

Effect of Icon Arrays on Repeated Risky Decisions

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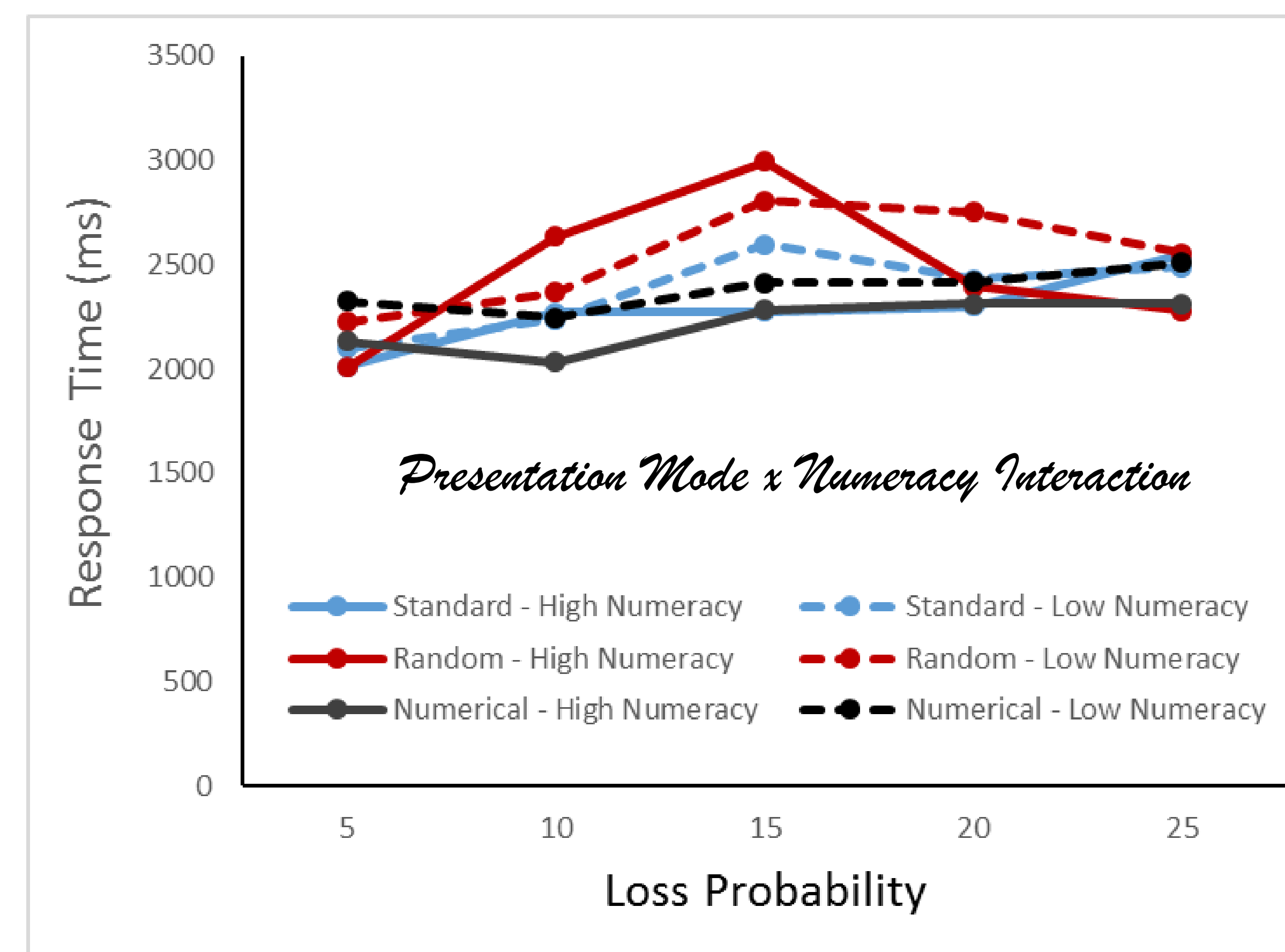
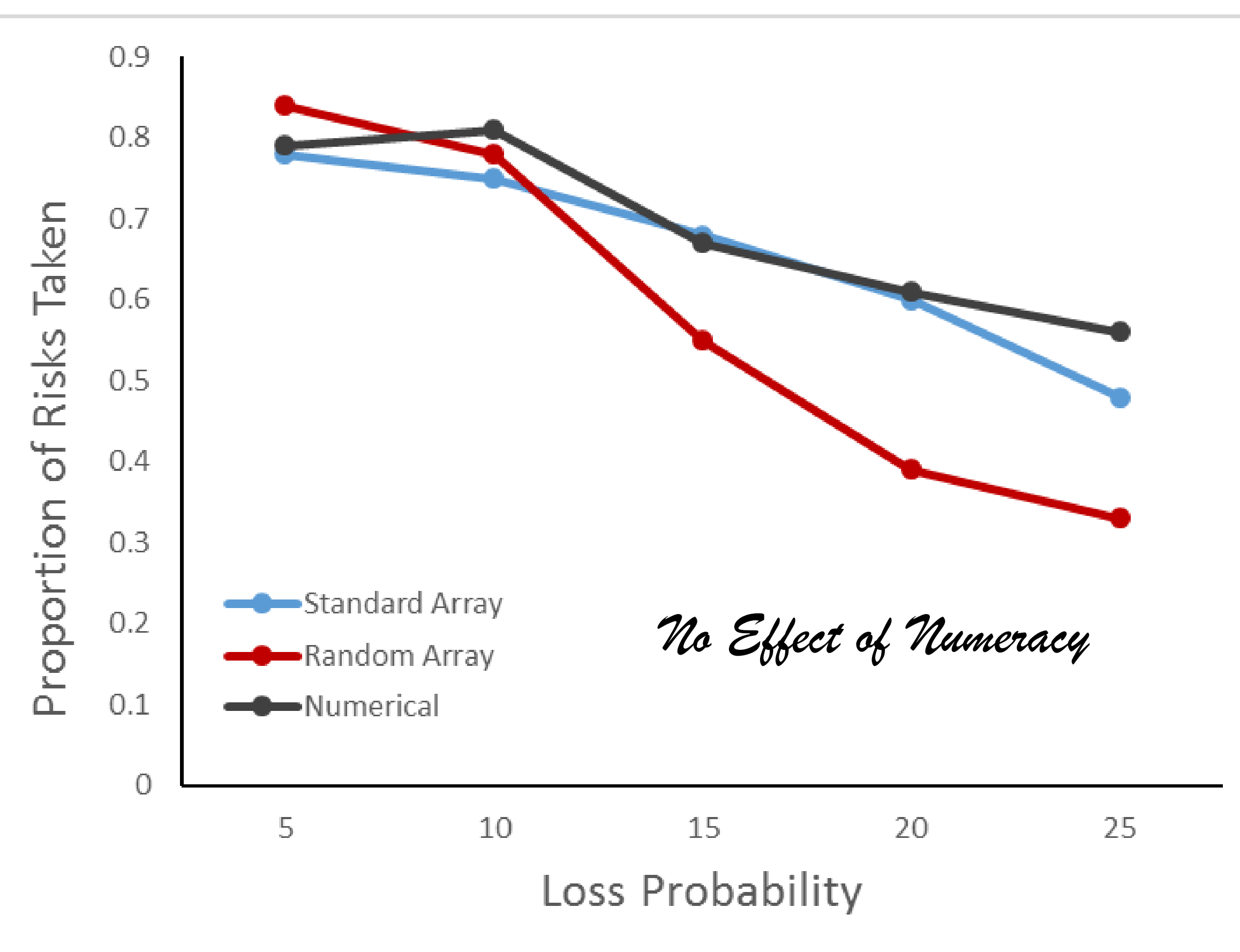
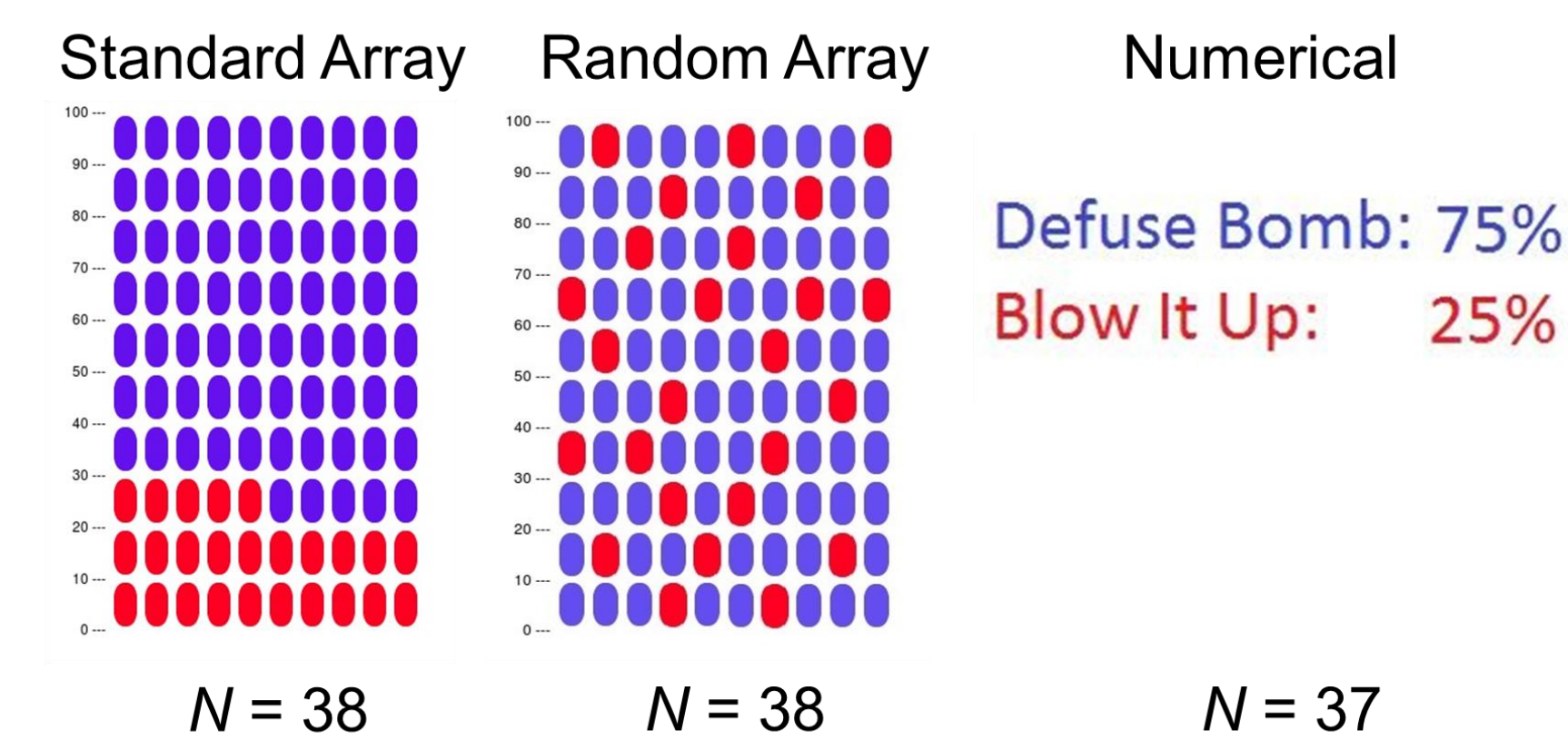
Background

- Icon arrays are a graphical way to communicate risk.
- Under some conditions, icon arrays result in better understanding of risks, particularly among people with low numeracy (e.g., Galesic et al., 2009).
- Some research has explored the effect of different icon array designs on risk understanding (e.g., Zikmund-Fisher et al., 2014).
- To our knowledge, however, no research has explored the effect of different icon array designs on repeated risky decisions.
- In the present research, we studied the effect of the arrangement of the icons—standard vs. random—in a laboratory risky decision task. We also looked at the potential moderating effect of numeracy.

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Method

- 113 participants chose to “defuse a bomb” or pass on each of 75 trials.
- They won 10 points if they succeeded and lost L points if they failed. L was chosen so the expected value of taking the risk was +5, 0, or -5 points.
- The probability of failure (5%, 10%, 15%, 20%, or 25%) was presented in one of three ways:
- Participants also completed the Subjective Numeracy Scale (Fagerlin et al., 2007).



Acknowledgments

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References

- Fagerlin, A., et al. (2007). Measuring numeracy without a math test: Development of the Subjective Numeracy Scale (SNS). *Medical Decision Making*, 27, 672-680.
- Galesic et al. (2009). Using icon arrays to communicate medical risks: Overcoming low numeracy. *Health Psychology*, 28, 210-216.
- Zikmund-Fisher et al. (2014). Blocks, ovals, or people? Icon type affects risk perceptions and recall of pictographs. *Medical Decision Making*, 34, 443-453.

Results

- Points did not differ across probability presentation conditions.
- Random arrays and numerical percentages elicited similar levels of risk taking. But random arrays elicited lower levels of risk taking at the higher loss probabilities
- Numeracy made little difference except that high numeracy participants took longer to respond for random arrays at the middle probabilities.

Conclusions

- Icon arrays did not improve performance in this task.
- Random arrays can suppress risk taking.
- This effect could be a perceptual effect ... but it could also depend on the cover story. Random arrays might look especially risky in the context of bombs and explosions.
- The response time results deserve further exploration.