

*Blinding Reduces Institutional Prestige Bias During Initial
Review of Applications for a Young Investigator Award**

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Why did we begin blinding?

From our Founder, Dr. Arnold O. Beckman:

“I want to support young scientists, those who do not yet have the clout to receive major research grants.”

“There is no satisfactory substitute for excellence.”

- 2018: Concern that our awardees are from the same set of institutions each year

Strategic Questions:

Do we see reviewer bias towards “institutional prestige”? (we can minimize)

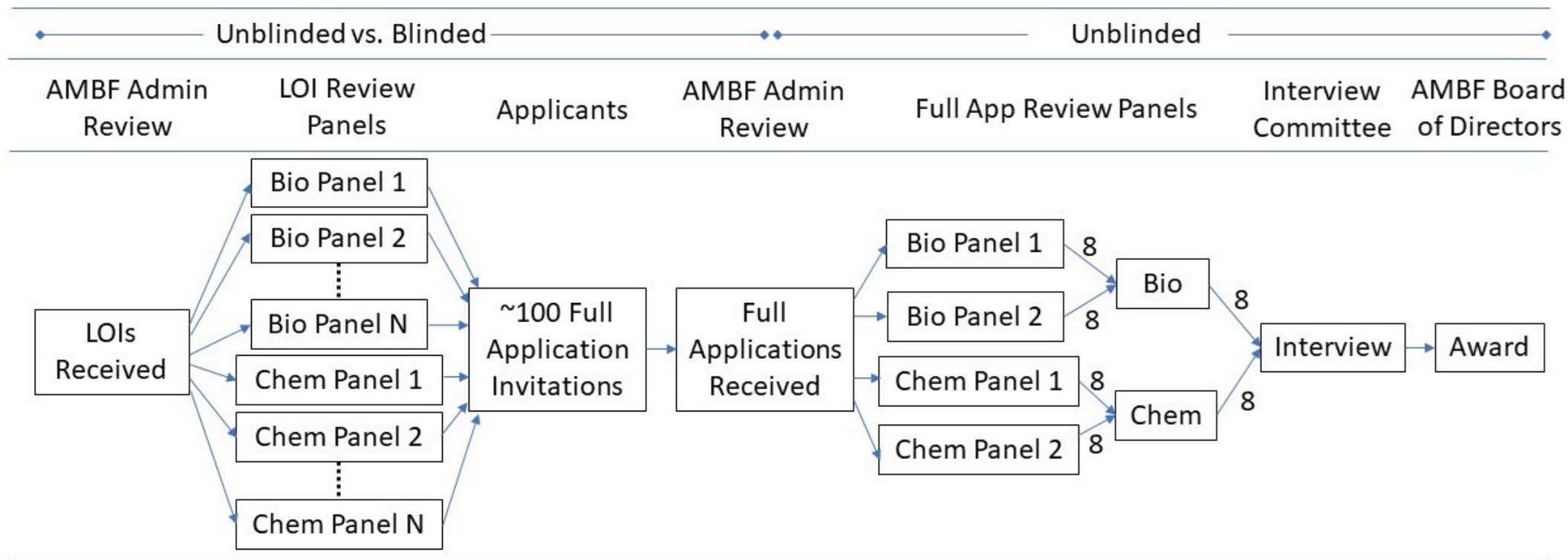
Are we receiving applications from a diversity of institutions? (we can influence)

- 2019: Developed methodology, conducted analysis on institutional diversity
- 2020: ***Distributed analysis results*** to our Board, SAC, and review committees; began planning for blind reviews in our Beckman Young Investigator program
- 2021 applicants: Began ***blinded review*** at “Letter of Intent” step

Gender: we did not see evidence of gender bias; Race: we did not collect data before 2021

Application Process

Figure 5. Schematic of the BYI Application Review Process.



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Some Blinding Logistics

- **Just the LOI stage, applicant information available in Full Applications**
- **Separate form in application portal (hidden from reviewers) to collect demographic info**
 - Name, institution, gender, race, ethnicity, disability, existing and pending external funding
- **Instructions for applicants:**
 - Do not include your name, gender, or any institutional information in the technical pre-proposal.
 - Encouraged to write in third person (example: the applicant). Using "I" or "We" is allowed.
 - Do not name collaborators, mentors, postdoc advisors, lab members, etc.
 - If you include references to your own publications, do not use any formatting markings (asterisk, bolding, italics, etc.) to identify yourself within the list of authors.
 - If you have unpublished work, use this format: ¹(Applicant name withheld). Unpublished work, 2022.
 - **Failure to follow guidelines could result in disqualification.**
- **Compliance considerations:**
 - Application portal – triple-check that applicant names not visible or included in file name downloads!
 - Internal staff review LOIs for obvious violations
 - Reviewers can flag LOIs for intentional violations
 - Discussed at the start of review meetings
 - At least two reviewers must agree to disqualify an application
 - Must be intentional violation, not just that the reviewer “thinks they know” the applicant

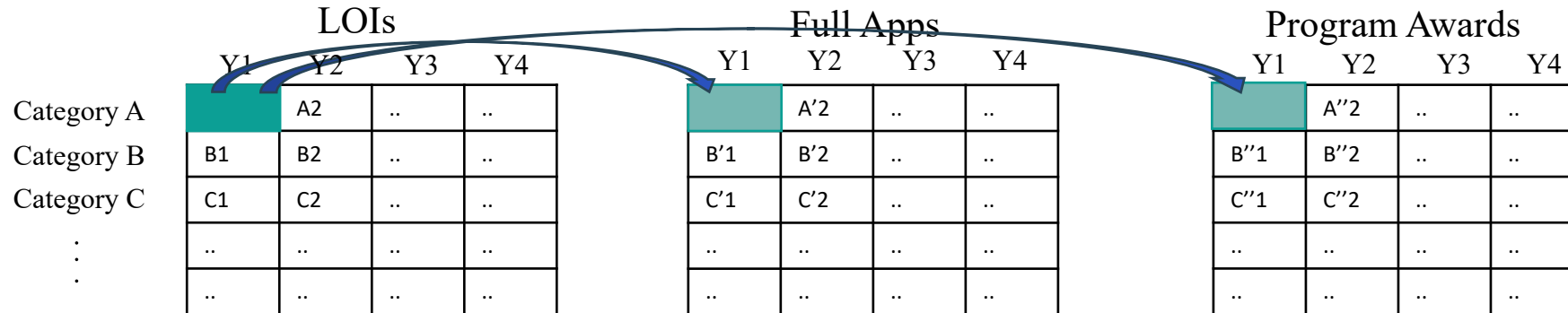


What is “Institutional Prestige”?

- Depends on what you want to fund.....
- Basic research spanning chemistry and life sciences, broadly defined
- “Top 100 Institution” Lists from:
 - National Center for Science and Engineering Statistics, 2018 and 2022
 - Times Higher Education, 2018 and 2023
 - Shanghai Academic Ranking, 2018 and 2023
 - Leiden Biomedical, 2018-2021
 - Our own historical funding, 1990-2018
- “Consensus Ranking”: Averaged the ranks for Institutions that appeared on at least 5 of these lists
 - 96 Institutions overall
 - Top 10, 11-25, 26-50, 51-96, Other Categories

Analysis Method

Step 1: Assign each application received into 5 Consensus Institution Categories



Step 2: Calculate “Relative Advantage” for each Category, each Year

$$\text{Relative Advantage} = \left[\frac{\text{LOIs invited to submit Full App in a category}}{\text{Total LOIs received in a category}} \right] \bigg/ \left[\frac{\text{Total LOIs invited to submit Full App}}{\text{Total LOIs received}} \right]$$

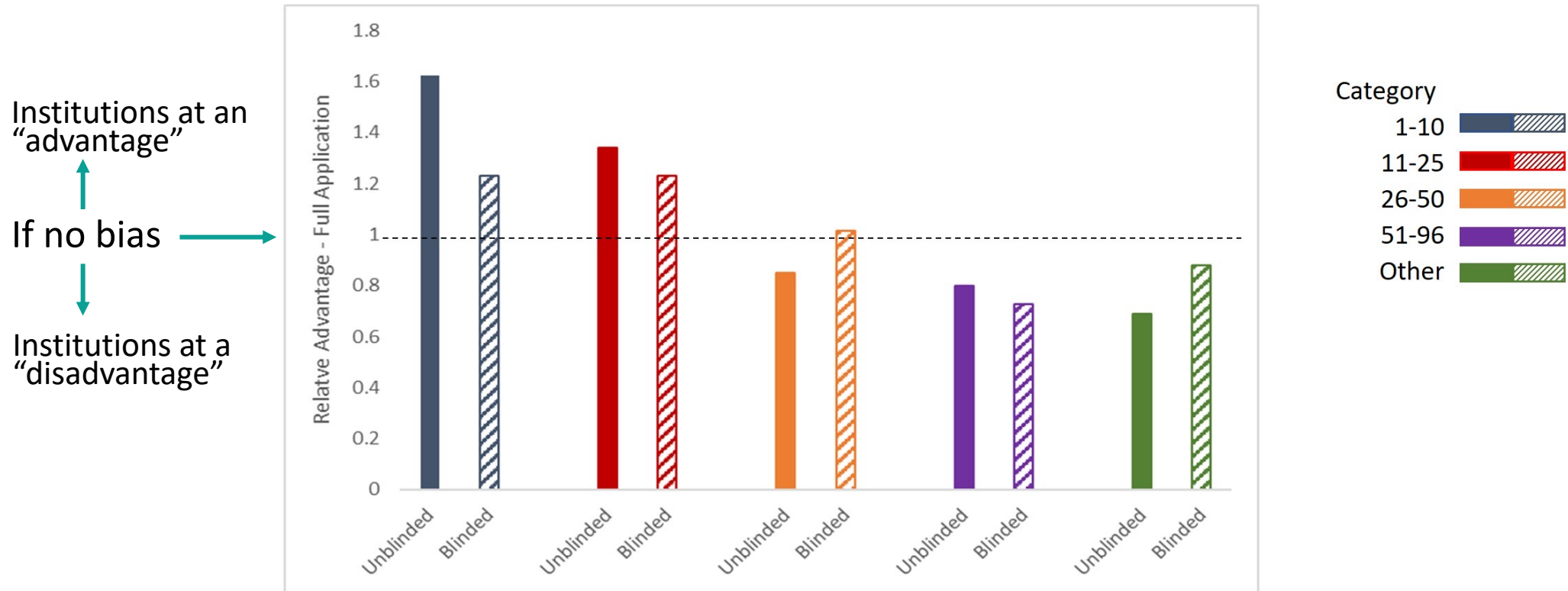
*If there was no implicit or explicit institutional prestige bias, then the “Relative Advantage” would **be the same** in the unblinded and blinded reviews.*

Step 3: Examine the difference between review conditions (unblinded vs blinded)

Conduct chi-squared analysis for significance. Will not be presented here, but many thanks to Jenna Hicks for this analysis!

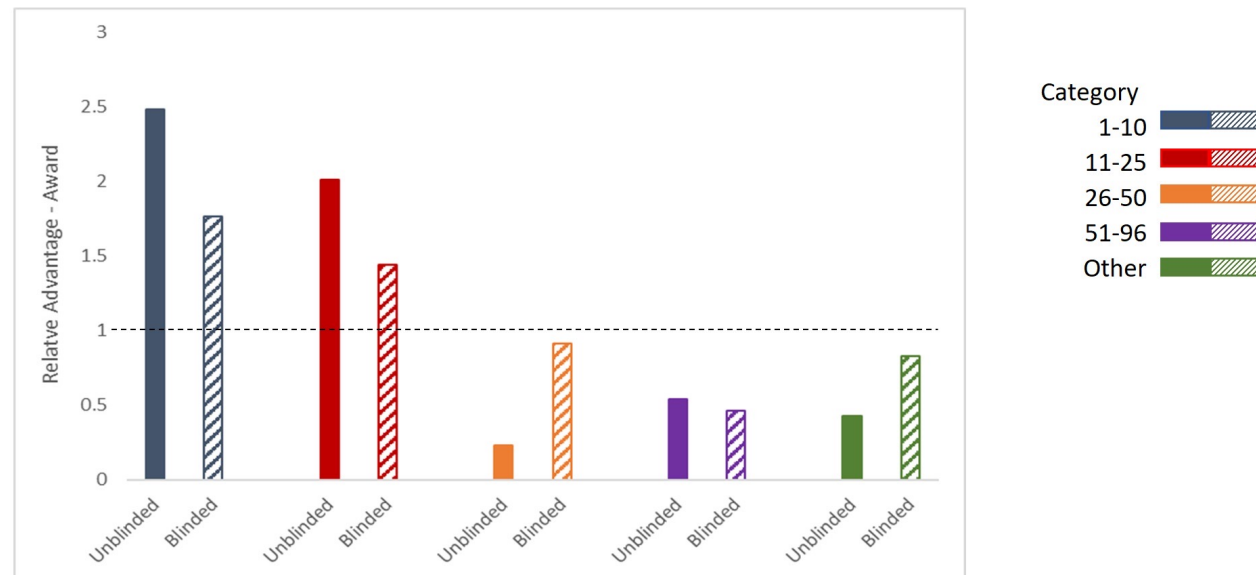
Results, Unblinded (2017-2020) vs. Blinded (2021-2024)

Relative Advantage – Full Application Invitation. Census Institutional Ranking.



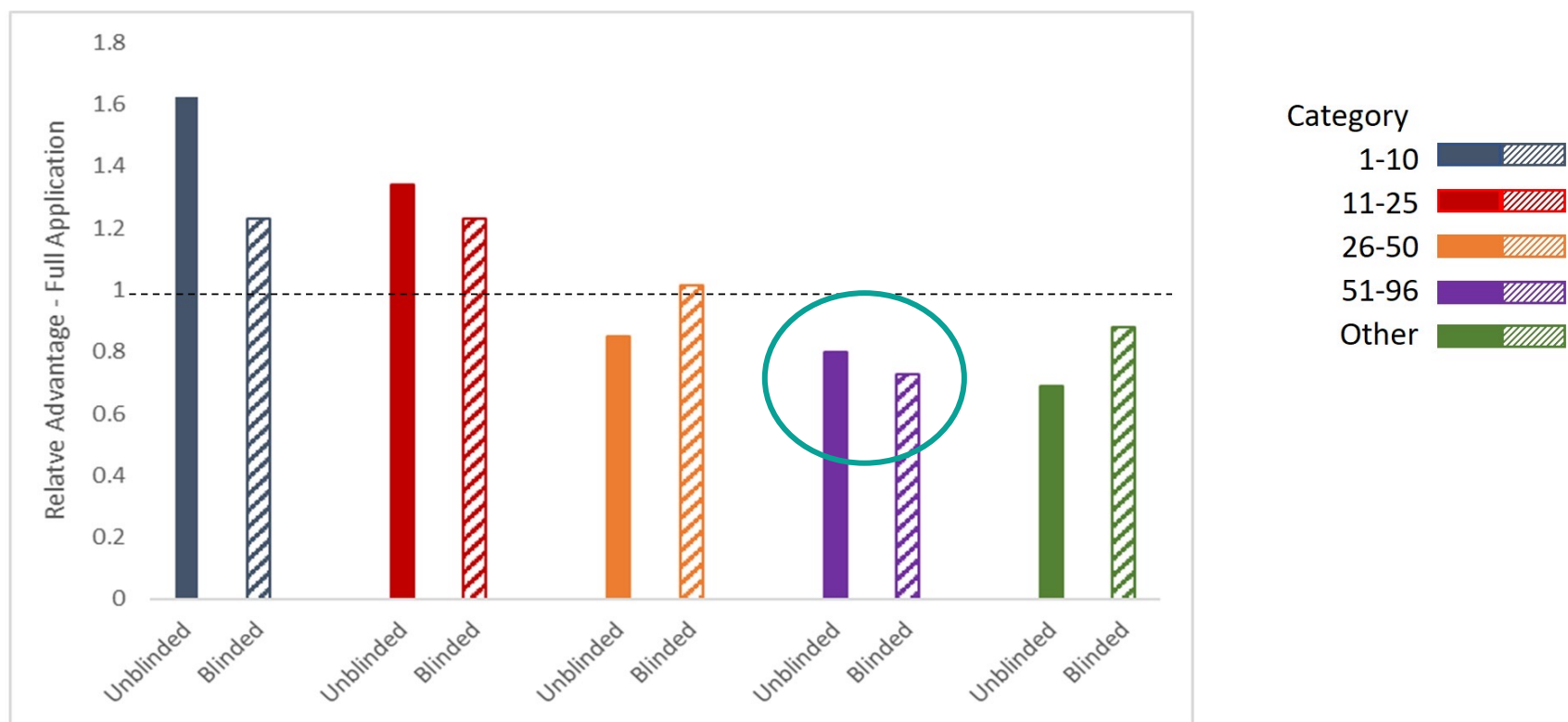
Discussion

- Some Institutions may have research faculty and support systems to produce better proposals
 - More resources, more mentorship, lower teaching loads, etc.
- Benefits to Blinding:
 - Blinded applications are much easier to review – short and just the science
 - No comments such as “this applicant trained with [Premier Scientist XYZ], so I will give them the benefit of the doubt...” or “well, Stanford hired them so they must have seen their potential...”
 - Review meeting discussions focus only on the science topics – no publication counting or debates over relative journal impact factors
- Does the impact extend to who is awarded?
 - Relative Advantage – Award:



Future Directions

- What is happening to the “51-96” Institutions?



- What can (should) we do to address this gap? Better instructions? Mentor networks? Update review criteria?

Other Ideas Considered, but not Implemented

- Limit # of applications allowed per Institution, or by invitation only
 - Pros – more control on applicant pool
 - Cons – rely on the Institutional review processes
- Limit # of applications from “Top Institutions”, but allow unlimited applications from others
 - Pros – achieve balance within our applicant pool
 - Cons – who selects the “Top Institutions”, different communications and instructions based on Institution, potential to alienate certain Institutions
- Add “bonus” to review score for less prestigious Institutions to raise them in the overall ranking
 - Pros – could force an equitable outcome
 - Cons – discussions veer away from the scientific merit