

Dealing with the Devils: Fairness challenges of a 19-team AFL fixture

SCI700 Dissertation
Assignment task 3: Research project presentation

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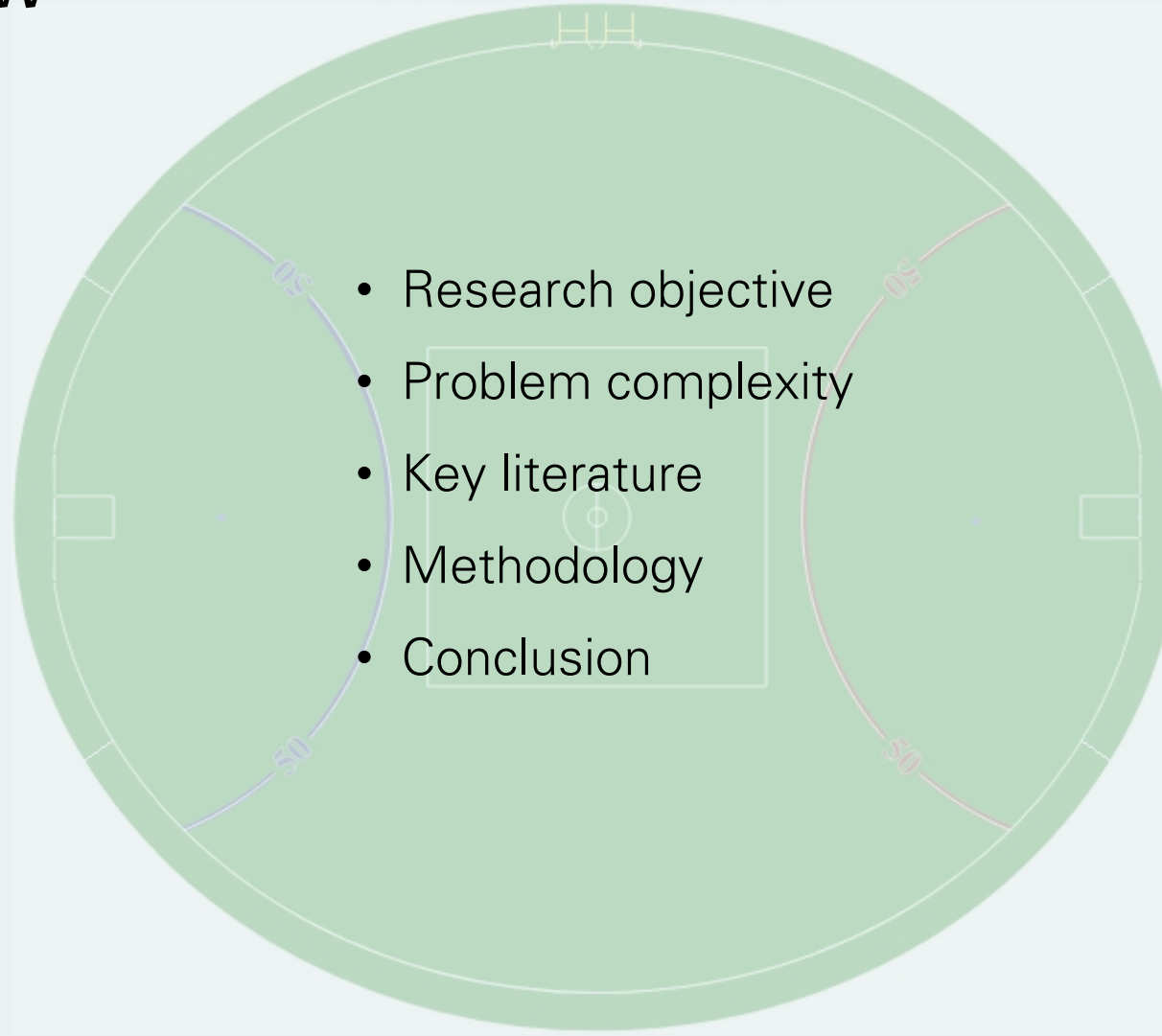
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Overview



Research objective

- Balancing fairness with constraints
- Why it matters
- Uniqueness



Research question: To what extent can a multi-objective optimisation model generate an equitable fixture for a 19-team AFL competition that mitigates trade-offs with known constraints and commercial objectives?

Schedule inequity








- Round robin tournaments
- Strength of schedule

WHO EACH TEAM PLAYS TWICE IN 2025		
	POWER, HAWKS, MAGPIES, SUNS, EAGLES, ROOS	
	SWANS, CATS, HAWKS, BULLDOGS, MAGPIES, SUNS	
	POWER, HAWKS, MAGPIES, BOMBERS, EAGLES, ROOS	
	LIONS, HAWKS, BLUES, DOCKERS, DEMONS, CROWS	
	SWANS, CATS, BULLDOGS, BLUES, SUNS, TIGERS	
	SWANS, POWER, BULLDOGS, MAGPIES, SAINTS, EAGLES	
	LIONS, POWER, GIANTS, BOMBERS, SAINTS, TIGERS	
	LIONS, GIANTS, BOMBERS, DEMONS, CROWS, TIGERS	
	SWANS, CATS, BULLDOGS, SAINTS, SUNS, EAGLES	
	LIONS, POWER, BLUES, MAGPIES, DEMONS, CROWS	
	HAWKS, MAGPIES, SAINTS, SUNS, EAGLES, ROOS	
	SWANS, BULLDOGS, BLUES, DEMONS, CROWS, TIGERS	
	SWANS, CATS, HAWKS, BLUES, DOCKERS, CROWS	
	CATS, BOMBERS, SAINTS, SUNS, EAGLES, ROOS	
	CATS, GIANTS, DOGS, DOCKERS, DEMONS, TIGERS	
	LIONS, POWER, GIANTS, DOCKERS, BOMBERS, ROOS	
	GIANTS, BLUES, DOCKERS, DEMONS, CROWS, TIGERS	
	LIONS, GIANTS, DOCKERS, BOMBERS, SAINTS, ROOS	





















Weighted rule







Top 6

1	—		Sydney Swans
2	—		Port Adelaide
3	▲		Geelong Cats
4	▼		GWS GIANTS
5	—		Brisbane Lions 
6	—		Western Bulldogs

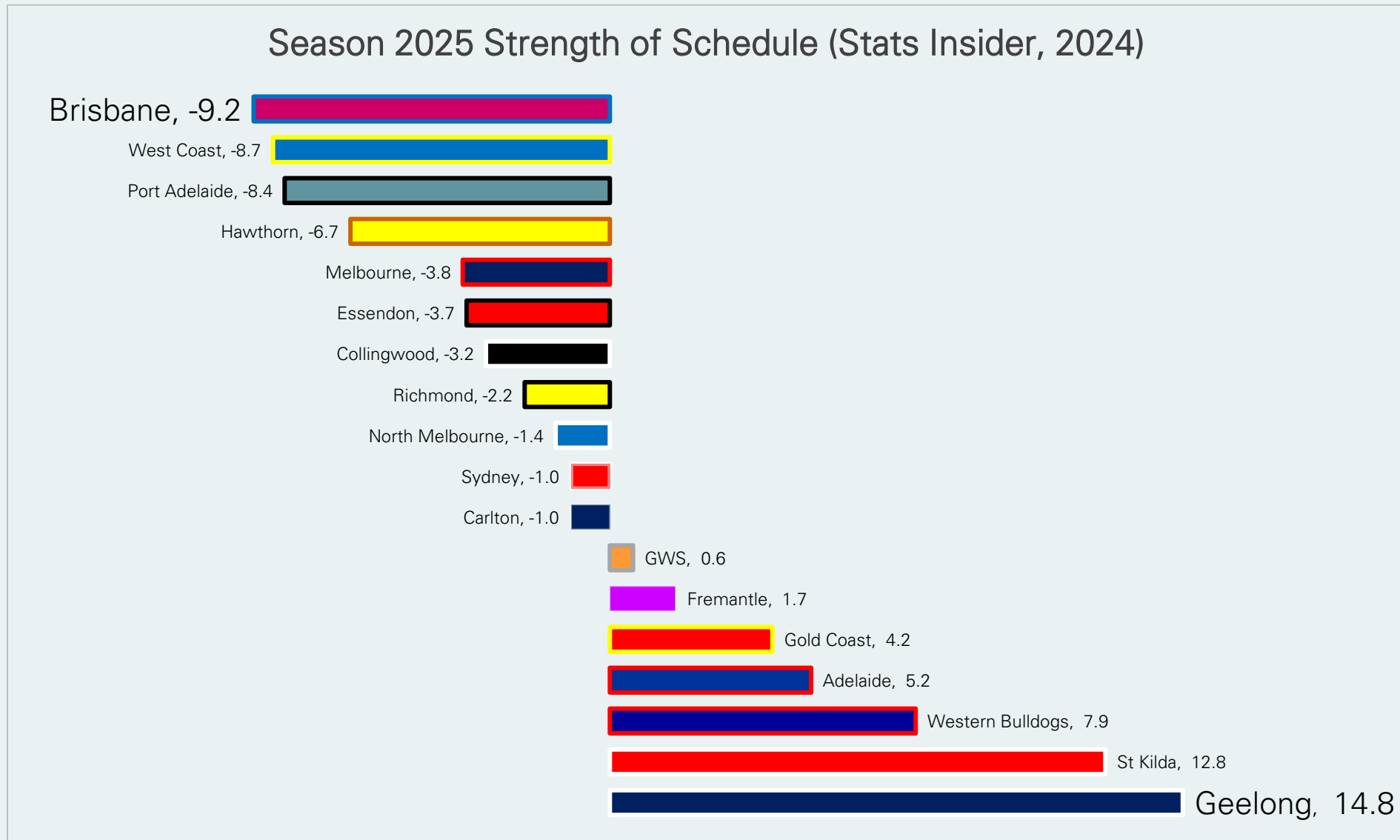
Middle 6

1	—		Sydney Swans
2	—		Port Adelaide
3	▲		Geelong Cats
4	▼		GWS GIANTS
7	—		Hawthorn
8	—		Carlton
TOP 8			
9	▲		Collingwood
10	▼		Fremantle
11	—		Essendon
12	▲		St Kilda
11	—		Essendon
12	▲		St Kilda
13	▲		Gold Coast SUNS
14	▼		Melbourne
15	—		Adelaide Crows
16	—		West Coast Eagles
17	—		North Melbourne
18	—		Richmond

Bottom 6

13	▲		Gold Coast SUNS
14	▼		Melbourne
15	—		Adelaide Crows
16	—		West Coast Eagles
17	—		North Melbourne
18	—		Richmond

Strength of Schedule assessment



How many possible combinations for 2028 Option B?

Season	2028 Option A	2028 Option B	2025	1986
Team count	19	19	18	12
Game count per team	22	24	23	22
Games per season	209	228	207	132
Maximum unique pairings	171	171	153	66
Repeat pairings required	38	57	54	66
Unique opponents per team	14	12	11	11
Repeat opponents/double-ups	4	6	6	11
Possible combinations of repeat match-ups	?	?	?	1



Optimising multiple objectives

- Equity between teams
- Mums on seats
- Stakeholders
- Blockbusters



Key literature

- Clarke, S.R., 1998. Evaluating the fairness and efficiency of the Australian Football League home and away schedule
- Jakee et al., 2010. Asymmetries in scheduling slots and game-day revenues: An example from the Australian Football League
- Kyngäs et al., 2017. Scheduling the Australian Football League
- Panton et al., 2002. Optimisation tools for round-robin and partial round-robin sporting fixtures
- Josman et al., 2016. Fixture difficulty and team performance models for use in the Australian Football League



Methodology

- Phase 1: Fixture generation
- Phase 2: Fixture evaluation



Conclusion

- Scheduling requires multi-objective optimisation
- No one size will fit all
- I will pursue fairness for all by minimising the disparity between the most advantaged and most disadvantaged teams
- Bring on the Tassie Devils





Thank you

“Essential viewing for every quantitative multi-objective optimisation fan.” – Time

“Compelling presentation. Hardwicke pulls no punches to expose the AFL’s brown paper bag economy and seedy back-room deals.” – Rolling Stone

“Rarely does a presentation evoke such a deep-seated affection for our national game. Four stars from me.” – Margaret Pomeranz

“Another whingeing South Australian. I’m done with them.” – Caroline Wilson