New Graph

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

$\pi = [6, 3, 5, 6, 4, 3]$

POSSIBLE RANKS

1 x 27
3 x 9

BASE DETERMINANT 161757/1048576, .1542634964

NullSpace of Δ

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

Nullspace of A
=
det(*A*) 1/32

1 . Coloring, {}

$\Omega p(\Delta)=0$: $p' = s - 12s^3 + 16s^4$ $p = s - 32s^4 + 48s^5$ $p' = s^2 - 4s^3 + 4s^4$

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

See graph

See pair graph

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

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

See Matrix

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

$p = -s^2 + s^4$ $p = -s^2 + s^3$

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

See Matrix

$[-2\,y_2 + 3\,y_1, y_2, -y_2 + 2\,y_1, -2\,y_2 + 3\,y_1, y_1, y_2]$

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

See 3-level graph

$$M = \begin{bmatrix} 0 & 0 & 4 & 6 & 2 & 0 \\ 0 & 0 & 1 & 0 & 2 & 3 \\ 4 & 1 & 0 & 4 & 0 & 1 \\ 6 & 0 & 4 & 0 & 2 & 0 \\ 2 & 2 & 0 & 2 & 0 & 2 \\ 0 & 3 & 1 & 0 & 2 & 0 \end{bmatrix} \quad N = \begin{bmatrix} 0 & 2 & 3 & 3 & 3 & 1 \\ 2 & 0 & 3 & 1 & 3 & 3 \\ 3 & 3 & 0 & 3 & 0 & 3 \\ 3 & 1 & 3 & 0 & 3 & 2 \\ 3 & 3 & 0 & 3 & 0 & 3 \\ 1 & 3 & 3 & 2 & 3 & 0 \end{bmatrix}$$

$\tau = 12$, $r' = 2/3$

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

Ranges

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

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

$\beta(\{1, 3, 4\}) = 4/9$
$\beta(\{1, 4, 5\}) = 2/9$
$\beta(\{2, 3, 6\}) = 1/9$
$\beta(\{2, 5, 6\}) = 2/9$

Partitions

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

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

b1 = {2, 4} , b2 = {1, 2} , b3 = {3, 5} , b4 = {4, 6} , b5 = {1, 6}

Action of R and B on the blocks of the partitions: = [5, 3, 1, 5, 3] [2, 5, 3, 1, 4]
with invariant measure [2, 1, 3, 1, 2]

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

See level-3 partition graph.

Sandwich	
Coloring	{}
Rank	3

R,B	[4, 5, 1, 3, 1, 4], [2, 4, 5, 6, 3, 1]
π_2	[0, 4, 6, 2, 0, 1, 0, 2, 3, 4, 0, 1, 2, 0, 2]
u_2	[2, 3, 3, 3, 1, 3, 1, 3, 3, 3, 0, 3, 3, 2, 3] (dim 1)
wpp	[2, 2, 2, 2, 2, 2]
π_3	[0, 0, 0, 0, 4, 0, 0, 2, 0, 0, 0, 0, 1, 0, 0, 2, 0, 0, 0, 0]
u_3	[2, 0, 2, 0, 3, 0, 1, 3, 0, 1, 1, 0, 3, 1, 0, 3, 0, 2, 0, 2]

2 . Coloring, {2}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

3 . Coloring, {3}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

4 . Coloring, {4}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

5 . Coloring, {5}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

6 . Coloring, {6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

$$[0, -2\,y_2 + 4\,y_3 - y_1, y_2, 4\,y_2 - 2\,y_3, y_3, y_1]$$

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

7 . Coloring, {2, 3}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

8 . Coloring, {2, 4}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

9 . Coloring, {2, 5}

R: [4, 4, 1, 3, 3, 4]

B: [2, 5, 5, 6, 1, 1]

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

10 . Coloring, {2, 6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

$$[0, -2\,y_1 - 4\,y_2 + 4\,y_3, 2\,y_1, 2\,y_2, 2\,y_3, -4\,y_2 + 3\,y_3]$$

$p = -s^2 + s^4 \quad p' = -s^2 + s^4$

11 . Coloring, {3, 4}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

12 . Coloring, {3, 5}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

13 . Coloring, {3, 6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

14 . Coloring, {4, 5}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

15 . Coloring, {4, 6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

16 . Coloring, {5, 6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

17 . Coloring, {2, 3, 4}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

18 . Coloring, {2, 3, 5}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

19 . Coloring, {2, 3, 6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

$$[4\,y_1 + 4\,y_2 - 2\,y_3 - 4\,y_4, 2\,y_1, 2\,y_2, 3\,y_1 + 3\,y_2 - 4\,y_4, 2\,y_3, 2\,y_4]$$

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

20 . Coloring, {2, 4, 5}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

21 . Coloring, {2, 4, 6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

$p = s^2 - s^4$

22 . Coloring, {2, 5, 6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

$$[-y_1 + 2\,y_2 - y_3 + 2\,y_4, y_1, 0, y_2, y_3, y_4]$$

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

23 . Coloring, {3, 4, 5}

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

See graph

See pair graph

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

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

See Matrix

$$[0, 0, 4\,y_2, -15\,y_2 + 16\,y_1, -16\,y_2 + 16\,y_1, 4\,y_1]$$

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

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

See Matrix

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

24 . Coloring, {3, 4, 6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

25 . Coloring, {3, 5, 6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

26 . Coloring, {4, 5, 6}

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

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

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

See graph

See pair graph

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

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

See Matrix

$$[0, 0, y_1, -2\,y_1 + 4\,y_2, y_2, 4\,y_1 - 2\,y_2]$$

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

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

See Matrix

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

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

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

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

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

$$[y_1, -y_1 + 2\,y_4 - y_3 + 2\,y_2, 0, y_4, y_3, y_2]$$

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

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

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

See graph

See pair graph

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

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

See Matrix

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

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

See Matrix

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

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

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

See graph

See pair graph

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

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

See Matrix

$$[5\,y_1 - 4\,y_3 + 5\,y_4 - 4\,y_2, 0, 4\,y_1, 4\,y_3, 4\,y_4, 4\,y_2]$$

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

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

See Matrix

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

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

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

See graph

See pair graph

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

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

See Matrix

$$[2\,y_1 - y_2 + 2\,y_3 - y_4,\ 0,\ y_1,\ y_2,\ y_3,\ y_4]$$

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

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

See Matrix

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

$p = -s^3 + s^5$ $p = -s^3 + s^4$

SUMMARY	
Graph Type	NOT CC
ν(A)	0
ν(Δ)	1
π	[6, 3, 5, 6, 4, 3]
Dbly Stoch	false

SANDWICH		Total 1
No .	**Coloring**	**Rank**
1	{}	3

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}
31	0	31 , 31	27 , 24	1	32	32