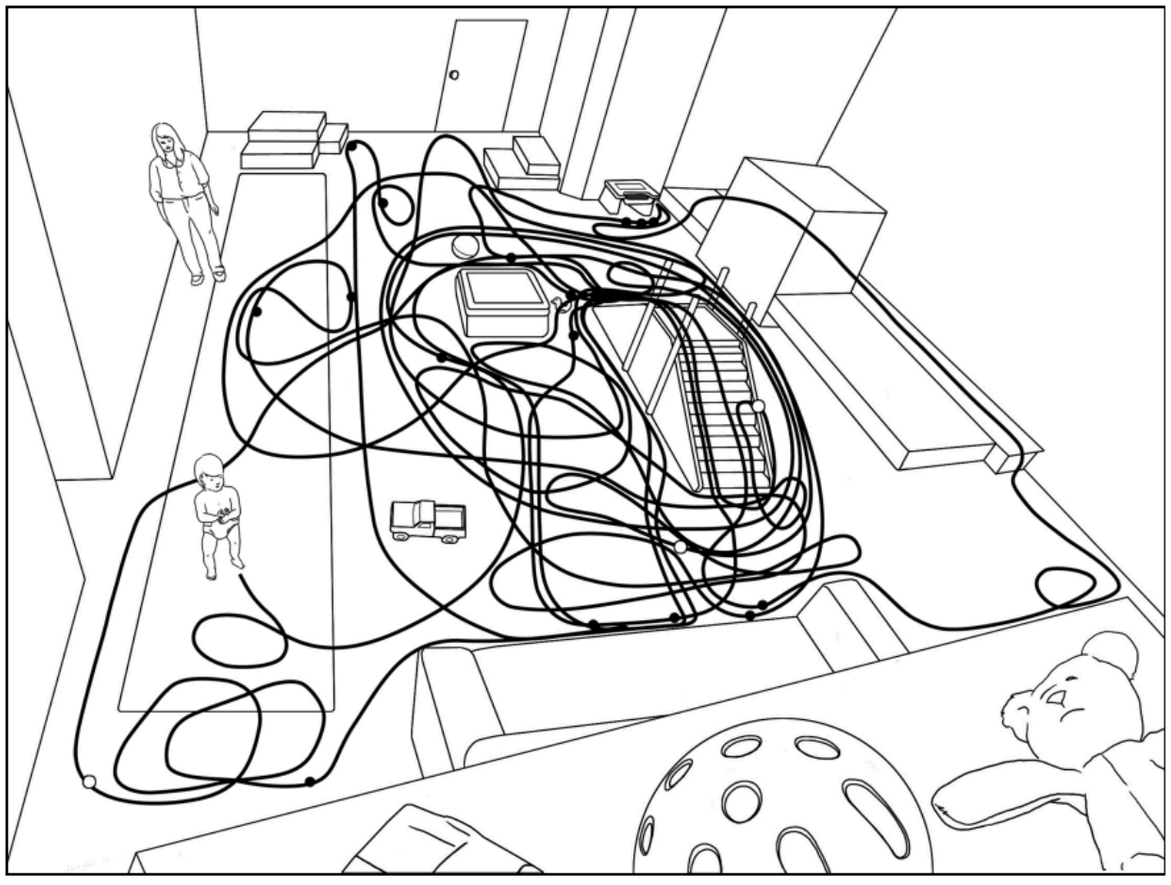
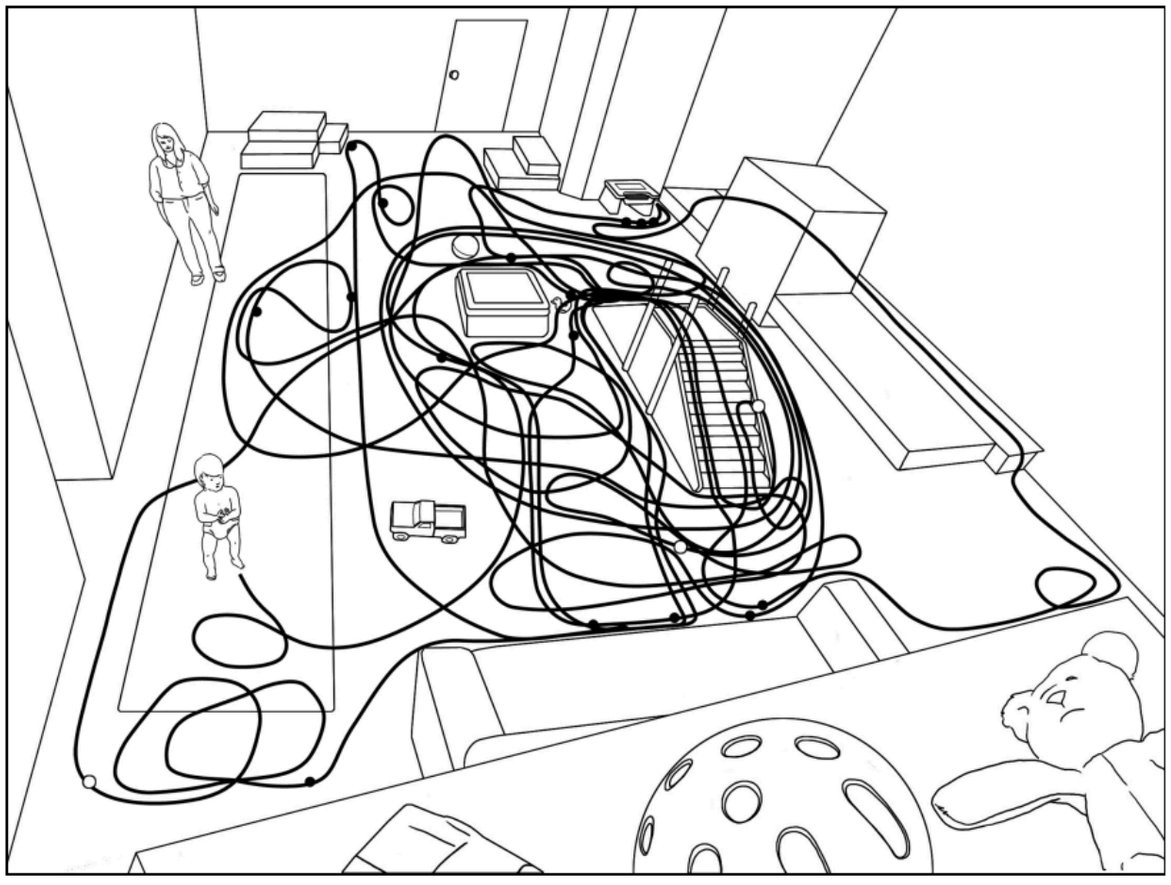
Variety Wins: Soccer-Playing Robots and Infant Walking



Ori Ossmy, Justine E. Hoch, Patrick MacAlpine, Shohan Hasan,
Peter Stone, and Karen E. Adolph

Variety Wins: Soccer-Playing Robots and Infant Walking



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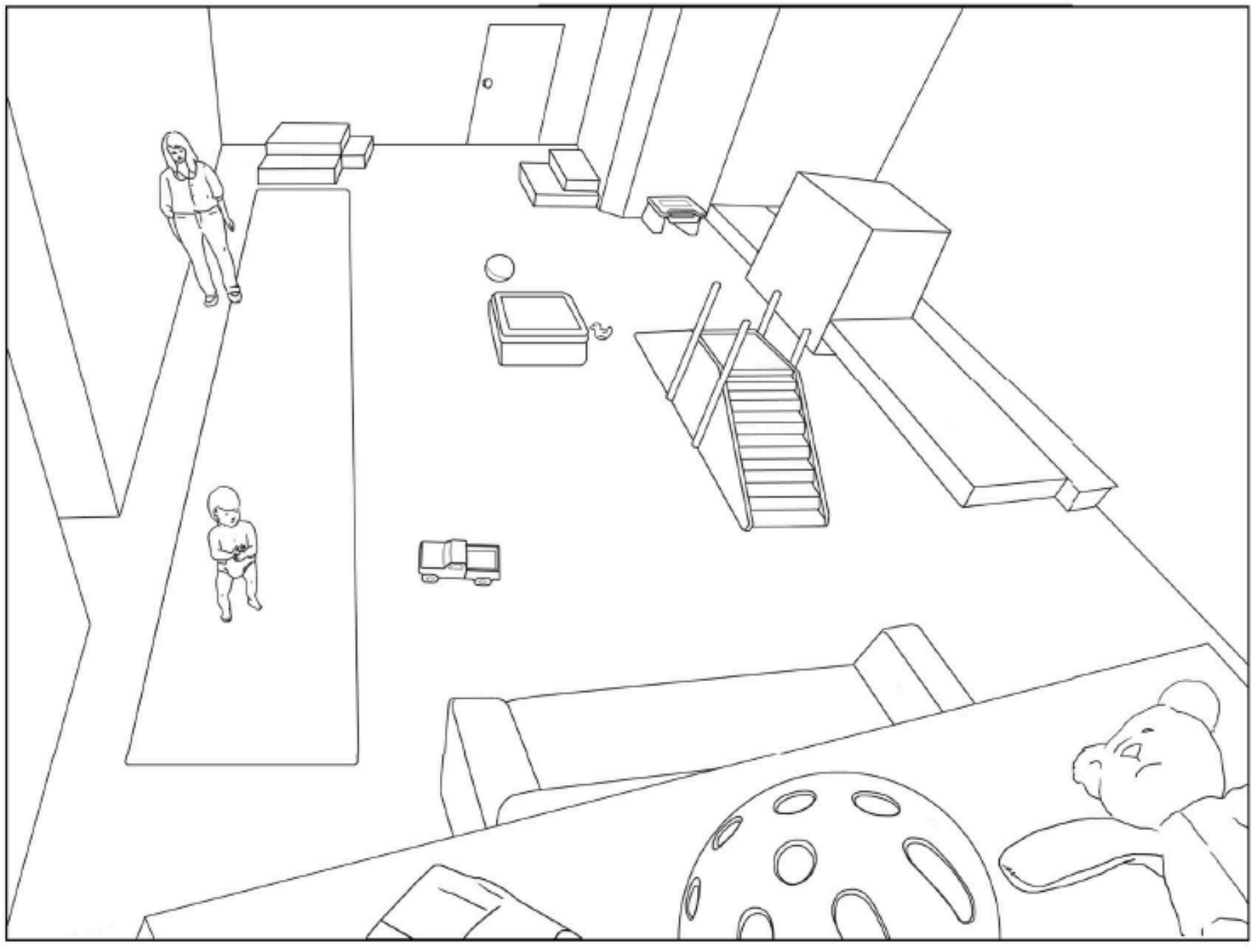
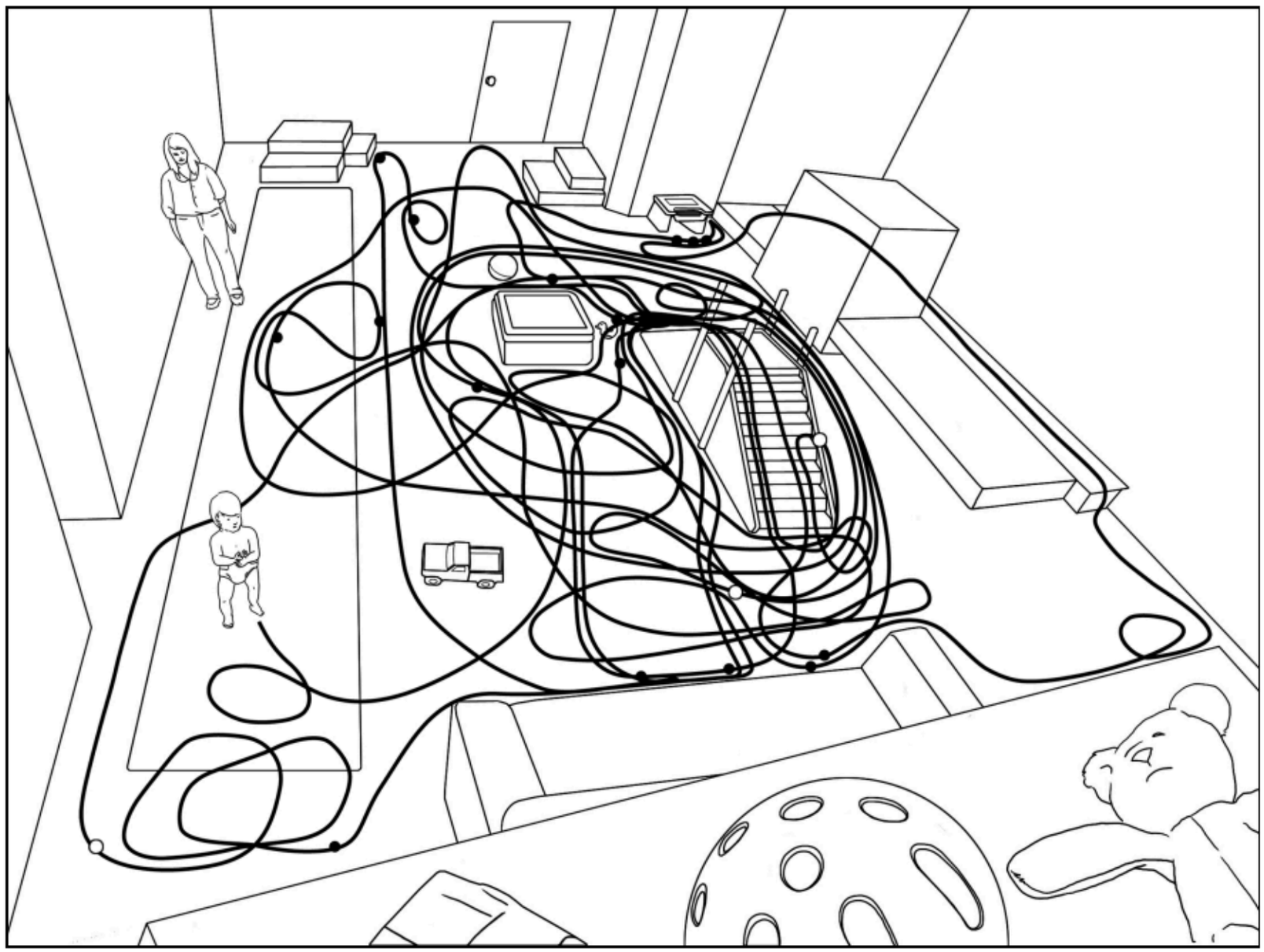
Does the natural variability in infant walking paths help them learn how to walk?

Examined infant paths during free play



90 infants completed 20-min free play

Examined infant paths during free play



90 infants completed 20-min free play

Train AI robots to walk

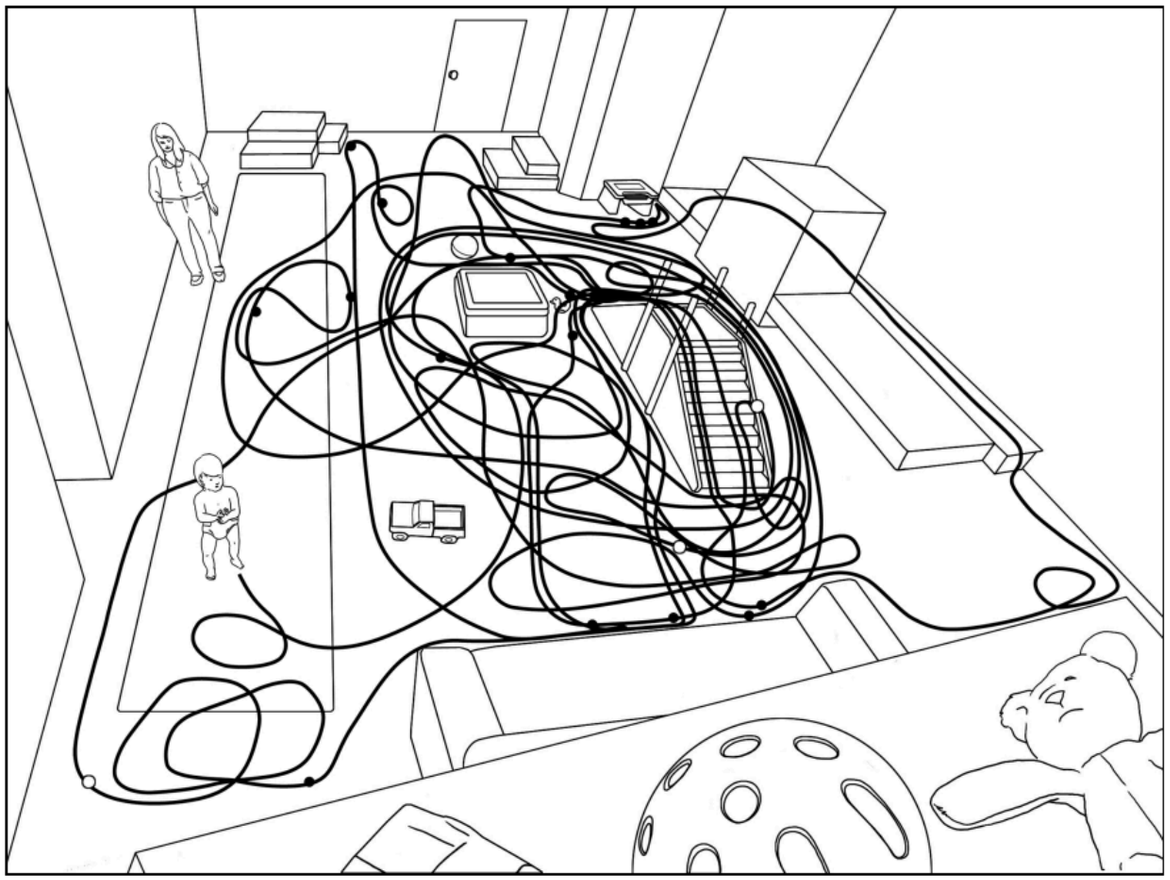
AI robots compete in soccer games

Train AI robots to walk

Trained robot teams using either…

Train AI robots to walk

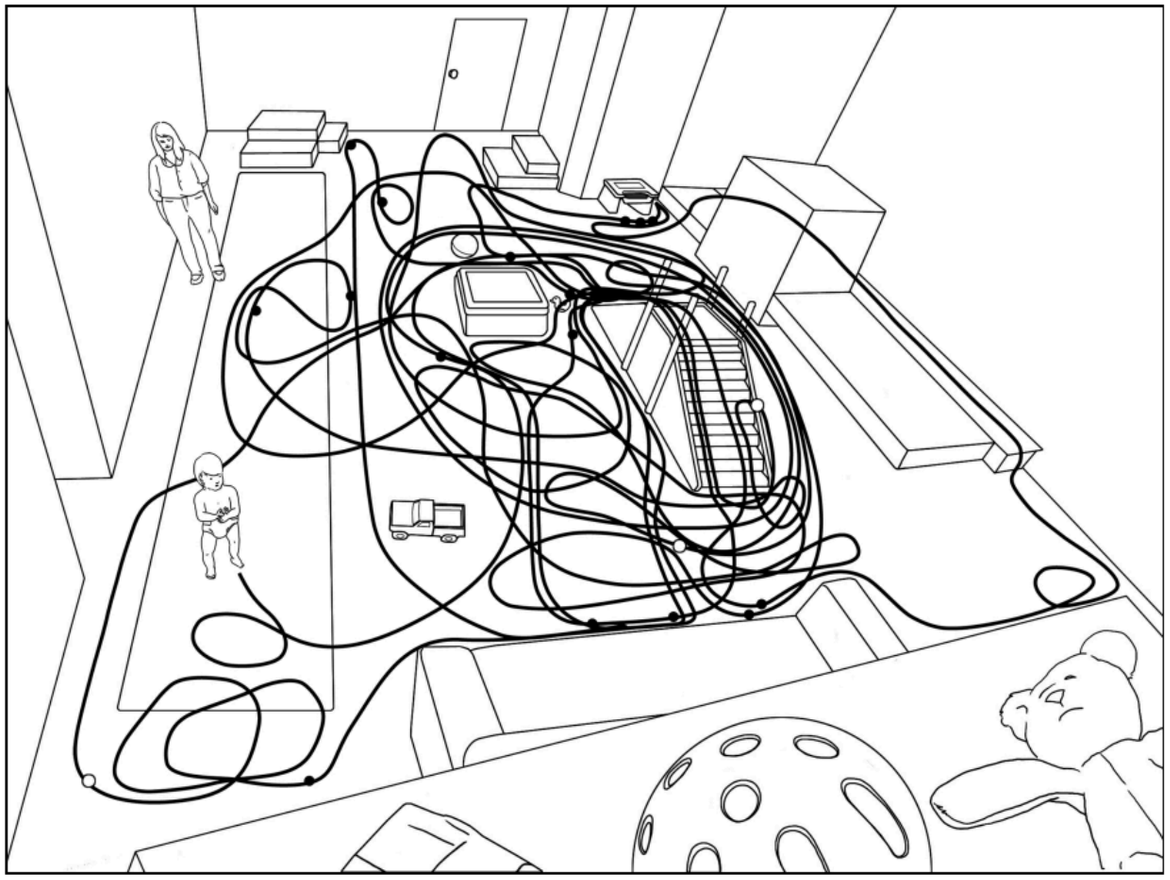
Trained robot teams using either…



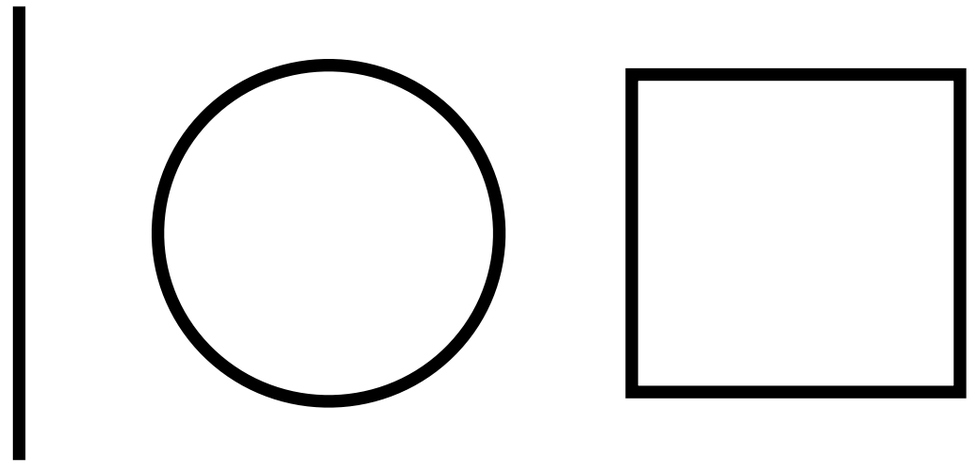
Infant walking paths

Train AI robots to walk

Trained robot teams using either…



Infant walking paths

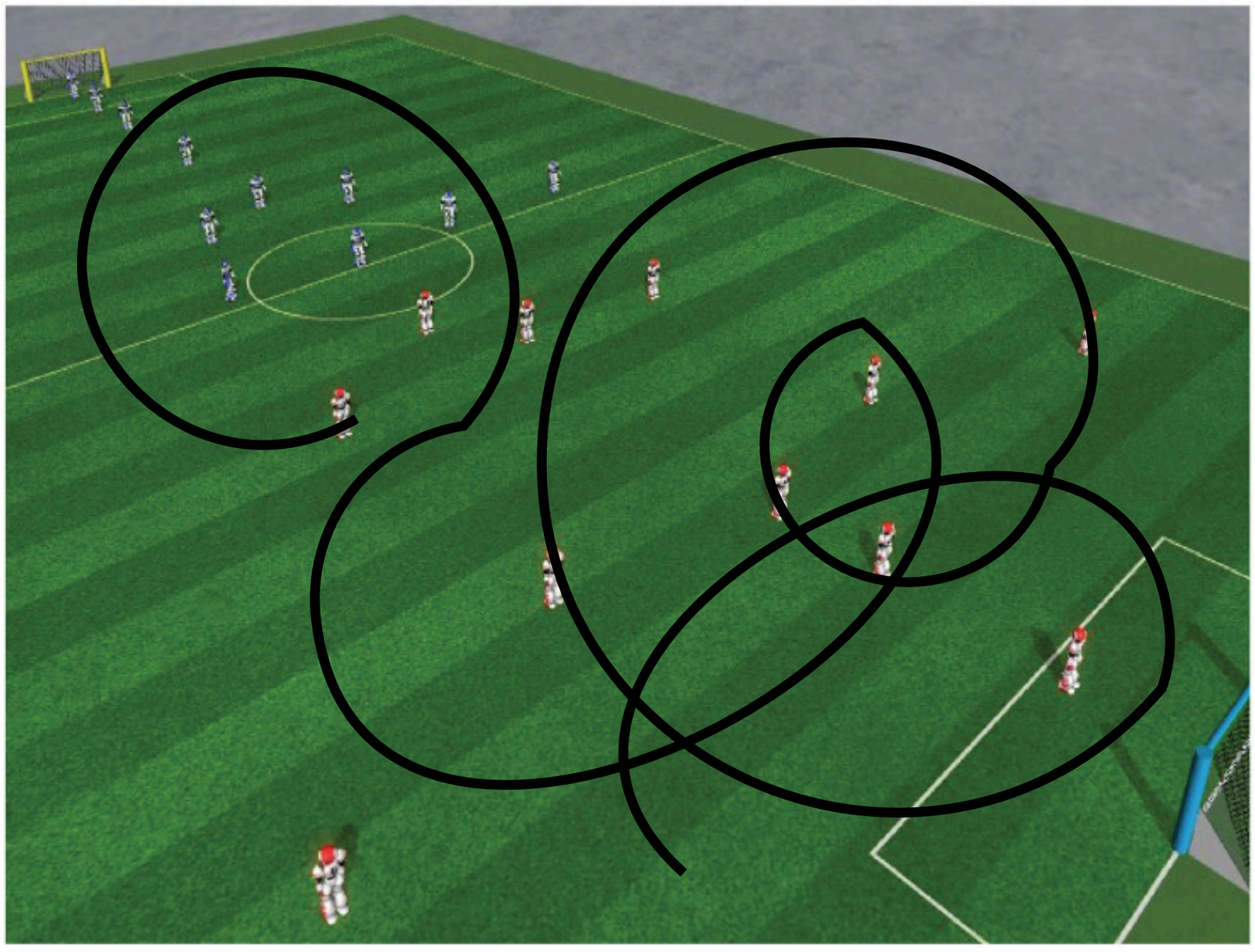


Geometric shapes

Train AI robots to walk

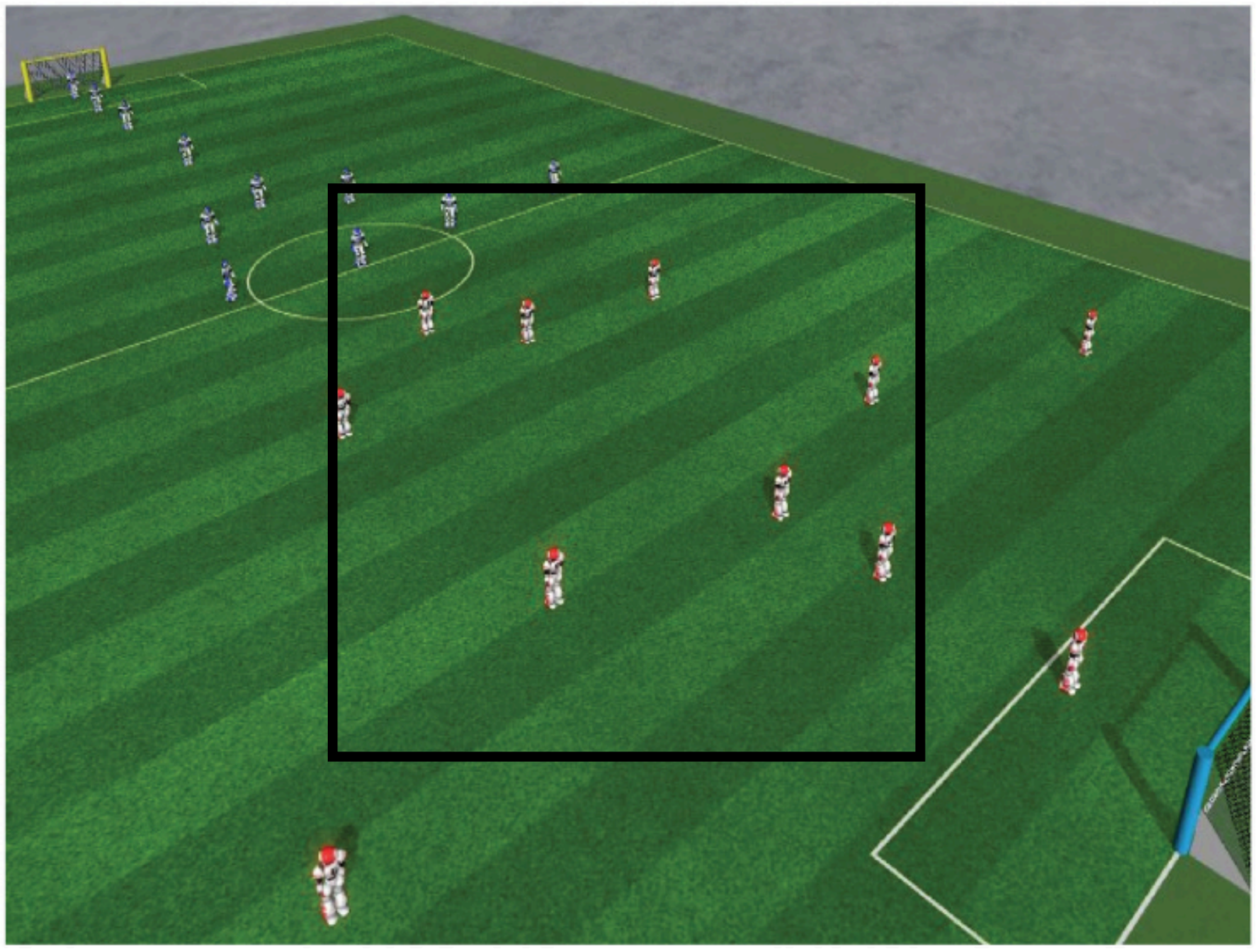
Train robots using different paths

Train AI robots to walk



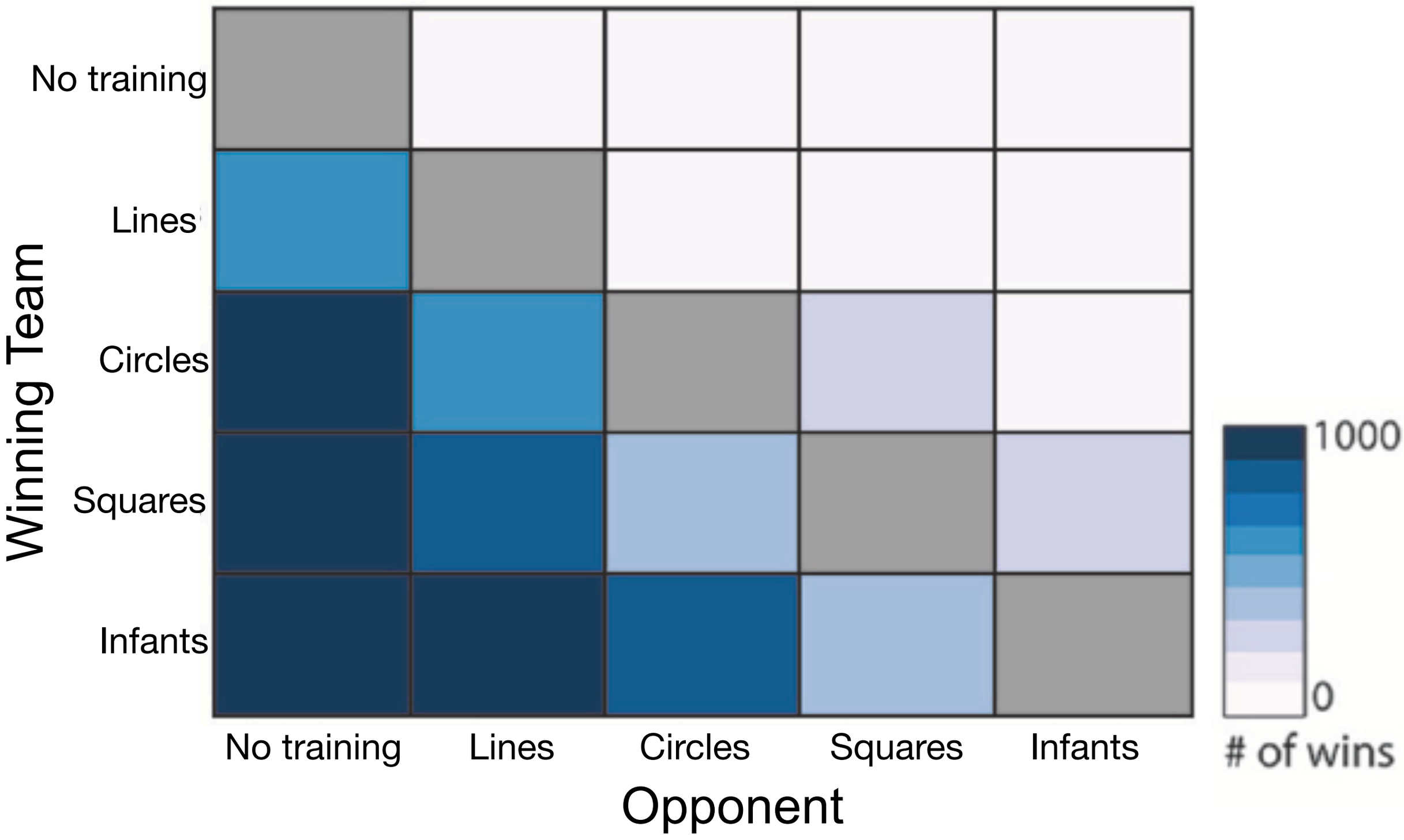
Train robots using different paths

Train AI robots to walk

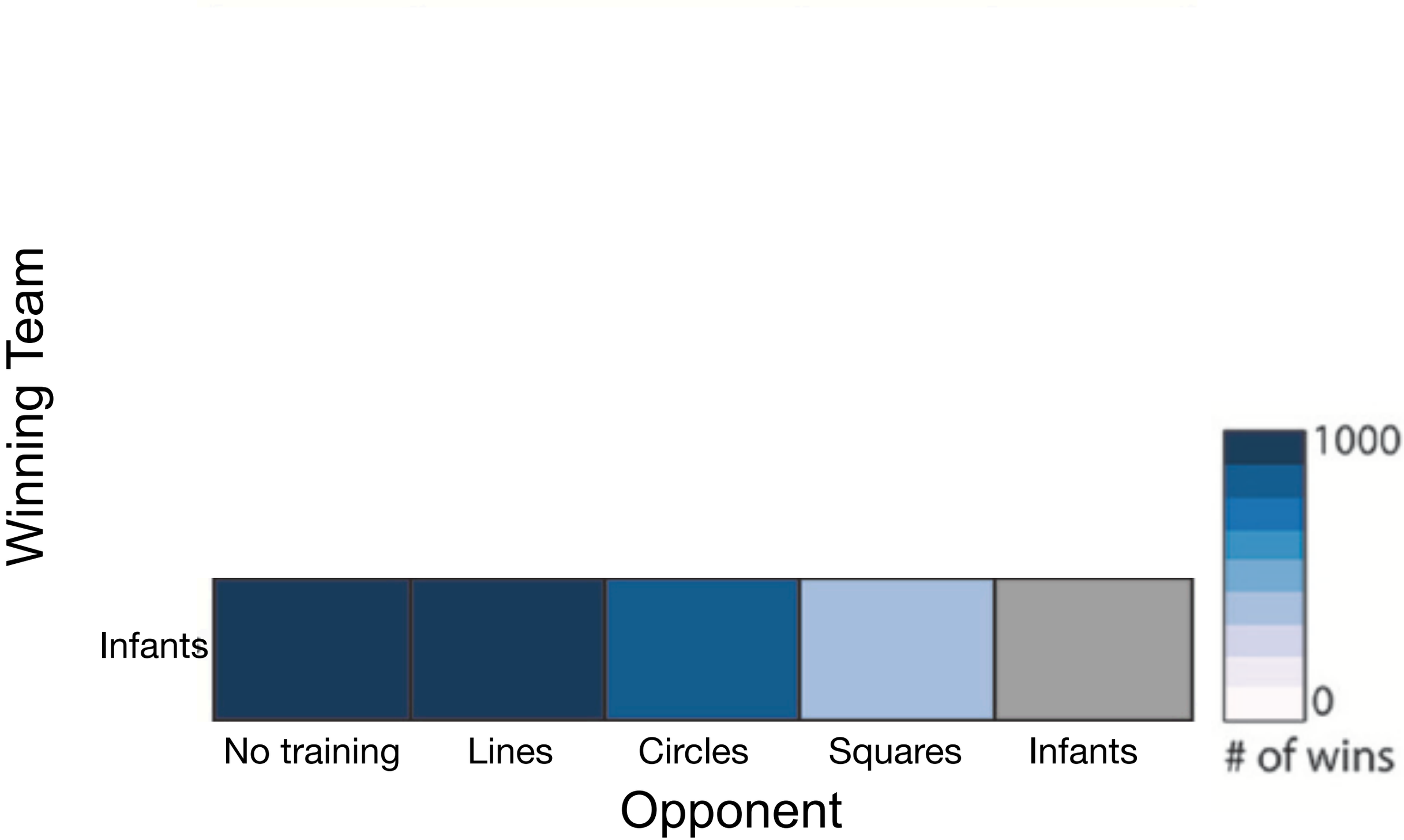


Train robots using different paths

What did they find?



Infant team won the most games



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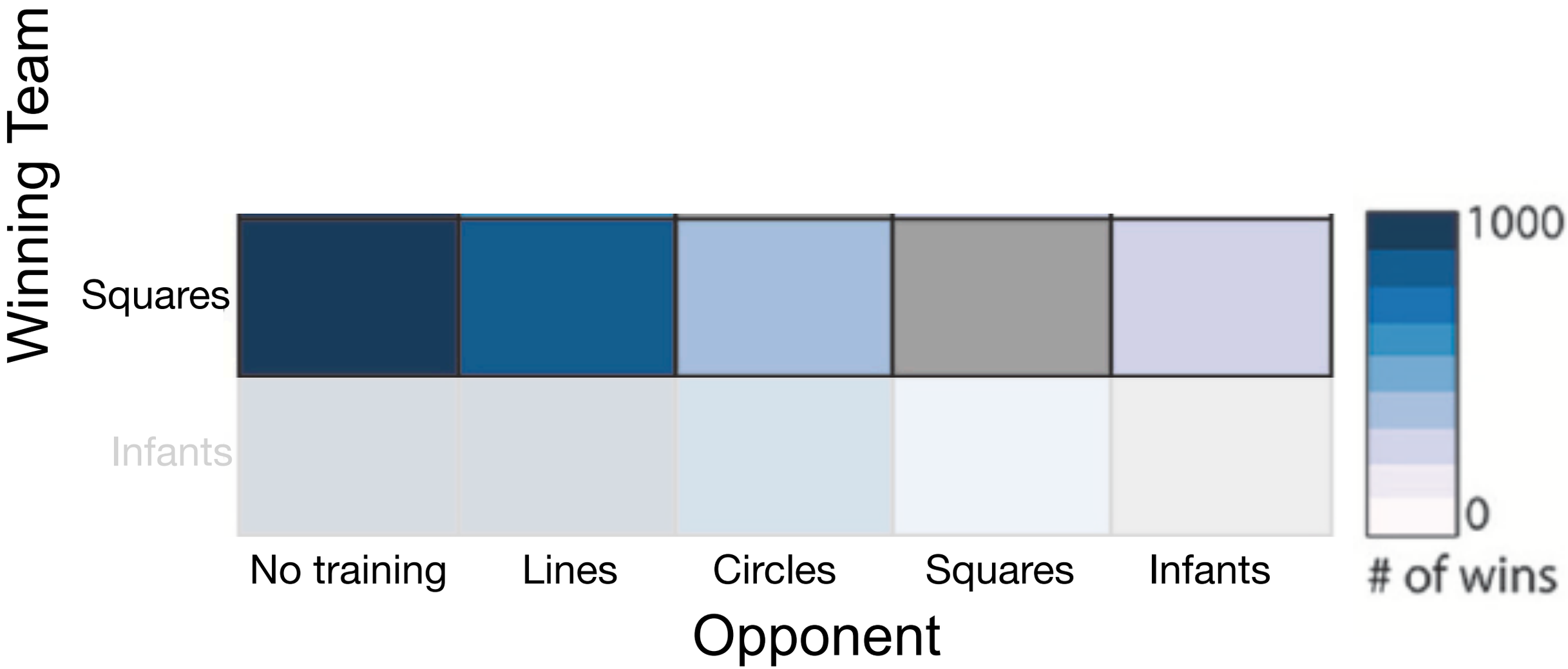

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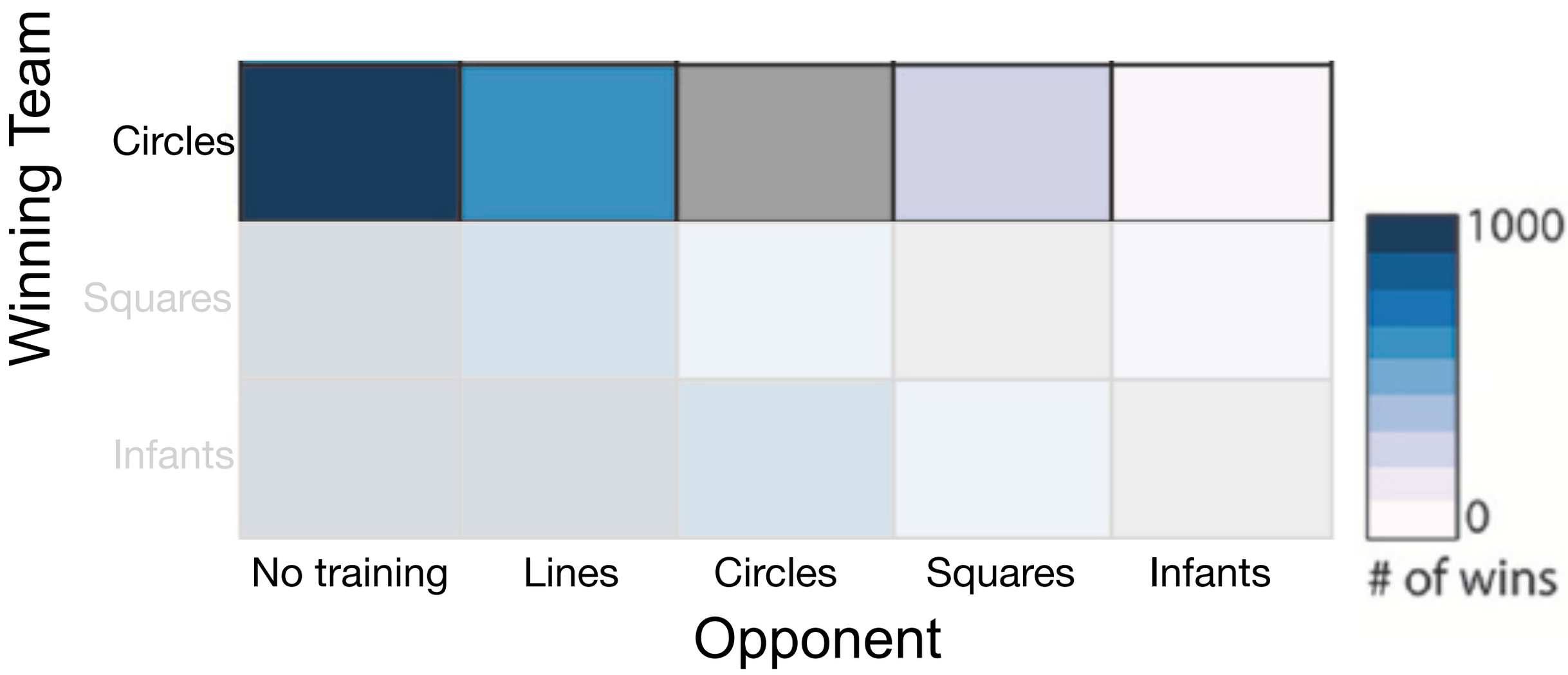

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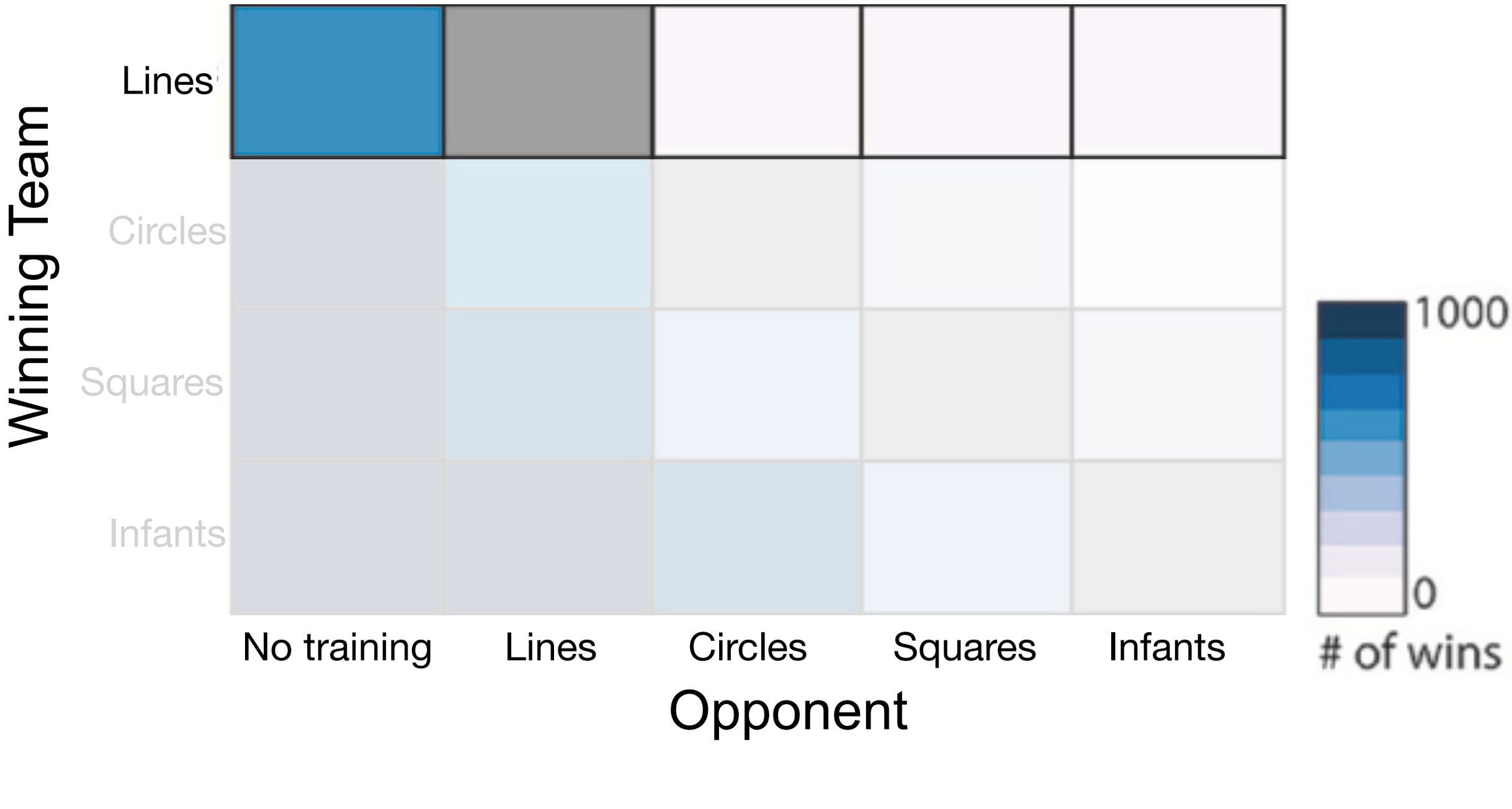

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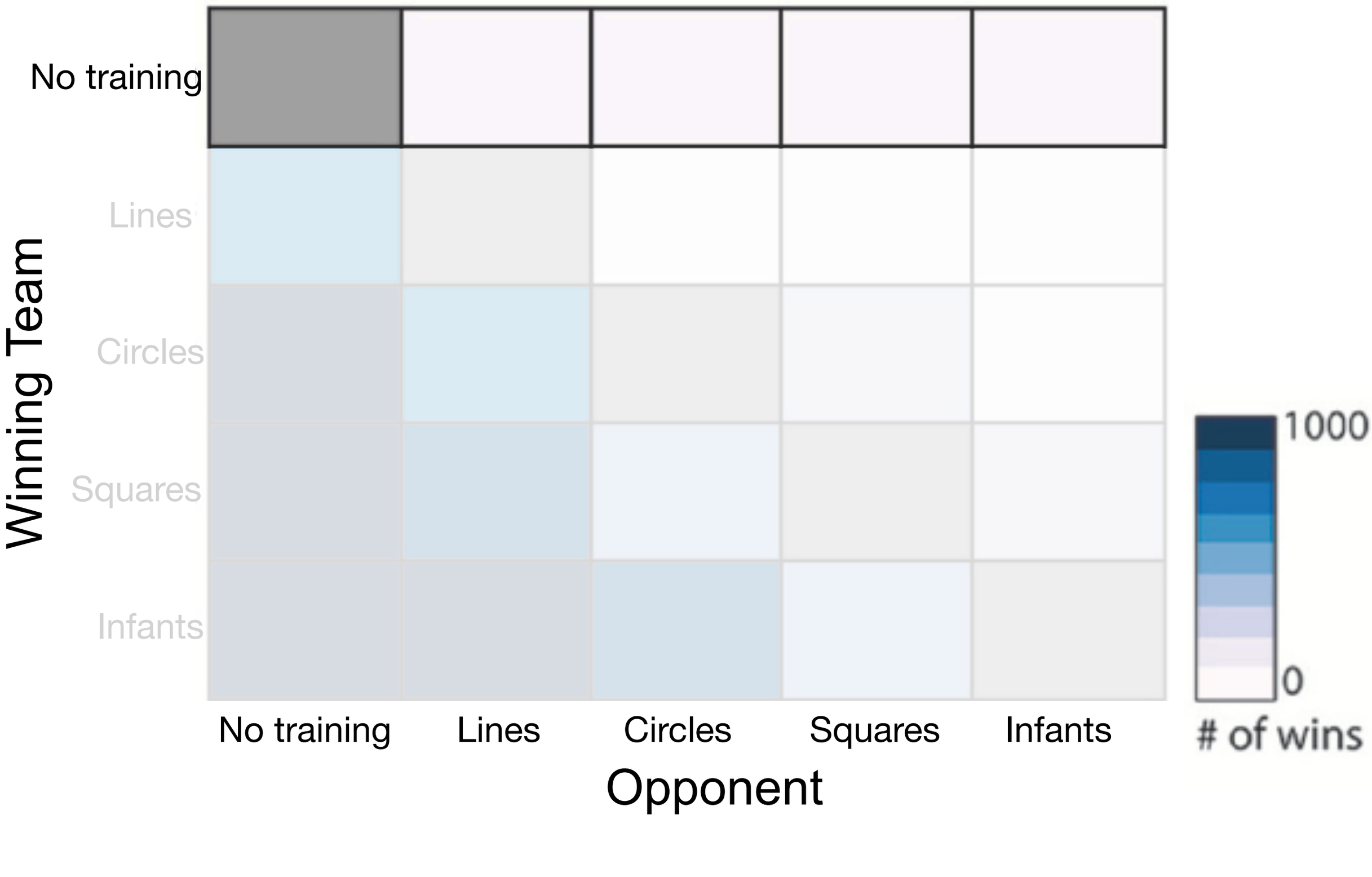
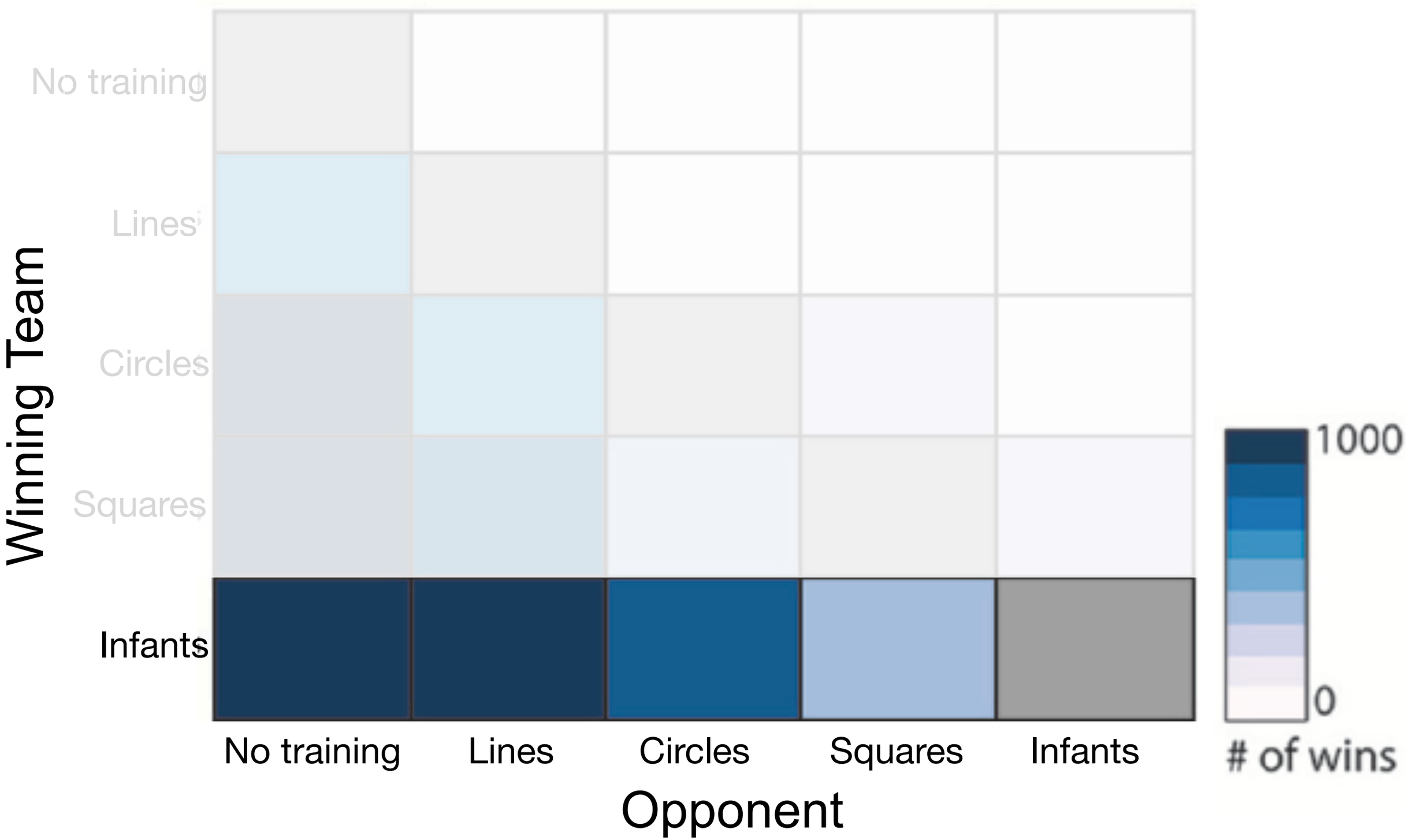
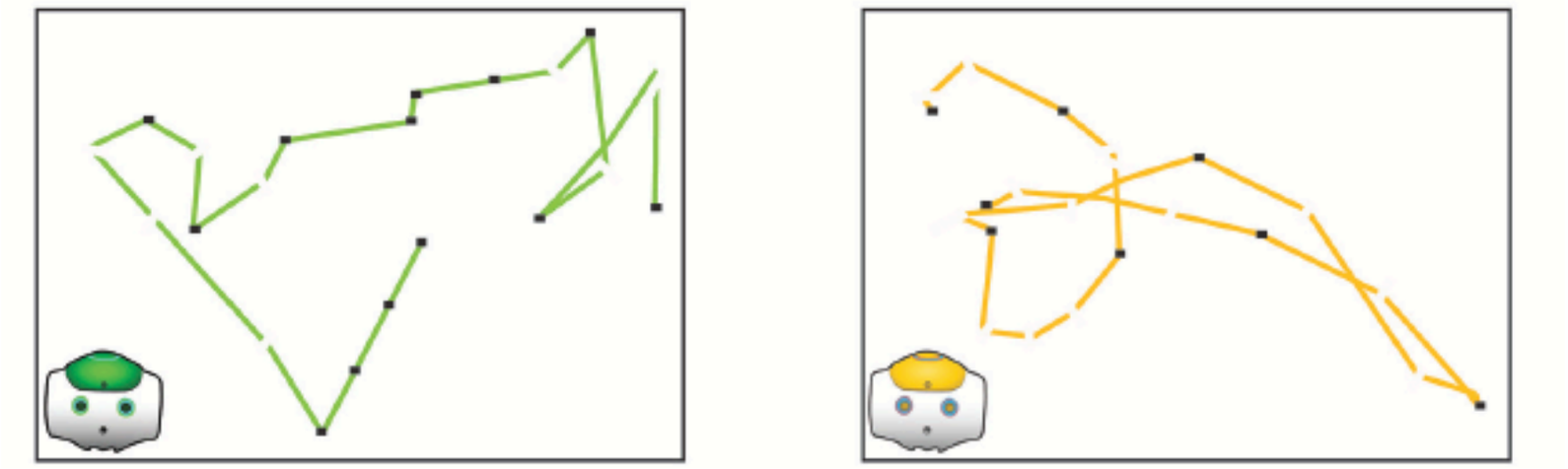
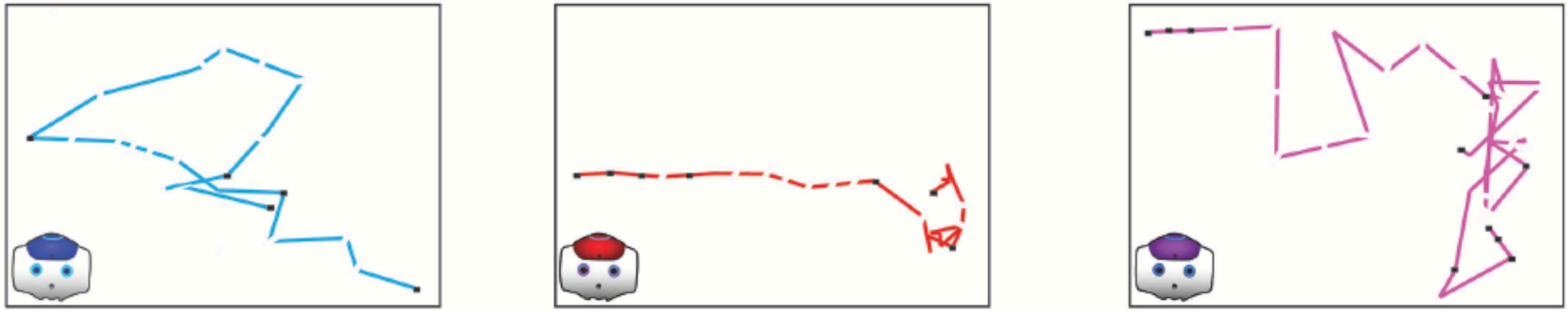


Infant team won the most games



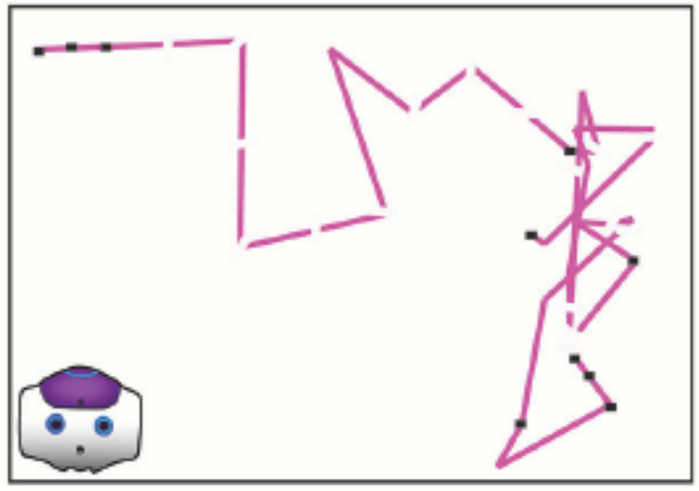
Train robots on different infant paths





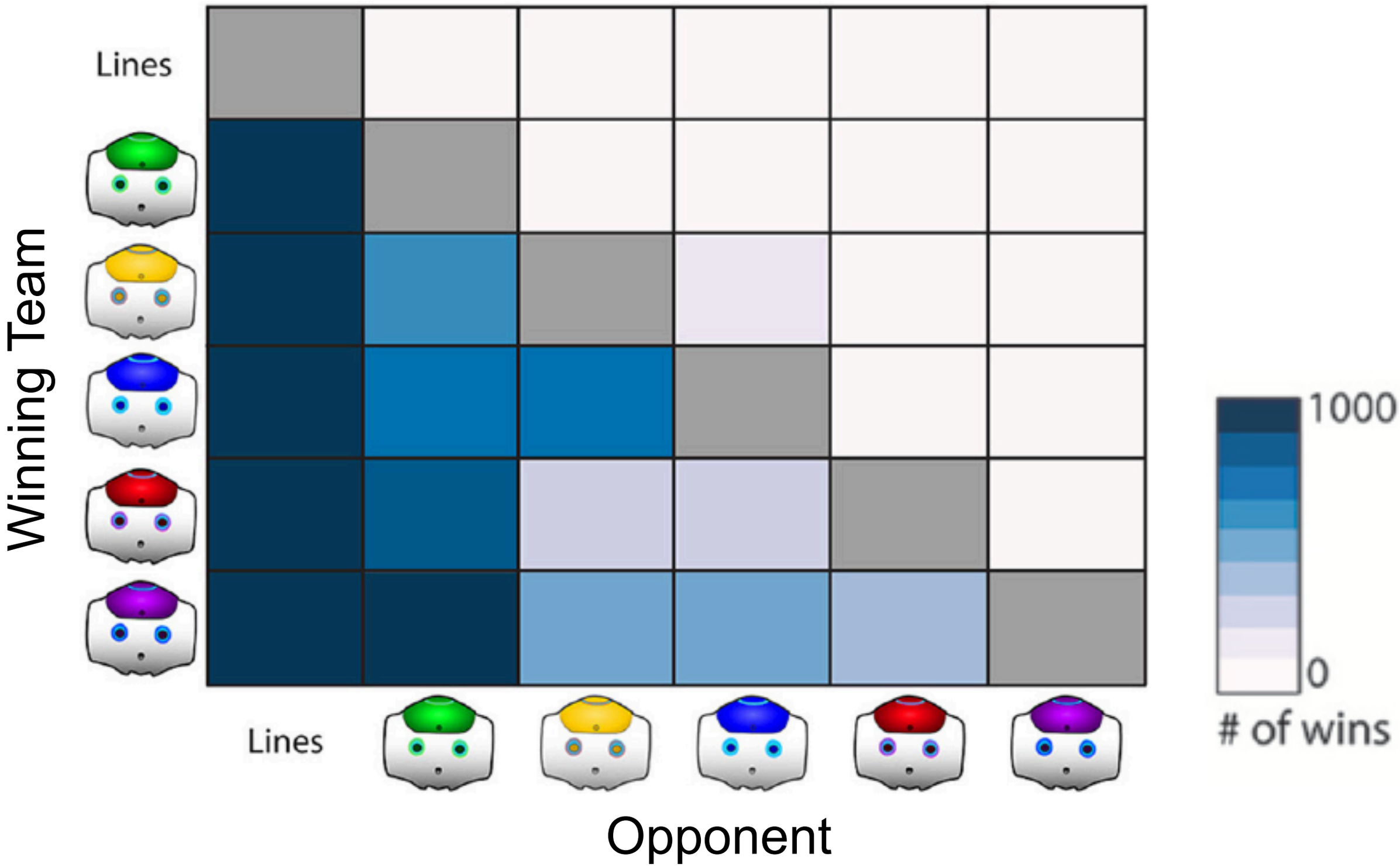
Paths vary in curvature, steps, and stops

Train robots on different infant paths



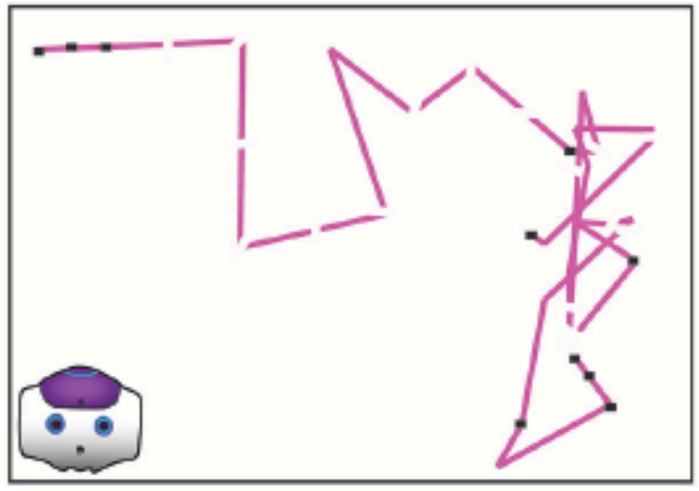
Paths vary in curvature, steps, and stops

What did they find?



Most varied team won the most games

Most varied team won the most games



Train robots using different infant walking paths

Internal Validity

Is the study measuring what it claims to measure?

Internal Validity

Is the study measuring what it claims to measure?

vs

External Validity

Can these findings be applied to other settings (outside the lab)?

Internal Validity

Is the study measuring what it claims to measure?

vs

External Validity

Can these findings be applied to other settings (outside the lab)?

Consider:

- Task confounds
- Experimenter bias
- Operationalization error
- Sample size and characteristics
- Lab environment

What is their question?

What is their question?

What are they studying and why is it important?

- First paragraph of the introduction

What is their question?

What are they studying and why is it important?

- First paragraph of the introduction

How did they define their variables?

- Middle section of the introduction

What is their question?

What are they studying and why is it important?

- First paragraph of the introduction

How did they define their variables?

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Condense into 1-2 sentences

What did they do?

What did they do?

Who did they test, and why?

- First paragraphs of methods

What did they do?

Who did they test, and why?

- First paragraphs of methods

What did they do?

- Abstract for summary, methods for details

What did they do?

Who did they test, and why?

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What did they do?

- Abstract for summary, methods for details

How do the methods serve the original question?

- Abstract for summary, methods for details

What did they do?

Who did they test, and why?

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What did they do?

- Abstract for summary, methods for details

How do the methods serve the original question?

- Abstract for summary, methods for details

Summarize in plain English

What did they find,
and how did they interpret it?

What did they find?

What are the MAIN findings?

- Abstract for summary, figures for details

What did they find?

What are the MAIN findings?

- Abstract for summary, figures for details

Do the findings answer the original question? How?

- Abstract for summary, discussion for details

What did they find?

What are the MAIN findings?

- Abstract for summary, figures for details

Do the findings answer the original question? How?

- Abstract for summary, discussion for details

Summarize in plain English

Do you agree with their interpretation?

Are the methods clear?

Do you agree with their interpretation?

Do you agree with their interpretation?

Are the methods clear?

Did they interpret beyond their data?

Do you agree with their interpretation?

Are the methods clear?

Did they interpret beyond their data?

What are the limitations?

- Last paragraph of discussion

Do you agree with their interpretation?

Are the methods clear?

Did they interpret beyond their data?

What are the limitations?

- Last paragraph of discussion

Is the study valid?

1. **What is their question?**
   - What are they studying and why is it important? (first pg of intro)
   - How did they define their variables? (middle section of intro)
2. **What did they do?**
   - Who did they test, and why? (first pg of methods)
   - What did the participants do (both robots and babies)? (abstract for summary, methods for details)
   - How do the methods serve the original question? (abstract for summary, methods for details)
3. **What did they find, and how did they interpret it?**
   - What are the MAIN findings? (abstract for summary, figures for details)
   - Do the findings answer the original question? (abstract for summary, discussion for details)
4. **Do you agree with their interpretation?**
   - Are the methods clear?
   - Did they interpret beyond their data?
   - What are the limitations?
   - Is the study valid internally, externally?

SIPPS post-workshop survey access
(~1 minute survey)

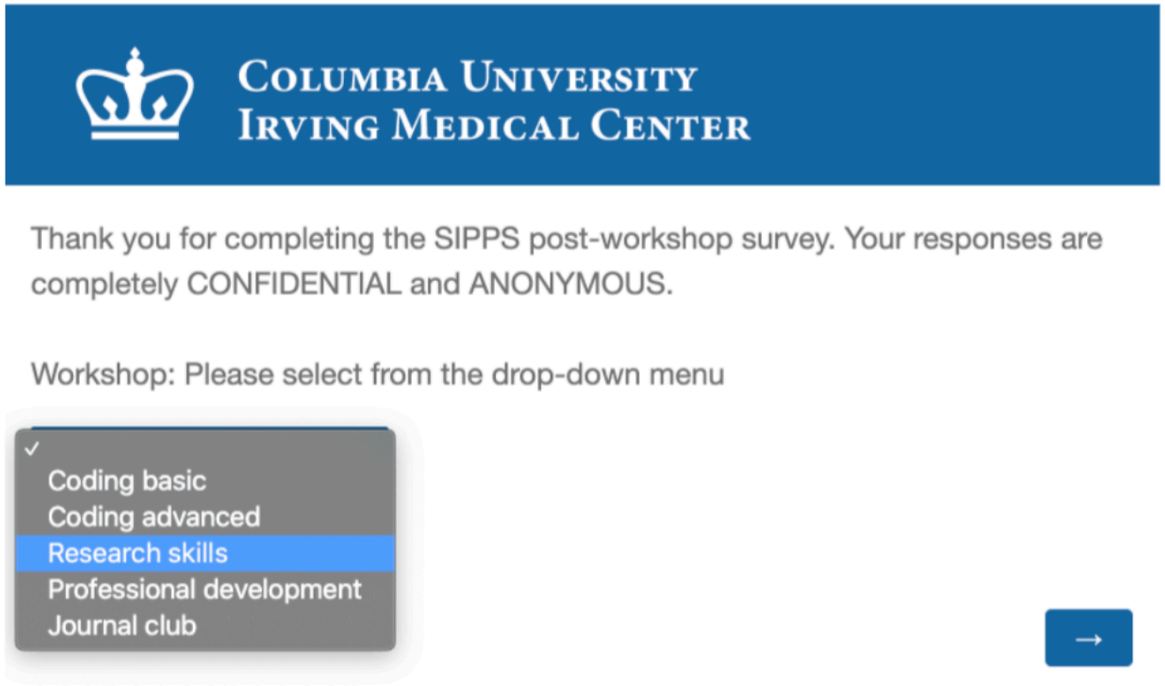
Post-workshop survey (anonymous)

link: https://cumc.co1.qualtrics.com/jfe/form/SV_9HVYLAL5iXvjEmq

SIPPS post-workshop survey instructions

Preregistration and OSF (June 23)

1. Select “Research Skills” and press arrow



2. Select “Pre-registration and OSF (June 24)” and press arrow