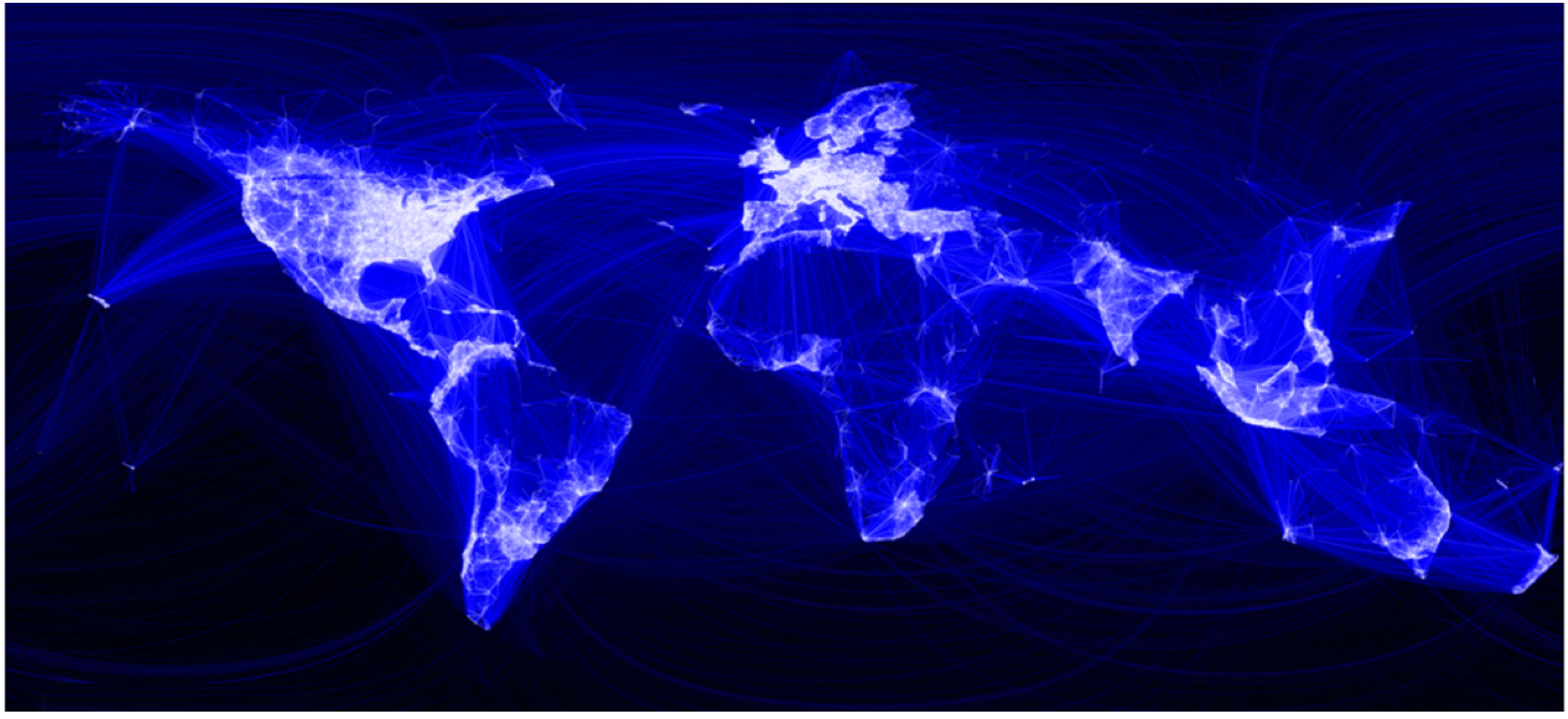
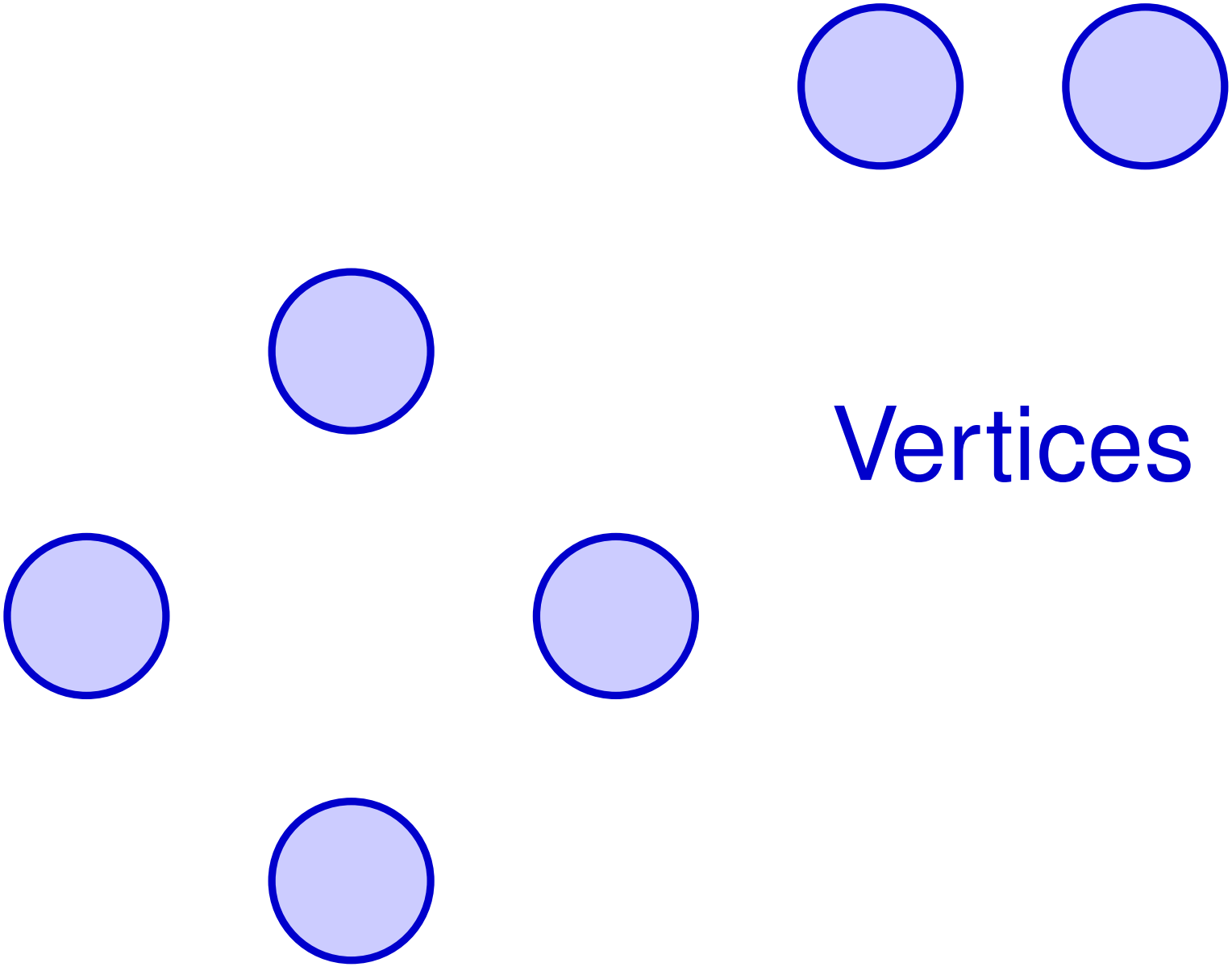
Sports Scheduling with Graph Theory

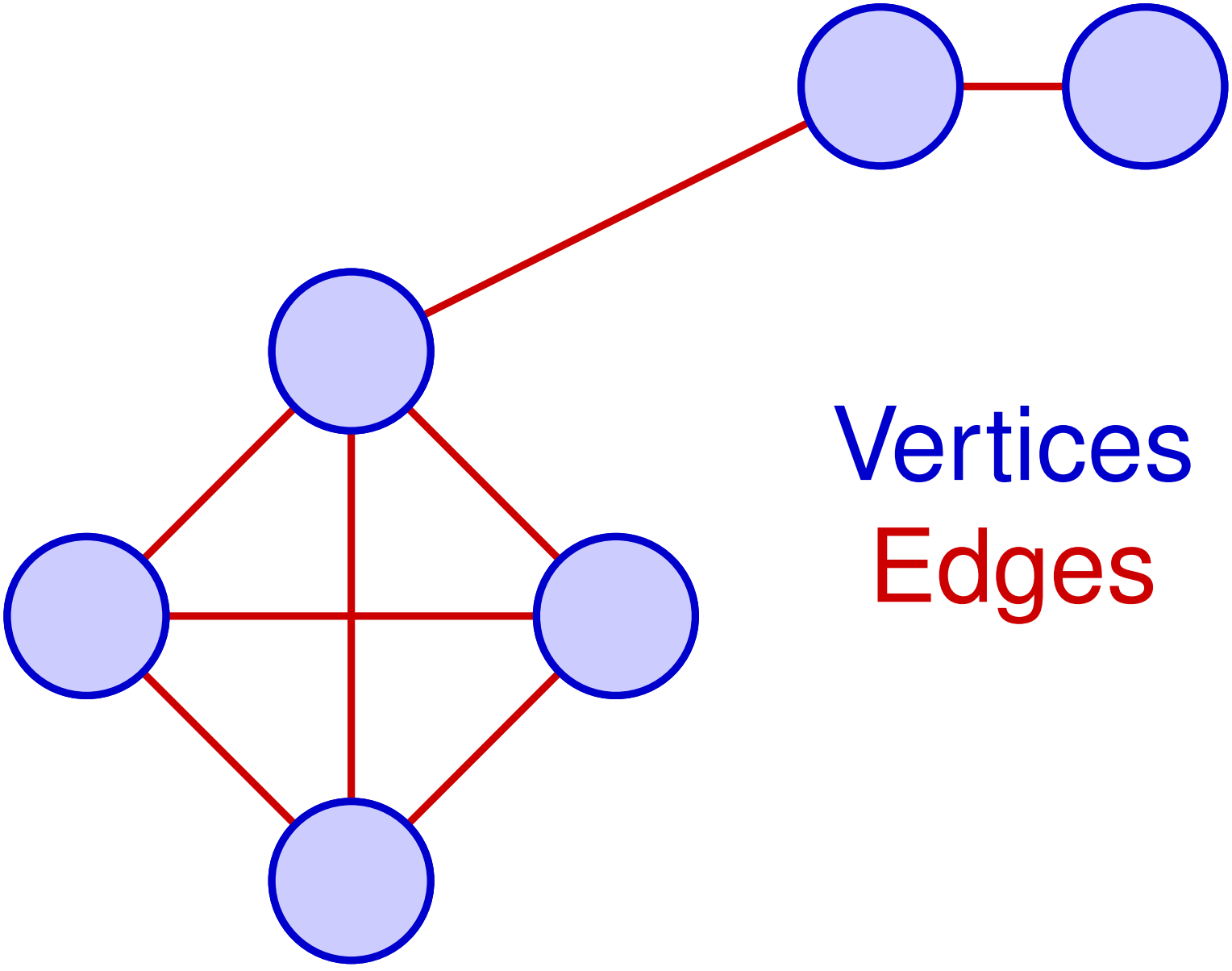
Geraint Palmer



Graphs



Graphs



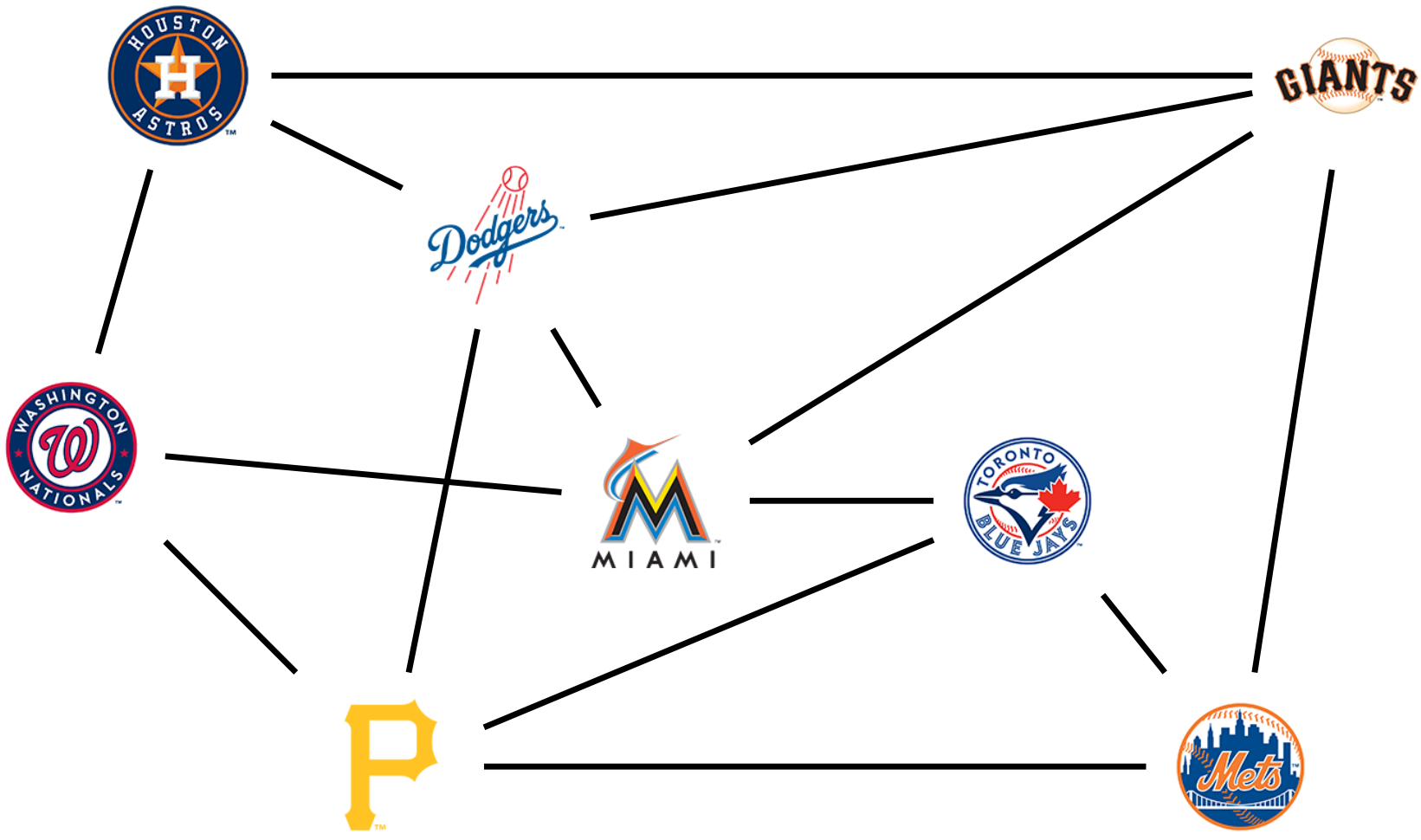
Vertices

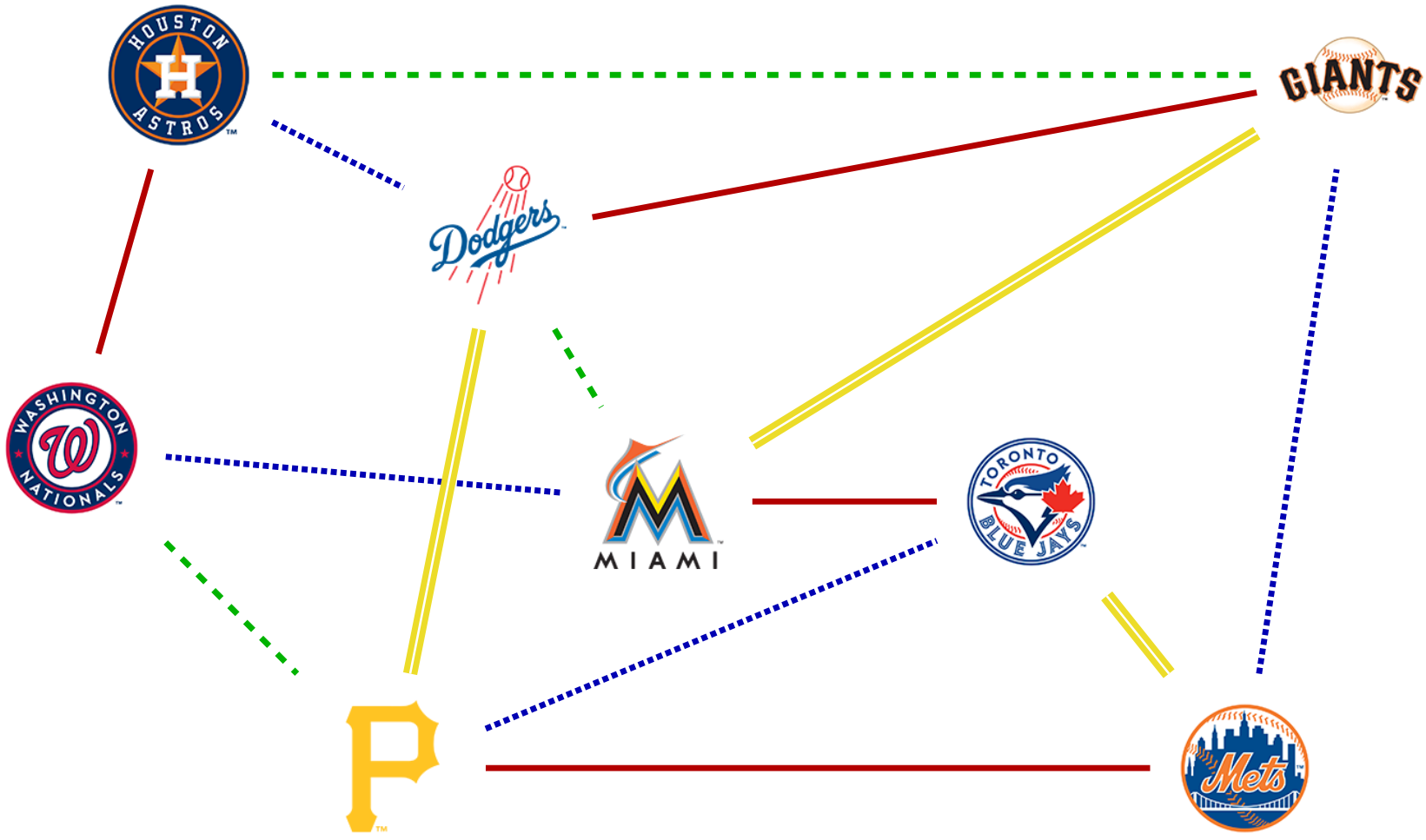
Edges

Edge Colouring - Scheduling Baseball

Dodgers	Dodgers	Dodgers	Dodgers	Giants	Giants	Mets
vs	vs	vs	vs	vs	vs	vs
Giants	Miami	Pirates	Houston Astros	Mets	Houston Astros	Toronto Blue Jays

Mets	Miami	Miami	Toronto Blue Jays	Pirates	Washington Nationals	Giants
vs	vs	vs	vs	vs	vs	vs
Pirates	Toronto Blue Jays	Washington Nationals	Pirates	Washington Nationals	Houston Astros	Miami


HOUSTON
ASTROS
GIANTS
Dodgers
WASHINGTON
NATIONALS
MIAMI
TORONTO
BLUE JAYS
Mets

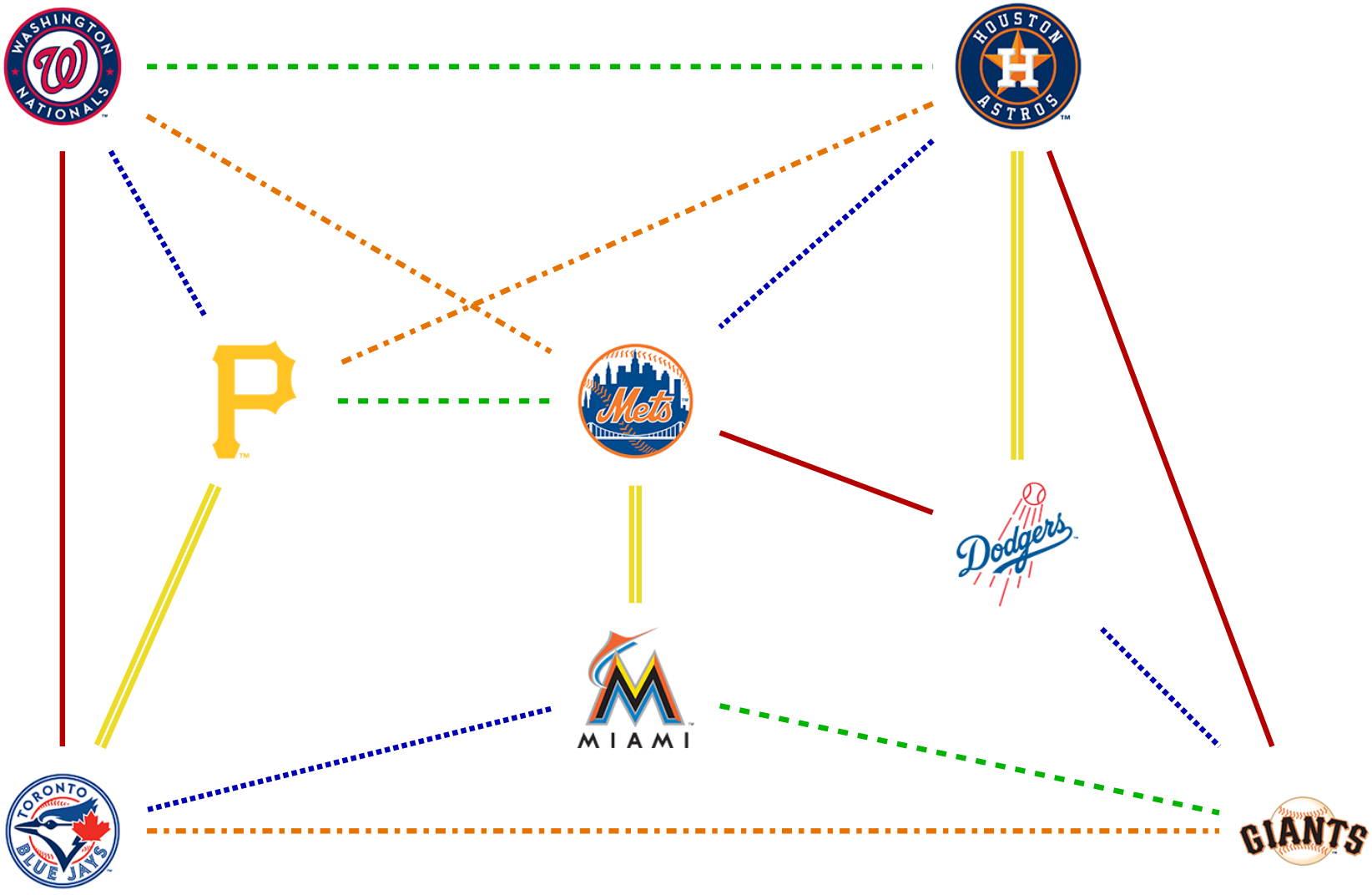

HOUSTON
ASTROS
GIANTS
Dodgers
WASHINGTON
NATIONALS
MIAMI
TORONTO
BLUE JAYS
Mets

Task!

Using graph colouring, find a schedule for the following games:

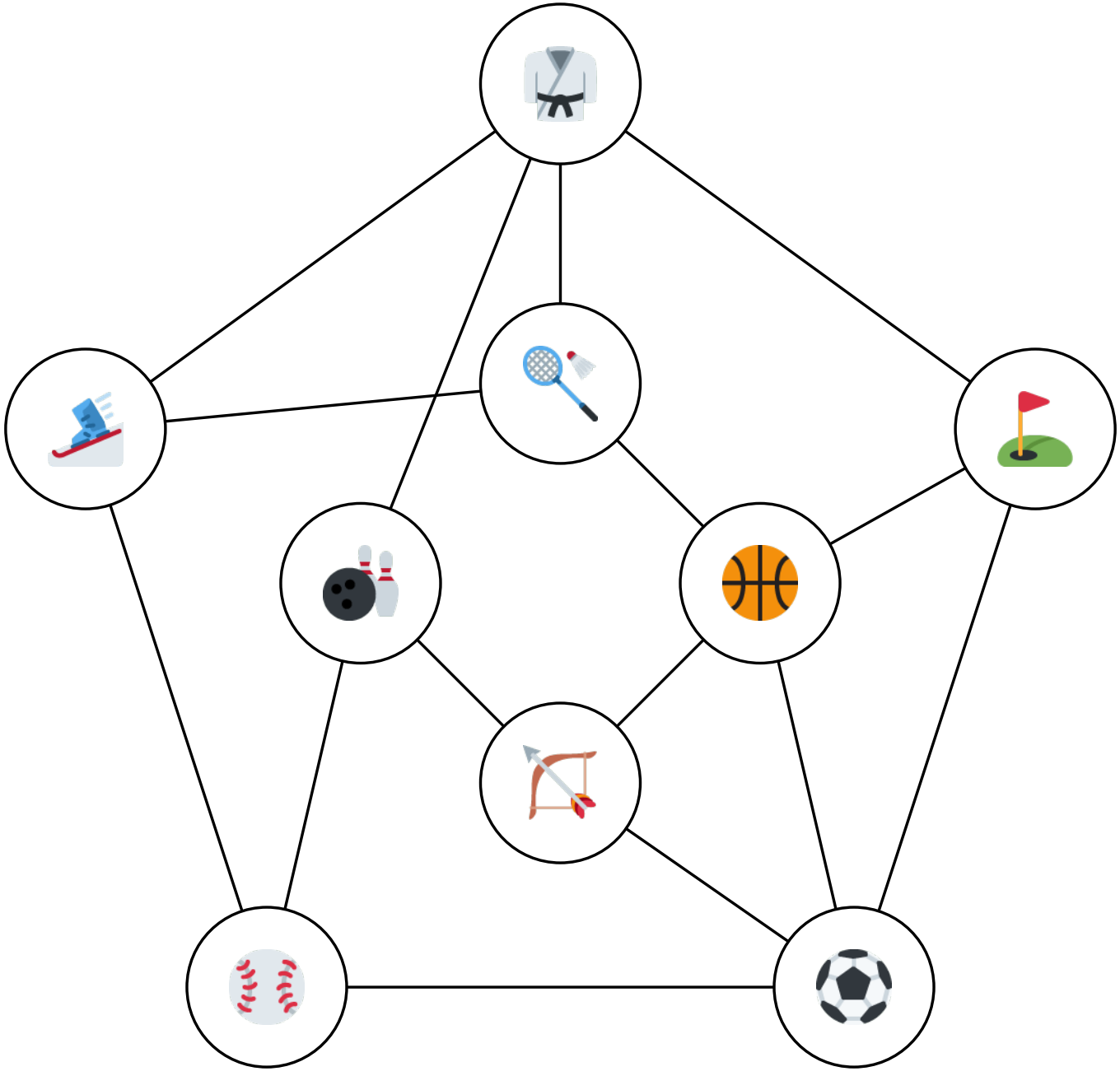
vs	vs	vs	vs	vs	vs	vs	vs

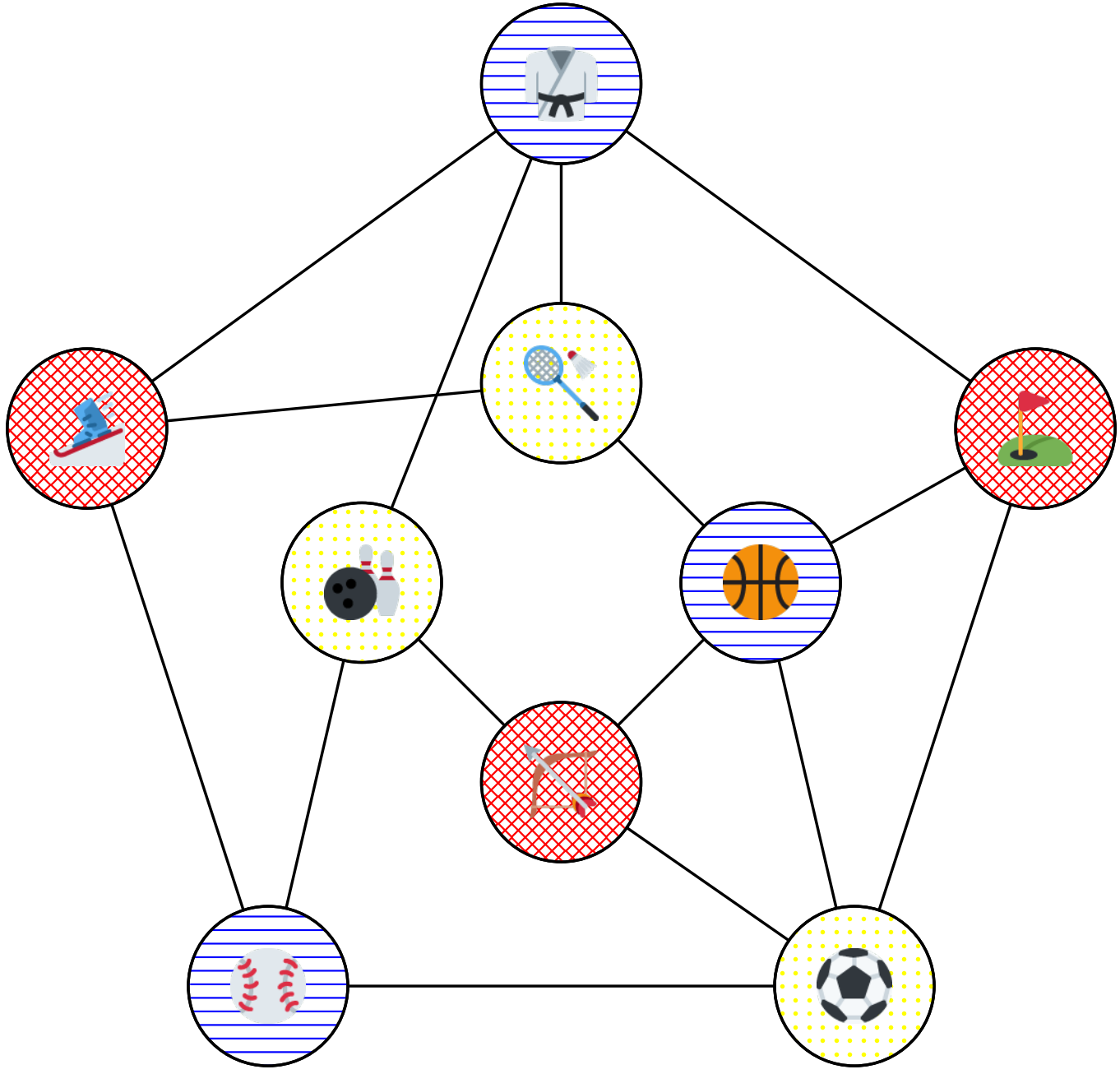
vs	vs	vs	vs	vs	vs	vs	vs


WASHINGTON NATIONALS
HOUSTON ASTROS
Mets
Dodgers
MIAMI
TORONTO BLUE JAYS
GIANTS

Vertex Colouring - Event Scheduling

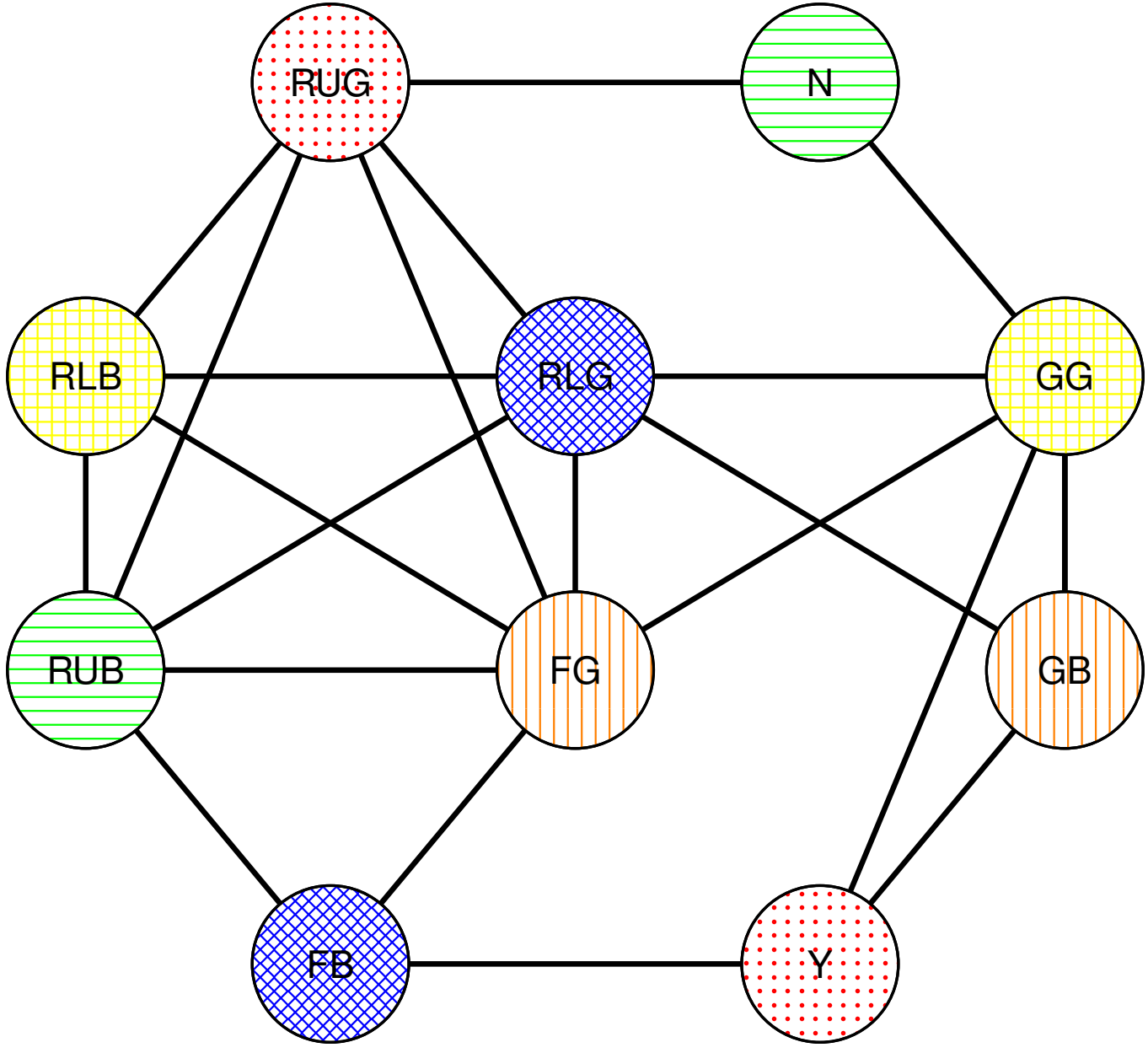
						X	X	X	X
			X		X			X	
		X		X	X		X		
			X			X		X	X
		X	X			X			
	X			X	X				
	X		X					X	
	X	X		X			X		X
	X			X				X	





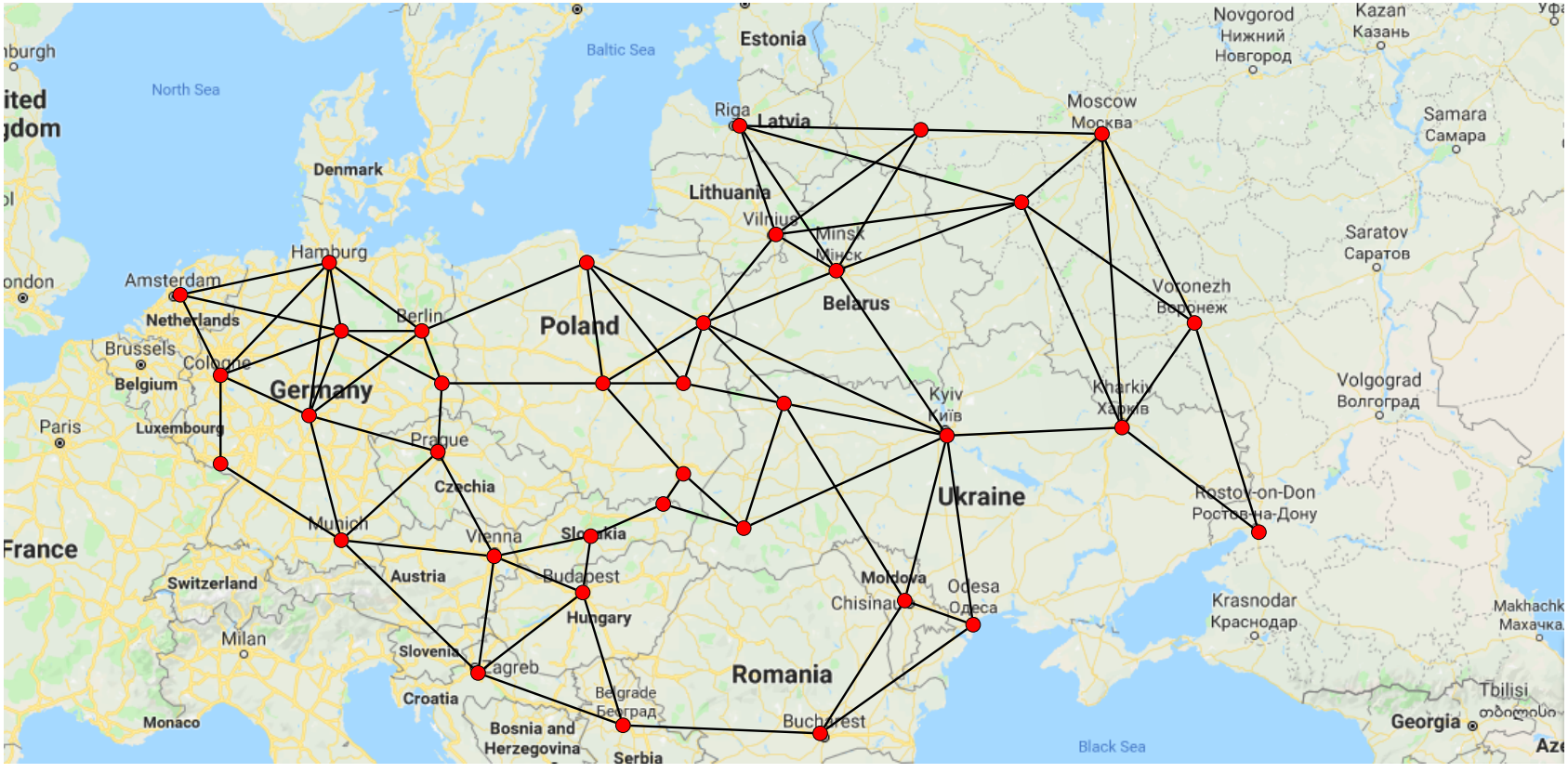
Task!

Using graph colouring, find a schedule for the school sports teams.

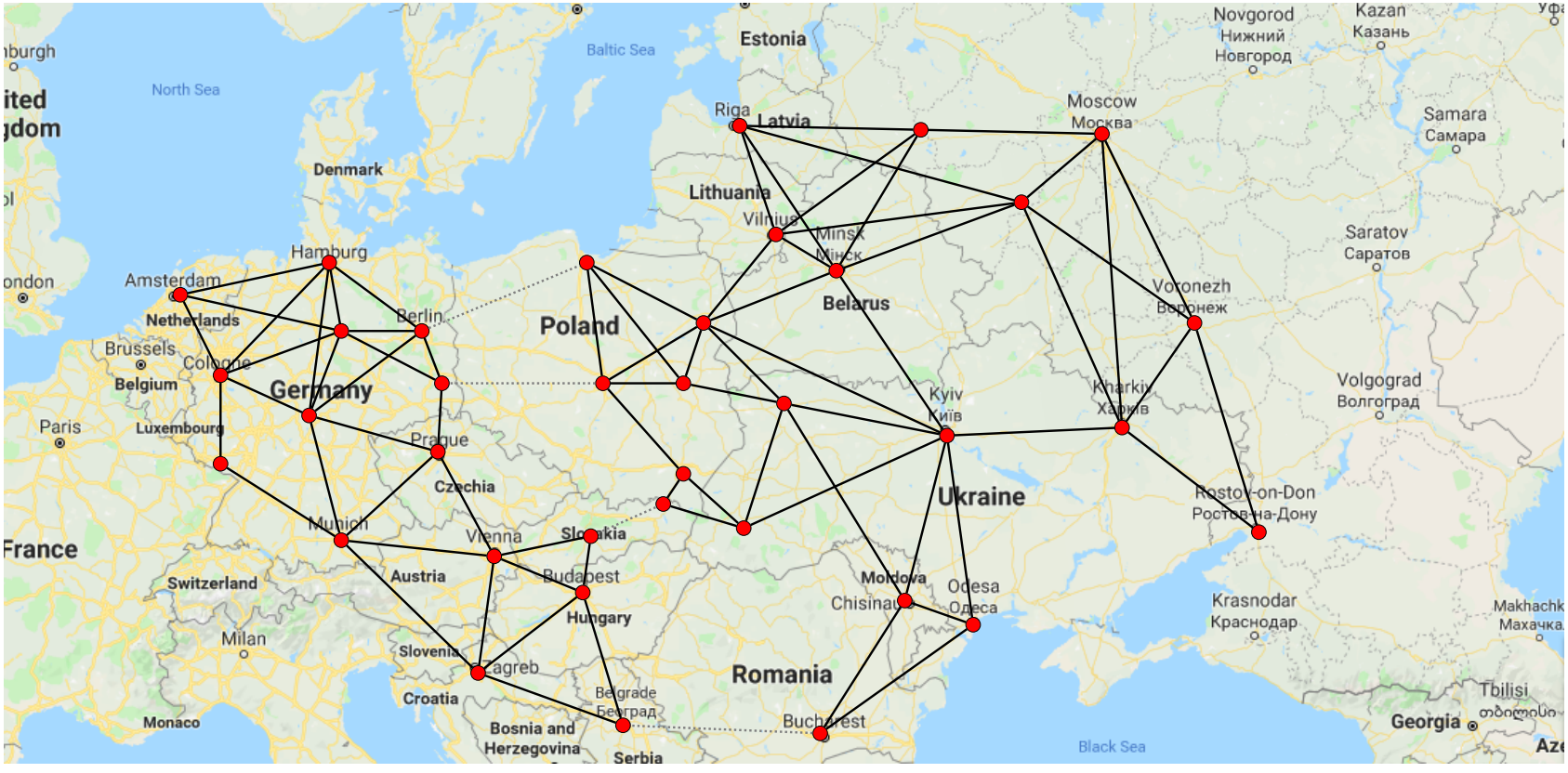

RUG
N
RLB
RLG
GG
RUB
FG
GB
FB
Y

Other uses of graph theory...

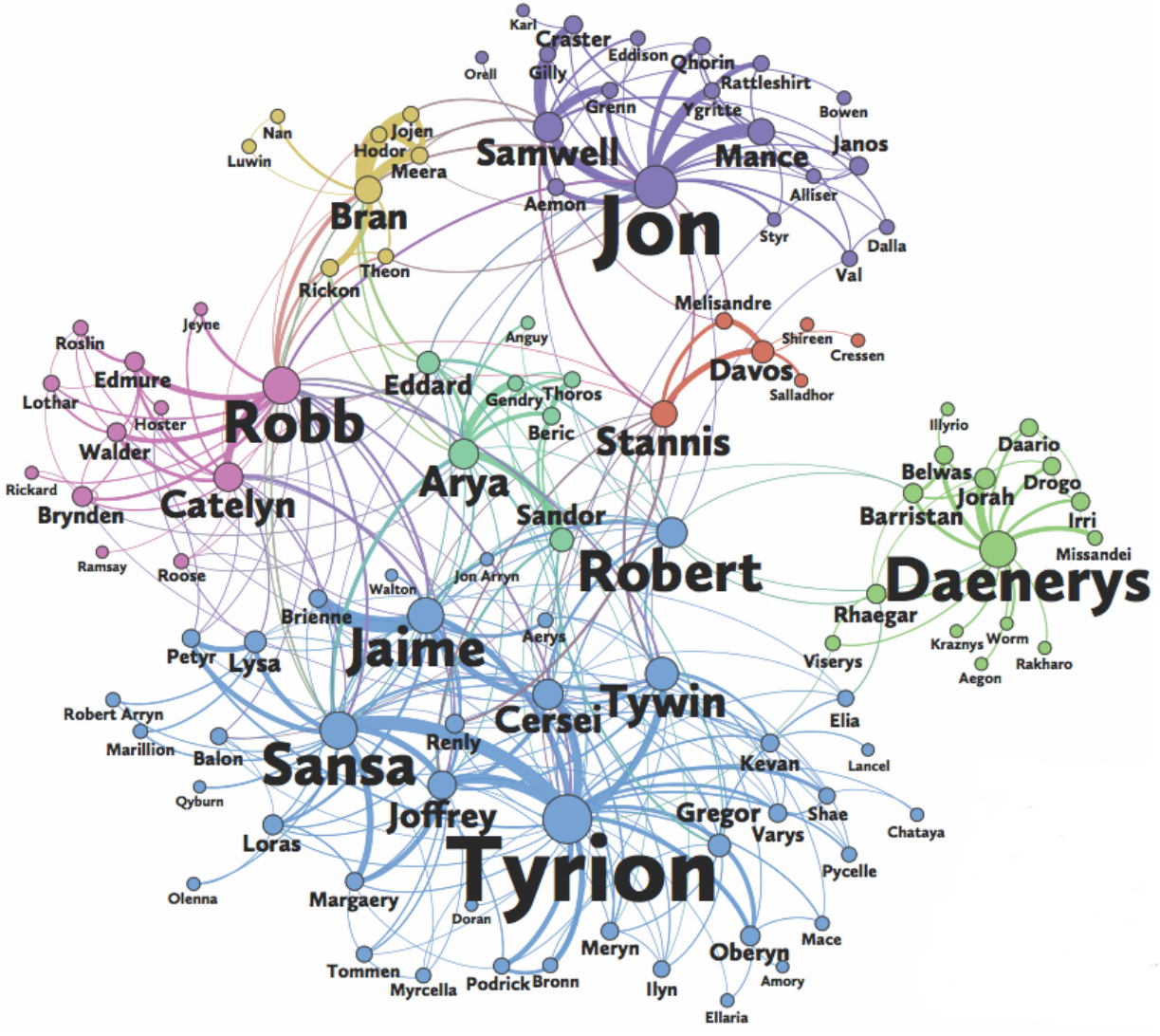
Minimum Cut Problems - Efficient Warfare

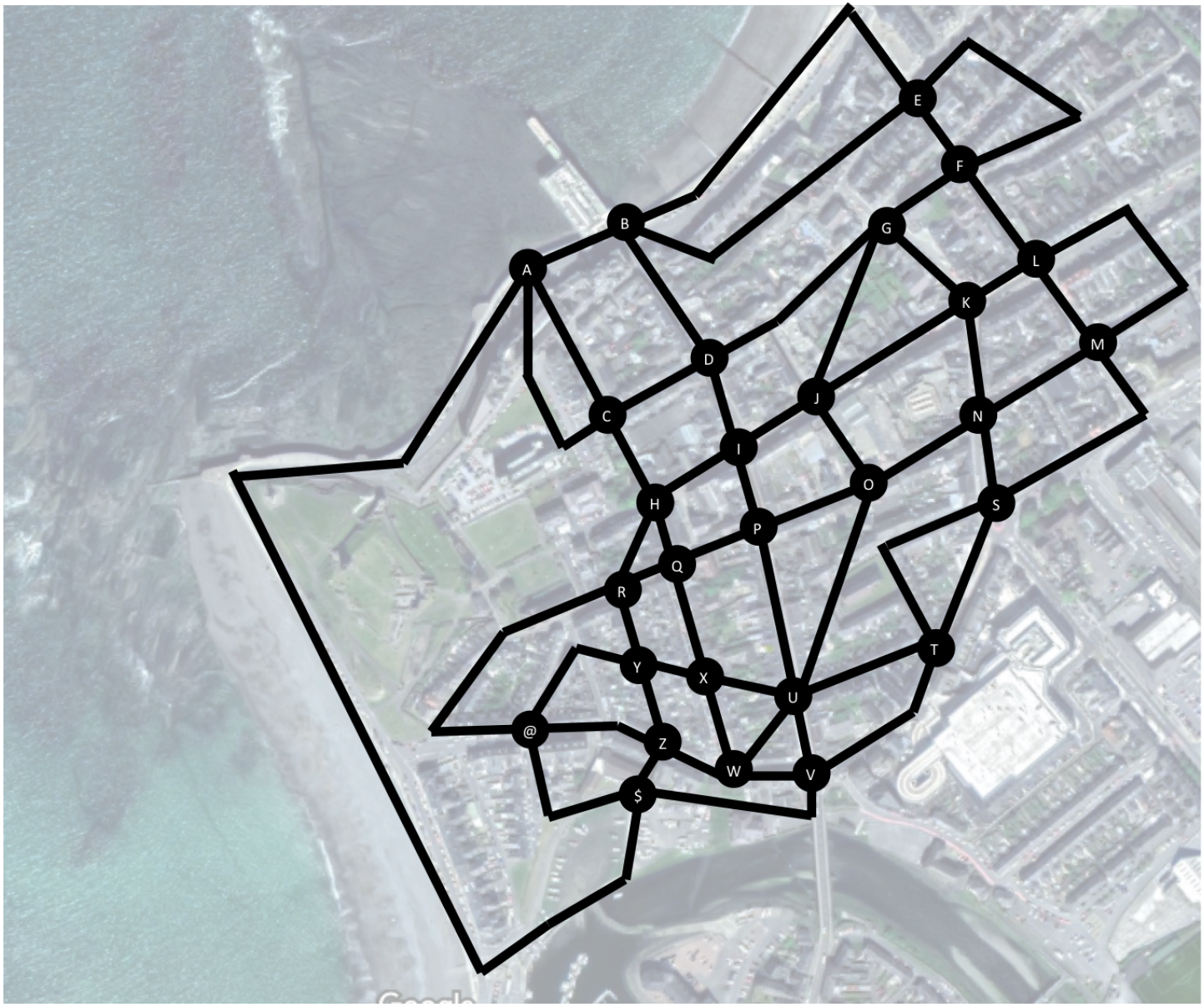


Minimum Cut Problems - Efficient Warfare



Social Networks



Beveridge A, and Shan J. “Network of thrones.” Math Horizons 23.4 (2016): 18-22.

Road Networks