1v1 Defending Beyond Tackles and Interceptions

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How can we measure defending skill?

- Winning the ball back:
  - Tackles
  - Interceptions
  - High reward, but higher risk
- Preventing danger through positioning:
  - Preventing a pass or carry
  - Hard to measure

Are we missing something in-between?

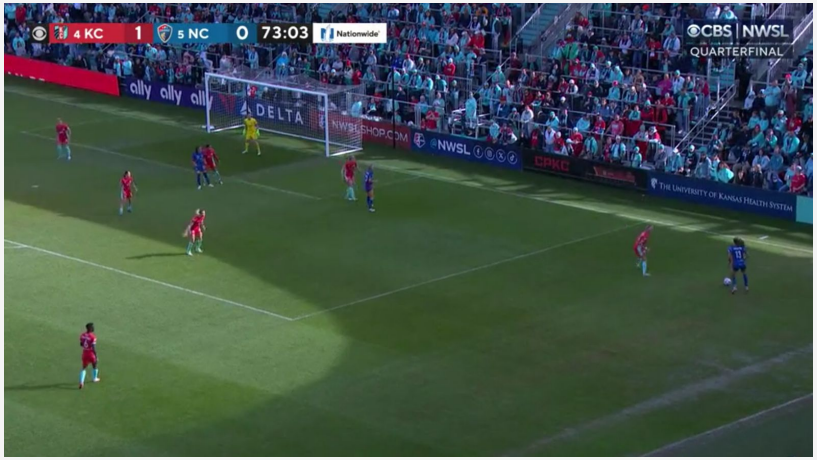
- Not every defensive engagement with a ball carrier results in an attempted tackle or interception.
- Allowing a successful pass in defensive engagement is not necessarily a failure.
- Can we measure how good a player is at preventing dangerous play without necessarily winning the ball?

Reyes of Portland forced to play backwards by Stengel.

EPVp: Expected Possession Value Prevented

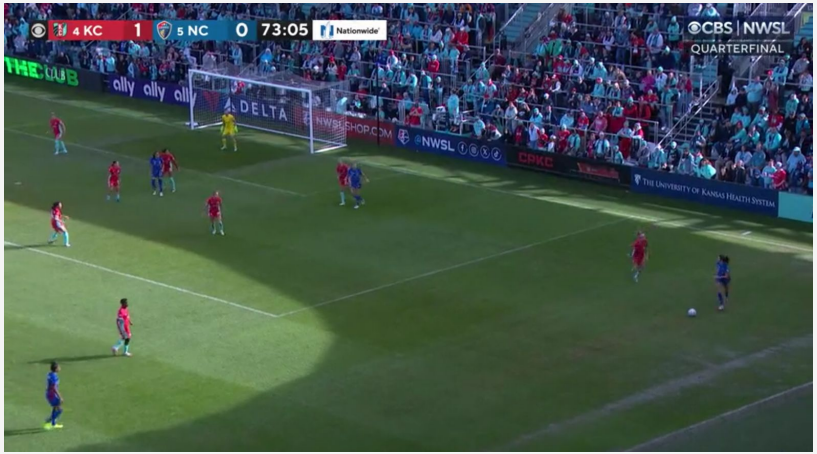
An overview:

- **Dataset:** Skillcorner tracking and Wyscout event data for the 2024 NWSL and 2023-'24 WSL seasons.
- **1v1 definition:** The closest defender is closer than 4 meters and the second closest defender is further than 8 meters from the possessing player.
- **Model:** Take as input a sequence of 2 consecutive successful passes and predict the EPV added of the next event using an XGBoost regression model.
- **EPVp:** EPVp = (predicted EPV added) - (EPV added). Only defined when the event occurs during a 1v1 situation as defined above.



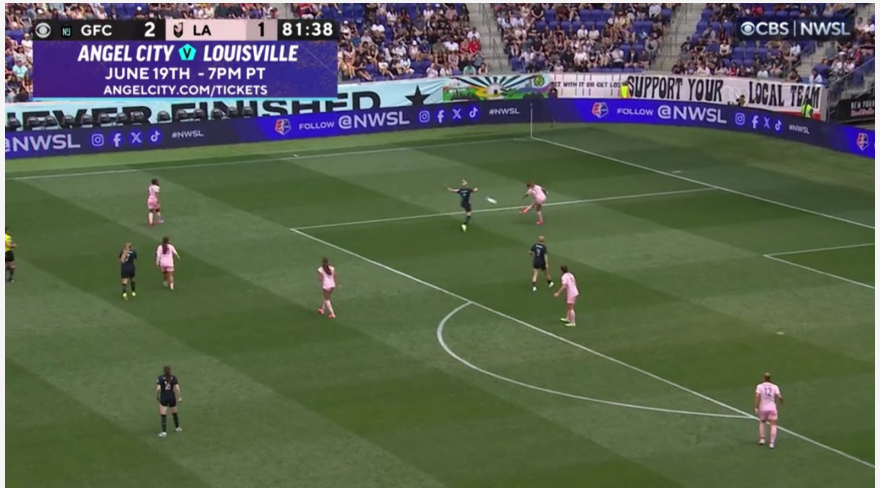
Wheeler engaging and preventing a cross from Williams.

EPVp = 0.04



Zerboni pressing Curry and forcing an attempted clearance.

EPVp = 0.04



Wheeler allows O'Sullivan to play a dangerous ball into Hopkins.

EPVp = -0.059

NWSL Ranking by EPVp compared with ASA interrupting g+

Player	Average EPVp per 1v1
L. Milliet	0.0058
S. Puntigam	0.0043
J. Fishlock	0.0038
D. Sheehan	0.003
R. Reyes	0.0025
C. Roccaro	0.0024
H. Lundkvist	0.0023
H. Hershfelt	0.0019
S. Coffey	0.0017
K. Wesley	0.0017
S. Schmidt	0.0017
N. Martin	0.0017
K. Abello	0.0016
N. Miura	0.0015
D. Colaprico	0.0015

Top 15 NWSL players by EPVp with a minimum of 20 1v1 engagements

Player	Interrupting g+ per 96
Natalia Kuikka	0.1
Naomi Girma	0.07
Kate Del Fava	0.07
Kaleigh Kurtz	0.06
Cari Roccaro	0.05
Ryan Williams	0.04
Leilanni Nesbeth	0.04
Tierna Davidson	0.04
Taylor Flint	0.04
Courtney Petersen	0.04
Marie Muller	0.04
Carson Pickett	0.04
Kiara Pickett	0.03
Shae Holmes	0.03
Paige Metayer	0.03

Top 15 NWSL players by g+ interrupting

Top 25 players in the dataset ranked by average EPVp per 1v1 engagement

Player	Average EPVp per 1v1	League
L. Milliet	0.0058	NWSL
J. Thibaud	0.0047	WSL
S. Puntigam	0.0043	NWSL
J. Fishlock	0.0038	NWSL
M. Turner	0.003	WSL
D. Sheehan	0.003	NWSL
R. Corsie	0.0029	WSL
R. Reyes	0.0025	NWSL
C. Roccaro	0.0024	NWSL
D. Turner	0.0024	WSL
H. Lundkvist	0.0023	NWSL
M. Bartrip	0.002	WSL
Y. Hasegawa	0.0019	WSL
F. Nagano	0.0019	WSL
H. Hershfelt	0.0019	NWSL
S. Coffey	0.0017	NWSL
K. Wesley	0.0017	NWSL
S. Schmidt	0.0017	NWSL
N. Martin	0.0017	NWSL
K. Abello	0.0016	NWSL
N. Miura	0.0015	NWSL
D. Colaprico	0.0015	NWSL
B. Sauerbrunn	0.0014	NWSL
M. Pogarch	0.0013	NWSL
M. Curry	0.0013	NWSL

Future work and improvements

- Is EPVp persistent across seasons?
- Use a more sophisticated possession value model
- Continuous rather than event-based 1v1 definition
  - Predict the expected EPV for a 1v1 situation based on the game state at the beginning of the 1v1 encounter

THANK YOU