An Illustrated Tour of Pie Chart Study Results

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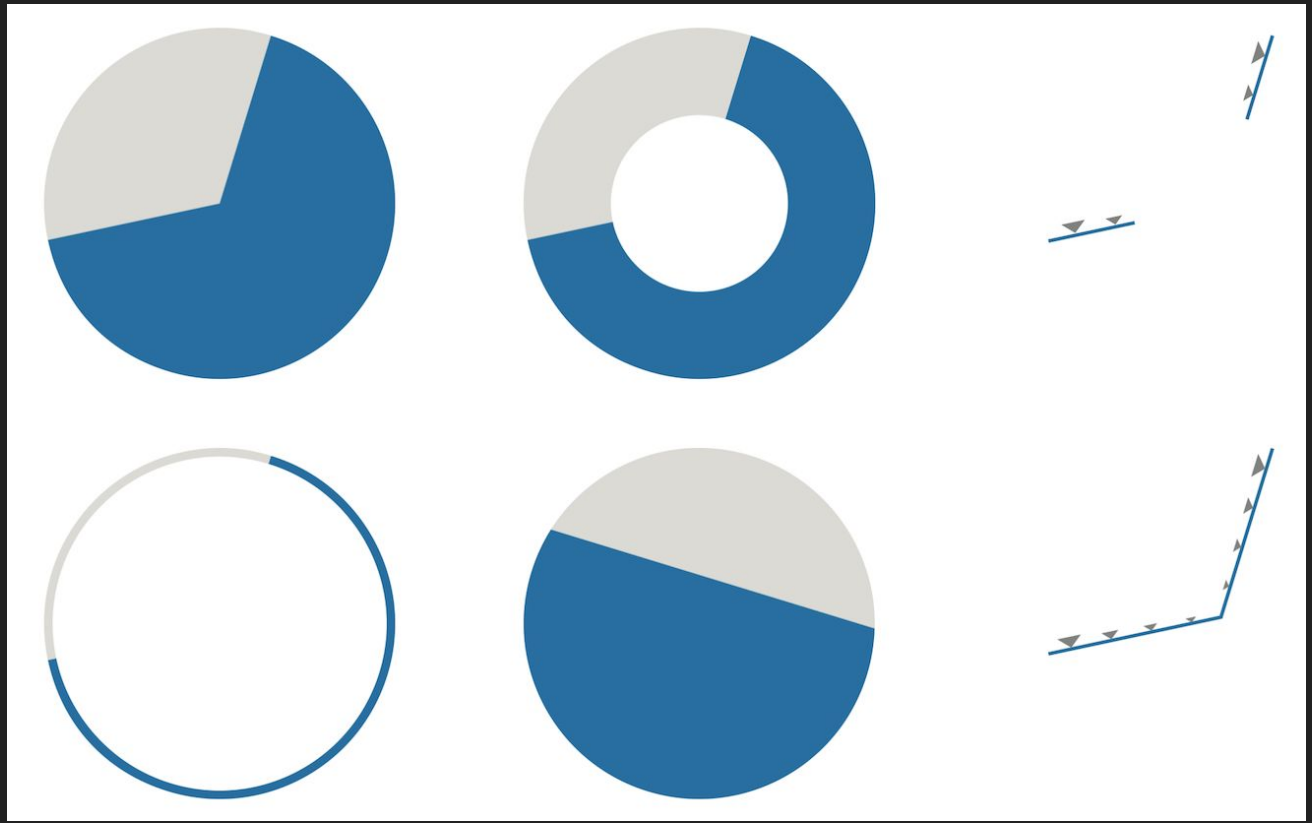
World's Most Accurate Pie Chart

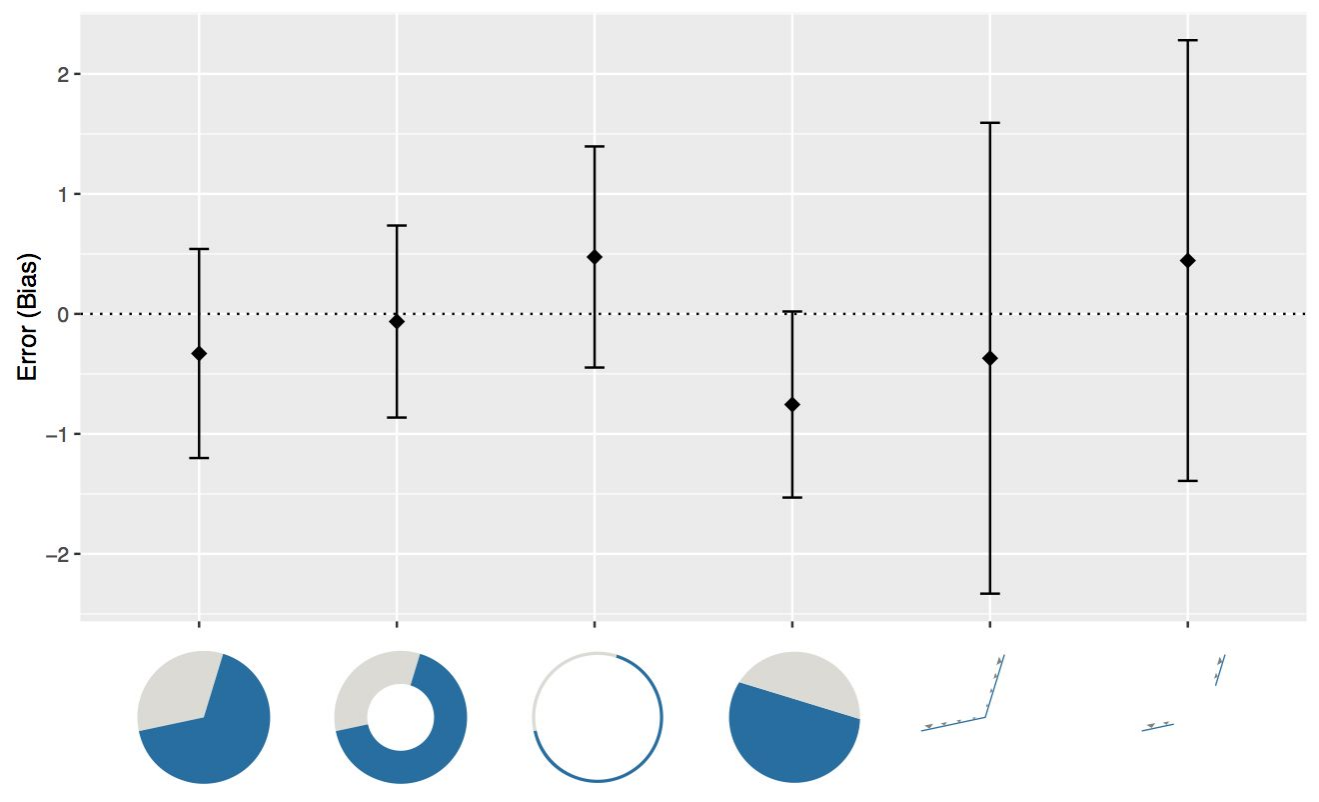
How people read pie charts?

- “An Illustrated Tour of Pie Chart Study Results”
- Author: Robert Kosara
- Three studies
- 80 - 100 participants
- About 60 questions

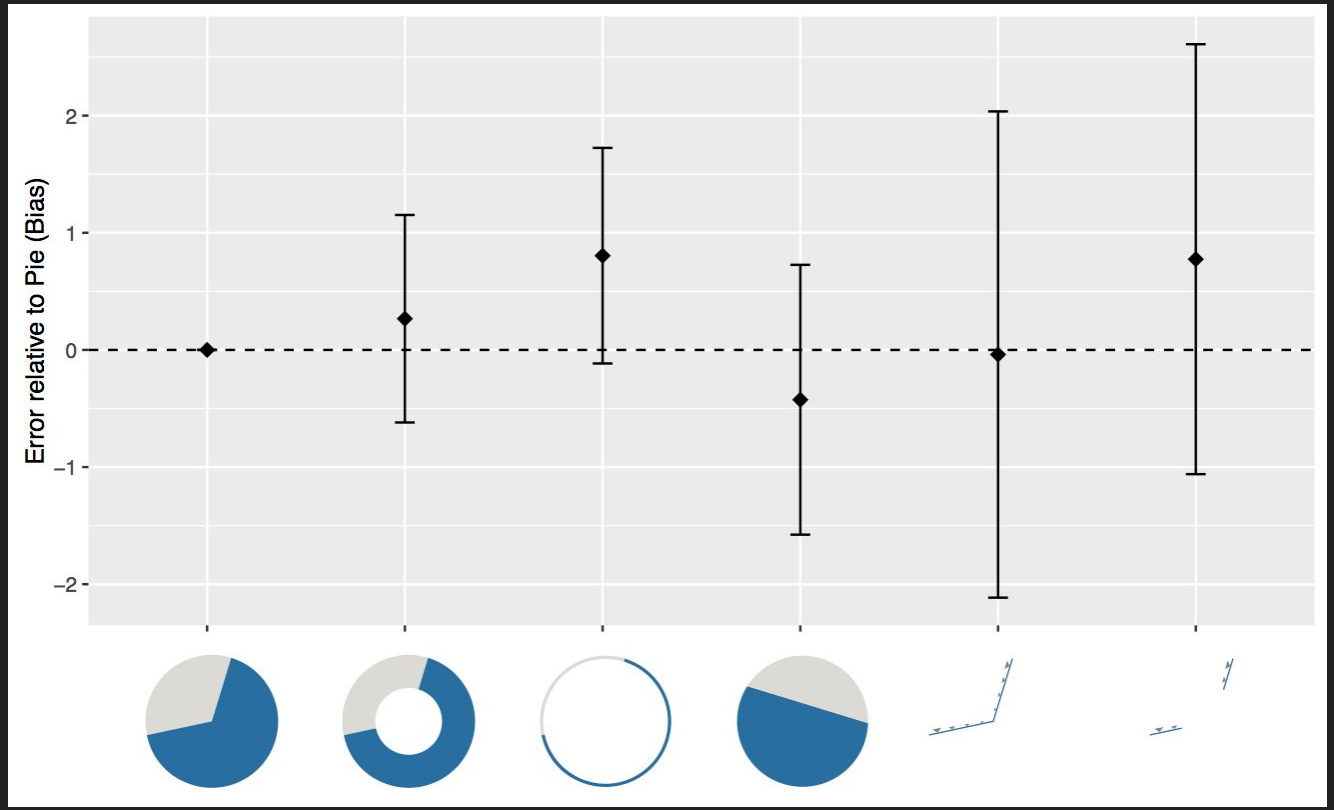
Angles, Arcs or Area



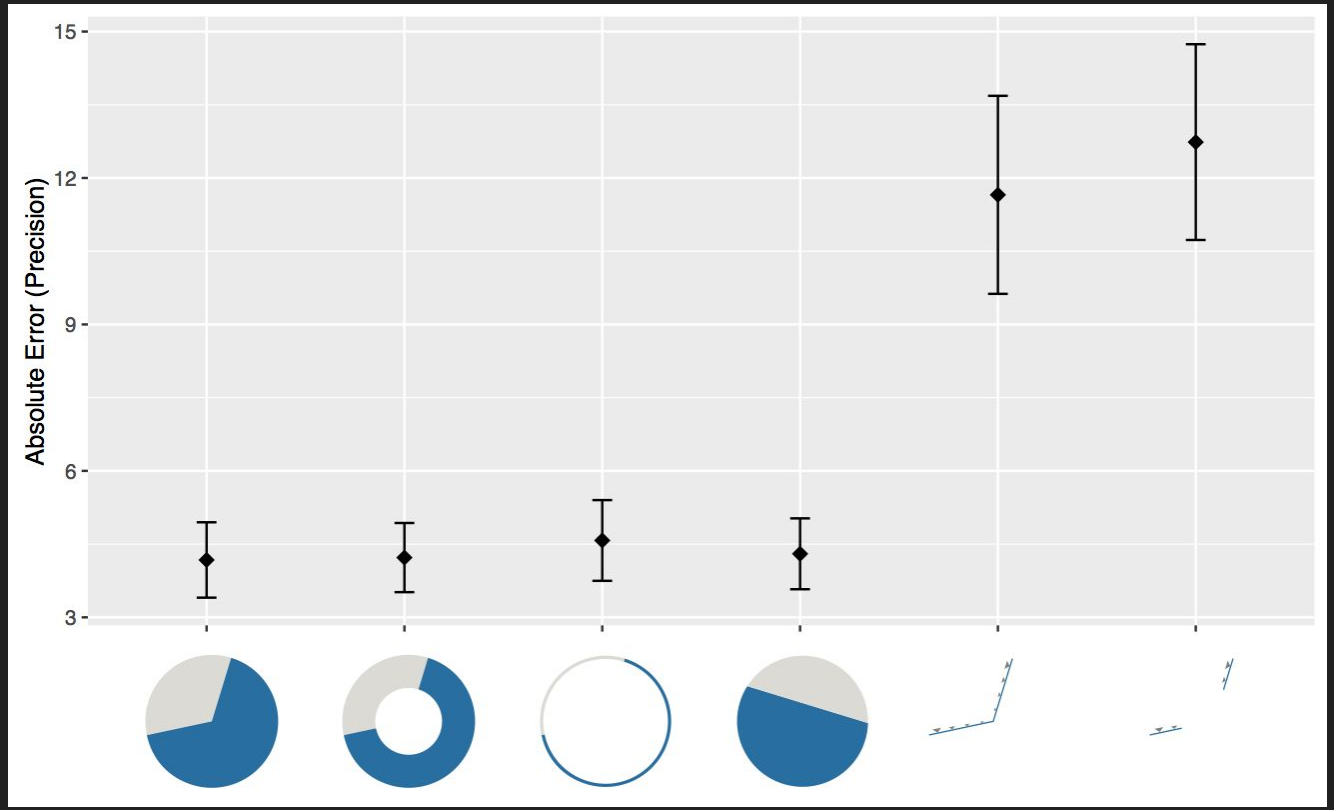
Angles, Arcs or Area - Error



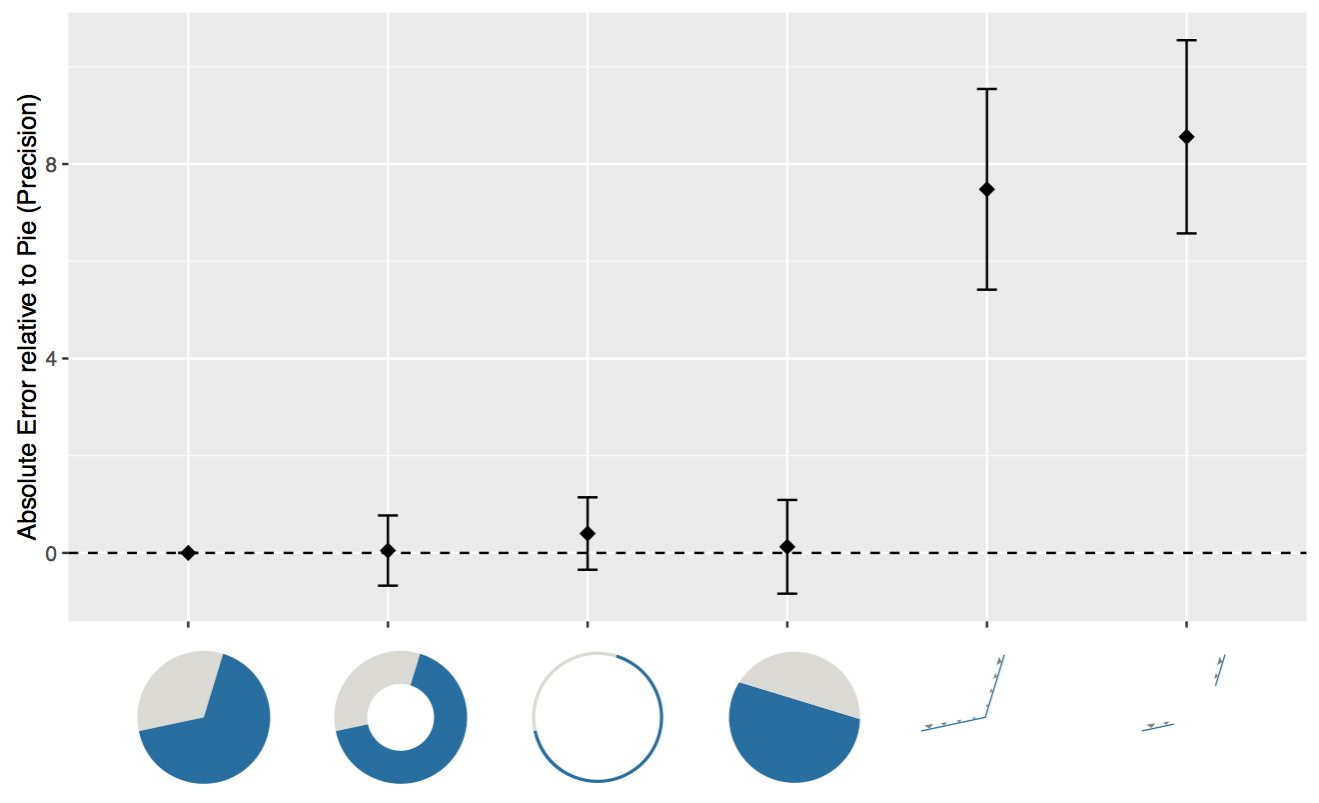
Angles, Arcs or Area - Error relative to Pie



Angles, Arcs or Area - Absolute Error

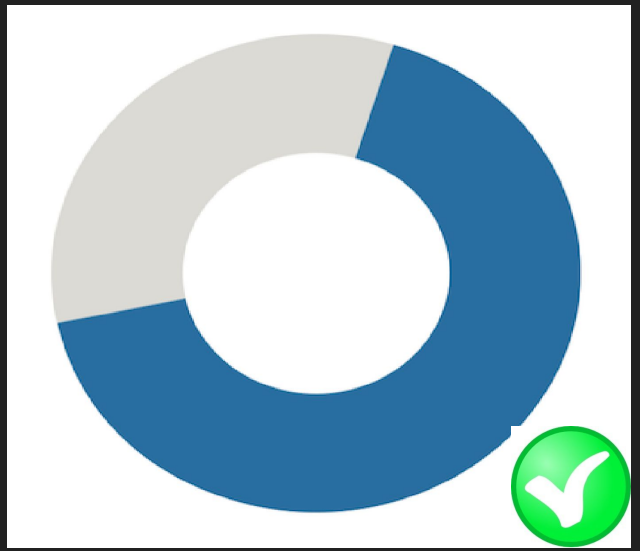


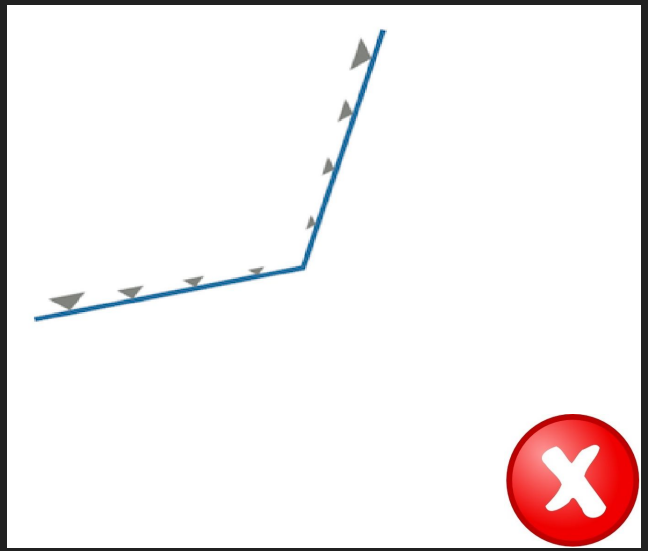
Angles, Arcs or Area - Absolute Error relative to Pie



Observations

- Donut charts work quite good
- Angle-only charts are doing much worse than others

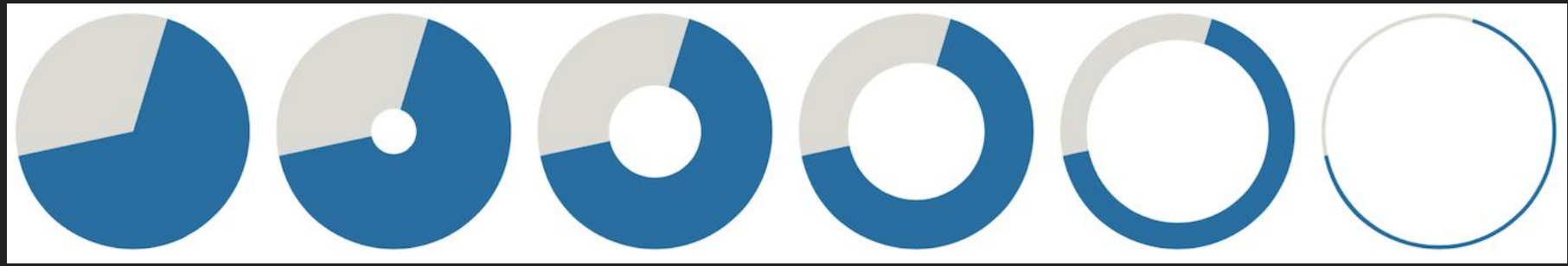




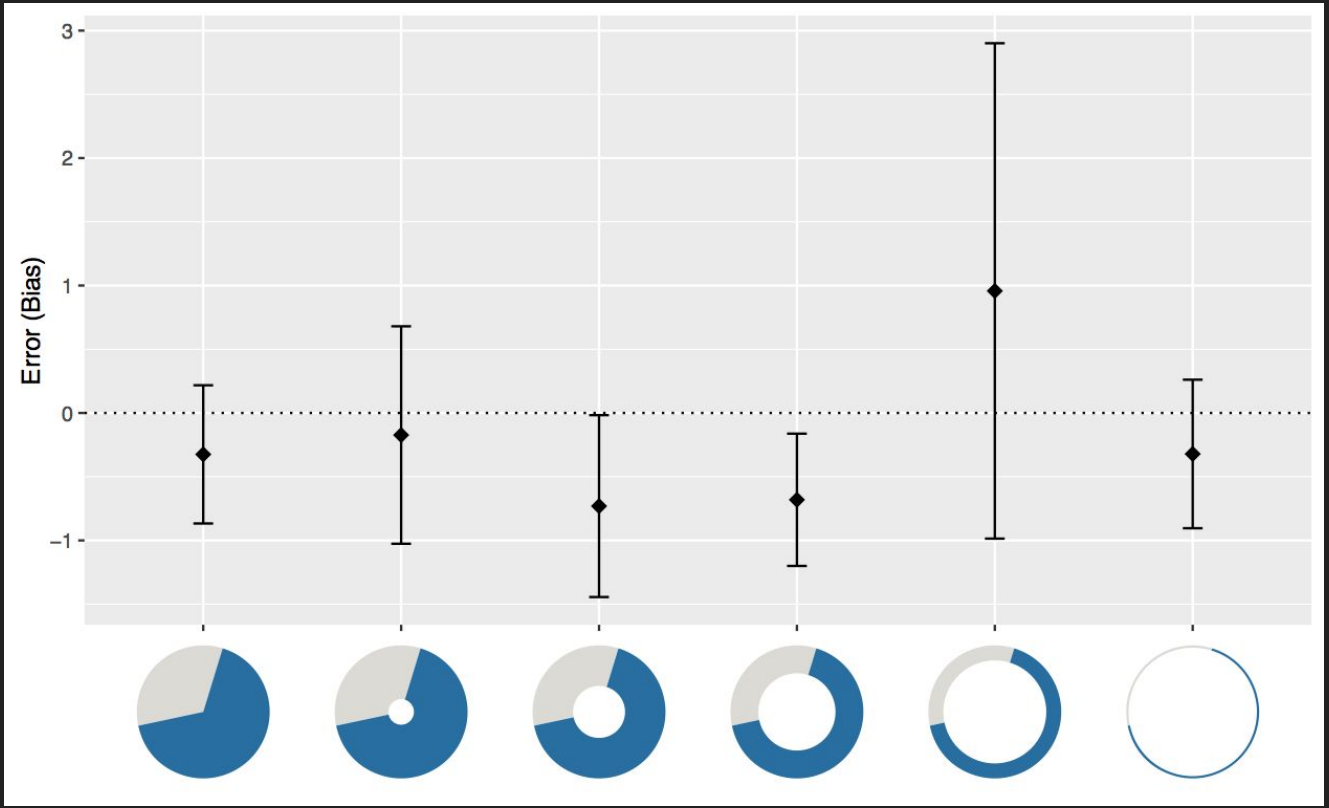
Donut Charts

Size of hole (radius percent):

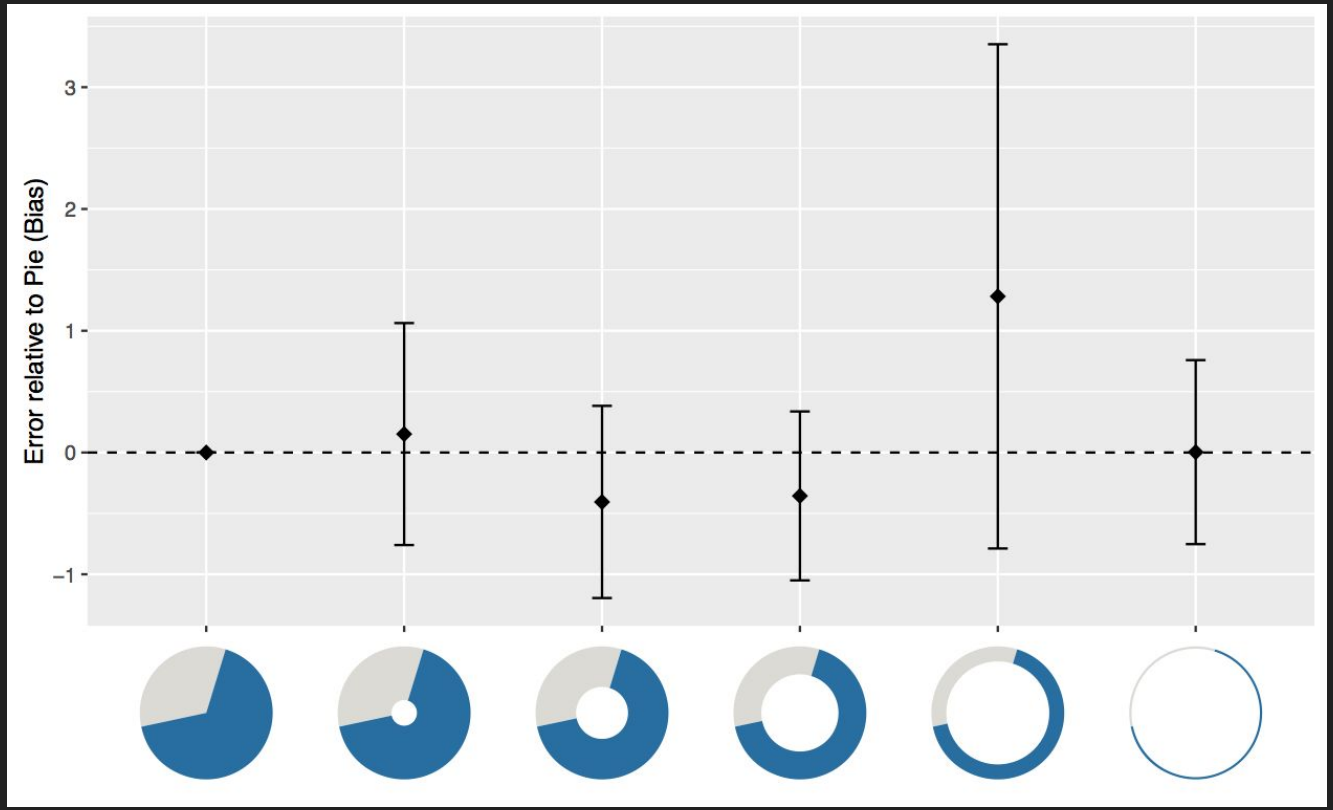
0% 20% 40% 60% 80% 97%



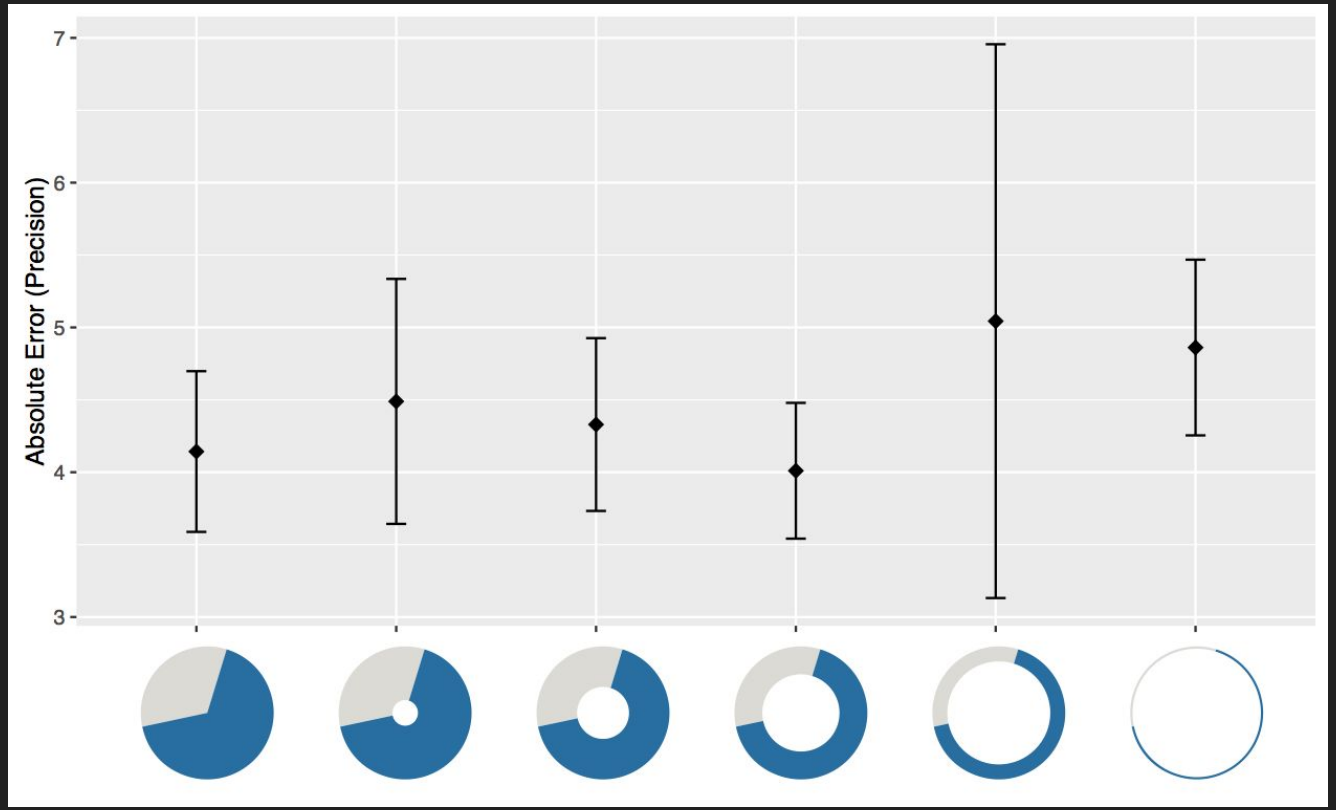
Donut Charts - Error



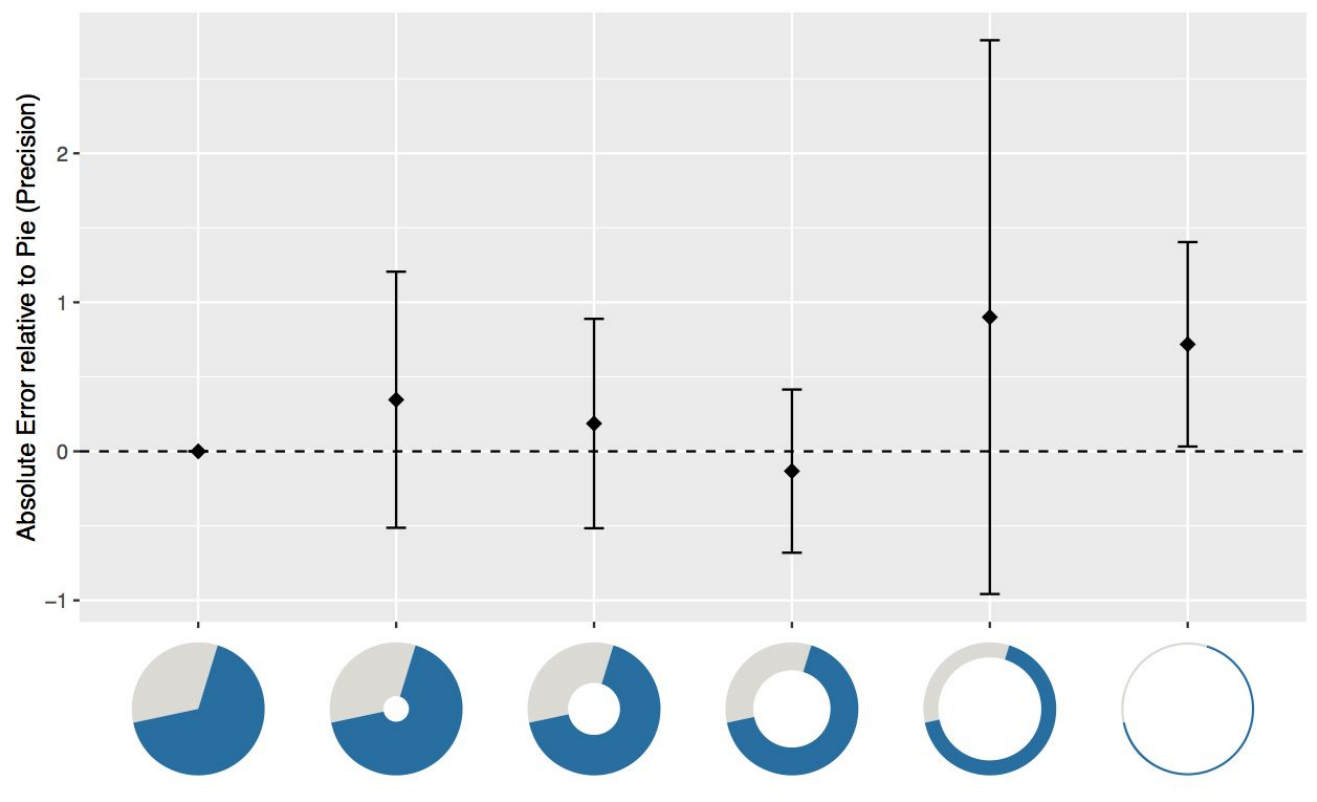
Donut Charts - Error relative to Pie



Donut Charts - Absolute Error

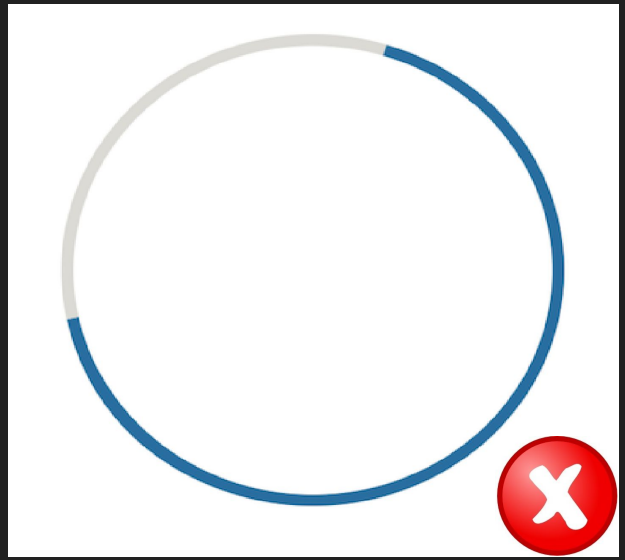


Donut Chart - Absolute Error relative to Pie

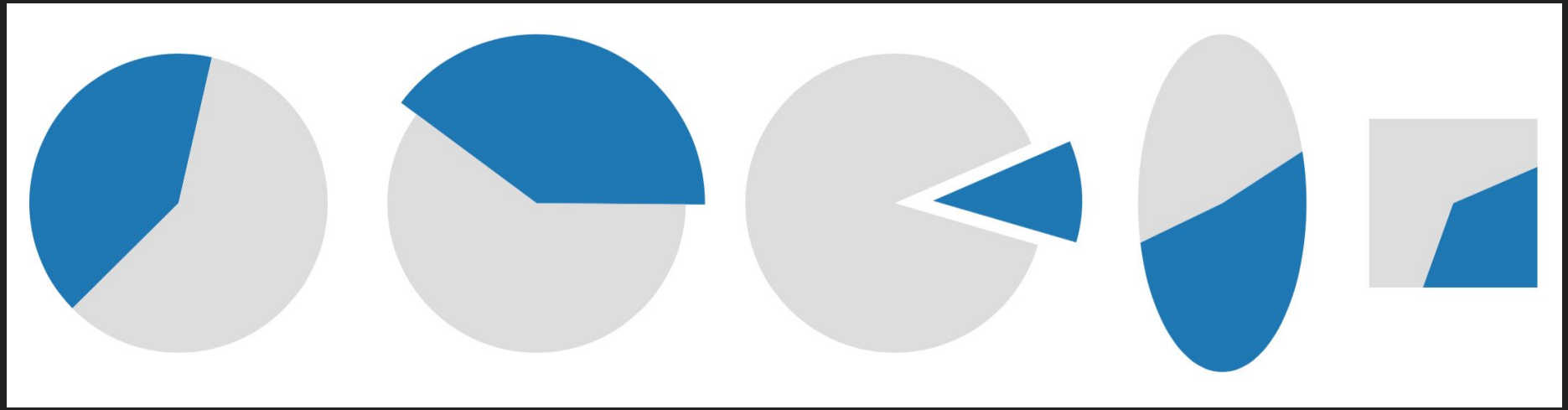


Observations

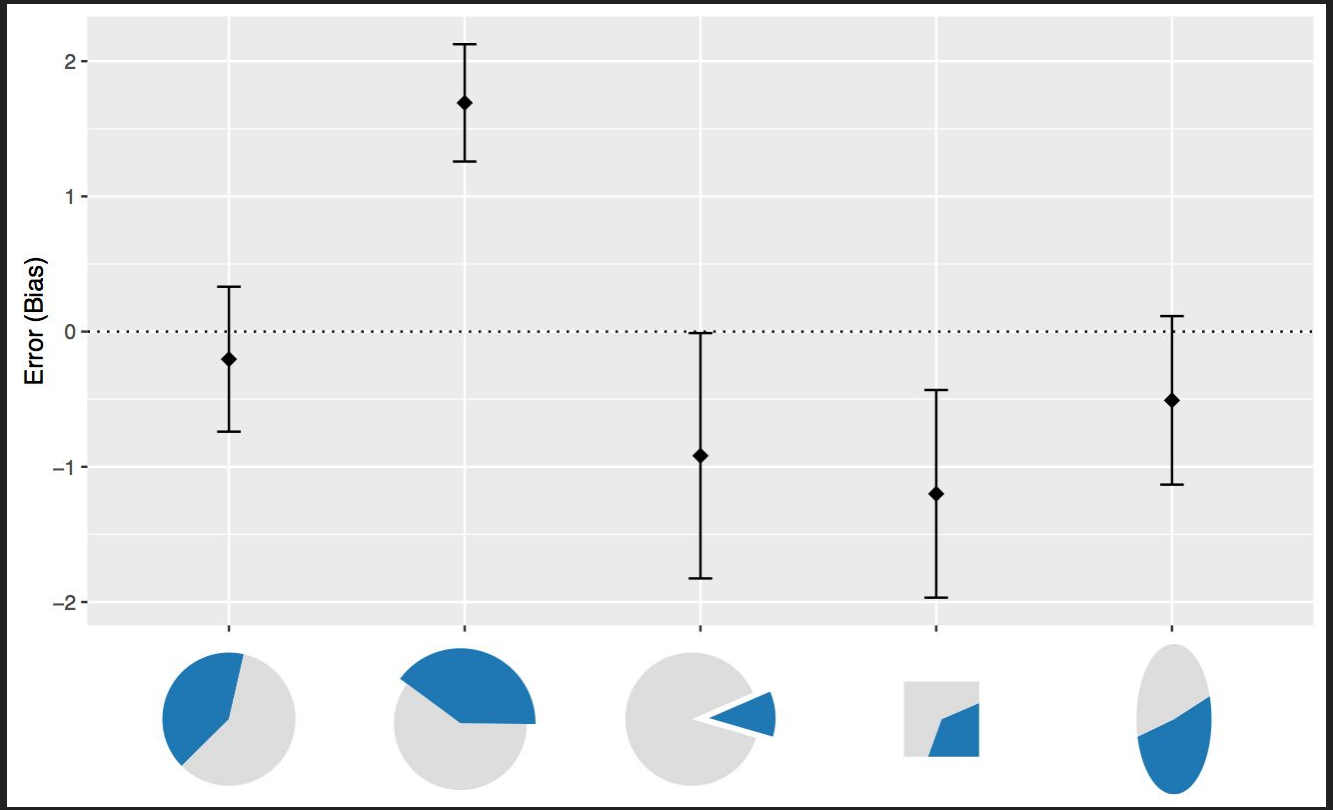
- All donut charts work quite good
- However it is better to avoid thin donut chart (worst results)



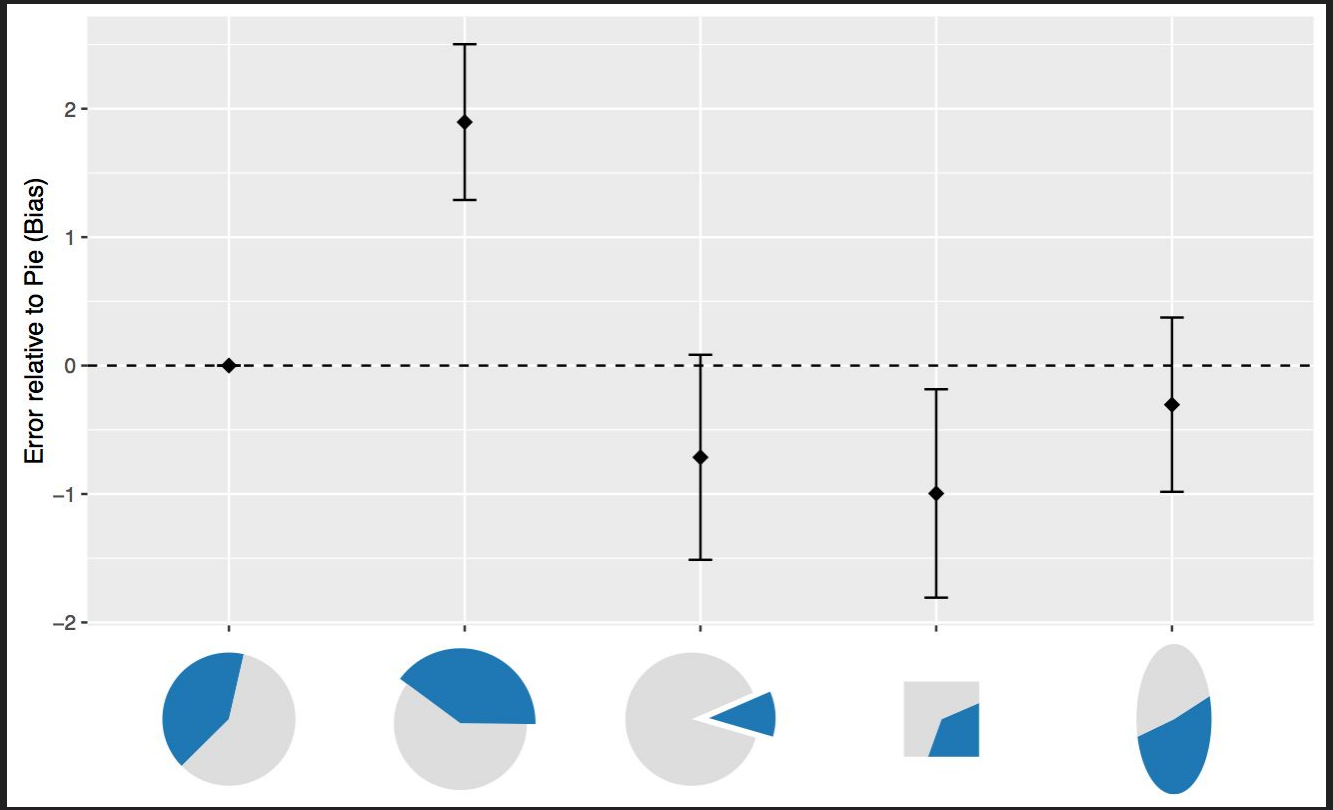
Pie Charts Variations



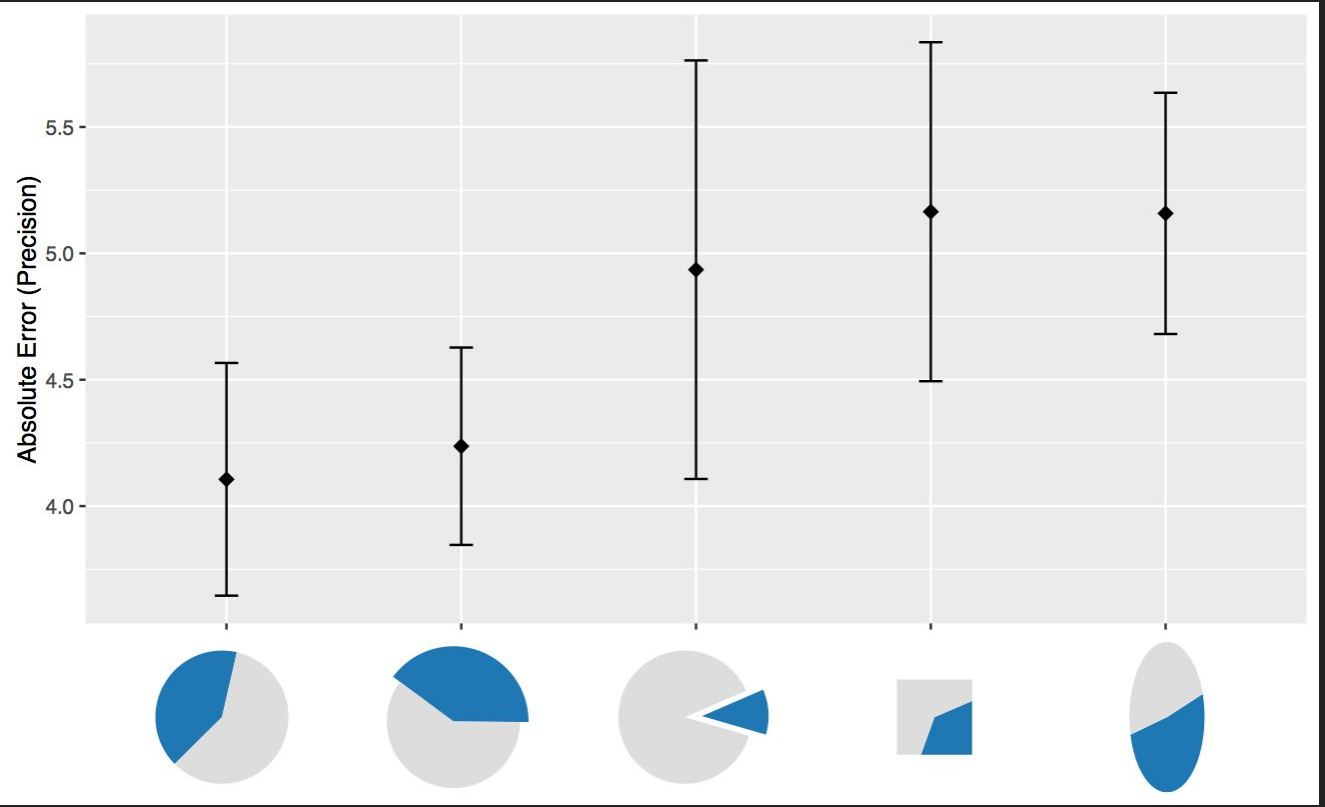
Pie Charts Variations - Error



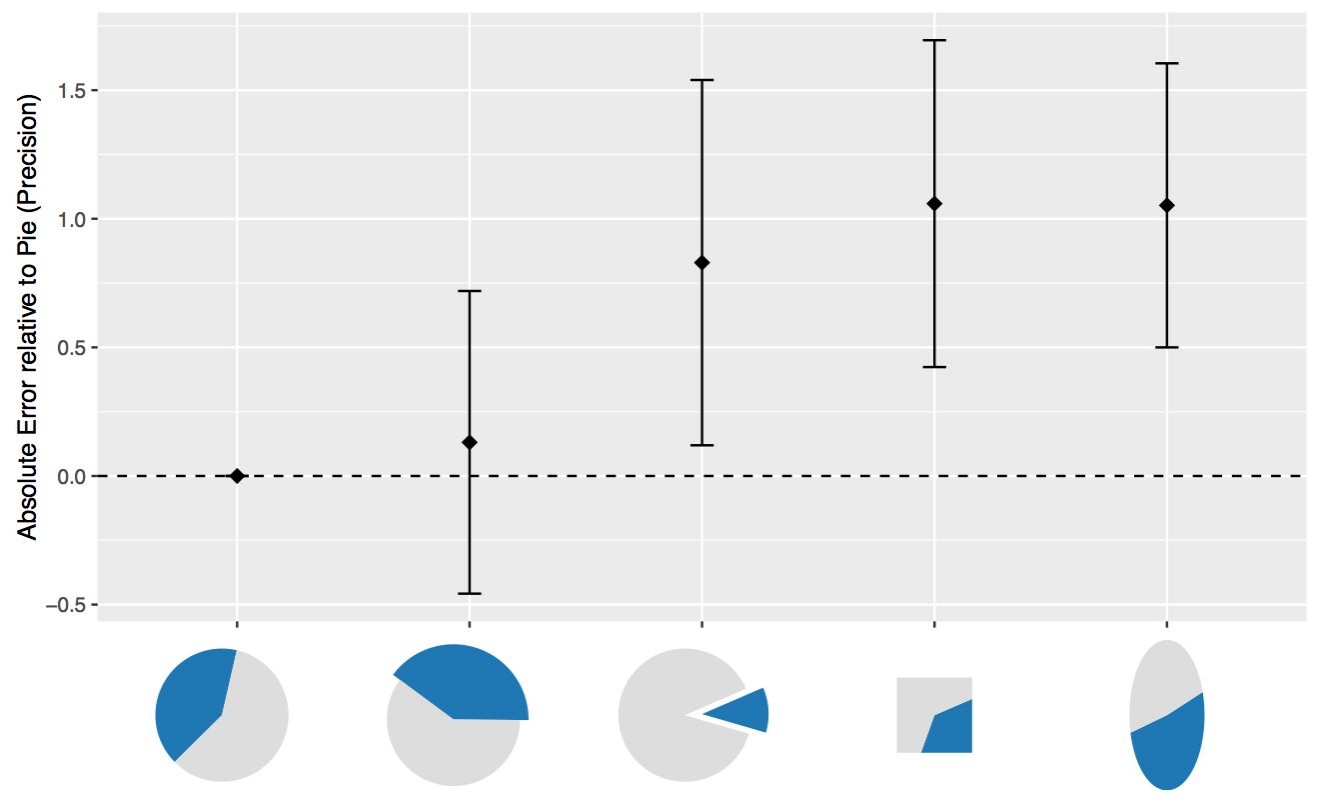
Pie Charts Variations - Error relative to Pie



Pie Charts Variations - Absolute Error

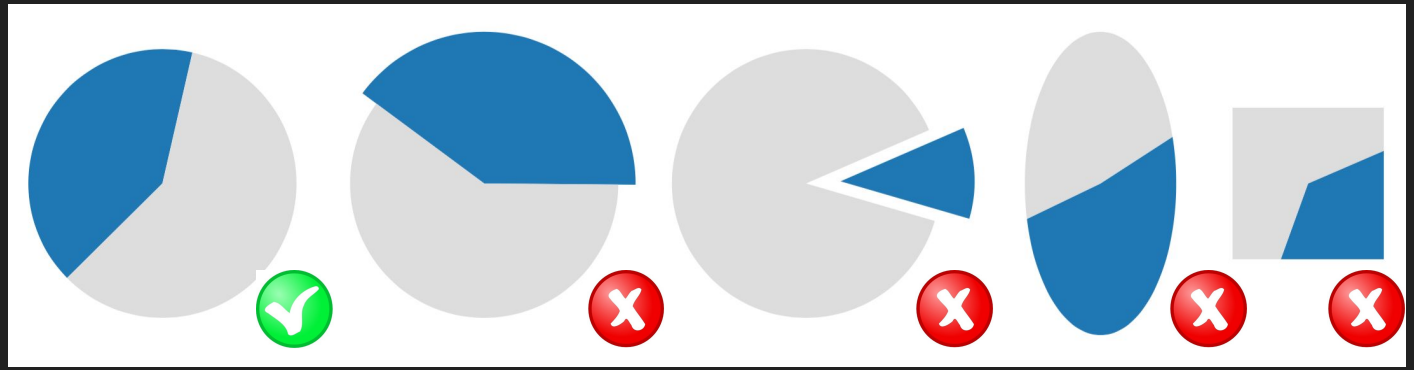


Pie Chart Variations - Absolute Error relative to Pie



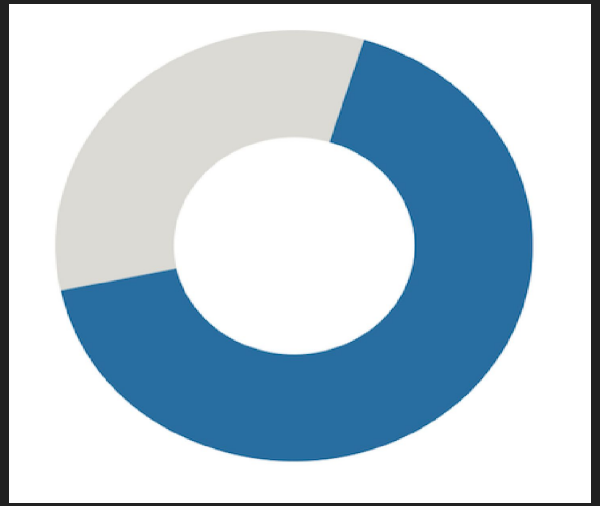
Observations

- Irregular pie charts have significantly higher error than the basic pie
- Angle is not so meaningful
- Area and/or arc length must be what we read



Conclusions

- We do not read pie charts by angle
- We use arc length and/or area
- The donut chart is no worse than the pie chart



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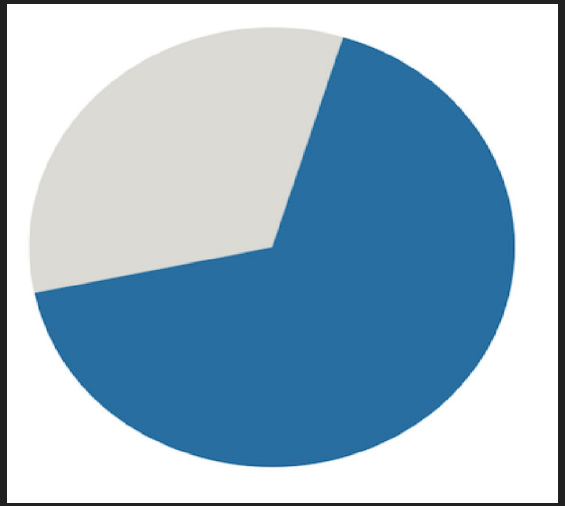

Q&A