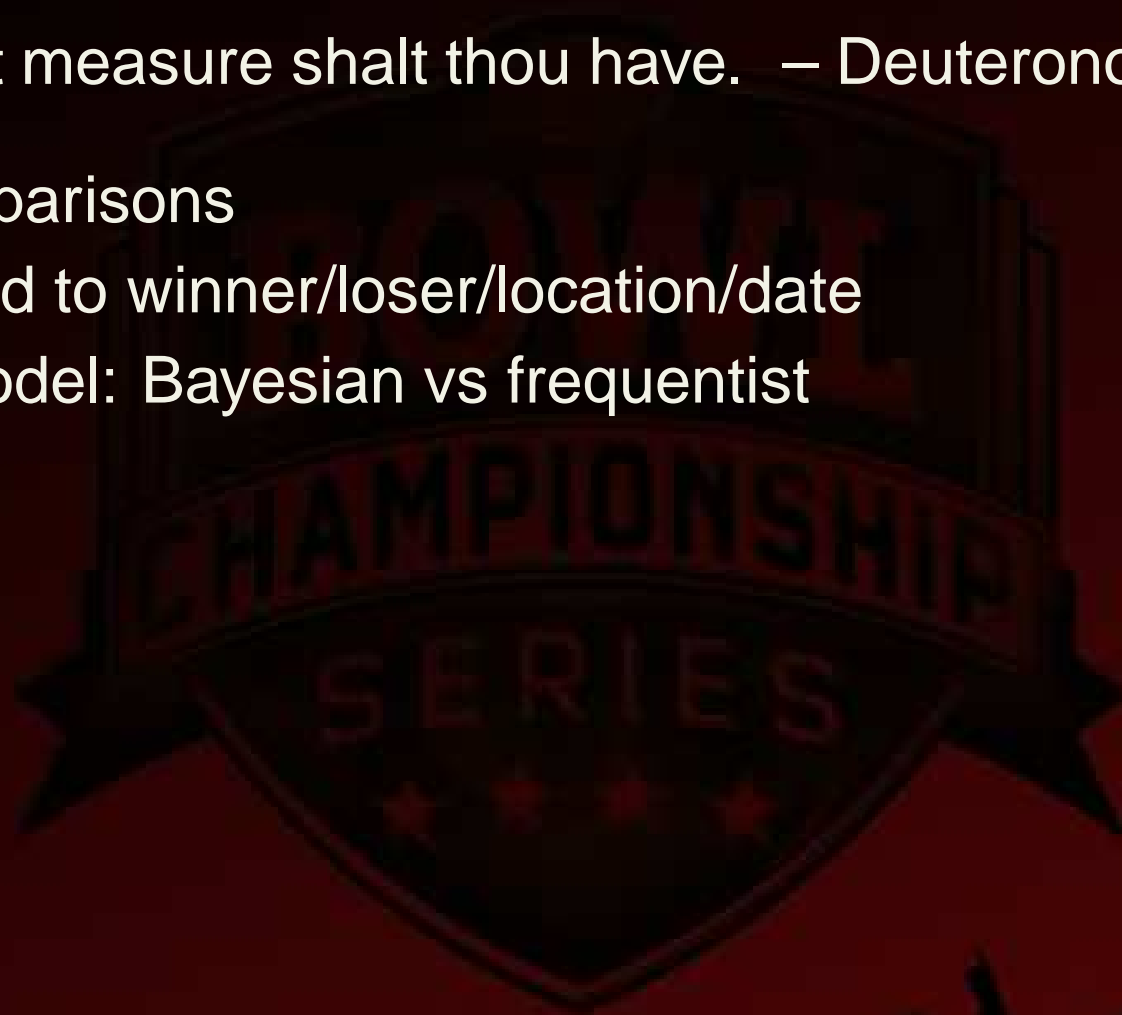


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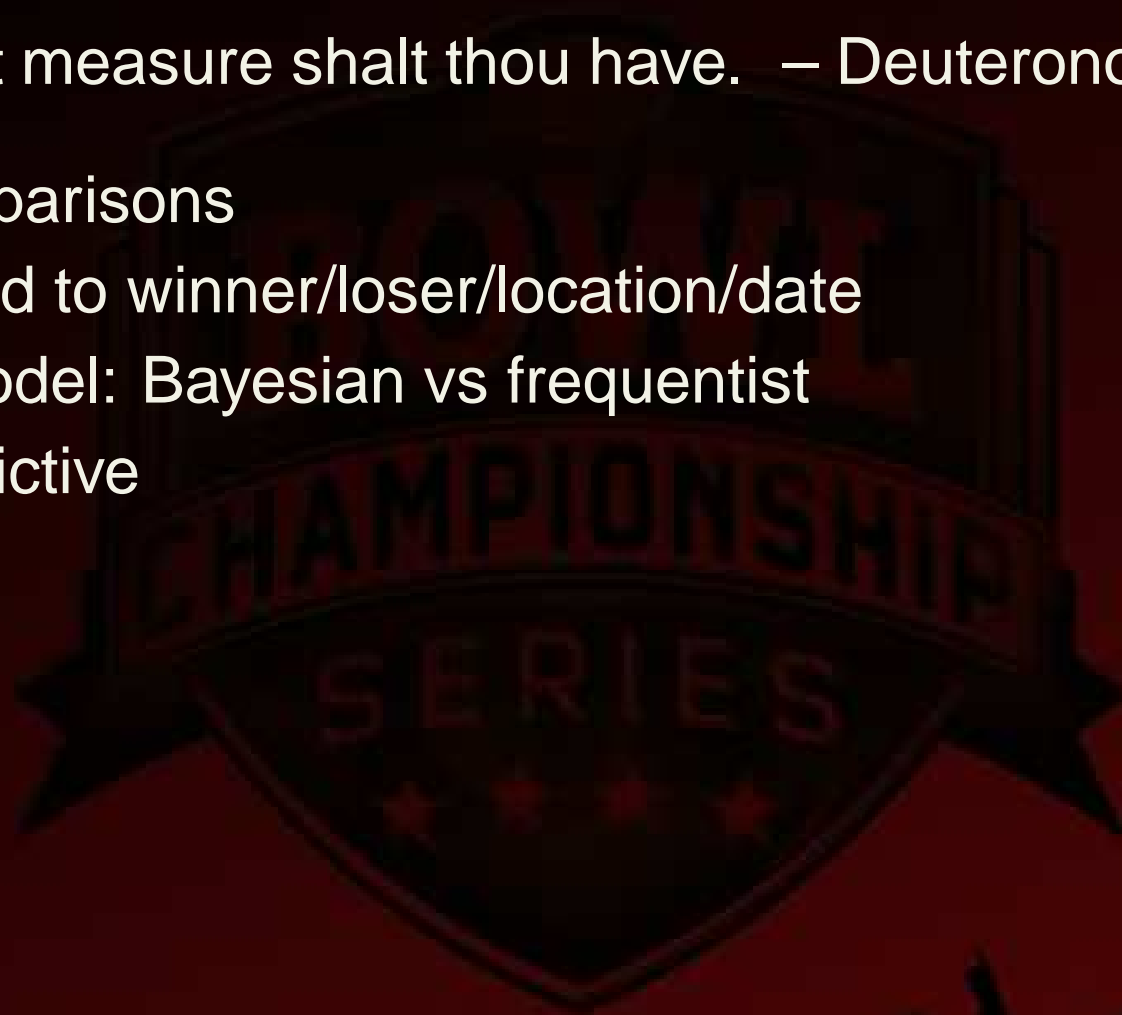


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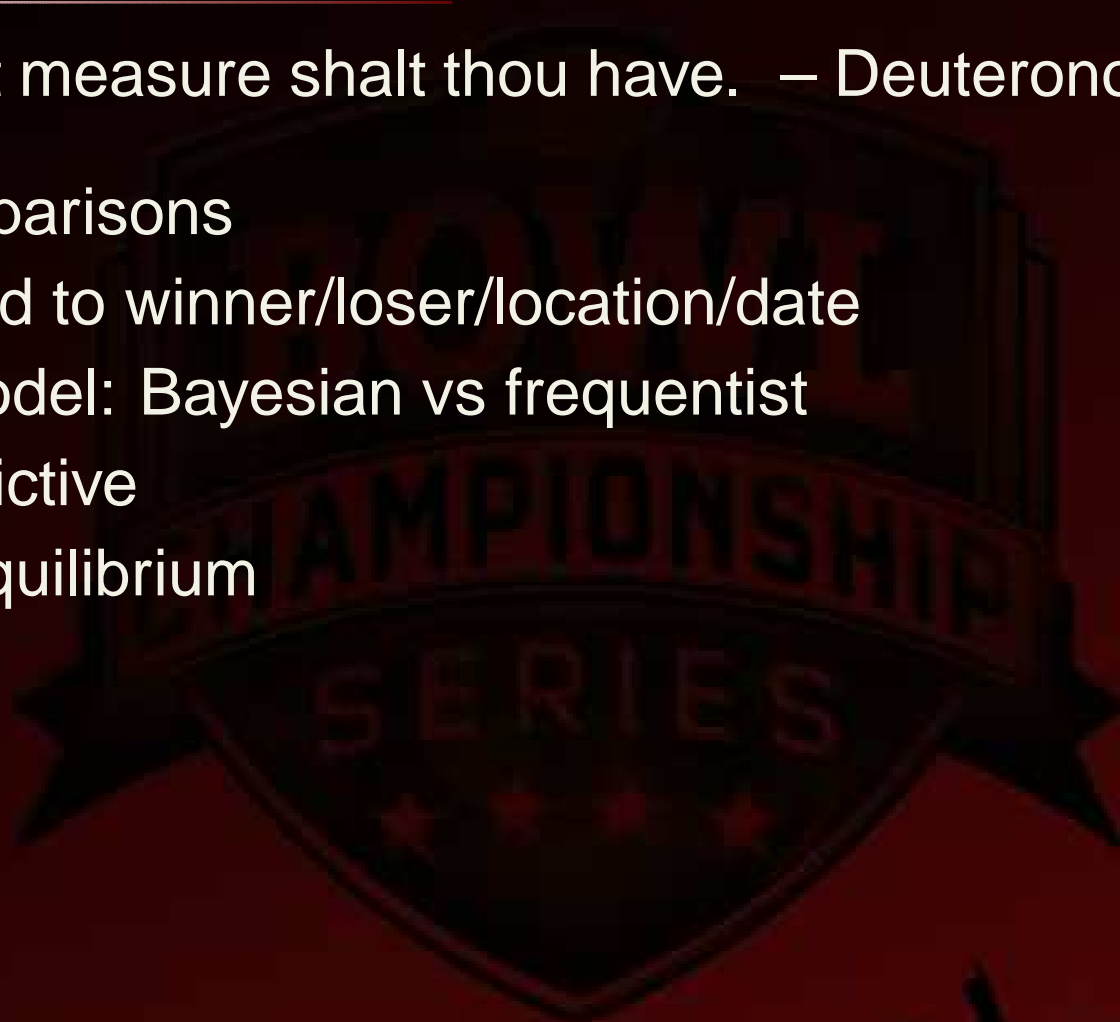


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initialize team ratings
repeat {
  update ratings given current values
}
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- Task: create a one-dimensional rating for noisy, sparse, intransitive data on a moving target.

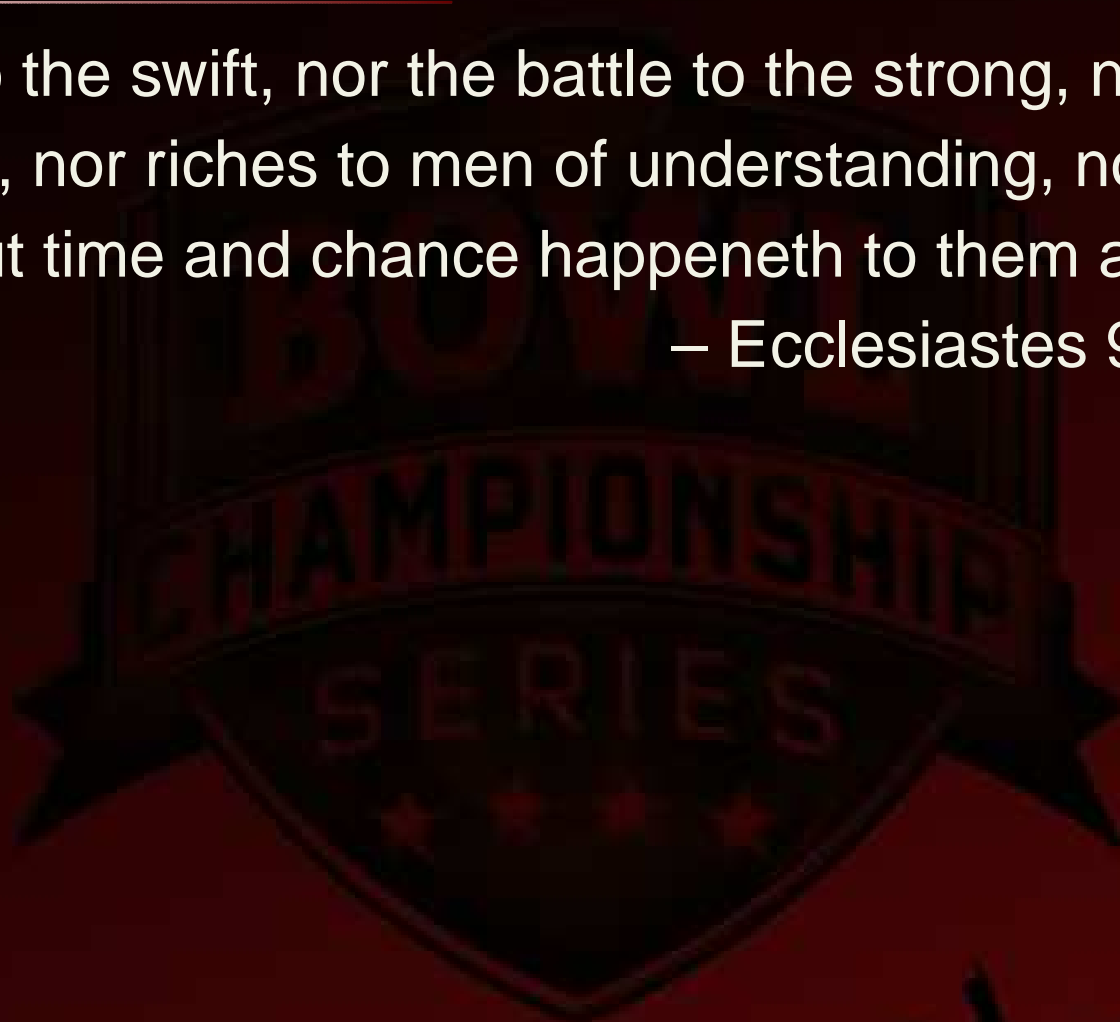
# Uncertainty

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The race is not to the swift, nor the battle to the strong, neither bread to the wise, nor riches to men of understanding, nor favour to men of skill; but time and chance happeneth to them all.

– Ecclesiastes 9:11

- Potential



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- Potential
- Performance  
effort, psychology, presence
- Results  
matchups, luck, chaos

# Intransitive

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2008 Season:

- Carson-Newman 35 Wingate 33



# Intransitive

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- Carson-Newman 35 Wingate 33
- Wingate 23 NC Pembroke 16



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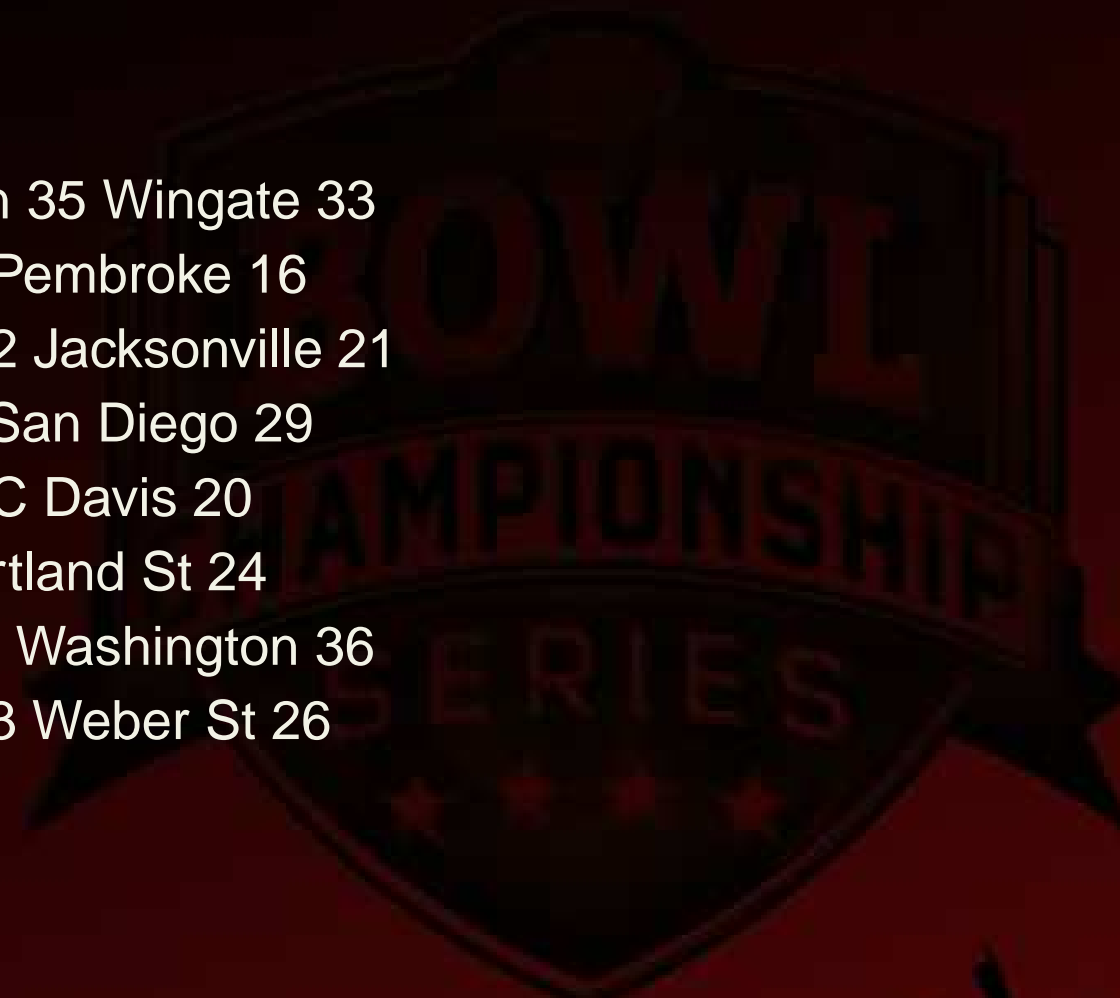


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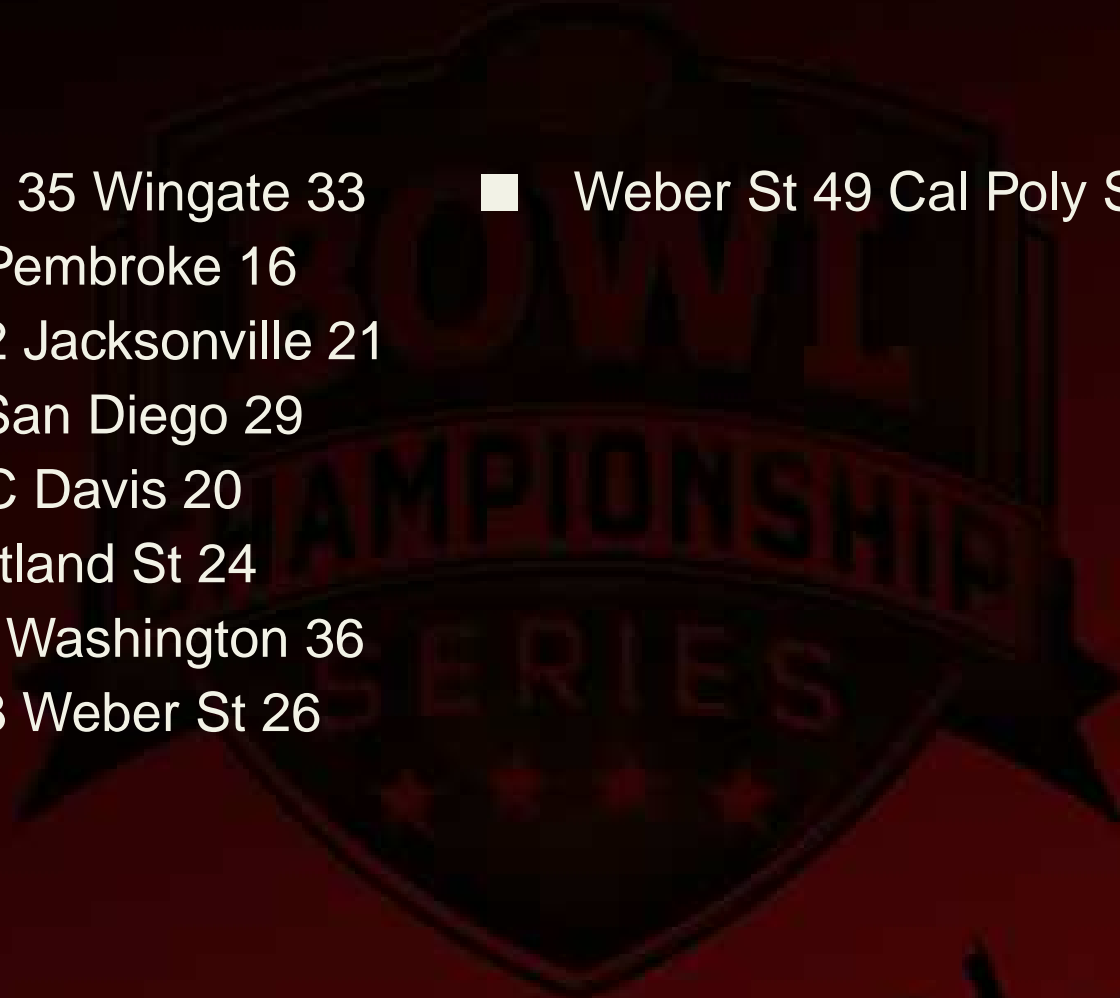


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- Kentucky 25 East Carolina 19

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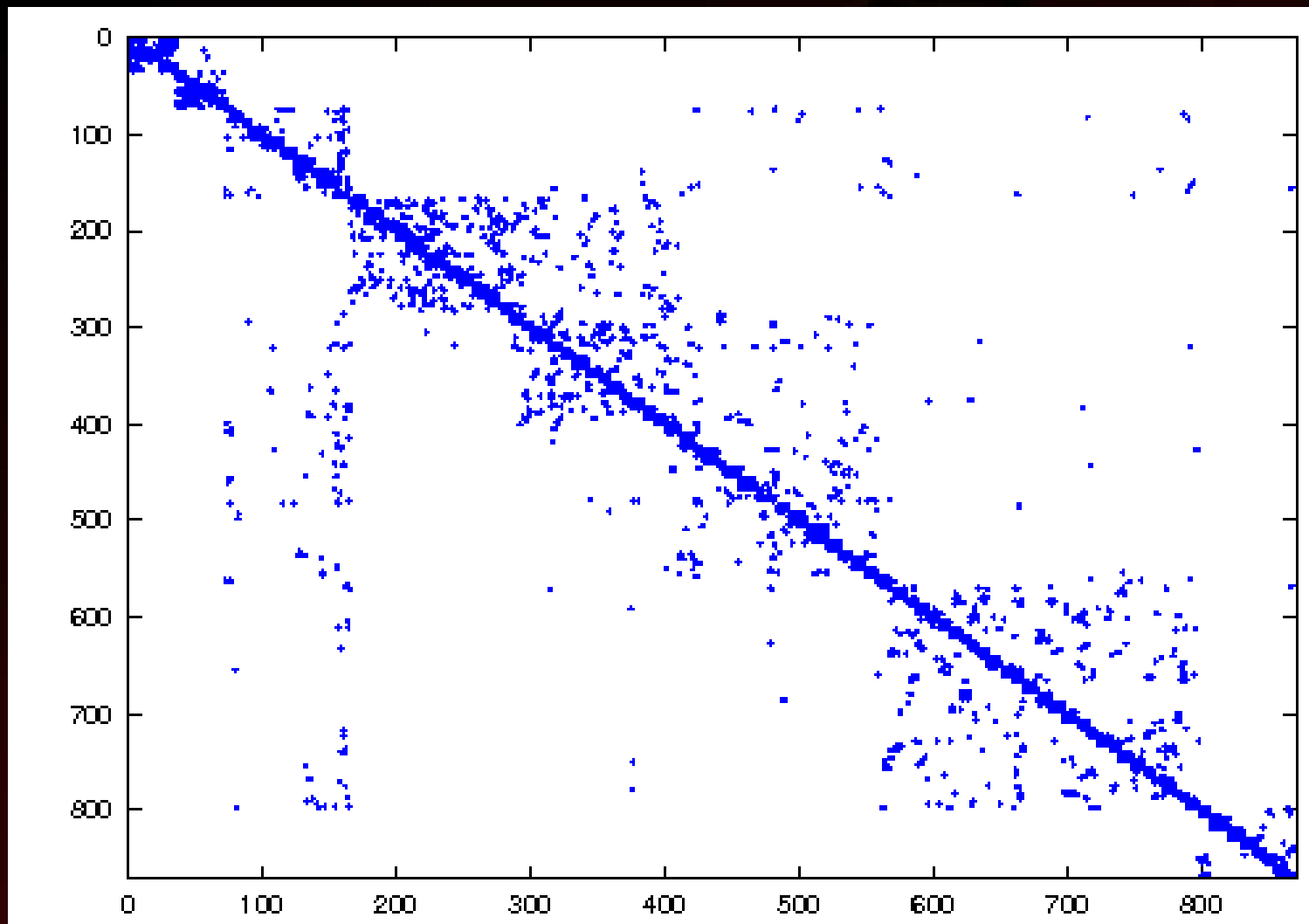
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- East Carolina 27 Virginia Tech 22

# Sparse

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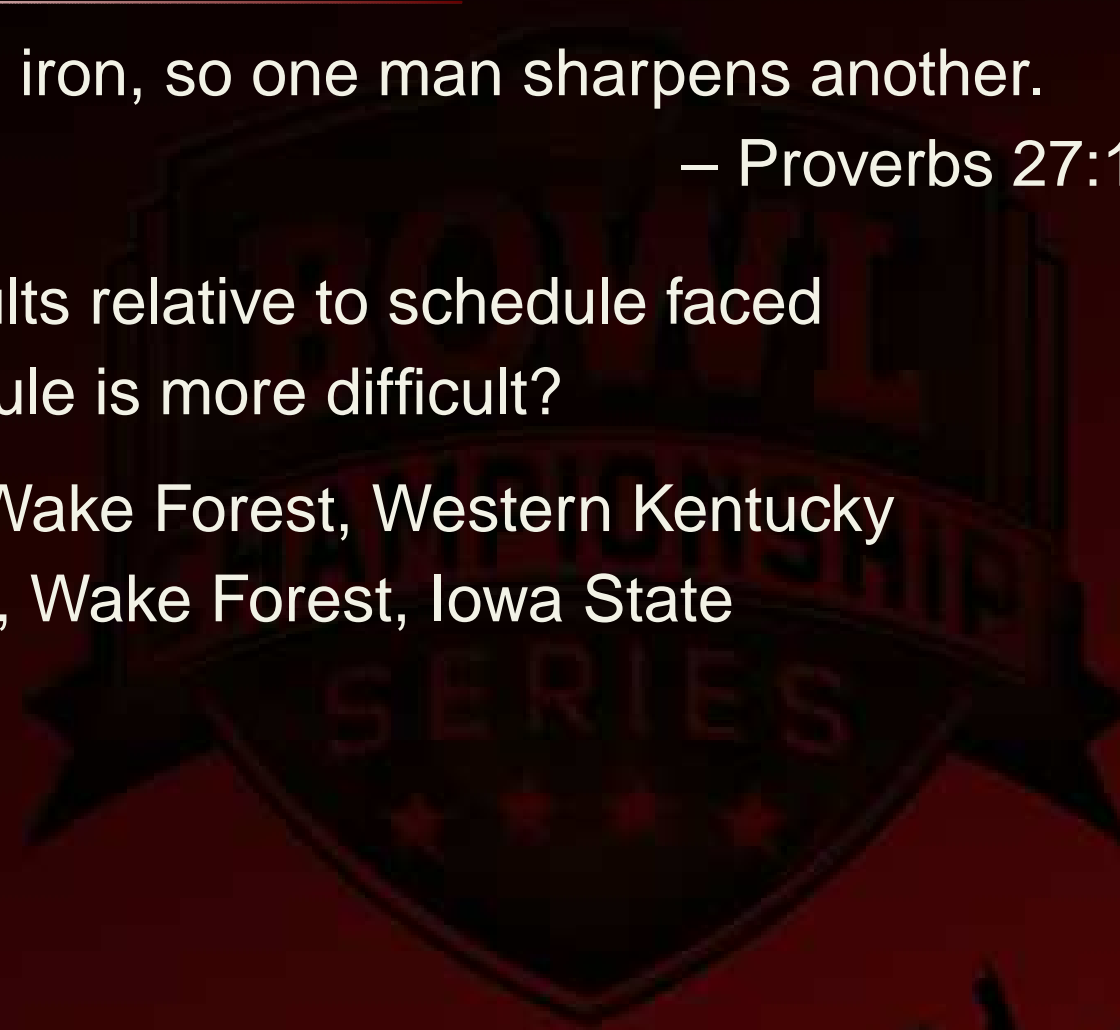
# Strength of Schedule

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As iron sharpens iron, so one man sharpens another.

– Proverbs 27:17

- Rating = results relative to schedule faced
- Which schedule is more difficult?
  1. Florida, Wake Forest, Western Kentucky
  2. Kentucky, Wake Forest, Iowa State



# Strength of Schedule

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- Rating = results relative to schedule faced
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  1. Florida, Wake Forest, Western Kentucky
  2. Kentucky, Wake Forest, Iowa State
- SoS implicit in model
- dominating set - { Ala, Mia, GT, VT }

# Massey Ratings

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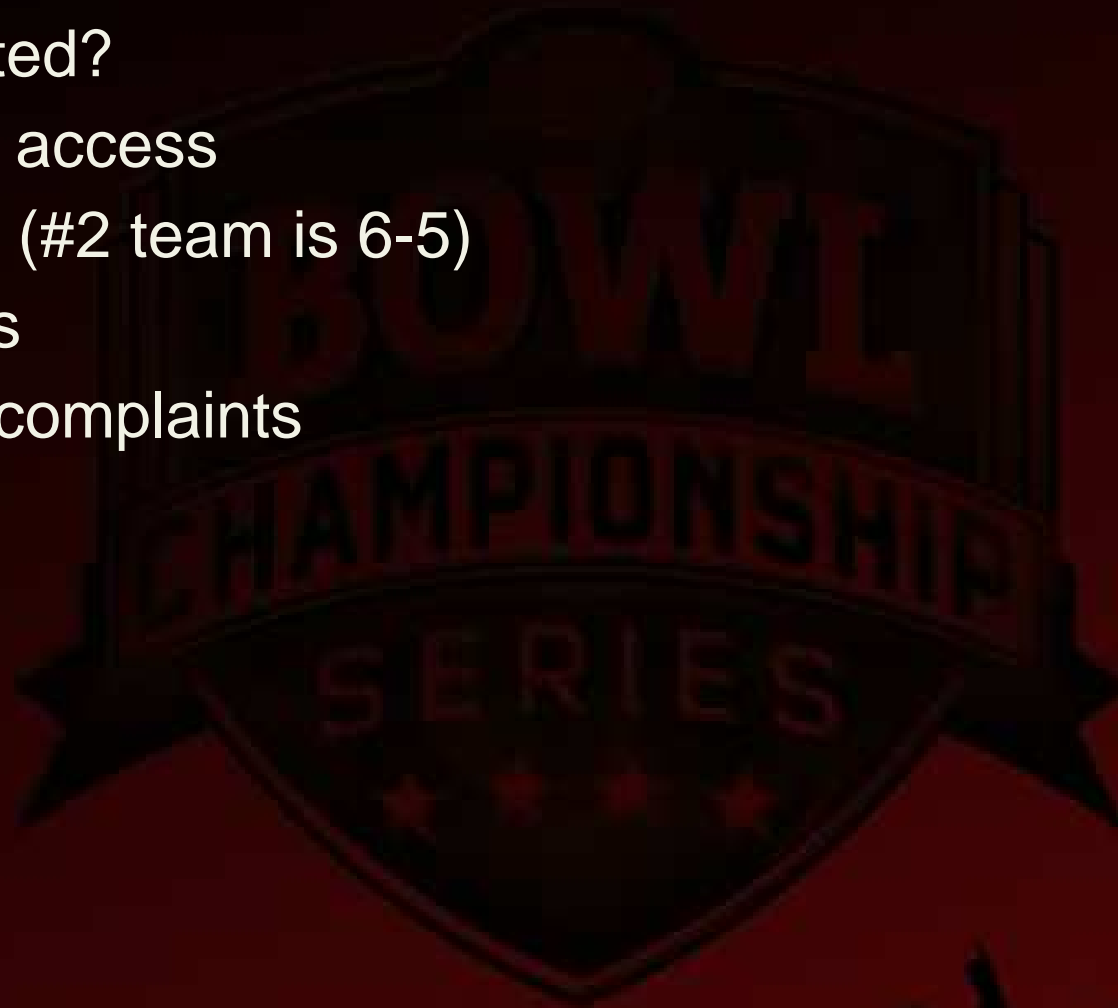
- Bluefield College 1997
- [masseyratings.com](http://masseyratings.com)
- BCS 1999
- [highschoolsports.net](http://highschoolsports.net) 2008
- HP desktop, Ubuntu Linux, open source, C++
- adaptive Bayesian GLM via Newton-Krylov



# BCS Issues

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- Too complicated?
- Limited/unfair access
- Splitting hairs (#2 team is 6-5)
- Vague metrics
- ex post facto complaints



# Playoffs??!

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- BCS = two team playoff
- Those who long for a college football playoff system need to understand, thanks to the BCS, there already is one. It's called the regular season. – Bill Plaschke, LA Times
- “plus-one” system = four team playoff
- logistics, watering down of a larger field

