Universität Basel

Where did they get out? Evaluating zone exits using expected threat in hockey

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Agenda.

1	Introduction
2	Expected Threat
3	Exit Sequences & Lanes
4	Results
5	Discussion

Introduction

- Zone exits:
  - start offensive sequences
  - decrease opponent danger
  - controlled zone exit → successful defensive sequence

- Are all zone exits the same?

- Impact of exit location on opponent danger?

- **Thesis: exits over the sides more effective and danger-reducing**

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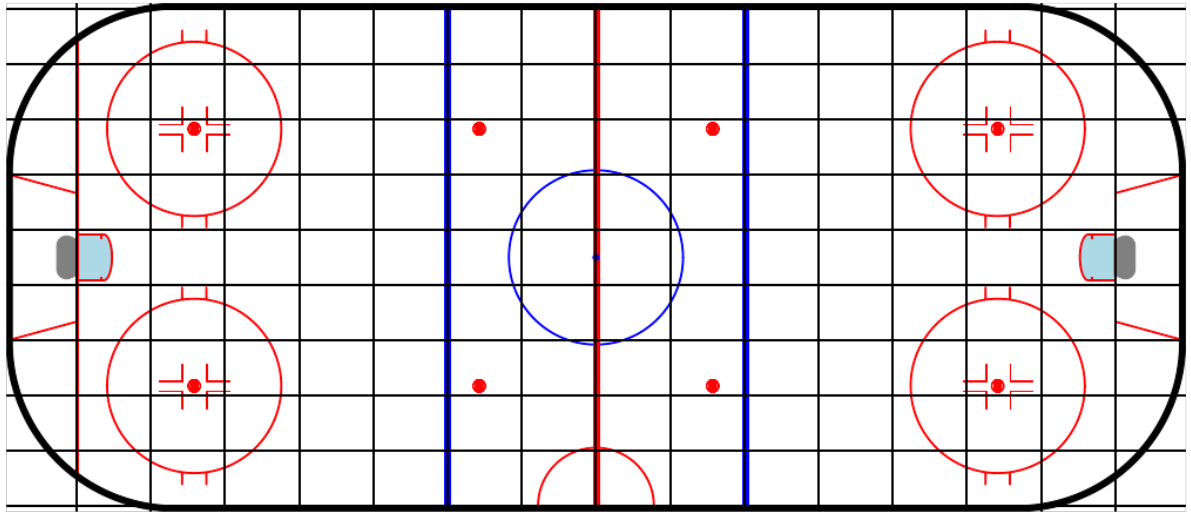
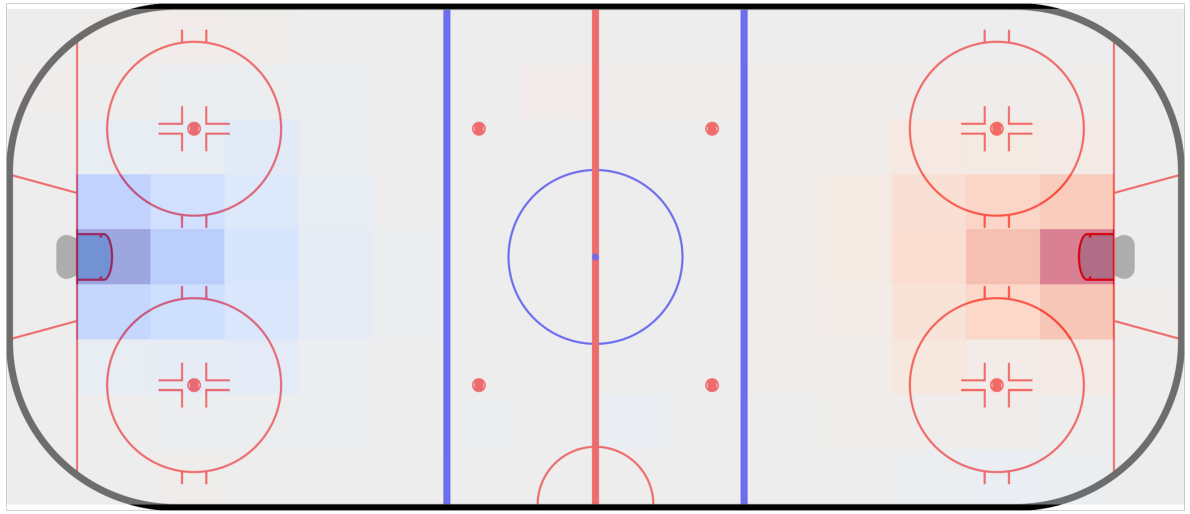
Expected Threat (xT)

- Concept developed for soccer with Markov Chains by Sarah Rudd
- Further developed in the most widely used form by Karun Singh
- Every section of the field value of scoring in a given amount of moves
- Difference between sections used to evaluate actions
- Translation into ice-hockey: divide the ice surface into a 16 x 9 matrix



Expected Threat (xT)

- Evaluating passes and carries as move actions
- Use Markov chains to calculate transition matrices after 8 moves → xT for offense
- Defensive xT: flipped values xT offense
- Net xT: offensive xT + defensive xT



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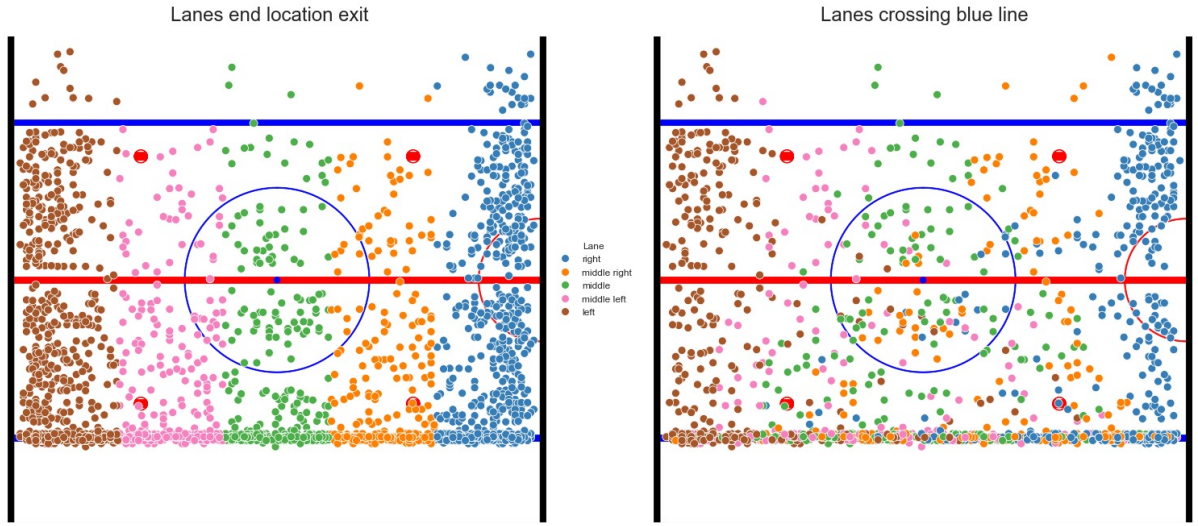
Exit Sequences & Lanes

- Breaking down the event data into sequences leading to zone exits → exit sequences
- Exit lanes similar to zone entry work by Daniel Weinberger and Nick Czuzoj-Shulman
- Two ways to define exit lanes:
  - Location of the zone exit
  - Location of the puck (approx.) crossing the blue line



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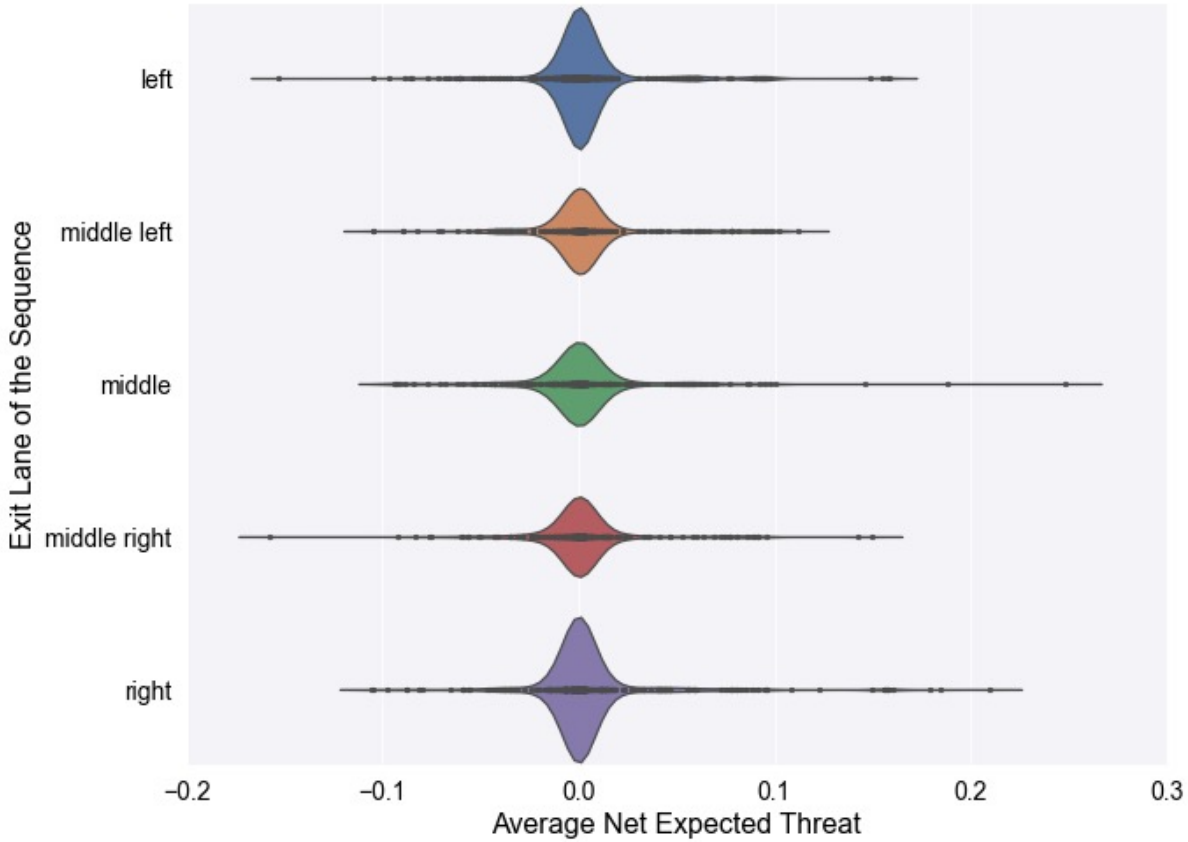
Results

- Left and right lanes:
  - have the most exit events
  - most extreme results both directions

- good plays through the middle get rewarded

- xT values not conclusive enough to show outside lanes better for preventing or creating danger



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Discussion

- What happens after exits?
- How are different pass and carry types affecting the exits?

References

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Thank You
for your attention!