

Beyond a Dyadic Approach: Triangles, Major Powers, and Rivalry Duration

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Rivalries: dyadic interactions

- Many scholars focus on dyadic interactions in rivalries (temporal interdependence).
- Are they four separate dyads?



When We Put Them Together..



• We can make one closed triangle and one open triangle.



If We Focus on a Broad Picture..

All rivalries in 1919



If We Focus on a Broad Picture.. Rivalries (black) and positive relationships (gray) in 1969

in Europe.

Heider's Balance Theory (1946)

- 1. The friend of my friend is my friend.
- 2. The friend of my enemy is my enemy.
- 3. The enemy of my friend is my enemy.
- 4. The enemy of my enemy is my friend.
- When there are three entities, a balanced state can be achieved if all relations are positive or if two of three are negative and one is positive.
- Because of the tendency toward balance, if the three entities are in an imbalanced state, some of the relations will be changed to attain a balanced state.

Types of Triangles



Hypotheses

- Hypothesis 1: If a rivalry is embedded in one or more than one balanced triangle (Type II), the rivalry is likely to maintain.
- Hypothesis 2: If a rivalry is embedded in one or more than one imbalanced triangle (Type I and III), the rivalry is likely to terminate.

Types of Triangles (with Major Powers)

I-1: RPP with	I-2, 3: RPP with One Major		I-4: RPP with Two
Minors			Majors
Minor-minor rivalry	Minor-minor rivalry	Major-minor rivalry	Major-minor rivalry

Hypotheses

- Hypothesis 3: If a minor-minor rivalry is embedded in one or more than one RPP triangle with a major-power third party, the rivalry is likely to terminate.
- Hypothesis 4: If a major-minor rivalry is embedded in one or more than one RPP triangle with a minor-power third party, the rivalry is likely to maintain.

Types of Triangles (with Major Powers)



Hypotheses

- Hypothesis 5: If a minor-minor rivalry is embedded in one or more than one RRR triangle with a major-power third party, the rivalry is likely to terminate.
- Hypothesis 6: If a major-minor rivalry is embedded in one or more than one RRR triangle with a minor-power third party, the rivalry is likely to maintain.

Research Design

DV: Duration of rivalries in the Peace data (Goertz et al. 2016)

- 371 rivalries from 1900 to 2001
- 296 out of 371 rivalries terminated
- Mean is 21.16 years
- Ranges from 1 to 102

Research Design

IV: triangles (basic/including major powers)

- Generate multiplex networks of rivalries and positive relationship from the Peace data (version 2.01)
- Count all triangles in the multiplex networks
 - Three nodes with three edges, $\{(i, j), (j, k), (k, i)\}$, where $i \neq j \neq k$, such as $\sum_{\langle ijk \rangle} N_{ij}^t N_{ik}^t N_{jk}^t$
- Classify triangles to each type

Research Design

Controls from Bennett (1998)

- Democratic dyad
- Polity change
- Democracy growth
- Security level
- Political shocks

Other controls

- Power ratio
- Domestic Conflict (CNTS)
- Issue Salience

Models

 Cox proportional hazards model with timevarying covariates

Findings

	Model 1:	Model 2:	Model 3:
	All	Major-Minor	Minor-Minor
Type I (R-P-P)	1.644**	4.633	1.175
(imbalanced)	(0.758)	(4.863)	(1.042)
Type II (R-R-P)	0.199	-0.076	0.000
(balanced)	(0.358)	(0.637)	(0.784)
Type III (R-R-R)	-0.264	-1.351***	0.293
(imbalanced)	(0.256)	(0.463)	(0.330)
One Major Power	0.124		
	(0.247)		
Major Power Rivalry	-0.187		
-	(0.414)		

In Model 1, the hazard ratio of RPP triangle is 5.177. In Model 2, the hazard ratio of RRR triangle is 0.259.

Conclusions

Empirical results partly support the hypotheses.