New Graph

```
[3, 4, 4, 3, 2, 5], [6, 1, 2, 6, 1, 3]
```

π = [3, 4, 6, 5, 2, 4]

POSSIBLE RANKS

1 x 24
2 x 12
3 x 8
4 x 6

BASE DETERMINANT 55/256, .2148437500

NullSpace of Δ

{3, 5, 6}, {1, 2, 4}

Nullspace of A

[{5, 6},{3}]

1 . Coloring, {}

R: [3, 4, 4, 3, 2, 5]
B: [6, 1, 2, 6, 1, 3]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	5 *vs* 5	5 *vs* 5	4 *vs* 4	4 *vs* 4

Omega Rank for R : cycles: {{3, 4}} order: 4

See Matrix

$[0, y_1, y_2, y_3, y_4, 0]$

Omega Rank for B : cycles: {{1, 2, 3, 6}} order: 4

See Matrix

$[y_1, y_2, y_3, 0, 0, y_4]$

2 . Coloring, {2}

R: [3, 1, 4, 3, 2, 5]
B: [6, 4, 2, 6, 1, 3]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	5 *vs* 5	5 *vs* 5	5 *vs* 5	5 *vs* 5

Omega Rank for R : cycles: {{3, 4}} order: 4

See Matrix

$$[y_1, y_2, y_3, y_4, y_5, 0]$$

Omega Rank for B : cycles: {{2, 3, 4, 6}} order: 4

See Matrix

$$[y_3, y_2, y_1, y_4, 0, y_5]$$

3 . Coloring, {3}

R: [3, 4, 2, 3, 2, 5]
B: [6, 1, 4, 6, 1, 3]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	5 *vs* 5	5 *vs* 5	4 *vs* 4	4 *vs* 4

Omega Rank for R : cycles: {{2, 3, 4}} order: 3

See Matrix

$$[0, y_1, y_2, y_3, y_4, 0]$$

Omega Rank for B : cycles: {{3, 4, 6}} order: 3

See Matrix

$$[y_1, 0, y_2, y_4, 0, y_3]$$

4 . Coloring, {4}

R: [3, 4, 4, 6, 2, 5]
B: [6, 1, 2, 3, 1, 3]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	6 *vs* 6	6 *vs* 6	5 *vs* 5	4 *vs* 4

Omega Rank for R : cycles: {{2, 4, 5, 6}} order: 4

See Matrix

$$[0, y_5, y_4, y_3, y_1, y_2]$$

Omega Rank for B : cycles: {{1, 2, 3, 6}} order: 4

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4]$$

5 . Coloring, {5}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4$

R: [3, 4, 4, 3, 1, 5]
B: [6, 1, 2, 6, 2, 3]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
3 *vs* 4	3 *vs* 5	3 *vs* 5	3 *vs* 4	2 *vs* 4

Omega Rank for R : cycles: {{3, 4}} order: 4

See Matrix

$$[y_1, 0, y_1 + y_3 - y_2, y_3, y_2, 0]$$

$p = s^3 - s^4$

Omega Rank for B : cycles: {{1, 2, 3, 6}} order: 4

See Matrix

$[y_1, y_2, y_1, 0, 0, y_2]$

$p' = -s + s^3 \quad p = -s + s^3$

$$M = \begin{bmatrix} 0 & 0 & 3 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 4 \\ 3 & 0 & 0 & 3 & 0 & 0 \\ 0 & 0 & 3 & 0 & 2 & 0 \\ 0 & 0 & 0 & 2 & 0 & 0 \\ 0 & 4 & 0 & 0 & 0 & 0 \end{bmatrix} \quad N = \begin{bmatrix} 0 & 2 & 3 & 0 & 3 & 1 \\ 2 & 0 & 1 & 2 & 1 & 3 \\ 3 & 1 & 0 & 3 & 0 & 2 \\ 0 & 2 & 3 & 0 & 3 & 1 \\ 3 & 1 & 0 & 3 & 0 & 2 \\ 1 & 3 & 2 & 1 & 2 & 0 \end{bmatrix}$$

$\tau = 18$, $r' = 1/2$

R: [3, 4, 4, 3, 1, 5]
B: [6, 1, 2, 6, 2, 3]

Ranges

Action of R on ranges, [[3], [4], [3], [1]]
Action of B on ranges, [[2], [1], [2], [2]]

Cycles: R , {{3, 4}}, B , {{1, 2, 3, 6}}

$\beta(\{1, 3\}) = 1/4$
$\beta(\{2, 6\}) = 1/3$
$\beta(\{3, 4\}) = 1/4$
$\beta(\{4, 5\}) = 1/6$

Partitions

Action of R on partitions, [[1], [1]]
Action of B on partitions, [[2], [1]]

$\alpha([\{1, 4, 6\}, \{2, 3, 5\}]) = 2/3$
$\alpha([\{1, 2, 4\}, \{3, 5, 6\}]) = 1/3$

b1 = {1, 2, 4} , b2 = {1, 4, 6} , b3 = {2, 3, 5} , b4 = {3, 5, 6}

Action of R and B on the blocks of the partitions: = [3, 3, 2, 2] [3, 1, 4, 2]
with invariant measure [1, 2, 2, 1]

N by blocks, check: true . See partition graph.

See level-2 partition graph.

Sandwich	
Coloring	{5}
Rank	2

R,B	[3, 4, 4, 3, 1, 5], [6, 1, 2, 6, 2, 3]
π_2	[0, 3, 0, 0, 0, 0, 0, 0, 4, 3, 0, 0, 2, 0, 0]
u_2	[2, 3, 0, 3, 1, 1, 2, 1, 3, 3, 0, 2, 3, 1, 2] (dim 1)
wpp	[3, 3, 3, 3, 3, 3]

6 . Coloring, {6}

R: [3, 4, 4, 3, 2, 3]
B: [6, 1, 2, 6, 1, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	4 *vs* 5	5 *vs* 5	3 *vs* 3	4 *vs* 4

Omega Rank for R : cycles: {{3, 4}} order: 2

See Matrix

$[0, y_3, y_2, y_1, 0, 0]$

Omega Rank for B : cycles: {{1, 5, 6}} order: 3

See Matrix

$[y_1, y_2, 0, 0, y_3, y_4]$

7 . Coloring, {2, 3}

R: [3, 1, 2, 3, 2, 5]
B: [6, 4, 4, 6, 1, 3]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	5 *vs* 5	5 *vs* 5	4 *vs* 4	4 *vs* 4

Omega Rank for R : cycles: {{1, 2, 3}} order: 3

See Matrix

$[y_1, y_2, y_4, 0, y_3, 0]$

Omega Rank for B : cycles: {{3, 4, 6}} order: 3

See Matrix

$[y_1, 0, y_2, y_3, 0, y_4]$

8 . Coloring, {2, 4}

R: [3, 1, 4, 6, 2, 5]
B: [6, 4, 2, 3, 1, 3]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	6 *vs* 6	6 *vs* 6	6 *vs* 6	5 *vs* 5

Omega Rank for R : cycles: {{1, 2, 3, 4, 5, 6}} order: 6

See Matrix

$[y_1, y_2, y_3, y_4, y_5, y_6]$

Omega Rank for B : cycles: {{2, 3, 4}} order: 3

See Matrix

$[y_3, y_4, y_2, y_1, 0, y_5]$

9 . Coloring, {2, 5}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4$

R: [3, 1, 4, 3, 1, 5]
B: [6, 4, 2, 6, 2, 3]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**

3 *vs* 4	3 *vs* 5	3 *vs* 5	3 *vs* 4	2 *vs* 4

Omega Rank for R : cycles: {{3, 4}} order: 4

See Matrix

$$[y_1 - y_2 + y_3, 0, y_1, y_2, y_3, 0]$$

$p = - s^3 + s^4$

Omega Rank for B : cycles: {{2, 3, 4, 6}} order: 4

See Matrix

$$[0, y_2, y_1, y_1, 0, y_2]$$

$p = - s + s^3$ $p' = - s + s^3$

$$M = \begin{bmatrix} 0 & 0 & 1 & 0 & 2 & 0 \\ 0 & 0 & 0 & 0 & 0 & 4 \\ 1 & 0 & 0 & 5 & 0 & 0 \\ 0 & 0 & 5 & 0 & 0 & 0 \\ 2 & 0 & 0 & 0 & 0 & 0 \\ 0 & 4 & 0 & 0 & 0 & 0 \end{bmatrix} \quad N = \begin{bmatrix} 0 & 2 & 3 & 0 & 3 & 1 \\ 2 & 0 & 1 & 2 & 1 & 3 \\ 3 & 1 & 0 & 3 & 0 & 2 \\ 0 & 2 & 3 & 0 & 3 & 1 \\ 3 & 1 & 0 & 3 & 0 & 2 \\ 1 & 3 & 2 & 1 & 2 & 0 \end{bmatrix}$$

$\tau = 18$, $r' = 1/2$

R: [3, 1, 4, 3, 1, 5]
B: [6, 4, 2, 6, 2, 3]

Ranges

Action of R on ranges, [[4], [1], [2], [4]]
Action of B on ranges, [[3], [3], [4], [3]]

Cycles: R , {{3, 4}}, B , {{2, 3, 4, 6}}

$\beta(\{1, 3\}) = 1/12$
$\beta(\{1, 5\}) = 1/6$
$\beta(\{2, 6\}) = 1/3$
$\beta(\{3, 4\}) = 5/12$

Partitions

Action of R on partitions, [[1], [1]]
Action of B on partitions, [[2], [1]]

$\alpha([\{1, 4, 6\}, \{2, 3, 5\}]) = 2/3$
$\alpha([\{1, 2, 4\}, \{3, 5, 6\}]) = 1/3$

b1 = {1, 2, 4} , b2 = {1, 4, 6} , b3 = {2, 3, 5} , b4 = {3, 5, 6}

Action of R and B on the blocks of the partitions: = [3, 3, 2, 2] [3, 1, 4, 2]
with invariant measure [1, 2, 2, 1]

N by blocks, check: true . See partition graph.

See level-2 partition graph.

Sandwich	
Coloring	{2, 5}
Rank	2
R,B	[3, 1, 4, 3, 1, 5], [6, 4, 2, 6, 2, 3]
π_2	[0, 1, 0, 2, 0, 0, 0, 0, 4, 5, 0, 0, 0, 0, 0]
u_2	[2, 3, 0, 3, 1, 1, 2, 1, 3, 3, 0, 2, 3, 1, 2] (dim 1)
wpp	[3, 3, 3, 3, 3, 3]

10 . Coloring, {2, 6}

R: [3, 1, 4, 3, 2, 3]
B: [6, 4, 2, 6, 1, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	4 *vs* 5	5 *vs* 5	4 *vs* 4	5 *vs* 5

Omega Rank for R : cycles: {{3, 4}} order: 4

See Matrix

$$[y_3, y_1, y_2, y_4, 0, 0]$$

Omega Rank for B : cycles: {{1, 5, 6}} order: 3

See Matrix

$$[y_3, y_1, 0, y_2, y_4, y_5]$$

11 . Coloring, {3, 4}

R: [3, 4, 2, 6, 2, 5]
B: [6, 1, 4, 3, 1, 3]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	6 *vs* 6	6 *vs* 6	5 *vs* 5	4 *vs* 4

Omega Rank for R : cycles: {{2, 4, 5, 6}} order: 4

See Matrix

$[0, y_1, y_2, y_4, y_3, y_5]$

Omega Rank for B : cycles: {{3, 4}} order: 4

See Matrix

$[y_1, 0, y_2, y_3, 0, y_4]$

12 . Coloring, {3, 5}

R: [3, 4, 2, 3, 1, 5]
B: [6, 1, 4, 6, 2, 3]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	5 *vs* 5	4 *vs* 5	5 *vs* 5	5 *vs* 5

Omega Rank for R : cycles: {{2, 3, 4}} order: 3

See Matrix

$[y_4, y_2, y_3, y_1, y_5, 0]$

Omega Rank for B : cycles: {{3, 4, 6}} order: 3

See Matrix

$[y_1, y_3, y_4, y_5, 0, y_2]$

13 . Coloring, {3, 6}

R: [3, 4, 2, 3, 2, 3]
B: [6, 1, 4, 6, 1, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	5 *vs* 5	5 *vs* 5	3 *vs* 3	4 *vs* 4

Omega Rank for R : cycles: {{2, 3, 4}} order: 3

See Matrix

$$[0, y_2, y_3, y_1, 0, 0]$$

Omega Rank for B : cycles: {{1, 5, 6}} order: 3

See Matrix

$$[y_1, 0, 0, y_4, y_3, y_2]$$

14 . Coloring, {4, 5}

R: [3, 4, 4, 6, 1, 5]
B: [6, 1, 2, 3, 2, 3]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	6 *vs* 6	6 *vs* 6	5 *vs* 5	4 *vs* 4

Omega Rank for R : cycles: {{1, 3, 4, 5, 6}} order: 5

See Matrix

$$[y_4, 0, y_5, y_1, y_2, y_3]$$

Omega Rank for B : cycles: {{1, 2, 3, 6}} order: 4

See Matrix

$$[y_2, y_1, y_4, 0, 0, y_3]$$

15 . Coloring, {4, 6}

R: [3, 4, 4, 6, 2, 3]
B: [6, 1, 2, 3, 1, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	5 *vs* 6	6 *vs* 6	4 *vs* 4	5 *vs* 5

Omega Rank for R : cycles: {{3, 4, 6}} order: 3

See Matrix

$$[0, y_2, y_3, y_4, 0, y_1]$$

Omega Rank for B : cycles: {{1, 5, 6}} order: 3

See Matrix

$$[y_1, y_2, y_5, 0, y_4, y_3]$$

16 . Coloring, {5, 6}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4$

R: [3, 4, 4, 3, 1, 3]
B: [6, 1, 2, 6, 2, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
3 *vs* 4	3 *vs* 5	3 *vs* 5	2 *vs* 3	2 *vs* 4

Omega Rank for R : cycles: {{3, 4}} order: 2

See Matrix

$$[y_2, 0, y_1, -y_2 + y_1, 0, 0]$$

$p = - s^2 + s^3$

Omega Rank for B : cycles: {{1, 2, 5, 6}} order: 4

See Matrix

$[y_2, y_1, 0, 0, y_2, y_1]$

$p' = s - s^3 \quad p = s - s^3$

	M							N					
	0	0	1	0	2	0		0	2	3	0	3	1
	0	0	0	0	0	4		2	0	1	2	1	3
	1	0	0	5	0	0		3	1	0	3	0	2
	0	0	5	0	0	0		0	2	3	0	3	1
	2	0	0	0	0	0		3	1	0	3	0	2
	0	4	0	0	0	0		1	3	2	1	2	0

$\tau = 18$, $r' = 1/2$

R: [3, 4, 4, 3, 1, 3]
B: [6, 1, 2, 6, 2, 5]

Ranges

Action of R on ranges, [[4], [1], [4], [4]]
Action of B on ranges, [[3], [3], [2], [3]]

Cycles: R , {{3, 4}}, B , {{1, 2, 5, 6}}

β({1, 3}) = 1/12
β({1, 5}) = 1/6
β({2, 6}) = 1/3
β({3, 4}) = 5/12

Partitions

Action of R on partitions, [[1], [1]]
Action of B on partitions, [[2], [1]]

α([{1, 4, 6}, {2, 3, 5}]) = 2/3
α([{1, 2, 4}, {3, 5, 6}]) = 1/3

b1 = {1, 2, 4} , b2 = {1, 4, 6} , b3 = {2, 3, 5} , b4 = {3, 5, 6}

Action of R and B on the blocks of the partitions: = [3, 3, 2, 2] [3, 1, 4, 2]
with invariant measure [1, 2, 2, 1]

N by blocks, check: true . See partition graph.

See level-2 partition graph.

Sandwich	
Coloring	{5, 6}
Rank	2

R,B	[3, 4, 4, 3, 1, 3], [6, 1, 2, 6, 2, 5]
π_2	[0, 1, 0, 2, 0, 0, 0, 0, 4, 5, 0, 0, 0, 0, 0]
u_2	[2, 3, 0, 3, 1, 1, 2, 1, 3, 3, 0, 2, 3, 1, 2] (dim 1)
wpp	[3, 3, 3, 3, 3, 3]

17 . Coloring, {2, 3, 4}

R: [3, 1, 2, 6, 2, 5]
B: [6, 4, 4, 3, 1, 3]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	6 *vs* 6	6 *vs* 6	5 *vs* 5	4 *vs* 4

Omega Rank for R : cycles: {{1, 2, 3}} order: 3

See Matrix

$[y_1, y_3, y_2, 0, y_5, y_4]$

Omega Rank for B : cycles: {{3, 4}} order: 4

See Matrix

$[y_1, 0, y_3, y_2, 0, y_4]$

18 . Coloring, {2, 3, 5}

R: [3, 1, 2, 3, 1, 5]
B: [6, 4, 4, 6, 2, 3]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	5 *vs* 5	4 *vs* 5	4 *vs* 4	4 *vs* 4

Omega Rank for R : cycles: {{1, 2, 3}} order: 3

See Matrix

$[y_4, y_2, y_3, 0, y_1, 0]$

Omega Rank for B : cycles: {{3, 4, 6}} order: 3

See Matrix

$[0, y_2, y_1, y_3, 0, y_4]$

19 . Coloring, {2, 3, 6}

R: [3, 1, 2, 3, 2, 3]
B: [6, 4, 4, 6, 1, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	5 *vs* 5	5 *vs* 5	3 *vs* 3	4 *vs* 4

Omega Rank for R : cycles: {{1, 2, 3}} order: 3

See Matrix

$[y_1, y_2, y_3, 0, 0, 0]$

Omega Rank for B : cycles: {{1, 5, 6}} order: 3

See Matrix

$[y_3, 0, 0, y_2, y_1, y_4]$

20 . Coloring, {2, 4, 5}

R: [3, 1, 4, 6, 1, 5]
B: [6, 4, 2, 3, 2, 3]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	6 *vs* 6	6 *vs* 6	5 *vs* 5	4 *vs* 4

Omega Rank for R : cycles: {{1, 3, 4, 5, 6}} order: 5

See Matrix

$$[y_1, 0, y_3, y_4, y_5, y_2]$$

Omega Rank for B : cycles: {{2, 3, 4}} order: 3

See Matrix

$$[0, y_4, y_2, y_3, 0, y_1]$$

21 . Coloring, {2, 4, 6}

R: [3, 1, 4, 6, 2, 3]
B: [6, 4, 2, 3, 1, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	5 *vs* 6	6 *vs* 6	5 *vs* 5	3 *vs* 6

Omega Rank for R : cycles: {{3, 4, 6}} order: 3

See Matrix

$$[y_1, y_2, y_3, y_4, 0, y_5]$$

Omega Rank for B : cycles: {{1, 5, 6}, {2, 3, 4}} order: 3

See Matrix

$$[9 y_1 - 2 y_2 - 11 y_3, 2 y_1 + 2 y_2 - 2 y_3, 2 y_1, 11 y_1 - 2 y_2 - 13 y_3, 2 y_2, 2 y_3]$$

$p' = - s^2 + s^5$ $p' = - s + s^4$ $p' = - 1 + s^3$

22 . Coloring, {2, 5, 6}

$\Omega p(\Delta)=0$: $p = s^3 - 2s^4$

R: [3, 1, 4, 3, 1, 3]
B: [6, 4, 2, 6, 2, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
3 *vs* 4	3 *vs* 5	3 *vs* 5	2 *vs* 3	2 *vs* 4

Omega Rank for R : cycles: {{3, 4}} order: 2

See Matrix

$$[y_2, 0, y_2 + y_1, y_1, 0, 0]$$

$p = s^2 - s^3$

Omega Rank for B : cycles: {{2, 4, 5, 6}} order: 4

See Matrix

$$[0, y_2, 0, y_1, y_1, y_2]$$

$p' = s - s^3$ $p = s - s^3$

$$M = \begin{bmatrix} 0 & 0 & 3 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 4 \\ 3 & 0 & 0 & 3 & 0 & 0 \\ 0 & 0 & 3 & 0 & 2 & 0 \\ 0 & 0 & 0 & 2 & 0 & 0 \\ 0 & 4 & 0 & 0 & 0 & 0 \end{bmatrix} \quad N = \begin{bmatrix} 0 & 2 & 3 & 0 & 3 & 1 \\ 2 & 0 & 1 & 2 & 1 & 3 \\ 3 & 1 & 0 & 3 & 0 & 2 \\ 0 & 2 & 3 & 0 & 3 & 1 \\ 3 & 1 & 0 & 3 & 0 & 2 \\ 1 & 3 & 2 & 1 & 2 & 0 \end{bmatrix}$$

τ= 18 , r'= 1/2

R: [3, 1, 4, 3, 1, 3]
B: [6, 4, 2, 6, 2, 5]

Ranges

Action of R on ranges, [[3], [1], [3], [1]]
Action of B on ranges, [[2], [4], [2], [2]]

Cycles: R , {{3, 4}}, B , {{2, 4, 5, 6}}

β({1, 3}) = 1/4
β({2, 6}) = 1/3
β({3, 4}) = 1/4
β({4, 5}) = 1/6

Partitions

Action of R on partitions, [[1], [1]]
Action of B on partitions, [[2], [1]]

α([{1, 4, 6}, {2, 3, 5}]) = 2/3
α([{1, 2, 4}, {3, 5, 6}]) = 1/3

b1 = {1, 2, 4} , b2 = {1, 4, 6} , b3 = {2, 3, 5} , b4 = {3, 5, 6}

Action of R and B on the blocks of the partitions: = [3, 3, 2, 2] [3, 1, 4, 2]
with invariant measure [1, 2, 2, 1]

N by blocks, check: true . See partition graph.

See level-2 partition graph.

Sandwich	
Coloring	{2, 5, 6}
Rank	2
R,B	[3, 1, 4, 3, 1, 3], [6, 4, 2, 6, 2, 5]
π_2	[0, 3, 0, 0, 0, 0, 0, 0, 4, 3, 0, 0, 2, 0, 0]
u_2	[2, 3, 0, 3, 1, 1, 2, 1, 3, 3, 0, 2, 3, 1, 2] (dim 1)
wpp	[3, 3, 3, 3, 3, 3]

23 . Coloring, {3, 4, 5}

R: [3, 4, 2, 6, 1, 5]
B: [6, 1, 4, 3, 2, 3]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	6 *vs* 6	5 *vs* 6	6 *vs* 6	5 *vs* 5

Omega Rank for R : cycles: {{1, 2, 3, 4, 5, 6}} order: 6

See Matrix

$$[y_1, y_4, y_5, y_6, y_2, y_3]$$

Omega Rank for B : cycles: {{3, 4}} order: 4

See Matrix

$$[y_3, y_2, y_1, y_5, 0, y_4]$$

24 . Coloring, {3, 4, 6}

R: [3, 4, 2, 6, 2, 3]
B: [6, 1, 4, 3, 1, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	6 *vs* 6	6 *vs* 6	4 *vs* 4	4 *vs* 5

Omega Rank for R : cycles: {{2, 3, 4, 6}} order: 4

See Matrix

$$[0, y_1, y_4, y_2, 0, y_3]$$

Omega Rank for B : cycles: {{3, 4}, {1, 5, 6}} order: 6

See Matrix

$$[11 y_3, 0, 11 y_2, 11 y_1, -11 y_3 + 13 y_2 + 13 y_1 - 11 y_4, 11 y_4]$$

$$p = s + s^2 - s^4 - s^5$$

25 . Coloring, {3, 5, 6}

R: [3, 4, 2, 3, 1, 3]
B: [6, 1, 4, 6, 2, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	5 *vs* 5	5 *vs* 5	4 *vs* 4	5 *vs* 5

Omega Rank for R : cycles: {{2, 3, 4}} order: 3

See Matrix

$$[y_1, y_2, y_3, y_4, 0, 0]$$

Omega Rank for B : cycles: {{1, 2, 5, 6}} order: 4

See Matrix

$[y_2, y_1, 0, y_5, y_4, y_3]$

26 . Coloring, {4, 5, 6}

R: [3, 4, 4, 6, 1, 3]
B: [6, 1, 2, 3, 2, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	6 *vs* 6	6 *vs* 6	4 *vs* 4	5 *vs* 5

Omega Rank for R : cycles: {{3, 4, 6}} order: 3

See Matrix

$[y_3, 0, y_4, y_1, 0, y_2]$

Omega Rank for B : cycles: {{1, 2, 5, 6}} order: 4

See Matrix

$[y_4, y_1, y_2, 0, y_3, y_5]$

27 . Coloring, {2, 3, 4, 5}

R: [3, 1, 2, 6, 1, 5]
B: [6, 4, 4, 3, 2, 3]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	6 *vs* 6	5 *vs* 6	5 *vs* 5	3 *vs* 4

Omega Rank for R : cycles: {{1, 2, 3}} order: 3

See Matrix

$[y_2, y_1, y_4, 0, y_5, y_3]$

Omega Rank for B : cycles: {{3, 4}} order: 2

See Matrix

$$[0, 2 y_1, 2 y_2, 2 y_3, 0, 3 y_1]$$

$p = - s^2 + s^4$

28 . Coloring, {2, 3, 4, 6}

R: [3, 1, 2, 6, 2, 3]
B: [6, 4, 4, 3, 1, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	6 *vs* 6	6 *vs* 6	4 *vs* 4	4 *vs* 5

Omega Rank for R : cycles: {{1, 2, 3}} order: 3

See Matrix

$$[y_3, y_2, y_1, 0, 0, y_4]$$

Omega Rank for B : cycles: {{3, 4}, {1, 5, 6}} order: 6

See Matrix

$$[3 y_3, 0, 3 y_4, 5 y_3 - 3 y_4 + 5 y_1 + 5 y_2, 3 y_1, 3 y_2]$$

$p = - s - s^2 + s^4 + s^5$

29 . Coloring, {2, 3, 5, 6}

R: [3, 1, 2, 3, 1, 3]
B: [6, 4, 4, 6, 2, 5]

See graph

See pair graph

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
4 *vs* 4	5 *vs* 5	5 *vs* 5	3 *vs* 3	4 *vs* 4

Omega Rank for R : cycles: {{1, 2, 3}} order: 3

See Matrix

$[y_2, y_3, y_1, 0, 0, 0]$

Omega Rank for B : cycles: {{2, 4, 5, 6}} order: 4

See Matrix

$[0, y_1, 0, y_2, y_3, y_4]$

30 . Coloring, {2, 4, 5, 6}

R: [3, 1, 4, 6, 1, 3]
B: [6, 4, 2, 3, 2, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	6 *vs* 6	6 *vs* 6	4 *vs* 4	5 *vs* 5

Omega Rank for R : cycles: {{3, 4, 6}} order: 3

See Matrix

$[y_4, 0, y_3, y_2, 0, y_1]$

Omega Rank for B : cycles: {{2, 3, 4}} order: 3

See Matrix

$[0, y_3, y_4, y_5, y_2, y_1]$

31 . Coloring, {3, 4, 5, 6}

R: [3, 4, 2, 6, 1, 3]
B: [6, 1, 4, 3, 2, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	6 *vs* 6	6 *vs* 6	5 *vs* 5	4 *vs* 6

Omega Rank for R : cycles: {{2, 3, 4, 6}} order: 4

See Matrix

$$[y_1, y_2, y_3, y_4, 0, y_5]$$

Omega Rank for B : cycles: {{1, 2, 5, 6}, {3, 4}} order: 4

See Matrix

$$[-23\ y_2 + 39\ y_1 - 10\ y_3 - 23\ y_4, 10\ y_2, 10\ y_1, -11\ y_2 + 23\ y_1 - 11\ y_4, 10\ y_3, 10\ y_4]$$

$p' = - s + s^5$ $p' = - 1 + s^4$

32 . Coloring, {2, 3, 4, 5, 6}

R: [3, 1, 2, 6, 1, 3]
B: [6, 4, 4, 3, 2, 5]

See graph

See pair graph

Δ-Rank	**A+(1/2)Δ**	**A-(1/2)Δ**	**R**	**B**
4 *vs* 4	6 *vs* 6	5 *vs* 6	4 *vs* 4	5 *vs* 5

Omega Rank for R : cycles: {{1, 2, 3}} order: 3

See Matrix

$$[y_1, y_2, y_3, 0, 0, y_4]$$

Omega Rank for B : cycles: {{3, 4}} order: 4

See Matrix

$$[0, y_1, y_2, y_3, y_4, y_5]$$

SUMMARY	
Graph Type	NOT CC
ν(A)	1
ν(Δ)	2
π	[3, 4, 6, 5, 2, 4]

Dbly Stoch	false

SANDWICH		Total 4
No .	Coloring	Rank
1	{5}	2
2	{5, 6}	2
3	{2, 5, 6}	2
4	{2, 5}	2

RT GROUPS		Total 0	
No .	Coloring	Rank	Solv

Δ-RANK'D	SC'D !RK'D	τ-RANK'D	R/B RANK'D	NOT SYNC'D	Total Runs	2^{n-1}
28	0	24 , 23	28 , 23	4	32	32
