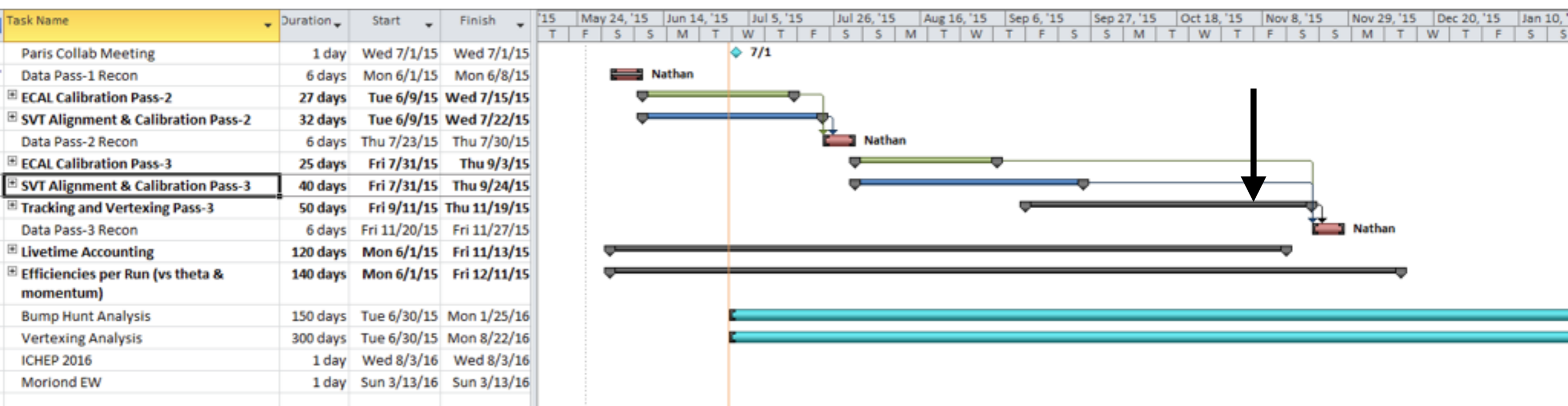


# (un)Blinding plans and getting to publication

Matt Graham, SLAC  
HPS Collaboration Meeting  
Monday, October 26, 2015

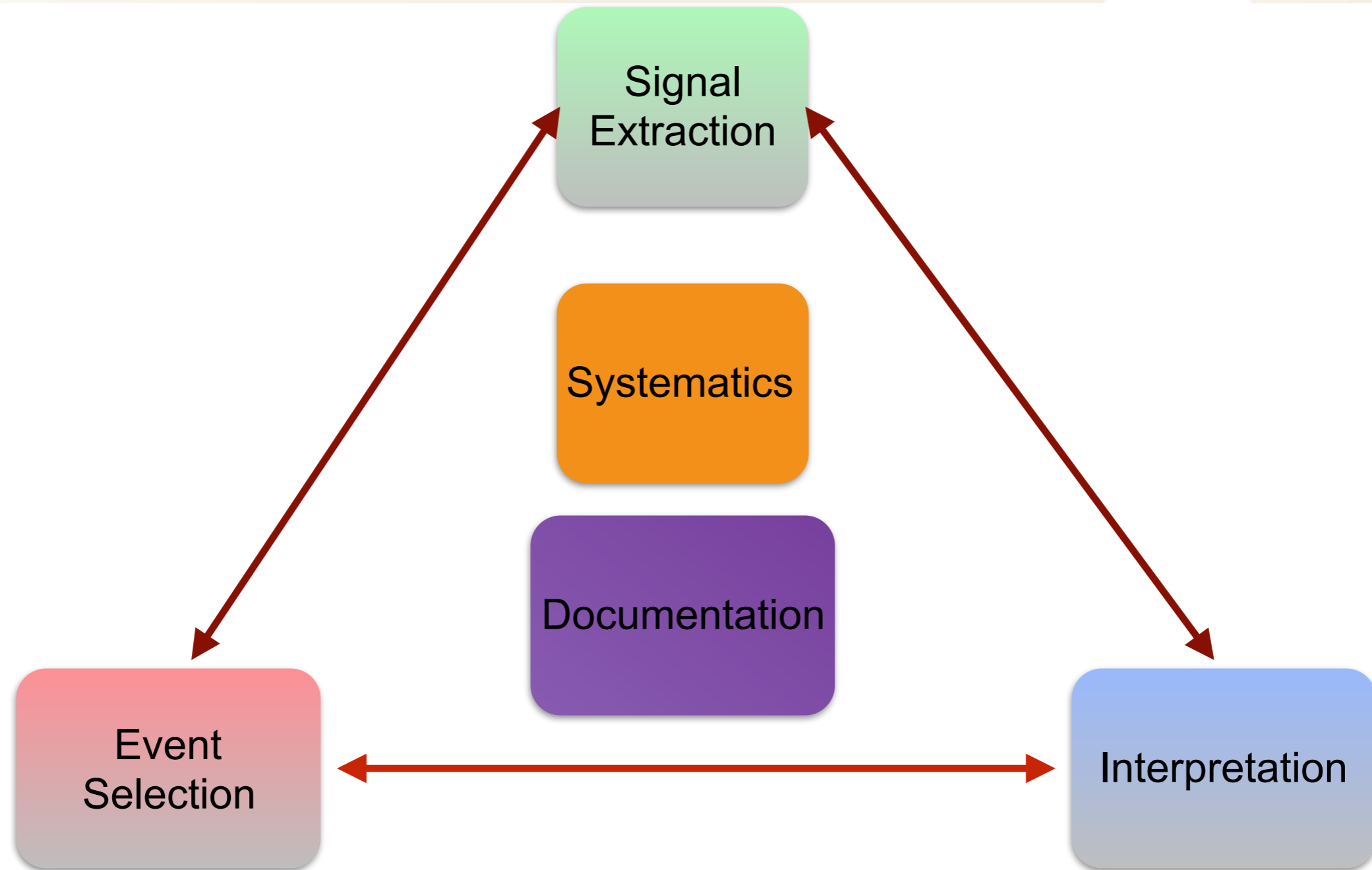


# Data processing



- We're actually pretty close to our schedule we laid out in May (sorry, won't happen again)
- We've already done "pass-3" ... we'll probably do one more, but I think the improvements will be fairly minor; pass-3 recon is already physics-quality, I think
  - I think the next pass should go over all the data, not just the 10% unblind sample

# The PRL Triangle



# The PRL Triangle

## Event Selection

What is the signal signature?  
What are we trying to extract?

- just  $N_{\text{sig}}$  or shapes too?

What are the backgrounds?

Understand the data:

- what discriminates signal from background?
- what variables are correlated?  
can that be exploited?

Cut optimization:

- square cuts? linear or non-linear discriminants? fancier stuff?
- automatic or “by hand”?
- balance signal purity & systematic errors...

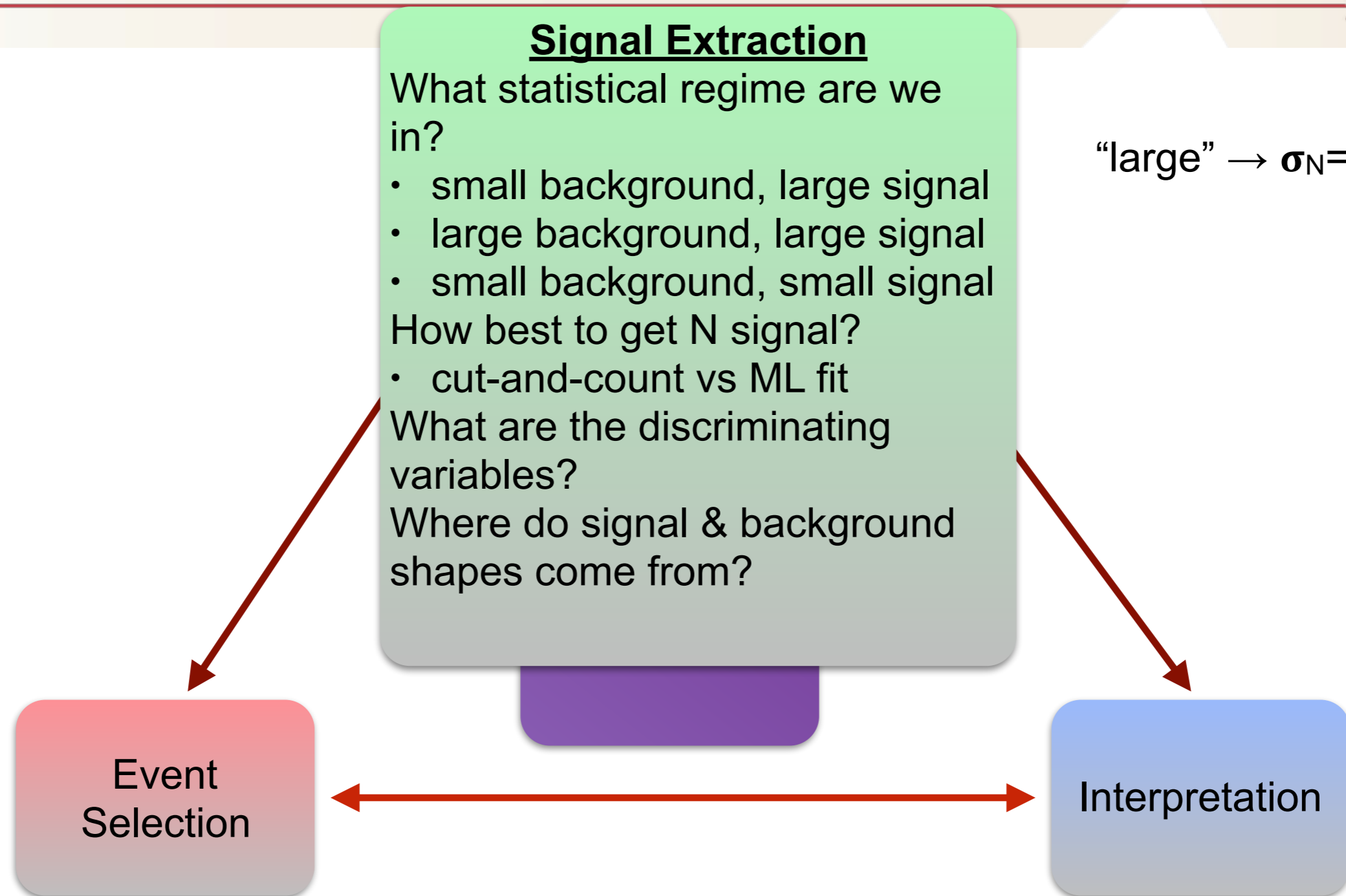
Signal  
Extraction

Systematics

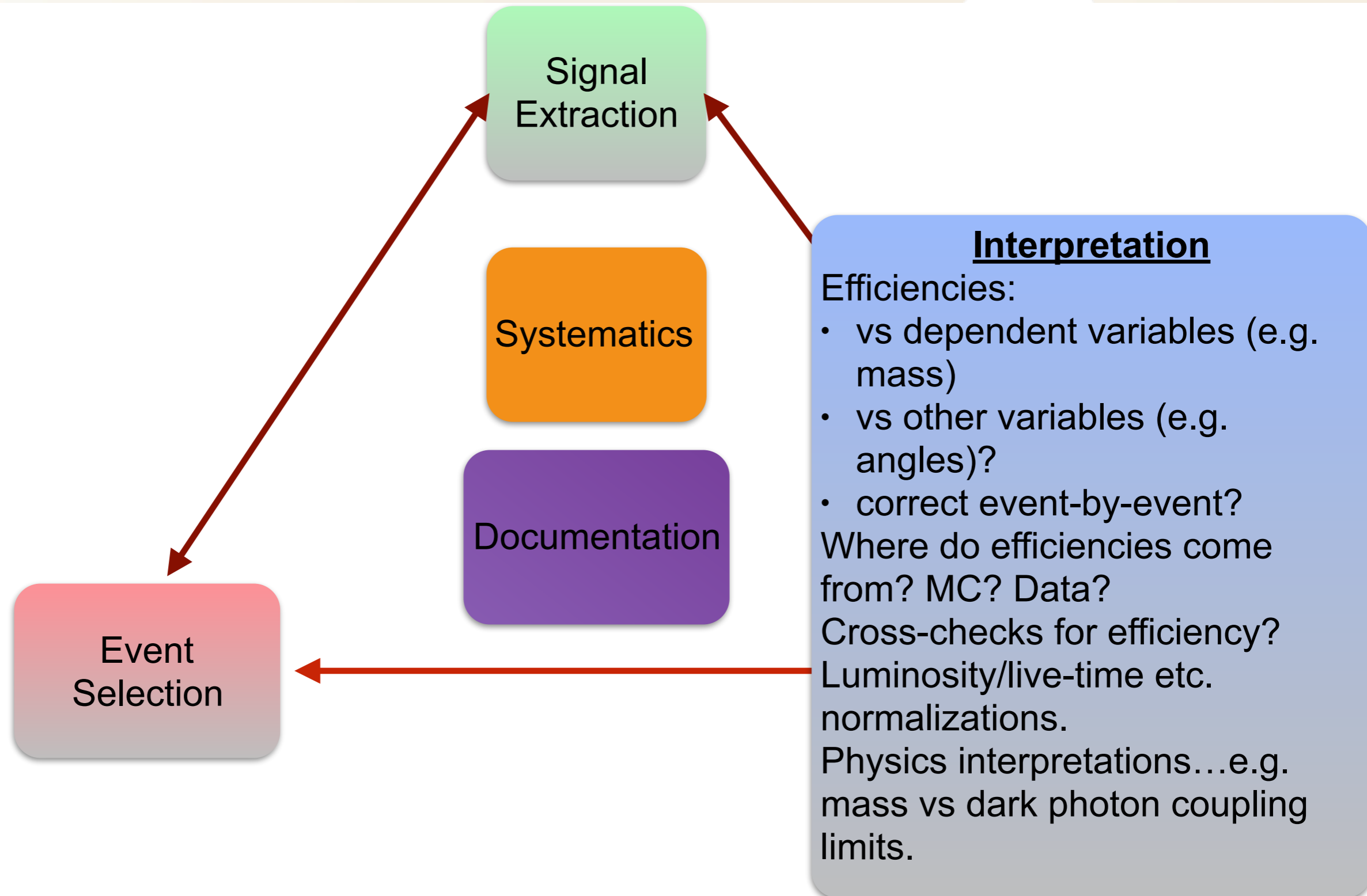
Documentation

Interpretation

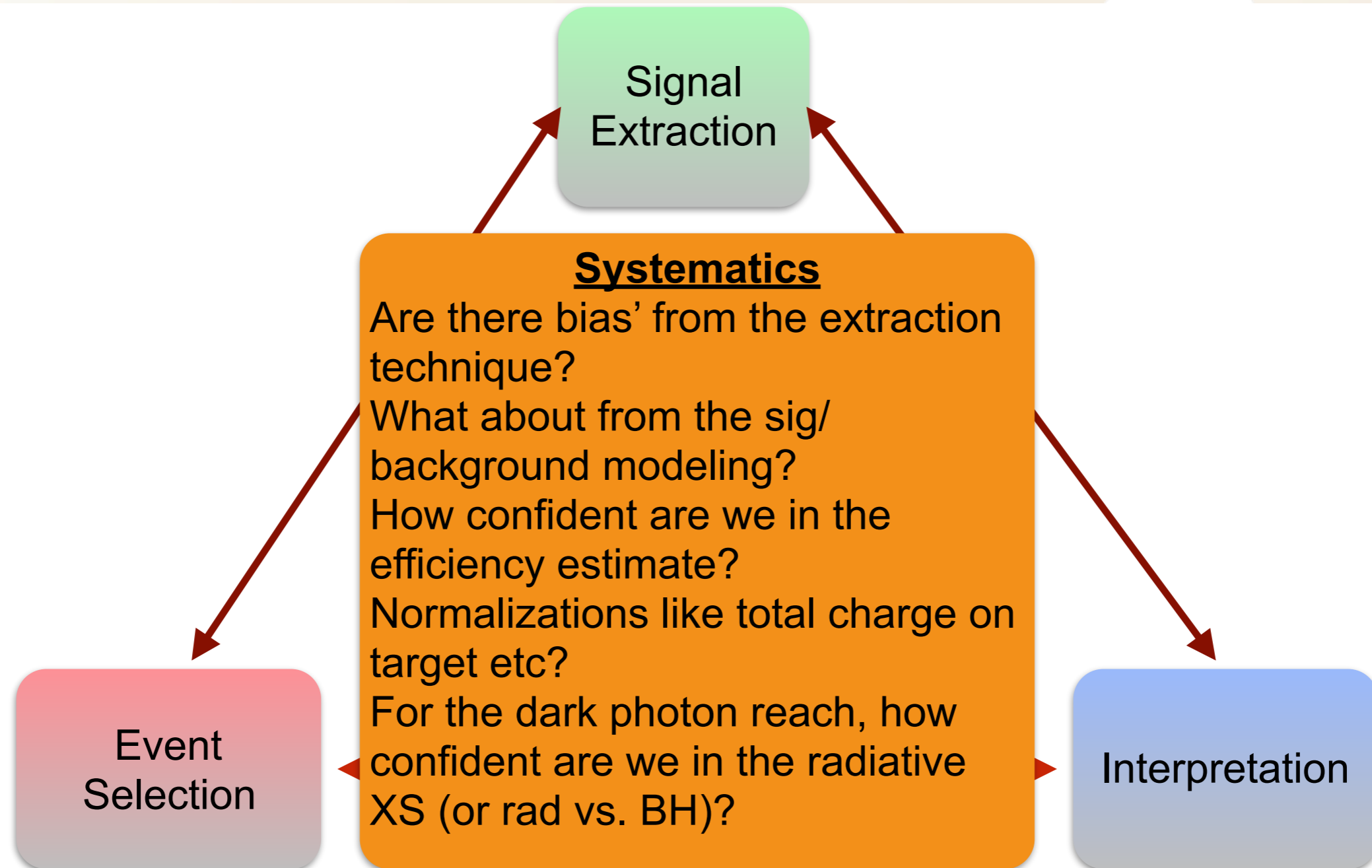
# The PRL Triangle



# The PRL Triangle

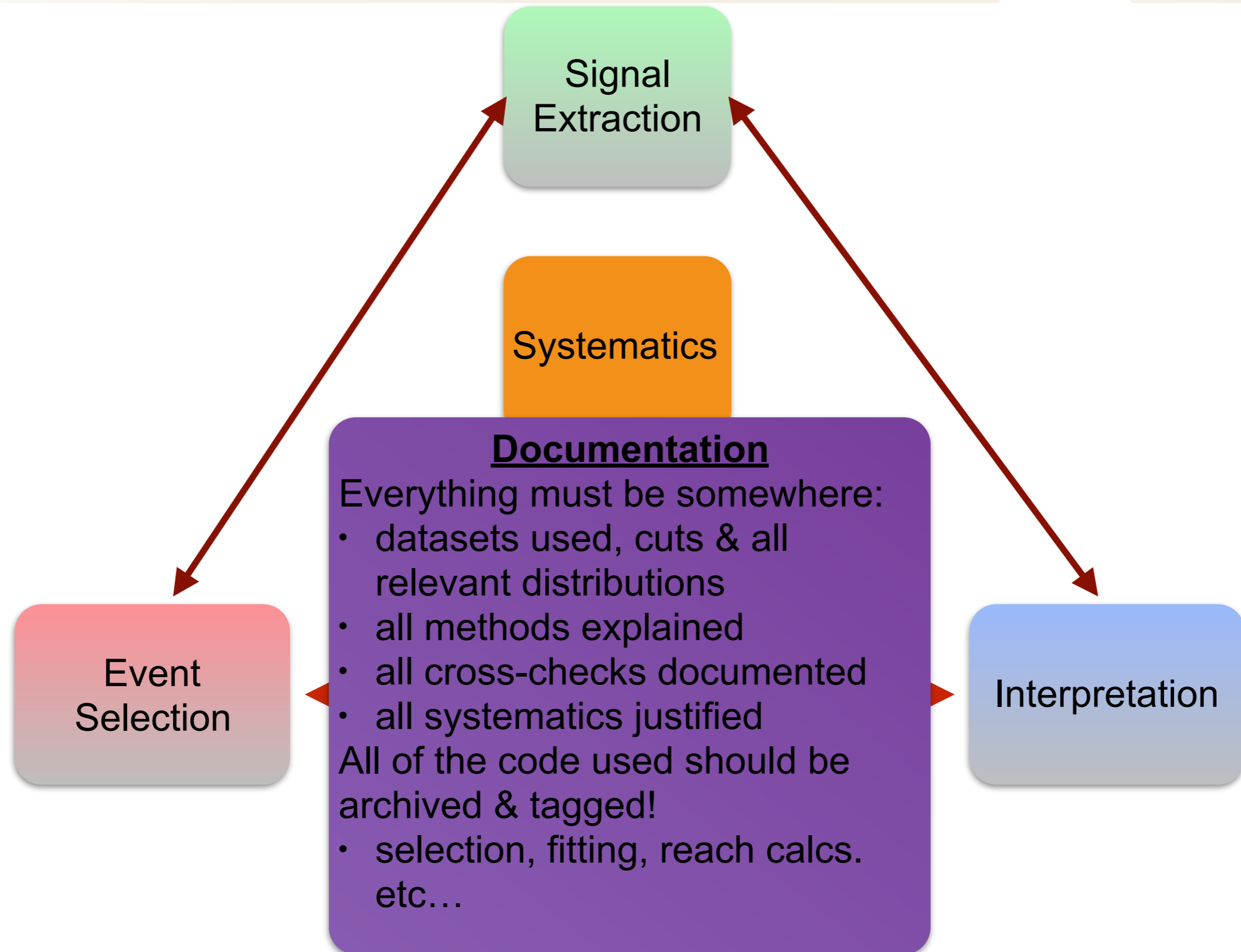


# The PRL Triangle





# The PRL Triangle





# Unblinding & the internal review process

- analysis will first be vetted by the data analysis working group
  - lots of presentations, of course, but also review the **analysis document**
    - analysis document is an HPS-internal doc which describes everything about the analysis...datasets, selection, systematics, cross-checks, all methods etc (unless documented elsewhere)
    - work on this doc should begin **early**, and the document should **evolve**...use the git repository!
- When the AWG signs-off, analysis doc goes to review committee
  - the RC will decide if the analysis is to a point where it can be unblinded

# When to unblind

- optimized selection is fixed (won't foreseeably change)
  - changing cuts after unblinding is bad...but not the worst thing in the world
- signal extraction method & limit setting procedure is fixed
  - bias' minimized & quantified
  - expected sensitivities calculated
    - including trials factors
  - bump-hunt: understand mass resolution
  - vertex search: understand vertex tails
- systematics "begun"
  - if there is a facet of the analysis that is suspect, care should be taken ahead of unblinding
- documentation is up to date
- RC signs off!