# 1 Monomial type representatives

The following is a list of monomial type representatives:  $a_{11}^4b_{11}^2$ ,  $a_{11}^2a_{12}^2b_{11}^2$ ,  $a_{12}^4b_{11}^2$ ,  $a_{12}^2a_{13}^2b_{11}^2$ ,  $a_{11}a_{12}a_{12}a_{22}b_{11}^2$ ,  $a_{11}a_{12}a_{13}a_{22}b_{11}^2$ ,  $a_{11}a_{12}a_{13}a_{22}a_{23}b_{11}^2$ ,  $a_{11}a_{12}a_{23}b_{11}^2$ ,  $a_{11}a_{12}a_{13}a_{22}b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}^2b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}^2b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}^2b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}^2b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}^2b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}^2b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}^2b_{22}^2b_{11}b_{12}$ ,  $a_{11}a_{13}a_{22}a_{23}b_{11}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{31}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{31}b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}^2b_{21}b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}^2b_{22}^2b_{11}b_{12}$ ,  $a_{11}a_{12}a_{22}^2b_{22}^2b_{11}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{31}b_{11}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{31}b_{11}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{33}b_{11}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{33}b_{11}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{33}b_{11}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{33}b_{11}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{33}b_{11}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{33}^2b_{11}b_{12}$ ,  $a_{11}a_{13}a_{23}a_{33}^2b_{12}$ ,  $a_{11}a_{13}a_{23}a_{33}^2b_{11}b_{12}$ ,  $a_{11}a_{12}a_{13}a_{23}a_{33}^2b_{11}b_{12}$ ,  $a_{11}a_{12}a_{13}a_{23}a_{33}^2b_{11}b_{12}$ ,  $a_{11}a_{12}a_{13}a_{23}a_{33}^2b_{12}$ ,  $a_{11}a_{12}a_{13}a_{23}^2b_{12}^2$ ,  $a_{11}a_{12}a_{13}a_{23}^2b_{12}^2$ ,  $a_{11}a_{12}a_{13}a_{23}^2$ ,  $a_{11}a_{12}a_{13}a_{23}^2$ ,  $a_{11}a_{12}a_{13}a_{22}^2$ ,  $a_{11}a_{12}a_{13}a_{22}^2$ ,  $a_{11}a_{12}a_{13}^2$ ,  $a_{11}a_{12}a_{13}^2$ ,  $a_{11}a_{12}a_{13}^2$ ,

# 2 Monomials accounted by U and copies of R

# **2.1** Monomial type $a_{11}^4 b_{11}^2$ with coefficient 15

### **2.1.1** Monomial $a_{11}^4 b_{11}^2$

• The  $(\hat{1},\hat{1})$ -row  $(\hat{1},\hat{1})$ -column entry of U is 15, for  $(a_{11}^2b_{11})(a_{11}^2b_{11})$ 

### **2.1.2** Monomial $a_{33}^4 b_{33}^2$

• The  $(\hat{3}, \hat{3})$ -row  $(\hat{3}, \hat{3})$ -column entry of U is 15, for  $(a_{33}^2b_{33})(a_{33}^2b_{33})$ 

### **2.1.3** Monomial $a_{22}^4 b_{22}^2$

• The  $(\hat{2},\hat{2})$ -row  $(\hat{2},\hat{2})$ -column entry of U is 15, for  $(a_{22}^2b_{22})(a_{22}^2b_{22})$ 

# **2.2** Monomial type $a_{11}^2 a_{12}^2 b_{11}^2$ with coefficient 36

### **2.2.1** Monomial $a_{11}^2 a_{12}^2 b_{11}^2$

- The (2,1)-row (2,1)-column entry of the (1,2)-copy of R is 18, for  $(a_{11}a_{12}b_{11})(a_{11}a_{12}b_{11})$

# **2.2.2** Monomial $a_{13}^2 a_{33}^2 b_{33}^2$

- The  $(\hat{3},\hat{3})$ -row  $(\hat{3},\hat{1})$ -column entry of U is 9, for  $(a_{33}^2b_{33})(a_{13}^2b_{33})$
- $\bullet$  The (3, 3)-row (3, 3)-column entry of the (1, 3)-copy of R is 18, for  $(a_{13}a_{33}b_{33})(a_{13}a_{33}b_{33})$

# **2.2.3** Monomial $a_{22}^2 a_{23}^2 b_{22}^2$

- The  $(\hat{2},\hat{2})$ -row  $(\hat{2},\hat{3})$ -column entry of U is 9, for  $(a_{22}^2b_{22})(a_{23}^2b_{22})$
- The  $(\hat{2},\hat{3})$ -row  $(\hat{2},\hat{2})$ -column entry of U is 9, for  $(a_{23}^2b_{22})(a_{22}^2b_{22})$
- The (2,1)-row (2,1)-column entry of the (2,3)-copy of R is 18, for  $(a_{22}a_{23}b_{22})(a_{22}a_{23}b_{22})$

### **2.2.4** Monomial $a_{11}^2 a_{13}^2 b_{11}^2$

- • The  $(\hat{1},\hat{1})$ -row  $(\hat{1},\hat{3})$ -column entry of U is 9, for  $(a_{11}^2b_{11})(a_{13}^2b_{11})$
- The  $(\hat{1}, \hat{3})$ -row  $(\hat{1}, \hat{1})$ -column entry of U is 9, for  $(a_{13}^2 b_{11})(a_{11}^2 b_{11})$
- The (2,1)-row (2,1)-column entry of the (1,3)-copy of R is 18, for  $(a_{11}a_{13}b_{11})(a_{11}a_{13}b_{11})$

# **2.2.5** Monomial $a_{23}^2 a_{33}^2 b_{33}^2$

- The  $(\hat{3}, \hat{2})$ -row  $(\hat{3}, \hat{3})$ -column entry of U is 9, for  $(a_{23}^2b_{33})(a_{33}^2b_{33})$
- The  $(\hat{3},\hat{3})$ -row  $(\hat{3},\hat{2})$ -column entry of U is 9, for  $(a_{33}^2b_{33})(a_{23}^2b_{33})$
- The (3,3)-row (3,3)-column entry of the (2,3)-copy of R is 18, for  $(a_{23}a_{33}b_{33})(a_{23}a_{33}b_{33})$

### **2.2.6** Monomial $a_{12}^2 a_{22}^2 b_{22}^2$

- The  $(\hat{2},\hat{1})$ -row  $(\hat{2},\hat{2})$ -column entry of U is 9, for  $(a_{12}^2b_{22})(a_{22}^2b_{22})$
- The  $(\hat{2},\hat{2})$ -row  $(\hat{2},\hat{1})$ -column entry of U is 9, for  $(a_{22}^2b_{22})(a_{12}^2b_{22})$
- The (3,2)-row (3,2)-column entry of the (1,2)-copy of R is 18, for  $(a_{12}a_{22}b_{22})(a_{12}a_{22}b_{22})$

# 2.3 Monomial type $a_{12}^4b_{11}^2$ with coefficient 9

### **2.3.1** Monomial $a_{12}^4 b_{11}^2$

• The  $(\hat{1}, \hat{2})$ -row  $(\hat{1}, \hat{2})$ -column entry of U is 9, for  $(a_{12}^2 b_{11})(a_{12}^2 b_{11})$ 

### **2.3.2** Monomial $a_{13}^4 b_{33}^2$

• The  $(\hat{3}, \hat{1})$ -row  $(\hat{3}, \hat{1})$ -column entry of U is 9, for  $(a_{13}^2b_{33})(a_{13}^2b_{33})$ 

### **2.3.3** Monomial $a_{23}^4 b_{22}^2$

### **2.3.4** Monomial $a_{13}^4 b_{11}^2$

• The  $(\hat{1},\hat{3})$ -row  $(\hat{1},\hat{3})$ -column entry of U is 9, for  $(a_{13}^2b_{11})(a_{13}^2b_{11})$ 

### **2.3.5** Monomial $a_{23}^4 b_{33}^2$

• The  $(\hat{3}, \hat{2})$ -row  $(\hat{3}, \hat{2})$ -column entry of U is 9, for  $(a_{23}^2b_{33})(a_{23}^2b_{33})$ 

#### **2.3.6** Monomial $a_{12}^4 b_{22}^2$

• The  $(\hat{2}, \hat{1})$ -row  $(\hat{2}, \hat{1})$ -column entry of U is 9, for  $(a_{12}^2 b_{22})(a_{12}^2 b_{22})$ 

# **2.4** Monomial type $a_{12}^2 a_{13}^2 b_{11}^2$ with coefficient 18

### **2.4.1** Monomial $a_{12}^2 a_{13}^2 b_{11}^2$

- The (4,4,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{11})(a_{12}a_{13}b_{11})$

## **2.4.2** Monomial $a_{13}^2 a_{23}^2 b_{33}^2$

- The  $(\hat{3}, \hat{1})$ -row  $(\hat{3}, \hat{2})$ -column entry of U is 6, for  $(a_{13}^2b_{33})(a_{23}^2b_{33})$
- The  $(\hat{3}, \hat{2})$ -row  $(\hat{3}, \hat{1})$ -column entry of U is 6, for  $(a_{23}^2b_{33})(a_{13}^2b_{33})$
- The (4,4,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{33})(a_{13}a_{23}b_{33})$

## **2.4.3** Monomial $a_{12}^2 a_{23}^2 b_{22}^2$

- The  $(\hat{2},\hat{3})$ -row  $(\hat{2},\hat{1})$ -column entry of U is 6, for  $(a_{23}^2b_{22})(a_{12}^2b_{22})$
- The (4,4,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{22})(a_{12}a_{23}b_{22})$

# 2.5 Monomial type $a_{11}a_{12}^2a_{22}b_{11}^2$ with coefficient 18

### **2.5.1** Monomial $a_{11}a_{12}^2a_{22}b_{11}^2$

- The (2,1)-row (6,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{11})(a_{12}a_{22}b_{11})$
- The (6,1)-row (2,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{11})(a_{11}a_{12}b_{11})$

#### **2.5.2** Monomial $a_{11}a_{13}^2a_{33}b_{33}^2$

- The (3,3)-row (5,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{33})(a_{11}a_{13}b_{33})$
- The (5,2)-row (3,3)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{33})(a_{13}a_{33}b_{33})$

# **2.5.3** Monomial $a_{22}a_{23}^2a_{33}b_{22}^2$

- The (2,1)-row (6,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{22})(a_{23}a_{33}b_{22})$
- The (6,1)-row (2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{22})(a_{22}a_{23}b_{22})$

### **2.5.4** Monomial $a_{11}a_{13}^2a_{33}b_{11}^2$

- The (2,1)-row (6,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{11})(a_{13}a_{33}b_{11})$
- The (6,1)-row (2,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{11})(a_{11}a_{13}b_{11})$

### **2.5.5** Monomial $a_{22}a_{23}^2a_{33}b_{33}^2$

- The (3,3)-row (5,2)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{33})(a_{22}a_{23}b_{33})$
- The (5,2)-row (3,3)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{33})(a_{23}a_{33}b_{33})$

#### **2.5.6** Monomial $a_{11}a_{12}^2a_{22}b_{22}^2$

- The (3,2)-row (5,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{22})(a_{11}a_{12}b_{22})$
- The (5,2)-row (3,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{22})(a_{12}a_{22}b_{22})$

# 2.6 Monomial type $a_{12}^2 a_{22}^2 b_{11}^2$ with coefficient 6

#### **2.6.1** Monomial $a_{12}^2 a_{22}^2 b_{11}^2$

• The (6,1)-row (6,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{12}a_{22}b_{11})(a_{12}a_{22}b_{11})$ 

#### **2.6.2** Monomial $a_{11}^2 a_{13}^2 b_{33}^2$

• The (5,2)-row (5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{13}b_{33})(a_{11}a_{13}b_{33})$ 

### **2.6.3** Monomial $a_{23}^2 a_{33}^2 b_{22}^2$

• The (6,1)-row (6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{23}a_{33}b_{22})(a_{23}a_{33}b_{22})$ 

### **2.6.4** Monomial $a_{13}^2 a_{33}^2 b_{11}^2$

• The (6,1)-row (6,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{13}a_{33}b_{11})(a_{13}a_{33}b_{11})$ 

#### **2.6.5** Monomial $a_{22}^2 a_{23}^2 b_{33}^2$

• The (5,2)-row (5,2)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}a_{23}b_{33})(a_{22}a_{23}b_{33})$ 

## **2.6.6** Monomial $a_{11}^2 a_{12}^2 b_{22}^2$

• The (5,2)-row (5,2)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{12}b_{22})(a_{11}a_{12}b_{22})$ 

# 2.7 Monomial type $a_{11}a_{12}a_{13}a_{23}b_{11}^2$ with coefficient 36

#### **2.7.1** Monomial $a_{11}a_{12}a_{13}a_{23}b_{11}^2$

- The (2,1)-row (6,4,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{11})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (2,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{23}b_{11})(a_{11}a_{12}b_{11})$
- The (2,1)-row (6,4,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{11})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (2,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{23}b_{11})(a_{11}a_{13}b_{11})$

#### **2.7.2** Monomial $a_{12}a_{13}a_{23}a_{33}b_{33}^2$

- The (3,3)-row (5,5,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{33})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (3,3)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{23}b_{33})(a_{13}a_{33}b_{33})$
- The (3,3)-row (5,5,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{33})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (3,3)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{13}b_{33})(a_{23}a_{33}b_{33})$

#### **2.7.3** Monomial $a_{12}a_{13}a_{22}a_{23}b_{22}^2$

- The (3,2)-row (5,5,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{22})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (3,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{23}b_{22})(a_{12}a_{22}b_{22})$
- The (2,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{22})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{13}b_{22})(a_{22}a_{23}b_{22})$

# 2.8 Monomial type $a_{12}a_{13}a_{22}a_{23}b_{11}^2$ with coefficient 12

#### **2.8.1** Monomial $a_{12}a_{13}a_{22}a_{23}b_{11}^2$

- The (6,1)-row (6,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{12}a_{22}b_{11})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (6,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{11})(a_{12}a_{22}b_{11})$

#### **2.8.2** Monomial $a_{11}a_{12}a_{13}a_{23}b_{33}^2$

- The (5,2)-row (5,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{13}b_{33})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (5,2)-column entry of the (1,3)-copy of R is (5,5,2)-row (5,2)-column entry of the (1,3)-copy of (3,2)-copy of (3,2)-copy

### **2.8.3** Monomial $a_{12}a_{13}a_{23}a_{33}b_{22}^2$

- The (6,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{23}a_{33}b_{22})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{22})(a_{23}a_{33}b_{22})$

#### **2.8.4** Monomial $a_{12}a_{13}a_{23}a_{33}b_{11}^2$

- The (6,1)-row (6,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{13}a_{33}b_{11})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (6,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{11})(a_{13}a_{33}b_{11})$

#### **2.8.5** Monomial $a_{12}a_{13}a_{22}a_{23}b_{33}^2$

- The (5,2)-row (5,5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}a_{23}b_{33})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (5,2)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{33})(a_{22}a_{23}b_{33})$

#### **2.8.6** Monomial $a_{11}a_{12}a_{13}a_{23}b_{22}^2$

- The (5,2)-row (5,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{12}b_{22})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (5,2)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{22})(a_{11}a_{12}b_{22})$

# 2.9 Monomial type $a_{12}^2 a_{23}^2 b_{11}^2$ with coefficient 6

### **2.9.1** Monomial $a_{12}^2 a_{23}^2 b_{11}^2$

• The (6,4,2)-row (6,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{11})(a_{12}a_{23}b_{11})$ 

#### **2.9.2** Monomial $a_{12}^2 a_{13}^2 b_{33}^2$

• The (5,5,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{33})(a_{12}a_{13}b_{33})$ 

#### **2.9.3** Monomial $a_{13}^2 a_{23}^2 b_{22}^2$

• The (5,5,3)-row (5,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{22})(a_{13}a_{23}b_{22})$ 

#### **2.9.4** Monomial $a_{13}^2 a_{23}^2 b_{11}^2$

• The (6,4,3)-row (6,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{11})(a_{13}a_{23}b_{11})$ 

#### **2.9.5** Monomial $a_{12}^2 a_{23}^2 b_{33}^2$

• The (5,5,2)-row (5,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{33})(a_{12}a_{23}b_{33})$ 

#### **2.9.6** Monomial $a_{12}^2 a_{13}^2 b_{22}^2$

• The (6,4,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{22})(a_{12}a_{13}b_{22})$ 

# **2.10** Monomial type $a_{11}^3 a_{12} b_{11} b_{12}$ with coefficient 48

### **2.10.1** Monomial $a_{11}^3 a_{12} b_{11} b_{12}$

- The (1, 2)-row  $(\hat{1}, \hat{1})$ -column entry of U is 21, for  $(a_{11}a_{12}b_{12})(a_{11}^2b_{11})$
- The  $(\hat{1}, \hat{1})$ -row (1, 2)-column entry of U is 21, for  $(a_{11}^2 b_{11})(a_{11} a_{12} b_{12})$
- The (2,1)-row (5,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{11})(a_{11}^2b_{12})$
- The (5,1)-row (2,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}^2b_{12})(a_{11}a_{12}b_{11})$

# **2.10.2** Monomial $a_{13}a_{33}^3b_{13}b_{33}$

- The (3,1)-row  $(\hat{3},\hat{3})$ -column entry of U is 21, for  $(a_{13}a_{33}b_{13})(a_{33}^2b_{33})$
- The  $(\hat{3}, \hat{3})$ -row (3, 1)-column entry of U is 21, for  $(a_{33}^2b_{33})(a_{13}a_{33}b_{13})$
- The (3,3)-row (6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{33})(a_{33}^2b_{13})$
- The (6,2)-row (3,3)-column entry of the (1,3)-copy of R is 3, for  $(a_{33}^2b_{13})(a_{13}a_{33}b_{33})$

### **2.10.3** Monomial $a_{22}^3 a_{23} b_{22} b_{23}$

- The (2,3)-row  $(\hat{2},\hat{2})$ -column entry of U is 21, for  $(a_{22}a_{23}b_{23})(a_{22}^2b_{22})$
- The  $(\hat{2}, \hat{2})$ -row (2, 3)-column entry of U is 21, for  $(a_{22}^2b_{22})(a_{22}a_{23}b_{23})$
- The (2,1)-row (5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{22})(a_{22}^2b_{23})$
- The (5,1)-row (2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}^2b_{23})(a_{22}a_{23}b_{22})$

# **2.10.4** Monomial $a_{11}^3 a_{13} b_{11} b_{13}$

- The (1,3)-row  $(\hat{1},\hat{1})$ -column entry of U is 21, for  $(a_{11}a_{13}b_{13})(a_{11}^2b_{11})$
- The  $(\hat{1}, \hat{1})$ -row (1, 3)-column entry of U is 21, for  $(a_{11}^2 b_{11})(a_{11}a_{13}b_{13})$
- $\bullet$  The (2,1)-row (5,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{11})(a_{11}^2b_{13})$
- The (5,1)-row (2,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}^2b_{13})(a_{11}a_{13}b_{11})$

## **2.10.5** Monomial $a_{23}a_{33}^3b_{23}b_{33}$

- The  $(\hat{3}, \hat{3})$ -row (3, 2)-column entry of U is 21, for  $(a_{33}^2b_{33})(a_{23}a_{33}b_{23})$
- $\bullet$  The (3,3)-row (6,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{33})(a_{33}^2b_{23})$
- The (6,2)-row (3,3)-column entry of the (2,3)-copy of R is 3, for  $(a_{33}^2b_{23})(a_{23}a_{33}b_{33})$

# **2.10.6** Monomial $a_{12}a_{22}^3b_{12}b_{22}$

- The (2,1)-row  $(\hat{2},\hat{2})$ -column entry of U is 21, for  $(a_{12}a_{22}b_{12})(a_{22}^2b_{22})$
- The  $(\hat{2},\hat{2})$ -row (2,1)-column entry of U is 21, for  $(a_{22}^2b_{22})(a_{12}a_{22}b_{12})$
- The (3,2)-row (6,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{22})(a_{22}^2b_{12})$
- The (6,2)-row (3,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}^2b_{12})(a_{12}a_{22}b_{22})$

# **2.11** Monomial type $a_{11}a_{12}^3b_{11}b_{12}$ with coefficient 72

### **2.11.1** Monomial $a_{11}a_{12}^3b_{11}b_{12}$

- The (1,2)-row  $(\hat{1},\hat{2})$ -column entry of U is 15, for  $(a_{11}a_{12}b_{12})(a_{12}^2b_{11})$
- The  $(\hat{1}, \hat{2})$ -row (1, 2)-column entry of U is 15, for  $(a_{12}^2 b_{11})(a_{11}a_{12}b_{12})$
- The (1)-row (2,1)-column entry of the (1,2)-copy of R is 21, for  $(a_{12}^2b_{12})(a_{11}a_{12}b_{11})$
- The (2,1)-row (1)-column entry of the (1,2)-copy of R is 21, for  $(a_{11}a_{12}b_{11})(a_{12}^2b_{12})$

### **2.11.2** Monomial $a_{13}^3 a_{33} b_{13} b_{33}$

- The (3,1)-row  $(\hat{3},\hat{1})$ -column entry of U is 15, for  $(a_{13}a_{33}b_{13})(a_{13}^2b_{33})$
- The  $(\hat{3}, \hat{1})$ -row (3, 1)-column entry of U is 15, for  $(a_{13}^2b_{33})(a_{13}a_{33}b_{13})$
- The (1)-row (3,3)-column entry of the (1,3)-copy of R is 21, for  $(a_{13}^2b_{13})(a_{13}a_{33}b_{33})$
- The (3,3)-row (1)-column entry of the (1,3)-copy of R is 21, for  $(a_{13}a_{33}b_{33})(a_{13}^2b_{13})$

### **2.11.3** Monomial $a_{22}a_{23}^3b_{22}b_{23}$

- The (2,3)-row  $(\hat{2},\hat{3})$ -column entry of U is 15, for  $(a_{22}a_{23}b_{23})(a_{23}^2b_{22})$
- The  $(\hat{2}, \hat{3})$ -row (2, 3)-column entry of U is 15, for  $(a_{23}^2 b_{22})(a_{22}a_{23}b_{23})$
- The (1)-row (2,1)-column entry of the (2,3)-copy of R is 21, for  $(a_{23}^2b_{23})(a_{22}a_{23}b_{22})$
- The (2,1)-row (1)-column entry of the (2,3)-copy of R is 21, for  $(a_{22}a_{23}b_{22})(a_{23}^2b_{23})$

# **2.11.4** Monomial $a_{11}a_{13}^3b_{11}b_{13}$

- The  $(\hat{1},\hat{3})$ -row (1,3)-column entry of U is 15, for  $(a_{13}^2b_{11})(a_{11}a_{13}b_{13})$
- The (1)-row (2,1)-column entry of the (1,3)-copy of R is 21, for  $(a_{13}^2b_{13})(a_{11}a_{13}b_{11})$
- The (2,1)-row (1)-column entry of the (1,3)-copy of R is 21, for  $(a_{11}a_{13}b_{11})(a_{13}^2b_{13})$

# **2.11.5** Monomial $a_{23}^3 a_{33} b_{23} b_{33}$

- • The  $(\hat{3},\hat{2})$ -row (3,2)-column entry of U is 15, for  $(a_{23}^2b_{33})(a_{23}a_{33}b_{23})$
- $\bullet$  The (1)-row (3,3)-column entry of the (2,3)-copy of R is 21, for  $(a_{23}^2b_{23})(a_{23}a_{33}b_{33})$
- The (3,3)-row (1)-column entry of the (2,3)-copy of R is 21, for  $(a_{23}a_{33}b_{33})(a_{23}^2b_{23})$

# **2.11.6** Monomial $a_{12}^3 a_{22} b_{12} b_{22}$

- The (2,1)-row  $(\hat{2},\hat{1})$ -column entry of U is 15, for  $(a_{12}a_{22}b_{12})(a_{12}^2b_{22})$
- The (1)-row (3,2)-column entry of the (1,2)-copy of R is 21, for  $(a_{12}^2b_{12})(a_{12}a_{22}b_{22})$
- The (3,2)-row (1)-column entry of the (1,2)-copy of R is 21, for  $(a_{12}a_{22}b_{22})(a_{12}^2b_{12})$

# **2.12** Monomial type $a_{11}a_{12}a_{13}^2b_{11}b_{12}$ with coefficient 72

### **2.12.1** Monomial $a_{11}a_{12}a_{13}^2b_{11}b_{12}$

- The (1,2)-row  $(\hat{1},\hat{3})$ -column entry of U is 12, for  $(a_{11}a_{12}b_{12})(a_{13}^2b_{11})$
- The  $(\hat{1}, \hat{3})$ -row (1, 2)-column entry of U is 12, for  $(a_{13}^2 b_{11})(a_{11} a_{12} b_{12})$
- The (2,1)-row (5,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{11})(a_{13}^2b_{12})$
- The (5,4,3)-row (2,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}^2b_{12})(a_{11}a_{12}b_{11})$
- The (2,1)-row (2,2,2)-column entry of the (1,3)-copy of R is 18, for  $(a_{11}a_{13}b_{11})(a_{12}a_{13}b_{12})$
- The (2,2,2)-row (2,1)-column entry of the (1,3)-copy of R is 18, for  $(a_{12}a_{13}b_{12})(a_{11}a_{13}b_{11})$
- The (4,4,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{13}b_{12})(a_{12}a_{13}b_{11})$

### **2.12.2** Monomial $a_{13}a_{23}^2a_{33}b_{13}b_{33}$

- The (3,1)-row  $(\hat{3},\hat{2})$ -column entry of U is 12, for  $(a_{13}a_{33}b_{13})(a_{23}^2b_{33})$
- The  $(\hat{3}, \hat{2})$ -row (3, 1)-column entry of U is 12, for  $(a_{23}^2b_{33})(a_{13}a_{33}b_{13})$
- The (4,4,3)-row (6,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}a_{33}b_{13})(a_{13}a_{23}b_{33})$
- The (3,3)-row (6,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{33})(a_{23}^2b_{13})$
- The (6,5,2)-row (3,3)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}^2b_{13})(a_{13}a_{33}b_{33})$
- The (3, 1)-row (3, 3)-column entry of the (2, 3)-copy of R is 18, for  $(a_{13}a_{23}b_{13})(a_{23}a_{33}b_{33})$
- The (3,3)-row (3,1)-column entry of the (2,3)-copy of R is 18, for  $(a_{23}a_{33}b_{33})(a_{13}a_{23}b_{13})$

#### **2.12.3** Monomial $a_{12}^2 a_{22} a_{23} b_{22} b_{23}$

- The (2,3)-row  $(\hat{2},\hat{1})$ -column entry of U is 12, for  $(a_{22}a_{23}b_{23})(a_{12}^2b_{22})$
- The  $(\hat{2}, \hat{1})$ -row (2, 3)-column entry of U is 12, for  $(a_{12}^2b_{22})(a_{22}a_{23}b_{23})$
- The (3,2)-row (3,3)-column entry of the (1,2)-copy of R is 18, for  $(a_{12}a_{22}b_{22})(a_{12}a_{23}b_{23})$
- The (3,3)-row (3,2)-column entry of the (1,2)-copy of R is 18, for  $(a_{12}a_{23}b_{23})(a_{12}a_{22}b_{22})$
- The (4,4,2)-row (5,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{22}b_{23})(a_{12}a_{23}b_{22})$
- The (2,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{22})(a_{12}^2b_{23})$
- The (5,4,1)-row (2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}^2b_{23})(a_{22}a_{23}b_{22})$

## **2.12.4** Monomial $a_{11}a_{12}^2a_{13}b_{11}b_{13}$

- The (1,3)-row  $(\hat{1},\hat{2})$ -column entry of U is 12, for  $(a_{11}a_{13}b_{13})(a_{12}^2b_{11})$
- The  $(\hat{1}, \hat{2})$ -row (1, 3)-column entry of U is 12, for  $(a_{12}^2b_{11})(a_{11}a_{13}b_{13})$
- The (2,1)-row (2,2,3)-column entry of the (1,2)-copy of R is 18, for  $(a_{11}a_{12}b_{11})(a_{12}a_{13}b_{13})$
- The (2,2,3)-row (2,1)-column entry of the (1,2)-copy of R is 18, for  $(a_{12}a_{13}b_{13})(a_{11}a_{12}b_{11})$
- The (2,1)-row (5,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{11})(a_{12}^2b_{13})$
- The (5,4,2)-row (2,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}^2b_{13})(a_{11}a_{13}b_{11})$
- The (4,4,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{12}b_{13})(a_{12}a_{13}b_{11})$

### **2.12.5** Monomial $a_{13}^2 a_{23} a_{33} b_{23} b_{33}$

- The (3,2)-row  $(\hat{3},\hat{1})$ -column entry of U is 12, for  $(a_{23}a_{33}b_{23})(a_{13}^2b_{33})$
- The  $(\hat{3}, \hat{1})$ -row (3, 2)-column entry of U is 12, for  $(a_{13}^2b_{33})(a_{23}a_{33}b_{23})$
- The (4,4,3)-row (5,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{33}b_{23})(a_{13}a_{23}b_{33})$
- The (3,2)-row (3,3)-column entry of the (1,3)-copy of R is 18, for  $(a_{13}a_{23}b_{23})(a_{13}a_{33}b_{33})$
- The (3,3)-row (3,2)-column entry of the (1,3)-copy of R is 18, for  $(a_{13}a_{33}b_{33})(a_{13}a_{23}b_{23})$
- The (3,3)-row (6,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{33})(a_{13}^2b_{23})$
- The (6,5,1)-row (3,3)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}^2b_{23})(a_{23}a_{33}b_{33})$

#### **2.12.6** Monomial $a_{12}a_{22}a_{23}^2b_{12}b_{22}$

- The (2,1)-row  $(\hat{2},\hat{3})$ -column entry of U is 12, for  $(a_{12}a_{22}b_{12})(a_{23}^2b_{22})$
- The (3,2)-row (6,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{22})(a_{23}^2b_{12})$
- The (6,5,3)-row (3,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}^2b_{12})(a_{12}a_{22}b_{22})$
- The (4,4,2)-row (6,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{22}a_{23}b_{12})(a_{12}a_{23}b_{22})$
- The (2,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 18, for  $(a_{22}a_{23}b_{22})(a_{12}a_{23}b_{12})$
- The (2,2,1)-row (2,1)-column entry of the (2,3)-copy of R is 18, for  $(a_{12}a_{23}b_{12})(a_{22}a_{23}b_{22})$

# **2.13** Monomial type $a_{11}^2 a_{12} a_{22} b_{11} b_{12}$ with coefficient 36

#### **2.13.1** Monomial $a_{11}^2 a_{12} a_{22} b_{11} b_{12}$

- The (2,1)-row  $(\hat{1},\hat{1})$ -column entry of U is 9, for  $(a_{12}a_{22}b_{12})(a_{11}^2b_{11})$
- The  $(\hat{1}, \hat{1})$ -row (2, 1)-column entry of U is 9, for  $(a_{11}^2 b_{11})(a_{12} a_{22} b_{12})$
- The (2,1)-row (4,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{11})(a_{11}a_{22}b_{12})$
- The (4,1)-row (2,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{22}b_{12})(a_{11}a_{12}b_{11})$

#### **2.13.2** Monomial $a_{11}a_{13}a_{33}^2b_{13}b_{33}$

- The (1,3)-row  $(\hat{3},\hat{3})$ -column entry of U is 9, for  $(a_{11}a_{13}b_{13})(a_{33}^2b_{33})$
- The  $(\hat{3}, \hat{3})$ -row (1, 3)-column entry of U is 9, for  $(a_{33}^2b_{33})(a_{11}a_{13}b_{13})$
- The (3,3)-row (4,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{33})(a_{11}a_{33}b_{13})$
- The (4,1)-row (3,3)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{33}b_{13})(a_{13}a_{33}b_{33})$

### **2.13.3** Monomial $a_{22}^2 a_{23} a_{33} b_{22} b_{23}$

- The (3,2)-row  $(\hat{2},\hat{2})$ -column entry of U is 9, for  $(a_{23}a_{33}b_{23})(a_{22}^2b_{22})$
- The  $(\hat{2}, \hat{2})$ -row (3, 2)-column entry of U is 9, for  $(a_{22}^2 b_{22})(a_{23} a_{33} b_{23})$
- The (2,1)-row (4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{22})(a_{22}a_{33}b_{23})$
- The (4,1)-row (2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{33}b_{23})(a_{22}a_{23}b_{22})$

### **2.13.4** Monomial $a_{11}^2 a_{13} a_{33} b_{11} b_{13}$

- The (3,1)-row  $(\hat{1},\hat{1})$ -column entry of U is 9, for  $(a_{13}a_{33}b_{13})(a_{11}^2b_{11})$
- The  $(\hat{1}, \hat{1})$ -row (3, 1)-column entry of U is 9, for  $(a_{11}^2 b_{11})(a_{13} a_{33} b_{13})$
- The (2,1)-row (4,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{11})(a_{11}a_{33}b_{13})$
- The (4,1)-row (2,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{33}b_{13})(a_{11}a_{13}b_{11})$

### **2.13.5** Monomial $a_{22}a_{23}a_{33}^2b_{23}b_{33}$

- The (2,3)-row  $(\hat{3},\hat{3})$ -column entry of U is 9, for  $(a_{22}a_{23}b_{23})(a_{33}^2b_{33})$
- The  $(\hat{3}, \hat{3})$ -row (2, 3)-column entry of U is 9, for  $(a_{33}^2b_{33})(a_{22}a_{23}b_{23})$
- The (3,3)-row (4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{33})(a_{22}a_{33}b_{23})$
- The (4,1)-row (3,3)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{33}b_{23})(a_{23}a_{33}b_{33})$

# **2.13.6** Monomial $a_{11}a_{12}a_{22}^2b_{12}b_{22}$

- The (1,2)-row  $(\hat{2},\hat{2})$ -column entry of U is 9, for  $(a_{11}a_{12}b_{12})(a_{22}^2b_{22})$
- The  $(\hat{2}, \hat{2})$ -row (1, 2)-column entry of U is 9, for  $(a_{22}^2 b_{22})(a_{11} a_{12} b_{12})$
- The (3,2)-row (4,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{22})(a_{11}a_{22}b_{12})$
- The (4,1)-row (3,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{22}b_{12})(a_{12}a_{22}b_{22})$

# **2.14** Monomial type $a_{12}^3 a_{22} b_{11} b_{12}$ with coefficient 48

#### **2.14.1** Monomial $a_{12}^3 a_{22} b_{11} b_{12}$

- The (2,1)-row  $(\hat{1},\hat{2})$ -column entry of U is 15, for  $(a_{12}a_{22}b_{12})(a_{12}^2b_{11})$
- The  $(\hat{1}, \hat{2})$ -row (2, 1)-column entry of U is 15, for  $(a_{12}^2 b_{11})(a_{12} a_{22} b_{12})$
- The (1)-row (6,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{12}a_{22}b_{11})$
- The (6,1)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{11})(a_{12}^2b_{12})$

# **2.14.2** Monomial $a_{11}a_{13}^3b_{13}b_{33}$

- The (1,3)-row  $(\hat{3},\hat{1})$ -column entry of U is 15, for  $(a_{11}a_{13}b_{13})(a_{13}^2b_{33})$
- The  $(\hat{3}, \hat{1})$ -row (1, 3)-column entry of U is 15, for  $(a_{13}^2b_{33})(a_{11}a_{13}b_{13})$
- The (1)-row (5,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{11}a_{13}b_{33})$
- The (5,2)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{33})(a_{13}^2b_{13})$

### **2.14.3** Monomial $a_{23}^3 a_{33} b_{22} b_{23}$

- The (3,2)-row  $(\hat{2},\hat{3})$ -column entry of U is 15, for  $(a_{23}a_{33}b_{23})(a_{23}^2b_{22})$
- The  $(\hat{2}, \hat{3})$ -row (3, 2)-column entry of U is 15, for  $(a_{23}^2 b_{22})(a_{23} a_{33} b_{23})$
- The (1)-row (6,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{23}a_{33}b_{22})$
- The (6,1)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{22})(a_{23}^2b_{23})$

### **2.14.4** Monomial $a_{13}^3 a_{33} b_{11} b_{13}$

- The (3,1)-row  $(\hat{1},\hat{3})$ -column entry of U is 15, for  $(a_{13}a_{33}b_{13})(a_{13}^2b_{11})$
- The  $(\hat{1}, \hat{3})$ -row (3, 1)-column entry of U is 15, for  $(a_{13}^2 b_{11})(a_{13} a_{33} b_{13})$
- The (1)-row (6,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{13}a_{33}b_{11})$
- The (6,1)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{11})(a_{13}^2b_{13})$

### **2.14.5** Monomial $a_{22}a_{23}^3b_{23}b_{33}$

- The (2,3)-row  $(\hat{3},\hat{2})$ -column entry of U is 15, for  $(a_{22}a_{23}b_{23})(a_{23}^2b_{33})$
- The  $(\hat{3}, \hat{2})$ -row (2, 3)-column entry of U is 15, for  $(a_{23}^2b_{33})(a_{22}a_{23}b_{23})$
- The (1)-row (5,2)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{22}a_{23}b_{33})$
- The (5,2)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{33})(a_{23}^2b_{23})$

# **2.14.6** Monomial $a_{11}a_{12}^3b_{12}b_{22}$

- The  $(\hat{2}, \hat{1})$ -row (1, 2)-column entry of U is 15, for  $(a_{12}^2 b_{22})(a_{11} a_{12} b_{12})$
- The (1)-row (5,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{11}a_{12}b_{22})$
- The (5,2)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{22})(a_{12}^2b_{12})$

# 2.15 Monomial type $a_{12}a_{13}^2a_{22}b_{11}b_{12}$ with coefficient 24

# **2.15.1** Monomial $a_{12}a_{13}^2a_{22}b_{11}b_{12}$

- The  $(\hat{1}, \hat{3})$ -row (2, 1)-column entry of U is 6, for  $(a_{13}^2 b_{11})(a_{12} a_{22} b_{12})$
- The (4,2,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}a_{22}b_{12})(a_{12}a_{13}b_{11})$
- The (4,4,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{11})(a_{13}a_{22}b_{12})$

#### **2.15.2** Monomial $a_{11}a_{13}a_{23}^2b_{13}b_{33}$

- The (1,3)-row  $(\hat{3},\hat{2})$ -column entry of U is 6, for  $(a_{11}a_{13}b_{13})(a_{23}^2b_{33})$
- The  $(\hat{3}, \hat{2})$ -row (1, 3)-column entry of U is 6, for  $(a_{23}^2b_{33})(a_{11}a_{13}b_{13})$
- The (4,2,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{23}b_{13})(a_{13}a_{23}b_{33})$
- The (4,4,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{33})(a_{11}a_{23}b_{13})$

# **2.15.3** Monomial $a_{12}^2 a_{23} a_{33} b_{22} b_{23}$

- The  $(\hat{2}, \hat{1})$ -row (3, 2)-column entry of U is 6, for  $(a_{12}^2 b_{22})(a_{23} a_{33} b_{23})$
- The (4,3,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{33}b_{23})(a_{12}a_{23}b_{22})$
- The (4,4,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{22})(a_{12}a_{33}b_{23})$

### **2.15.4** Monomial $a_{12}^2 a_{13} a_{33} b_{11} b_{13}$

- The (3,1)-row  $(\hat{1},\hat{2})$ -column entry of U is 6, for  $(a_{13}a_{33}b_{13})(a_{12}^2b_{11})$
- The  $(\hat{1}, \hat{2})$ -row (3, 1)-column entry of U is 6, for  $(a_{12}^2 b_{11})(a_{13} a_{33} b_{13})$
- The (4,3,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{33}b_{13})(a_{12}a_{13}b_{11})$
- The (4,4,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{11})(a_{12}a_{33}b_{13})$

# **2.15.5** Monomial $a_{13}^2 a_{22} a_{23} b_{23} b_{33}$

- The (2,3)-row  $(\hat{3},\hat{1})$ -column entry of U is 6, for  $(a_{22}a_{23}b_{23})(a_{13}^2b_{33})$
- The  $(\hat{3}, \hat{1})$ -row (2, 3)-column entry of U is 6, for  $(a_{13}^2b_{33})(a_{22}a_{23}b_{23})$
- The (4,3,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{22}b_{23})(a_{13}a_{23}b_{33})$
- The (4,4,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{33})(a_{13}a_{22}b_{23})$

# **2.15.6** Monomial $a_{11}a_{12}a_{23}^2b_{12}b_{22}$

- The (1,2)-row  $(\hat{2},\hat{3})$ -column entry of U is 6, for  $(a_{11}a_{12}b_{12})(a_{23}^2b_{22})$
- The  $(\hat{2}, \hat{3})$ -row (1, 2)-column entry of U is 6, for  $(a_{23}^2 b_{22})(a_{11} a_{12} b_{12})$
- The (4,2,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{23}b_{12})(a_{12}a_{23}b_{22})$
- The (4,4,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{22})(a_{11}a_{23}b_{12})$

# **2.16** Monomial type $a_{11}a_{12}a_{22}^2b_{11}b_{12}$ with coefficient 24

### **2.16.1** Monomial $a_{11}a_{12}a_{22}^2b_{11}b_{12}$

- The (2,1)-row (6,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{11})(a_{22}^2b_{12})$
- The (4,1)-row (6,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{12}a_{22}b_{11})$
- The (6,1)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{11})(a_{11}a_{22}b_{12})$
- The (6,2)-row (2,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{22}^2b_{12})(a_{11}a_{12}b_{11})$

### **2.16.2** Monomial $a_{11}^2 a_{13} a_{33} b_{13} b_{33}$

- The (3,3)-row (5,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{33})(a_{11}^2b_{13})$
- The (4,1)-row (5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{11}a_{13}b_{33})$
- $\bullet$  The (5, 1)-row (3, 3)-column entry of the (1, 3)-copy of R is 9, for  $(a_{11}^2b_{13})(a_{13}a_{33}b_{33})$
- The (5,2)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{33})(a_{11}a_{33}b_{13})$

#### **2.16.3** Monomial $a_{22}a_{23}a_{33}^2b_{22}b_{23}$

- The (2,1)-row (6,2)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{22})(a_{33}^2b_{23})$
- The (4,1)-row (6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{23}a_{33}b_{22})$
- The (6,1)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{22})(a_{22}a_{33}b_{23})$
- The (6,2)-row (2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{33}^2b_{23})(a_{22}a_{23}b_{22})$

### **2.16.4** Monomial $a_{11}a_{13}a_{33}^2b_{11}b_{13}$

- The (2,1)-row (6,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{11})(a_{33}^2b_{13})$
- The (4,1)-row (6,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{13}a_{33}b_{11})$
- The (6,1)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{11})(a_{11}a_{33}b_{13})$
- The (6,2)-row (2,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{33}^2b_{13})(a_{11}a_{13}b_{11})$

### **2.16.5** Monomial $a_{22}^2 a_{23} a_{33} b_{23} b_{33}$

- The (3,3)-row (5,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{33})(a_{22}^2b_{23})$
- The (4,1)-row (5,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{22}a_{23}b_{33})$
- The (5,1)-row (3,3)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}^2b_{23})(a_{23}a_{33}b_{33})$
- The (5,2)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{33})(a_{22}a_{33}b_{23})$

# **2.16.6** Monomial $a_{11}^2 a_{12} a_{22} b_{12} b_{22}$

- The (3,2)-row (5,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{22})(a_{11}^2b_{12})$
- The (4,1)-row (5,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{11}a_{12}b_{22})$
- The (5,1)-row (3,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}^2b_{12})(a_{12}a_{22}b_{22})$
- The (5,2)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{22})(a_{11}a_{22}b_{12})$

# **2.17** Monomial type $a_{12}a_{22}^3b_{11}b_{12}$ with coefficient 12

#### **2.17.1** Monomial $a_{12}a_{22}^3b_{11}b_{12}$

- The (6,1)-row (6,2)-column entry of the (1,2)-copy of R is 6, for  $(a_{12}a_{22}b_{11})(a_{22}^2b_{12})$
- $\bullet$  The (6, 2)-row (6, 1)-column entry of the (1, 2)-copy of R is 6, for  $(a_{22}^2b_{12})(a_{12}a_{22}b_{11})$

#### **2.17.2** Monomial $a_{11}^3 a_{13} b_{13} b_{33}$

- The (5,1)-row (5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}^2b_{13})(a_{11}a_{13}b_{33})$
- The (5,2)-row (5,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{13}b_{33})(a_{11}^2b_{13})$

#### **2.17.3** Monomial $a_{23}a_{33}^3b_{22}b_{23}$

- The (6,1)-row (6,2)-column entry of the (2,3)-copy of R is 6, for  $(a_{23}a_{33}b_{22})(a_{33}^2b_{23})$
- The (6,2)-row (6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{33}^2b_{23})(a_{23}a_{33}b_{22})$

#### **2.17.4** Monomial $a_{13}a_{33}^3b_{11}b_{13}$

- The (6,1)-row (6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{13}a_{33}b_{11})(a_{33}^2b_{13})$
- The (6,2)-row (6,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{33}^2b_{13})(a_{13}a_{33}b_{11})$

#### **2.17.5** Monomial $a_{22}^3 a_{23} b_{23} b_{33}$

- $\bullet$  The (5, 1)-row (5, 2)-column entry of the (2, 3)-copy of R is 6, for  $(a_{22}^2b_{23})(a_{22}a_{23}b_{33})$
- $\bullet$  The (5,2)-row (5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}a_{23}b_{33})(a_{22}^2b_{23})$

### **2.17.6** Monomial $a_{11}^3 a_{12} b_{12} b_{22}$

- $\bullet$  The (5, 1)-row (5, 2)-column entry of the (1, 2)-copy of R is 6, for  $(a_{11}^2b_{12})(a_{11}a_{12}b_{22})$
- The (5,2)-row (5,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{12}b_{22})(a_{11}^2b_{12})$

# **2.18** Monomial type $a_{11}^2 a_{13} a_{23} b_{11} b_{12}$ with coefficient 36

#### **2.18.1** Monomial $a_{11}^2 a_{13} a_{23} b_{11} b_{12}$

- The  $(\{1,2,3\},3)$ -row  $(\hat{1},\hat{1})$ -column entry of U is 9, for  $(a_{13}a_{23}b_{12})(a_{11}^2b_{11})$
- The  $(\hat{1}, \hat{1})$ -row  $(\{1, 2, 3\}, 3)$ -column entry of U is 9, for  $(a_{11}^2 b_{11})(a_{13}a_{23}b_{12})$
- The (2,1)-row (4,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{11})(a_{11}a_{23}b_{12})$
- The (4,2,2)-row (2,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{23}b_{12})(a_{11}a_{13}b_{11})$

#### **2.18.2** Monomial $a_{12}a_{23}a_{33}^2b_{13}b_{33}$

- The  $(\{1,2,3\},2)$ -row  $(\hat{3},\hat{3})$ -column entry of U is 9, for  $(a_{12}a_{23}b_{13})(a_{33}^2b_{33})$
- The  $(\hat{3}, \hat{3})$ -row  $(\{1, 2, 3\}, 2)$ -column entry of U is 9, for  $(a_{33}^2b_{33})(a_{12}a_{23}b_{13})$
- The (3,3)-row (4,3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{33})(a_{12}a_{33}b_{13})$
- The (4,3,1)-row (3,3)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{33}b_{13})(a_{23}a_{33}b_{33})$

### **2.18.3** Monomial $a_{12}a_{13}a_{22}^2b_{22}b_{23}$

- The  $(\{1,2,3\},1)$ -row  $(\hat{2},\hat{2})$ -column entry of U is 9, for  $(a_{12}a_{13}b_{23})(a_{22}^2b_{22})$
- The  $(\hat{2},\hat{2})$ -row  $(\{1,2,3\},1)$ -column entry of U is 9, for  $(a_{22}^2b_{22})(a_{12}a_{13}b_{23})$
- The (3,2)-row (4,3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{22})(a_{13}a_{22}b_{23})$
- The (4,3,3)-row (3,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{22}b_{23})(a_{12}a_{22}b_{22})$

### **2.18.4** Monomial $a_{11}^2 a_{12} a_{23} b_{11} b_{13}$

- The  $(\{1,2,3\},2)$ -row  $(\hat{1},\hat{1})$ -column entry of U is 9, for  $(a_{12}a_{23}b_{13})(a_{11}^2b_{11})$
- The  $(\hat{1}, \hat{1})$ -row  $(\{1, 2, 3\}, 2)$ -column entry of U is 9, for  $(a_{11}^2 b_{11})(a_{12}a_{23}b_{13})$
- The (2,1)-row (4,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{11})(a_{11}a_{23}b_{13})$
- The (4,2,3)-row (2,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{23}b_{13})(a_{11}a_{12}b_{11})$

#### **2.18.5** Monomial $a_{12}a_{13}a_{33}^2b_{23}b_{33}$

- The  $(\{1,2,3\},1)$ -row  $(\hat{3},\hat{3})$ -column entry of U is 9, for  $(a_{12}a_{13}b_{23})(a_{33}^2b_{33})$
- The  $(\hat{3}, \hat{3})$ -row  $(\{1, 2, 3\}, 1)$ -column entry of U is 9, for  $(a_{33}^2 b_{33})(a_{12}a_{13}b_{23})$
- The (3,3)-row (4,3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{33})(a_{12}a_{33}b_{23})$
- The (4,3,2)-row (3,3)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{33}b_{23})(a_{13}a_{33}b_{33})$

### **2.18.6** Monomial $a_{13}a_{22}^2a_{23}b_{12}b_{22}$

- The  $(\{1,2,3\},3)$ -row  $(\hat{2},\hat{2})$ -column entry of U is 9, for  $(a_{13}a_{23}b_{12})(a_{22}^2b_{22})$
- The  $(\hat{2},\hat{2})$ -row  $(\{1,2,3\},3)$ -column entry of U is 9, for  $(a_{22}^2b_{22})(a_{13}a_{23}b_{12})$
- The (2,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{22})(a_{13}a_{22}b_{12})$
- The (4,2,1)-row (2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{22}b_{12})(a_{22}a_{23}b_{22})$

# **2.19** Monomial type $a_{12}^2 a_{13} a_{23} b_{11} b_{12}$ with coefficient 72

### **2.19.1** Monomial $a_{12}^2 a_{13} a_{23} b_{11} b_{12}$

- The  $(\{1,2,3\},3)$ -row  $(\hat{1},\hat{2})$ -column entry of U is 9, for  $(a_{13}a_{23}b_{12})(a_{12}^2b_{11})$
- The  $(\hat{1}, \hat{2})$ -row  $(\{1, 2, 3\}, 3)$ -column entry of U is 9, for  $(a_{12}^2 b_{11})(a_{13} a_{23} b_{12})$
- The (1)-row (6,4,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{23}b_{11})(a_{12}^2b_{12})$
- The (2,2,2)-row (6,4,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{13}b_{12})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{23}b_{11})(a_{12}a_{13}b_{12})$
- The (2,2,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{23}b_{12})(a_{12}a_{13}b_{11})$
- The (4,4,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{13}b_{11})(a_{12}a_{23}b_{12})$

#### **2.19.2** Monomial $a_{12}a_{13}^2a_{23}b_{13}b_{33}$

- The  $(\{1,2,3\},2)$ -row  $(\hat{3},\hat{1})$ -column entry of U is 9, for  $(a_{12}a_{23}b_{13})(a_{13}^2b_{33})$
- The  $(\hat{3}, \hat{1})$ -row  $(\{1, 2, 3\}, 2)$ -column entry of U is 9, for  $(a_{13}^2 b_{33})(a_{12} a_{23} b_{13})$
- The (2,2,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{13}b_{13})(a_{13}a_{23}b_{33})$
- The (4,4,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{23}b_{33})(a_{12}a_{13}b_{13})$
- The (1)-row (5,5,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{23}b_{33})(a_{13}^2b_{13})$
- The (3,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{23}b_{13})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{13}b_{33})(a_{13}a_{23}b_{13})$

#### **2.19.3** Monomial $a_{12}a_{13}a_{23}^2b_{22}b_{23}$

- The  $(\{1,2,3\},1)$ -row  $(\hat{2},\hat{3})$ -column entry of U is 9, for  $(a_{12}a_{13}b_{23})(a_{23}^2b_{22})$
- The  $(\hat{2}, \hat{3})$ -row  $(\{1, 2, 3\}, 1)$ -column entry of U is 9, for  $(a_{23}^2 b_{22})(a_{12}a_{13}b_{23})$
- The (3,3)-row (5,5,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{23}b_{23})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{23}b_{22})(a_{12}a_{23}b_{23})$
- The (3,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{23}b_{23})(a_{12}a_{23}b_{22})$
- The (4,4,2)-row (3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{23}b_{22})(a_{13}a_{23}b_{23})$
- The (1)-row (6,4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{13}b_{22})(a_{23}^2b_{23})$

# **2.19.4** Monomial $a_{12}a_{13}^2a_{23}b_{11}b_{13}$

- The  $(\{1,2,3\},2)$ -row  $(\hat{1},\hat{3})$ -column entry of U is 9, for  $(a_{12}a_{23}b_{13})(a_{13}^2b_{11})$
- The  $(\hat{1}, \hat{3})$ -row  $(\{1, 2, 3\}, 2)$ -column entry of U is 9, for  $(a_{13}^2 b_{11})(a_{12} a_{23} b_{13})$
- The (2,2,3)-row (6,4,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{13}b_{13})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{23}b_{11})(a_{12}a_{13}b_{13})$
- The (1)-row (6,4,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{23}b_{11})(a_{13}^2b_{13})$
- The (3,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{23}b_{13})(a_{12}a_{13}b_{11})$
- The (4,4,1)-row (3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{13}b_{11})(a_{13}a_{23}b_{13})$

#### **2.19.5** Monomial $a_{12}a_{13}a_{23}^2b_{23}b_{33}$

- The  $(\{1,2,3\},1)$ -row  $(\hat{3},\hat{2})$ -column entry of U is 9, for  $(a_{12}a_{13}b_{23})(a_{23}^2b_{33})$
- The  $(\hat{3}, \hat{2})$ -row  $(\{1, 2, 3\}, 1)$ -column entry of U is 9, for  $(a_{23}^2b_{33})(a_{12}a_{13}b_{23})$
- The (3,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{23}b_{23})(a_{13}a_{23}b_{33})$
- The (4,4,3)-row (3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{23}b_{33})(a_{12}a_{23}b_{23})$
- The (3,2)-row (5,5,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{23}b_{23})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{23}b_{33})(a_{13}a_{23}b_{23})$
- The (1)-row (5,5,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{13}b_{33})(a_{23}^2b_{23})$

### **2.19.6** Monomial $a_{12}^2 a_{13} a_{23} b_{12} b_{22}$

- The  $(\{1,2,3\},3)$ -row  $(\hat{2},\hat{1})$ -column entry of U is 9, for  $(a_{13}a_{23}b_{12})(a_{12}^2b_{22})$
- The  $(\hat{2}, \hat{1})$ -row  $(\{1, 2, 3\}, 3)$ -column entry of U is 9, for  $(a_{12}^2 b_{22})(a_{13} a_{23} b_{12})$
- The (1)-row (5,5,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{23}b_{22})(a_{12}^2b_{12})$
- The (2,2,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{13}b_{12})(a_{12}a_{23}b_{22})$
- The (4,4,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{23}b_{22})(a_{12}a_{13}b_{12})$
- The (2,2,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{23}b_{12})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{13}b_{22})(a_{12}a_{23}b_{12})$

# **2.20** Monomial type $a_{13}^3 a_{23} b_{11} b_{12}$ with coefficient 24

#### **2.20.1** Monomial $a_{13}^3 a_{23} b_{11} b_{12}$

- The  $(\{1,2,3\},3)$ -row  $(\hat{1},\hat{3})$ -column entry of U is 12, for  $(a_{13}a_{23}b_{12})(a_{13}^2b_{11})$
- The  $(\hat{1}, \hat{3})$ -row  $(\{1, 2, 3\}, 3)$ -column entry of U is 12, for  $(a_{13}^2 b_{11})(a_{13} a_{23} b_{12})$

### **2.20.2** Monomial $a_{12}a_{23}^3b_{13}b_{33}$

- The  $(\{1,2,3\},2)$ -row  $(\hat{3},\hat{2})$ -column entry of U is 12, for  $(a_{12}a_{23}b_{13})(a_{23}^2b_{33})$
- The  $(\hat{3}, \hat{2})$ -row  $(\{1, 2, 3\}, 2)$ -column entry of U is 12, for  $(a_{23}^2b_{33})(a_{12}a_{23}b_{13})$

### **2.20.3** Monomial $a_{12}^3 a_{13} b_{22} b_{23}$

- The  $(\{1,2,3\},1)$ -row  $(\hat{2},\hat{1})$ -column entry of U is 12, for  $(a_{12}a_{13}b_{23})(a_{12}^2b_{22})$
- The  $(\hat{2}, \hat{1})$ -row  $(\{1, 2, 3\}, 1)$ -column entry of U is 12, for  $(a_{12}^2 b_{22})(a_{12} a_{13} b_{23})$

#### **2.20.4** Monomial $a_{12}^3 a_{23} b_{11} b_{13}$

- The  $(\{1,2,3\},2)$ -row  $(\hat{1},\hat{2})$ -column entry of U is 12, for  $(a_{12}a_{23}b_{13})(a_{12}^2b_{11})$
- The  $(\hat{1},\hat{2})$ -row  $(\{1,2,3\},2)$ -column entry of U is 12, for  $(a_{12}^2b_{11})(a_{12}a_{23}b_{13})$

#### **2.20.5** Monomial $a_{12}a_{13}^3b_{23}b_{33}$

- The  $(\{1,2,3\},1)$ -row  $(\hat{3},\hat{1})$ -column entry of U is 12, for  $(a_{12}a_{13}b_{23})(a_{13}^2b_{33})$

### **2.20.6** Monomial $a_{13}a_{23}^3b_{12}b_{22}$

- The ({1,2,3},3)-row (2,3)-column entry of U is 12, for  $(a_{13}a_{23}b_{12})(a_{23}^2b_{22})$
- The  $(\hat{2}, \hat{3})$ -row  $(\{1, 2, 3\}, 3)$ -column entry of U is 12, for  $(a_{23}^2 b_{22})(a_{13} a_{23} b_{12})$

#### **2.21** Monomial type $a_{11}a_{13}a_{22}a_{23}b_{11}b_{12}$ with coefficient 24

#### **2.21.1** Monomial $a_{11}a_{13}a_{22}a_{23}b_{11}b_{12}$

- The (4,1)-row (6,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{11})(a_{11}a_{22}b_{12})$
- The (2,1)-row (6,6,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{11})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (2,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{22}a_{23}b_{12})(a_{11}a_{13}b_{11})$

#### **2.21.2** Monomial $a_{11}a_{12}a_{23}a_{33}b_{13}b_{33}$

- The (4,1)-row (5,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{33})(a_{11}a_{33}b_{13})$
- The (3,3)-row (5,6,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{33})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (3,3)-column entry of the (2,3)-copy of R is 9, for  $(a_{11}a_{12}b_{13})(a_{23}a_{33}b_{33})$

#### **2.21.3** Monomial $a_{12}a_{13}a_{22}a_{33}b_{22}b_{23}$

- The (3,2)-row (5,6,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{22})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (3,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{33}b_{23})(a_{12}a_{22}b_{22})$
- The (4,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{22})(a_{22}a_{33}b_{23})$

### **2.21.4** Monomial $a_{11}a_{12}a_{23}a_{33}b_{11}b_{13}$

- The (2,1)-row (6,6,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{11})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (2,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{23}a_{33}b_{13})(a_{11}a_{12}b_{11})$
- The (4,1)-row (6,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{11})(a_{11}a_{33}b_{13})$

#### **2.21.5** Monomial $a_{12}a_{13}a_{22}a_{33}b_{23}b_{33}$

- The (3,3)-row (5,6,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{33})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (3,3)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{22}b_{23})(a_{13}a_{33}b_{33})$
- The (4,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{33})(a_{22}a_{33}b_{23})$

#### **2.21.6** Monomial $a_{11}a_{13}a_{22}a_{23}b_{12}b_{22}$

- The (4,1)-row (5,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{22})(a_{11}a_{22}b_{12})$
- The (2,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{22})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{11}a_{13}b_{12})(a_{22}a_{23}b_{22})$

### **2.22** Monomial type $a_{13}a_{22}^2a_{23}b_{11}b_{12}$ with coefficient 12

### **2.22.1** Monomial $a_{13}a_{22}^2a_{23}b_{11}b_{12}$

- The (6,2)-row (6,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}^2b_{12})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (6,2)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{11})(a_{22}^2b_{12})$

### **2.22.2** Monomial $a_{11}^2 a_{12} a_{23} b_{13} b_{33}$

- The (5,1)-row (5,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}^2b_{13})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (5,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{33})(a_{11}^2b_{13})$

### **2.22.3** Monomial $a_{12}a_{13}a_{33}^2b_{22}b_{23}$

- The (6,2)-row (6,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{33}^2b_{23})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (6,2)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{22})(a_{33}^2b_{23})$

### **2.22.4** Monomial $a_{12}a_{23}a_{33}^2b_{11}b_{13}$

- The (6,2)-row (6,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{33}^2b_{13})(a_{12}a_{23}b_{11})$
- The (6, 4, 2)-row (6, 2)-column entry of the (1, 3)-copy of R is 6, for  $(a_{12}a_{23}b_{11})(a_{33}^2b_{13})$

#### **2.22.5** Monomial $a_{12}a_{13}a_{22}^2b_{23}b_{33}$

- The (5,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}^2b_{23})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{33})(a_{22}^2b_{23})$

#### **2.22.6** Monomial $a_{11}^2 a_{13} a_{23} b_{12} b_{22}$

- The (5,1)-row (5,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}^2b_{12})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (5,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{22})(a_{11}^2b_{12})$

# 2.23 Monomial type $a_{11}a_{12}a_{23}^2b_{11}b_{12}$ with coefficient 24

#### **2.23.1** Monomial $a_{11}a_{12}a_{23}^2b_{11}b_{12}$

- The (2,1)-row (6,5,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{11})(a_{23}^2b_{12})$
- The (6,5,3)-row (2,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{23}^2b_{12})(a_{11}a_{12}b_{11})$
- The (4,2,2)-row (6,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{11})(a_{11}a_{23}b_{12})$

#### **2.23.2** Monomial $a_{12}^2 a_{13} a_{33} b_{13} b_{33}$

- The (3,3)-row (5,4,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{33})(a_{12}^2b_{13})$
- The (5,4,2)-row (3,3)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}^2b_{13})(a_{13}a_{33}b_{33})$
- The (4,3,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{33})(a_{12}a_{33}b_{13})$

#### **2.23.3** Monomial $a_{13}^2 a_{22} a_{23} b_{22} b_{23}$

- The (4,3,3)-row (5,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{22})(a_{13}a_{22}b_{23})$
- The (2,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{22})(a_{13}^2b_{23})$
- The (6,5,1)-row (2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}^2b_{23})(a_{22}a_{23}b_{22})$

#### **2.23.4** Monomial $a_{11}a_{13}a_{23}^2b_{11}b_{13}$

- The (4,2,3)-row (6,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{11})(a_{11}a_{23}b_{13})$
- The (2,1)-row (6,5,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{11})(a_{23}^2b_{13})$
- The (6,5,2)-row (2,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{23}^2b_{13})(a_{11}a_{13}b_{11})$

### **2.23.5** Monomial $a_{12}^2 a_{23} a_{33} b_{23} b_{33}$

- The (4,3,2)-row (5,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{33})(a_{12}a_{33}b_{23})$
- The (3,3)-row (5,4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{33})(a_{12}^2b_{23})$
- The (5,4,1)-row (3,3)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}^2b_{23})(a_{23}a_{33}b_{33})$

## **2.23.6** Monomial $a_{12}a_{13}^2a_{22}b_{12}b_{22}$

- The (3,2)-row (5,4,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{22})(a_{13}^2b_{12})$
- The (5,4,3)-row (3,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}^2b_{12})(a_{12}a_{22}b_{22})$
- The (4,2,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{22})(a_{13}a_{22}b_{12})$

# **2.24** Monomial type $a_{12}a_{22}a_{23}^2b_{11}b_{12}$ with coefficient 24

#### **2.24.1** Monomial $a_{12}a_{22}a_{23}^2b_{11}b_{12}$

- The (6,1)-row (6,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{12}a_{22}b_{11})(a_{23}^2b_{12})$
- The (6,5,3)-row (6,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}^2b_{12})(a_{12}a_{22}b_{11})$
- The (6,4,2)-row (6,6,2)-column entry of the (1,3)-copy of R is (6,4,2)-row (6,6,2)-column entry of the (1,3)-copy of (6,6,2)-column entry of the (1,3)-copy of (6,6,2)-column entry of the (6,4,2)-copy of (6,6,2)-copy of (6,6,2)-column entry of the (6,4,2)-copy of (6,6,2)-copy of (6,6,2)-column entry of the (6,4,2)-copy of (6,6,2)-column entry of the (6,4,2)-copy of (6,6,2)-copy of (6,6,2)-column entry of the (6,4,2)-copy of (6,6,2)-copy of
- The (6,6,2)-row (6,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{22}a_{23}b_{12})(a_{12}a_{23}b_{11})$

#### **2.24.2** Monomial $a_{11}a_{12}^2a_{13}b_{13}b_{33}$

- The (5,2)-row (5,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{13}b_{33})(a_{12}^2b_{13})$
- The (5,4,2)-row (5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}^2b_{13})(a_{11}a_{13}b_{33})$
- The (5,5,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{33})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{12}b_{13})(a_{12}a_{13}b_{33})$

#### **2.24.3** Monomial $a_{13}^2 a_{23} a_{33} b_{22} b_{23}$

- The (5,5,3)-row (5,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{22})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (5,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{33}b_{23})(a_{13}a_{23}b_{22})$
- The (6,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{23}a_{33}b_{22})(a_{13}^2b_{23})$
- The (6,5,1)-row (6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}^2b_{23})(a_{23}a_{33}b_{22})$

### **2.24.4** Monomial $a_{13}a_{23}^2a_{33}b_{11}b_{13}$

- The (6,4,3)-row (6,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{11})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (6,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}a_{33}b_{13})(a_{13}a_{23}b_{11})$
- The (6,1)-row (6,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{13}a_{33}b_{11})(a_{23}^2b_{13})$
- The (6,5,2)-row (6,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}^2b_{13})(a_{13}a_{33}b_{11})$

### **2.24.5** Monomial $a_{12}^2 a_{22} a_{23} b_{23} b_{33}$

- The (5,5,2)-row (5,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{33})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (5,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{22}b_{23})(a_{12}a_{23}b_{33})$
- The (5,2)-row (5,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}a_{23}b_{33})(a_{12}^2b_{23})$
- The (5,4,1)-row (5,2)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}^2b_{23})(a_{22}a_{23}b_{33})$

# **2.24.6** Monomial $a_{11}a_{12}a_{13}^2b_{12}b_{22}$

- The (5,2)-row (5,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{12}b_{22})(a_{13}^2b_{12})$
- The (5,4,3)-row (5,2)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}^2b_{12})(a_{11}a_{12}b_{22})$
- The (6,4,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{22})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{13}b_{12})(a_{12}a_{13}b_{22})$

# **2.25** Monomial type $a_{13}a_{23}^3b_{11}b_{12}$ with coefficient 12

### **2.25.1** Monomial $a_{13}a_{23}^3b_{11}b_{12}$

- The (6,4,3)-row (6,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{11})(a_{23}^2b_{12})$
- The (6,5,3)-row (6,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}^2b_{12})(a_{13}a_{23}b_{11})$

#### **2.25.2** Monomial $a_{12}^3 a_{23} b_{13} b_{33}$

- The (5,4,2)-row (5,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}^2b_{13})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (5,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{33})(a_{12}^2b_{13})$

### **2.25.3** Monomial $a_{12}a_{13}^3b_{22}b_{23}$

- The (6,4,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{22})(a_{13}^2b_{23})$
- The (6,5,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}^2b_{23})(a_{12}a_{13}b_{22})$

#### **2.25.4** Monomial $a_{12}a_{23}^3b_{11}b_{13}$

- The (6,4,2)-row (6,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{11})(a_{23}^2b_{13})$
- The (6,5,2)-row (6,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}^2b_{13})(a_{12}a_{23}b_{11})$

### **2.25.5** Monomial $a_{12}^3 a_{13} b_{23} b_{33}$

- The (5,4,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}^2b_{23})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{33})(a_{12}^2b_{23})$

### **2.25.6** Monomial $a_{13}^3 a_{23} b_{12} b_{22}$

- The (5,4,3)-row (5,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}^2b_{12})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (5,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{22})(a_{13}^2b_{12})$

# **2.26** Monomial type $a_{12}a_{13}^2a_{33}b_{11}b_{12}$ with coefficient 24

### **2.26.1** Monomial $a_{12}a_{13}^2a_{33}b_{11}b_{12}$

- The (2,2,2)-row (6,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{13}b_{12})(a_{13}a_{33}b_{11})$
- The (6,1)-row (2,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{11})(a_{12}a_{13}b_{12})$
- The (4,4,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{13}a_{33}b_{12})$
- The (6,3,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{33}b_{12})(a_{12}a_{13}b_{11})$

### **2.26.2** Monomial $a_{13}a_{22}a_{23}^2b_{13}b_{33}$

- The (4,4,3)-row (6,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{22}a_{23}b_{13})$
- The (6,3,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}a_{23}b_{13})(a_{13}a_{23}b_{33})$
- The (3,1)-row (5,2)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{23}b_{13})(a_{22}a_{23}b_{33})$
- The (5,2)-row (3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{33})(a_{13}a_{23}b_{13})$

### **2.26.3** Monomial $a_{11}a_{12}^2a_{23}b_{22}b_{23}$

- The (3,3)-row (5,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{23}b_{23})(a_{11}a_{12}b_{22})$
- The (5,2)-row (3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{22})(a_{12}a_{23}b_{23})$
- The (4,4,2)-row (5,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{11}a_{12}b_{23})$
- The (5,3,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{12}b_{23})(a_{12}a_{23}b_{22})$

#### **2.26.4** Monomial $a_{12}^2 a_{13} a_{22} b_{11} b_{13}$

- The (2,2,3)-row (6,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{13}b_{13})(a_{12}a_{22}b_{11})$
- The (6,1)-row (2,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{11})(a_{12}a_{13}b_{13})$
- The (4,4,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{12}a_{22}b_{13})$
- The (5,3,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{22}b_{13})(a_{12}a_{13}b_{11})$

#### **2.26.5** Monomial $a_{11}a_{13}^2a_{23}b_{23}b_{33}$

- The (4,4,3)-row (5,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{11}a_{13}b_{23})$
- The (5,3,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{13}b_{23})(a_{13}a_{23}b_{33})$
- The (3,2)-row (5,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{23}b_{23})(a_{11}a_{13}b_{33})$
- The (5,2)-row (3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{33})(a_{13}a_{23}b_{23})$

### **2.26.6** Monomial $a_{12}a_{23}^2a_{33}b_{12}b_{22}$

- The (4,4,2)-row (6,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{23}a_{33}b_{12})$
- The (6,3,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}a_{33}b_{12})(a_{12}a_{23}b_{22})$
- The (2,2,1)-row (6,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{23}b_{12})(a_{23}a_{33}b_{22})$
- The (6,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{22})(a_{12}a_{23}b_{12})$

### 2.27 Monomial type $a_{11}a_{13}a_{23}a_{33}b_{11}b_{12}$ with coefficient 24

### **2.27.1** Monomial $a_{11}a_{13}a_{23}a_{33}b_{11}b_{12}$

- The (2,1)-row (6,3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{11})(a_{23}a_{33}b_{12})$
- The (4,2,2)-row (6,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{13}a_{33}b_{11})$
- The (6,1)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{11})(a_{11}a_{23}b_{12})$
- The (6,3,2)-row (2,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{23}a_{33}b_{12})(a_{11}a_{13}b_{11})$

#### **2.27.2** Monomial $a_{12}a_{22}a_{23}a_{33}b_{13}b_{33}$

- The (3,3)-row (5,3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{33})(a_{12}a_{22}b_{13})$
- The (4,3,1)-row (5,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{22}a_{23}b_{33})$
- The (5,2)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{33})(a_{12}a_{33}b_{13})$
- The (5,3,1)-row (3,3)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{22}b_{13})(a_{23}a_{33}b_{33})$

#### **2.27.3** Monomial $a_{11}a_{12}a_{13}a_{22}b_{22}b_{23}$

- The (3,2)-row (5,3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{22})(a_{11}a_{13}b_{23})$
- The (4,3,3)-row (5,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{11}a_{12}b_{22})$
- The (5,2)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{22})(a_{13}a_{22}b_{23})$
- The (5,3,3)-row (3,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{13}b_{23})(a_{12}a_{22}b_{22})$

#### **2.27.4** Monomial $a_{11}a_{12}a_{22}a_{23}b_{11}b_{13}$

- The (2,1)-row (6,3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{11})(a_{22}a_{23}b_{13})$
- The (4,2,3)-row (6,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{12}a_{22}b_{11})$
- The (6,1)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{11})(a_{11}a_{23}b_{13})$
- The (6,3,3)-row (2,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{22}a_{23}b_{13})(a_{11}a_{12}b_{11})$

#### **2.27.5** Monomial $a_{11}a_{12}a_{13}a_{33}b_{23}b_{33}$

- The (3,3)-row (5,3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{33})(a_{11}a_{12}b_{23})$
- The (4,3,2)-row (5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{11}a_{13}b_{33})$
- The (5,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{33})(a_{12}a_{33}b_{23})$
- The (5,3,2)-row (3,3)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{12}b_{23})(a_{13}a_{33}b_{33})$

#### **2.27.6** Monomial $a_{13}a_{22}a_{23}a_{33}b_{12}b_{22}$

- The (2,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{22})(a_{13}a_{33}b_{12})$
- The (4,2,1)-row (6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{23}a_{33}b_{22})$
- The (6,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{22})(a_{13}a_{22}b_{12})$
- The (6,3,1)-row (2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{33}b_{12})(a_{22}a_{23}b_{22})$

### **2.28** Monomial type $a_{13}a_{22}a_{23}a_{33}b_{11}b_{12}$ with coefficient 12

#### **2.28.1** Monomial $a_{13}a_{22}a_{23}a_{33}b_{11}b_{12}$

- The (6,1)-row (6,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{13}a_{33}b_{11})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (6,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{22}a_{23}b_{12})(a_{13}a_{33}b_{11})$

#### **2.28.2** Monomial $a_{11}a_{12}a_{22}a_{23}b_{13}b_{33}$

- The (5,2)-row (5,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}a_{23}b_{33})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (5,2)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{12}b_{13})(a_{22}a_{23}b_{33})$

#### **2.28.3** Monomial $a_{11}a_{12}a_{13}a_{33}b_{22}b_{23}$

- The (5,2)-row (5,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{12}b_{22})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (5,2)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{33}b_{23})(a_{11}a_{12}b_{22})$

#### **2.28.4** Monomial $a_{12}a_{22}a_{23}a_{33}b_{11}b_{13}$

- The (6,1)-row (6,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{12}a_{22}b_{11})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (6,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}a_{33}b_{13})(a_{12}a_{22}b_{11})$

#### **2.28.5** Monomial $a_{11}a_{12}a_{13}a_{22}b_{23}b_{33}$

- The (5,2)-row (5,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{13}b_{33})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{22}b_{23})(a_{11}a_{13}b_{33})$

#### **2.28.6** Monomial $a_{11}a_{13}a_{23}a_{33}b_{12}b_{22}$

- The (6,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{23}a_{33}b_{22})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{13}b_{12})(a_{23}a_{33}b_{22})$

### **2.29** Monomial type $a_{12}a_{23}^2a_{33}b_{11}b_{12}$ with coefficient 12

### **2.29.1** Monomial $a_{12}a_{23}^2a_{33}b_{11}b_{12}$

- The (6,3,2)-row (6,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}a_{33}b_{12})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (6,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{11})(a_{23}a_{33}b_{12})$

# **2.29.2** Monomial $a_{12}^2 a_{13} a_{22} b_{13} b_{33}$

- The (5,3,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{22}b_{13})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (5,3,1)-column entry of the (2,3)-copy of R is (6,5) for  $(a_{12}a_{13}b_{33})(a_{12}a_{22}b_{13})$

### **2.29.3** Monomial $a_{11}a_{13}^2a_{23}b_{22}b_{23}$

- The (5,3,3)-row (5,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{13}b_{23})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (5,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{22})(a_{11}a_{13}b_{23})$

### **2.29.4** Monomial $a_{13}a_{22}a_{23}^2b_{11}b_{13}$

- The (6,3,3)-row (6,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}a_{23}b_{13})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (6,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{11})(a_{22}a_{23}b_{13})$

### **2.29.5** Monomial $a_{11}a_{12}^2a_{23}b_{23}b_{33}$

- The (5,3,2)-row (5,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{12}b_{23})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (5,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{33})(a_{11}a_{12}b_{23})$

#### **2.29.6** Monomial $a_{12}a_{13}^2a_{33}b_{12}b_{22}$

- The (6,3,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}a_{33}b_{12})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{22})(a_{13}a_{33}b_{12})$

## 2.30 Monomial type $a_{13}a_{23}a_{33}^2b_{11}b_{12}$ with coefficient 12

#### **2.30.1** Monomial $a_{13}a_{23}a_{33}^2b_{11}b_{12}$

- The (6,1)-row (6,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{13}a_{33}b_{11})(a_{23}a_{33}b_{12})$
- The (6,3,2)-row (6,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}a_{33}b_{12})(a_{13}a_{33}b_{11})$

#### **2.30.2** Monomial $a_{12}a_{22}^2a_{23}b_{13}b_{33}$

- The (5,2)-row (5,3,1)-column entry of the (2,3)-copy of R is (6, 6) for  $(a_{22}a_{23}b_{33})(a_{12}a_{22}b_{13})$
- The (5,3,1)-row (5,2)-column entry of the (2,3)-copy of R is (5,4) for  $(a_{12}a_{22}b_{13})(a_{22}a_{23}b_{33})$

#### **2.30.3** Monomial $a_{11}^2 a_{12} a_{13} b_{22} b_{23}$

- The (5,2)-row (5,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{12}b_{22})(a_{11}a_{13}b_{23})$
- The (5,3,3)-row (5,2)-column entry of the (1,2)-copy of R is (5,4) for  $(a_{11}a_{13}b_{23})(a_{11}a_{12}b_{22})$

### **2.30.4** Monomial $a_{12}a_{22}^2a_{23}b_{11}b_{13}$

- The (6,1)-row (6,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{12}a_{22}b_{11})(a_{22}a_{23}b_{13})$
- The (6,3,3)-row (6,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}a_{23}b_{13})(a_{12}a_{22}b_{11})$

### **2.30.5** Monomial $a_{11}^2 a_{12} a_{13} b_{23} b_{33}$

- The (5,2)-row (5,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{13}b_{33})(a_{11}a_{12}b_{23})$
- The (5,3,2)-row (5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{12}b_{23})(a_{11}a_{13}b_{33})$

#### **2.30.6** Monomial $a_{13}a_{23}a_{33}^2b_{12}b_{22}$

- The (6,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{23}a_{33}b_{22})(a_{13}a_{33}b_{12})$
- The (6,3,1)-row (6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}a_{33}b_{12})(a_{23}a_{33}b_{22})$

# 2.31 Monomial type $a_{11}^4 b_{12}^2$ with coefficient 6

### **2.31.1** Monomial $a_{11}^4 b_{12}^2$

• The (5,1)-row (5,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}^2b_{12})(a_{11}^2b_{12})$ 

### **2.31.2** Monomial $a_{33}^4 b_{13}^2$

• The (6,2)-row (6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{33}^2b_{13})(a_{33}^2b_{13})$ 

## **2.31.3** Monomial $a_{22}^4 b_{23}^2$

• The (5,1)-row (5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}^2b_{23})(a_{22}^2b_{23})$ 

## **2.31.4** Monomial $a_{11}^4 b_{13}^2$

• The (5,1)-row (5,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}^2b_{13})(a_{11}^2b_{13})$ 

#### **2.31.5** Monomial $a_{33}^4 b_{23}^2$

• The (6,2)-row (6,2)-column entry of the (2,3)-copy of R is 6, for  $(a_{33}^2b_{23})(a_{33}^2b_{23})$ 

#### **2.31.6** Monomial $a_{22}^4 b_{12}^2$

• The (6,2)-row (6,2)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}^2b_{12})(a_{22}^2b_{12})$ 

# **2.32** Monomial type $a_{11}^2 a_{12}^2 b_{12}^2$ with coefficient 54

#### **2.32.1** Monomial $a_{11}^2 a_{12}^2 b_{12}^2$

- The (1,2)-row (1,2)-column entry of U is 36, for  $(a_{11}a_{12}b_{12})(a_{11}a_{12}b_{12})$
- The (1)-row (5,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{11}^2b_{12})$
- The (5,1)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}^2b_{12})(a_{12}^2b_{12})$

### **2.32.2** Monomial $a_{13}^2 a_{33}^2 b_{13}^2$

- The (3,1)-row (3,1)-column entry of U is 36, for  $(a_{13}a_{33}b_{13})(a_{13}a_{33}b_{13})$
- The (1)-row (6,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{33}^2b_{13})$
- The (6,2)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{33}^2b_{13})(a_{13}^2b_{13})$

## **2.32.3** Monomial $a_{22}^2 a_{23}^2 b_{23}^2$

- The (2,3)-row (2,3)-column entry of U is 36, for  $(a_{22}a_{23}b_{23})(a_{22}a_{23}b_{23})$
- The (1)-row (5,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{22}^2b_{23})$
- The (5,1)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}^2b_{23})(a_{23}^2b_{23})$

### **2.32.4** Monomial $a_{11}^2 a_{13}^2 b_{13}^2$

- The (1,3)-row (1,3)-column entry of U is 36, for  $(a_{11}a_{13}b_{13})(a_{11}a_{13}b_{13})$
- The (1)-row (5,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{11}^2b_{13})$
- $\bullet$  The (5, 1)-row (1)-column entry of the (1, 3)-copy of R is 9, for  $(a_{11}^2b_{13})(a_{13}^2b_{13})$

### **2.32.5** Monomial $a_{23}^2 a_{33}^2 b_{23}^2$

- The (3, 2)-row (3, 2)-column entry of U is 36, for  $(a_{23}a_{33}b_{23})(a_{23}a_{33}b_{23})$
- The (1)-row (6,2)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{33}^2b_{23})$
- The (6,2)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{33}^2b_{23})(a_{23}^2b_{23})$

### **2.32.6** Monomial $a_{12}^2 a_{22}^2 b_{12}^2$

- The (2,1)-row (2,1)-column entry of U is 36, for  $(a_{12}a_{22}b_{12})(a_{12}a_{22}b_{12})$
- The (1)-row (6,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{22}^2b_{12})$
- The (6,2)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{22}^2b_{12})(a_{12}^2b_{12})$

# **2.33** Monomial type $a_{12}^4b_{12}^2$ with coefficient 30

#### **2.33.1** Monomial $a_{12}^4 b_{12}^2$

• The (1)-row (1)-column entry of the (1,2)-copy of R is 30, for  $(a_{12}^2b_{12})(a_{12}^2b_{12})$ 

#### **2.33.2** Monomial $a_{13}^4 b_{13}^2$

• The (1)-row (1)-column entry of the (1,3)-copy of R is 30, for  $(a_{13}^2b_{13})(a_{13}^2b_{13})$ 

### **2.33.3** Monomial $a_{23}^4 b_{23}^2$

• The (1)-row (1)-column entry of the (2,3)-copy of R is 30, for  $(a_{23}^2b_{23})(a_{23}^2b_{23})$ 

# **2.34** Monomial type $a_{11}^2 a_{13}^2 b_{12}^2$ with coefficient 18

#### **2.34.1** Monomial $a_{11}^2 a_{13}^2 b_{12}^2$

- The (5,1)-row (5,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}^2b_{12})(a_{13}^2b_{12})$
- The (5,4,3)-row (5,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}^2b_{12})(a_{11}^2b_{12})$
- The (6,6,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{13}b_{12})(a_{11}a_{13}b_{12})$

#### **2.34.2** Monomial $a_{23}^2 a_{33}^2 b_{13}^2$

- The (6,6,3)-row (6,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}a_{33}b_{13})(a_{23}a_{33}b_{13})$
- The (6,2)-row (6,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{33}^2b_{13})(a_{23}^2b_{13})$
- The (6,5,2)-row (6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}^2b_{13})(a_{33}^2b_{13})$

# **2.34.3** Monomial $a_{12}^2 a_{22}^2 b_{23}^2$

- The (5,6,2)-row (5,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{22}b_{23})(a_{12}a_{22}b_{23})$
- The (5,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}^2b_{23})(a_{12}^2b_{23})$
- The (5,4,1)-row (5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}^2b_{23})(a_{22}^2b_{23})$

### **2.34.4** Monomial $a_{11}^2 a_{12}^2 b_{13}^2$

- The (5,1)-row (5,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}^2b_{13})(a_{12}^2b_{13})$
- The (5,4,2)-row (5,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}^2b_{13})(a_{11}^2b_{13})$
- The (5,6,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{12}b_{13})(a_{11}a_{12}b_{13})$

### **2.34.5** Monomial $a_{13}^2 a_{33}^2 b_{23}^2$

- The (5,6,3)-row (5,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{33}b_{23})(a_{13}a_{33}b_{23})$
- $\bullet$  The (6, 2)-row (6, 5, 1)-column entry of the (2, 3)-copy of R is 6, for  $(a_{33}^2b_{23})(a_{13}^2b_{23})$
- The (6,5,1)-row (6,2)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}^2b_{23})(a_{33}^2b_{23})$

#### **2.34.6** Monomial $a_{22}^2 a_{23}^2 b_{12}^2$

- The (6,2)-row (6,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}^2b_{12})(a_{23}^2b_{12})$
- The (6,5,3)-row (6,2)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}^2b_{12})(a_{22}^2b_{12})$
- The (6,6,2)-row (6,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{22}a_{23}b_{12})(a_{22}a_{23}b_{12})$

# **2.35** Monomial type $a_{12}^2 a_{13}^2 b_{12}^2$ with coefficient 36

#### **2.35.1** Monomial $a_{12}^2 a_{13}^2 b_{12}^2$

- The (1)-row (5,4,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{13}^2b_{12})$
- The (5,4,3)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}^2b_{12})(a_{12}^2b_{12})$
- The (2,2,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 18, for  $(a_{12}a_{13}b_{12})(a_{12}a_{13}b_{12})$

#### **2.35.2** Monomial $a_{13}^2 a_{23}^2 b_{13}^2$

- The (1)-row (6,5,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{23}^2b_{13})$
- The (6,5,2)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{23}^2b_{13})(a_{13}^2b_{13})$
- The (3,1)-row (3,1)-column entry of the (2,3)-copy of R is 18, for  $(a_{13}a_{23}b_{13})(a_{13}a_{23}b_{13})$

#### **2.35.3** Monomial $a_{12}^2 a_{23}^2 b_{23}^2$

- The (3,3)-row (3,3)-column entry of the (1,2)-copy of R is 18, for  $(a_{12}a_{23}b_{23})(a_{12}a_{23}b_{23})$
- The (1)-row (5,4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{12}^2b_{23})$
- The (5,4,1)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}^2b_{23})(a_{23}^2b_{23})$

# **2.35.4** Monomial $a_{12}^2 a_{13}^2 b_{13}^2$

- The (2,2,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 18, for  $(a_{12}a_{13}b_{13})(a_{12}a_{13}b_{13})$
- The (1)-row (5, 4, 2)-column entry of the (1, 3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{12}^2b_{13})$
- The (5,4,2)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}^2b_{13})(a_{13}^2b_{13})$

## **2.35.5** Monomial $a_{13}^2 a_{23}^2 b_{23}^2$

- The (3,2)-row (3,2)-column entry of the (1,3)-copy of R is 18, for  $(a_{13}a_{23}b_{23})(a_{13}a_{23}b_{23})$
- The (1)-row (6,5,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{13}^2b_{23})$
- The (6,5,1)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}^2b_{23})(a_{23}^2b_{23})$

### **2.35.6** Monomial $a_{12}^2 a_{23}^2 b_{12}^2$

- The (1)-row (6,5,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{23}^2b_{12})$
- The (6,5,3)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{23}^2b_{12})(a_{12}^2b_{12})$
- The (2,2,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 18, for  $(a_{12}a_{23}b_{12})(a_{12}a_{23}b_{12})$

# **2.36** Monomial type $a_{13}^4b_{12}^2$ with coefficient 6

### **2.36.1** Monomial $a_{13}^4 b_{12}^2$

• The (5,4,3)-row (5,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}^2b_{12})(a_{13}^2b_{12})$ 

### **2.36.2** Monomial $a_{23}^4 b_{13}^2$

• The (6,5,2)-row (6,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}^2b_{13})(a_{23}^2b_{13})$ 

### **2.36.3** Monomial $a_{12}^4 b_{23}^2$

• The (5,4,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}^2b_{23})(a_{12}^2b_{23})$ 

# **2.36.4** Monomial $a_{12}^4 b_{13}^2$

• The (5,4,2)-row (5,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}^2b_{13})(a_{12}^2b_{13})$ 

# **2.36.5** Monomial $a_{13}^4 b_{23}^2$

 $\bullet$  The (6,5,1) -row (6,5,1) -column entry of the (2,3) -copy of R is 6, for  $(a_{13}^2b_{23})(a_{13}^2b_{23})$ 

# **2.36.6** Monomial $a_{23}^4 b_{12}^2$

• The (6,5,3)-row (6,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}^2b_{12})(a_{23}^2b_{12})$ 

# 2.37 Monomial type $a_{11}^3 a_{22} b_{12}^2$ with coefficient 6

## **2.37.1** Monomial $a_{11}^3 a_{22} b_{12}^2$

- The (4,1)-row (5,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{11}^2b_{12})$
- The (5,1)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}^2b_{12})(a_{11}a_{22}b_{12})$

## **2.37.2** Monomial $a_{11}a_{33}^3b_{13}^2$

- The (4,1)-row (6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{33}^2b_{13})$
- The (6,2)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{33}^2b_{13})(a_{11}a_{33}b_{13})$

### **2.37.3** Monomial $a_{22}^3 a_{33} b_{23}^2$

- The (4,1)-row (5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{22}^2b_{23})$
- The (5,1)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}^2b_{23})(a_{22}a_{33}b_{23})$

# **2.37.4** Monomial $a_{11}^3 a_{33} b_{13}^2$

- The (4,1)-row (5,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{11}^2b_{13})$
- The (5,1)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}^2b_{13})(a_{11}a_{33}b_{13})$

### **2.37.5** Monomial $a_{22}a_{33}^3b_{23}^2$

- The (4,1)-row (6,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{33}^2b_{23})$
- The (6,2)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{33}^2b_{23})(a_{22}a_{33}b_{23})$

#### **2.37.6** Monomial $a_{11}a_{22}^3b_{12}^2$

- The (4,1)-row (6,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{22}^2b_{12})$
- The (6,2)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}^2b_{12})(a_{11}a_{22}b_{12})$

# 2.38 Monomial type $a_{11}a_{12}^2a_{22}b_{12}^2$ with coefficient 72

### **2.38.1** Monomial $a_{11}a_{12}^2a_{22}b_{12}^2$

- The (1,2)-row (2,1)-column entry of U is 24, for  $(a_{11}a_{12}b_{12})(a_{12}a_{22}b_{12})$
- The (2,1)-row (1,2)-column entry of U is 24, for  $(a_{12}a_{22}b_{12})(a_{11}a_{12}b_{12})$
- The (1)-row (4,1)-column entry of the (1,2)-copy of R is 12, for  $(a_{12}^2b_{12})(a_{11}a_{22}b_{12})$
- The (4,1)-row (1)-column entry of the (1,2)-copy of R is 12, for  $(a_{11}a_{22}b_{12})(a_{12}^2b_{12})$

### **2.38.2** Monomial $a_{11}a_{13}^2a_{33}b_{13}^2$

- The (1,3)-row (3,1)-column entry of U is 24, for  $(a_{11}a_{13}b_{13})(a_{13}a_{33}b_{13})$
- The (3,1)-row (1,3)-column entry of U is 24, for  $(a_{13}a_{33}b_{13})(a_{11}a_{13}b_{13})$
- The (1)-row (4,1)-column entry of the (1,3)-copy of R is 12, for  $(a_{13}^2b_{13})(a_{11}a_{33}b_{13})$
- The (4,1)-row (1)-column entry of the (1,3)-copy of R is 12, for  $(a_{11}a_{33}b_{13})(a_{13}^2b_{13})$

### **2.38.3** Monomial $a_{22}a_{23}^2a_{33}b_{23}^2$

- The (2,3)-row (3,2)-column entry of U is 24, for  $(a_{22}a_{23}b_{23})(a_{23}a_{33}b_{23})$
- The (3, 2)-row (2, 3)-column entry of U is 24, for  $(a_{23}a_{33}b_{23})(a_{22}a_{23}b_{23})$
- The (1)-row (4,1)-column entry of the (2,3)-copy of R is 12, for  $(a_{23}^2b_{23})(a_{22}a_{33}b_{23})$
- The (4,1)-row (1)-column entry of the (2,3)-copy of R is 12, for  $(a_{22}a_{33}b_{23})(a_{23}^2b_{23})$

# **2.39** Monomial type $a_{11}a_{13}^2a_{22}b_{12}^2$ with coefficient 12

### **2.39.1** Monomial $a_{11}a_{13}^2a_{22}b_{12}^2$

- The (4,1)-row (5,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{13}^2b_{12})$
- The (5,4,3)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}^2b_{12})(a_{11}a_{22}b_{12})$
- The (4,2,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{13}b_{12})(a_{13}a_{22}b_{12})$

# **2.39.2** Monomial $a_{11}a_{23}^2a_{33}b_{13}^2$

- The (4,2,3)-row (6,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}a_{33}b_{13})(a_{11}a_{23}b_{13})$
- The (4,1)-row (6,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{23}^2b_{13})$
- The (6,5,2)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}^2b_{13})(a_{11}a_{33}b_{13})$

### **2.39.3** Monomial $a_{12}^2 a_{22} a_{33} b_{23}^2$

- The (4,3,2)-row (5,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{22}b_{23})(a_{12}a_{33}b_{23})$
- The (4,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{12}^2b_{23})$
- The (5,4,1)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}^2b_{23})(a_{22}a_{33}b_{23})$

# **2.39.4** Monomial $a_{11}a_{12}^2a_{33}b_{13}^2$

- The (4,1)-row (5,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{12}^2b_{13})$
- The (5,4,2)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}^2b_{13})(a_{11}a_{33}b_{13})$
- The (4,3,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{12}b_{13})(a_{12}a_{33}b_{13})$

#### **2.39.5** Monomial $a_{13}^2 a_{22} a_{33} b_{23}^2$

- The (4,3,3)-row (5,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{33}b_{23})(a_{13}a_{22}b_{23})$
- The (4,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{13}^2b_{23})$
- The (6,5,1)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}^2b_{23})(a_{22}a_{33}b_{23})$

## **2.39.6** Monomial $a_{11}a_{22}a_{23}^2b_{12}^2$

- The (4,1)-row (6,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{23}^2b_{12})$
- The (6,5,3)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}^2b_{12})(a_{11}a_{22}b_{12})$
- The (4,2,2)-row (6,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{22}a_{23}b_{12})(a_{11}a_{23}b_{12})$

# **2.40** Monomial type $a_{11}^2 a_{22}^2 b_{12}^2$ with coefficient 6

### **2.40.1** Monomial $a_{11}^2 a_{22}^2 b_{12}^2$

• The (4,1)-row (4,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{22}b_{12})(a_{11}a_{22}b_{12})$ 

### **2.40.2** Monomial $a_{11}^2 a_{33}^2 b_{13}^2$

• The (4,1)-row (4,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{33}b_{13})(a_{11}a_{33}b_{13})$ 

### **2.40.3** Monomial $a_{22}^2 a_{33}^2 b_{23}^2$

• The (4,1)-row (4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}a_{33}b_{23})(a_{22}a_{33}b_{23})$ 

# 2.41 Monomial type $a_{13}^2 a_{22}^2 b_{12}^2$ with coefficient 6

# **2.41.1** Monomial $a_{13}^2 a_{22}^2 b_{12}^2$

• The (4,2,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}a_{22}b_{12})(a_{13}a_{22}b_{12})$ 

### **2.41.2** Monomial $a_{11}^2 a_{23}^2 b_{13}^2$

• The (4,2,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{23}b_{13})(a_{11}a_{23}b_{13})$ 

### **2.41.3** Monomial $a_{12}^2 a_{33}^2 b_{23}^2$

• The (4,3,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{33}b_{23})(a_{12}a_{33}b_{23})$ 

### **2.41.4** Monomial $a_{12}^2 a_{33}^2 b_{13}^2$

• The (4,3,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{33}b_{13})(a_{12}a_{33}b_{13})$ 

#### **2.41.5** Monomial $a_{13}^2 a_{22}^2 b_{23}^2$

• The (4,3,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{22}b_{23})(a_{13}a_{22}b_{23})$ 

#### **2.41.6** Monomial $a_{11}^2 a_{23}^2 b_{12}^2$

• The (4,2,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{23}b_{12})(a_{11}a_{23}b_{12})$ 

# **2.42** Monomial type $a_{11}a_{12}a_{13}a_{23}b_{12}^2$ with coefficient 72

### **2.42.1** Monomial $a_{11}a_{12}a_{13}a_{23}b_{12}^2$

- The  $(\{1,2,3\},3)$ -row (1,2)-column entry of U is 18, for  $(a_{13}a_{23}b_{12})(a_{11}a_{12}b_{12})$
- The (1,2)-row  $(\{1,2,3\},3)$ -column entry of U is 18, for  $(a_{11}a_{12}b_{12})(a_{13}a_{23}b_{12})$
- The (2,2,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{13}b_{12})(a_{11}a_{23}b_{12})$
- The (4,2,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{23}b_{12})(a_{12}a_{13}b_{12})$
- The (2,2,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{23}b_{12})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{11}a_{13}b_{12})(a_{12}a_{23}b_{12})$

## **2.42.2** Monomial $a_{12}a_{13}a_{23}a_{33}b_{13}^2$

- The  $(\{1,2,3\},2)$ -row (3,1)-column entry of U is 18, for  $(a_{12}a_{23}b_{13})(a_{13}a_{33}b_{13})$
- The (3,1)-row  $(\{1,2,3\},2)$ -column entry of U is 18, for  $(a_{13}a_{33}b_{13})(a_{12}a_{23}b_{13})$
- The (2,2,3)-row (6,6,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{13}b_{13})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{23}a_{33}b_{13})(a_{12}a_{13}b_{13})$
- The (3,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{23}b_{13})(a_{12}a_{33}b_{13})$
- The (4,3,1)-row (3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{33}b_{13})(a_{13}a_{23}b_{13})$

### **2.42.3** Monomial $a_{12}a_{13}a_{22}a_{23}b_{23}^2$

- The  $(\{1,2,3\},1)$ -row (2,3)-column entry of U is 18, for  $(a_{12}a_{13}b_{23})(a_{22}a_{23}b_{23})$
- The (2,3)-row  $(\{1,2,3\},1)$ -column entry of U is 18, for  $(a_{22}a_{23}b_{23})(a_{12}a_{13}b_{23})$
- The (3,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{23}b_{23})(a_{13}a_{22}b_{23})$
- The (4,3,3)-row (3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{22}b_{23})(a_{12}a_{23}b_{23})$
- The (3,2)-row (5,6,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{23}b_{23})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{22}b_{23})(a_{13}a_{23}b_{23})$

### **2.42.4** Monomial $a_{11}a_{12}a_{13}a_{23}b_{13}^2$

- The  $(\{1,2,3\},2)$ -row (1,3)-column entry of U is 18, for  $(a_{12}a_{23}b_{13})(a_{11}a_{13}b_{13})$
- The (1,3)-row  $(\{1,2,3\},2)$ -column entry of U is 18, for  $(a_{11}a_{13}b_{13})(a_{12}a_{23}b_{13})$
- The (2,2,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{13}b_{13})(a_{11}a_{23}b_{13})$
- The (4,2,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{23}b_{13})(a_{12}a_{13}b_{13})$
- The (3,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{23}b_{13})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{11}a_{12}b_{13})(a_{13}a_{23}b_{13})$

#### **2.42.5** Monomial $a_{12}a_{13}a_{23}a_{33}b_{23}^2$

- The  $(\{1,2,3\},1)$ -row (3,2)-column entry of U is 18, for  $(a_{12}a_{13}b_{23})(a_{23}a_{33}b_{23})$
- The (3,2)-row  $(\{1,2,3\},1)$ -column entry of U is 18, for  $(a_{23}a_{33}b_{23})(a_{12}a_{13}b_{23})$
- The (3,3)-row (5,6,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{23}b_{23})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{33}b_{23})(a_{12}a_{23}b_{23})$
- The (3,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{23}b_{23})(a_{12}a_{33}b_{23})$
- The (4,3,2)-row (3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{33}b_{23})(a_{13}a_{23}b_{23})$

# **2.42.6** Monomial $a_{12}a_{13}a_{22}a_{23}b_{12}^2$

- The  $(\{1,2,3\},3)$ -row (2,1)-column entry of U is 18, for  $(a_{13}a_{23}b_{12})(a_{12}a_{22}b_{12})$
- The (2,1)-row  $(\{1,2,3\},3)$ -column entry of U is 18, for  $(a_{12}a_{22}b_{12})(a_{13}a_{23}b_{12})$
- The (2,2,2)-row (6,6,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{13}b_{12})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{22}a_{23}b_{12})(a_{12}a_{13}b_{12})$
- The (2,2,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{23}b_{12})(a_{13}a_{22}b_{12})$
- The (4,2,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{22}b_{12})(a_{12}a_{23}b_{12})$

# **2.43** Monomial type $a_{13}^2 a_{23}^2 b_{12}^2$ with coefficient 24

### **2.43.1** Monomial $a_{13}^2 a_{23}^2 b_{12}^2$

• The  $(\{1,2,3\},3)$ -row  $(\{1,2,3\},3)$ -column entry of U is 24, for  $(a_{13}a_{23}b_{12})(a_{13}a_{23}b_{12})$ 

## **2.43.2** Monomial $a_{12}^2 a_{23}^2 b_{13}^2$

• The  $(\{1,2,3\},2)$ -row  $(\{1,2,3\},2)$ -column entry of U is 24, for  $(a_{12}a_{23}b_{13})(a_{12}a_{23}b_{13})$ 

### **2.43.3** Monomial $a_{12}^2 a_{13}^2 b_{23}^2$

• The  $(\{1,2,3\},1)$ -row  $(\{1,2,3\},1)$ -column entry of U is 24, for  $(a_{12}a_{13}b_{23})(a_{12}a_{13}b_{23})$ 

# **2.44** Monomial type $a_{11}a_{13}^2a_{33}b_{12}^2$ with coefficient 12

### **2.44.1** Monomial $a_{11}a_{13}^2a_{33}b_{12}^2$

- The (6,3,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}a_{33}b_{12})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{13}b_{12})(a_{13}a_{33}b_{12})$

# **2.44.2** Monomial $a_{22}a_{23}^2a_{33}b_{13}^2$

- The (6,3,3)-row (6,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}a_{23}b_{13})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (6,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}a_{33}b_{13})(a_{22}a_{23}b_{13})$

### **2.44.3** Monomial $a_{11}a_{12}^2a_{22}b_{23}^2$

- The (5,3,2)-row (5,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{12}b_{23})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (5,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{22}b_{23})(a_{11}a_{12}b_{23})$

### **2.44.4** Monomial $a_{11}a_{12}^2a_{22}b_{13}^2$

- The (5,3,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{22}b_{13})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{12}b_{13})(a_{12}a_{22}b_{13})$

#### **2.44.5** Monomial $a_{11}a_{13}^2a_{33}b_{23}^2$

- The (5,3,3)-row (5,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{13}b_{23})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (5,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{33}b_{23})(a_{11}a_{13}b_{23})$

#### **2.44.6** Monomial $a_{22}a_{23}^2a_{33}b_{12}^2$

- The (6,3,2)-row (6,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}a_{33}b_{12})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (6,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{22}a_{23}b_{12})(a_{23}a_{33}b_{12})$

# **2.45** Monomial type $a_{13}^2 a_{22} a_{33} b_{12}^2$ with coefficient 6

### **2.45.1** Monomial $a_{13}^2 a_{22} a_{33} b_{12}^2$

- The (4,2,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{13}a_{33}b_{12})$
- The (6,3,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{33}b_{12})(a_{13}a_{22}b_{12})$

#### **2.45.2** Monomial $a_{11}a_{22}a_{23}^2b_{13}^2$

- The (4,2,3)-row (6,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{22}a_{23}b_{13})$
- The (6,3,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}a_{23}b_{13})(a_{11}a_{23}b_{13})$

### **2.45.3** Monomial $a_{11}a_{12}^2a_{33}b_{23}^2$

- The (4,3,2)-row (5,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{11}a_{12}b_{23})$
- The (5,3,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{12}b_{23})(a_{12}a_{33}b_{23})$

# **2.45.4** Monomial $a_{12}^2 a_{22} a_{33} b_{13}^2$

- The (4,3,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{12}a_{22}b_{13})$
- The (5,3,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{22}b_{13})(a_{12}a_{33}b_{13})$

## **2.45.5** Monomial $a_{11}a_{13}^2a_{22}b_{23}^2$

- The (4,3,3)-row (5,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{11}a_{13}b_{23})$
- The (5,3,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{13}b_{23})(a_{13}a_{22}b_{23})$

### **2.45.6** Monomial $a_{11}a_{23}^2a_{33}b_{12}^2$

- The (4,2,2)-row (6,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{23}a_{33}b_{12})$
- The (6,3,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}a_{33}b_{12})(a_{11}a_{23}b_{12})$

# **2.46** Monomial type $a_{12}a_{13}a_{23}a_{33}b_{12}^2$ with coefficient 36

#### **2.46.1** Monomial $a_{12}a_{13}a_{23}a_{33}b_{12}^2$

- The (2,2,2)-row (6,3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{13}b_{12})(a_{23}a_{33}b_{12})$
- The (6,3,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{23}a_{33}b_{12})(a_{12}a_{13}b_{12})$
- The (2,2,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{23}b_{12})(a_{13}a_{33}b_{12})$
- The (6,3,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{33}b_{12})(a_{12}a_{23}b_{12})$

# **2.46.2** Monomial $a_{12}a_{13}a_{22}a_{23}b_{13}^2$

- The (2,2,3)-row (6,3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{13}b_{13})(a_{22}a_{23}b_{13})$
- The (6,3,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{22}a_{23}b_{13})(a_{12}a_{13}b_{13})$
- The (3,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{23}b_{13})(a_{12}a_{22}b_{13})$
- The (5,3,1)-row (3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{22}b_{13})(a_{13}a_{23}b_{13})$

### **2.46.3** Monomial $a_{11}a_{12}a_{13}a_{23}b_{23}^2$

- The (3,3)-row (5,3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{23}b_{23})(a_{11}a_{13}b_{23})$
- The (5,3,3)-row (3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{13}b_{23})(a_{12}a_{23}b_{23})$
- The (3,2)-row (5,3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{23}b_{23})(a_{11}a_{12}b_{23})$
- The (5,3,2)-row (3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{12}b_{23})(a_{13}a_{23}b_{23})$

# 2.47 Monomial type $a_{13}^2 a_{33}^2 b_{12}^2$ with coefficient 6

## **2.47.1** Monomial $a_{13}^2 a_{33}^2 b_{12}^2$

• The (6,3,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}a_{33}b_{12})(a_{13}a_{33}b_{12})$ 

### **2.47.2** Monomial $a_{22}^2 a_{23}^2 b_{13}^2$

• The (6,3,3)-row (6,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}a_{23}b_{13})(a_{22}a_{23}b_{13})$ 

## **2.47.3** Monomial $a_{11}^2 a_{12}^2 b_{23}^2$

• The (5,3,2)-row (5,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{12}b_{23})(a_{11}a_{12}b_{23})$ 

### **2.47.4** Monomial $a_{12}^2 a_{22}^2 b_{13}^2$

• The (5,3,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{22}b_{13})(a_{12}a_{22}b_{13})$ 

#### **2.47.5** Monomial $a_{11}^2 a_{13}^2 b_{23}^2$

• The (5,3,3)-row (5,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{13}b_{23})(a_{11}a_{13}b_{23})$ 

#### **2.47.6** Monomial $a_{23}^2 a_{33}^2 b_{12}^2$

• The (6,3,2)-row (6,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}a_{33}b_{12})(a_{23}a_{33}b_{12})$ 

# **2.48** Monomial type $a_{11}^2 a_{12} a_{13} b_{12} b_{13}$ with coefficient 72

### **2.48.1** Monomial $a_{11}^2 a_{12} a_{13} b_{12} b_{13}$

- The (1,2)-row (1,3)-column entry of U is 30, for  $(a_{11}a_{12}b_{12})(a_{11}a_{13}b_{13})$
- The (1,3)-row (1,2)-column entry of U is 30, for  $(a_{11}a_{13}b_{13})(a_{11}a_{12}b_{12})$
- The (2,2,3)-row (5,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{13}b_{13})(a_{11}^2b_{12})$
- The (5,1)-row (2,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}^2b_{12})(a_{12}a_{13}b_{13})$
- The (2,2,2)-row (5,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{13}b_{12})(a_{11}^2b_{13})$
- The (5,1)-row (2,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}^2b_{13})(a_{12}a_{13}b_{12})$

#### **2.48.2** Monomial $a_{13}a_{23}a_{33}^2b_{13}b_{23}$

- The (3,1)-row (3,2)-column entry of U is 30, for  $(a_{13}a_{33}b_{13})(a_{23}a_{33}b_{23})$
- The (3,2)-row (3,1)-column entry of U is 30, for  $(a_{23}a_{33}b_{23})(a_{13}a_{33}b_{13})$
- The (3,2)-row (6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{23}b_{23})(a_{33}^2b_{13})$
- The (6,2)-row (3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{33}^2b_{13})(a_{13}a_{23}b_{23})$
- The (3,1)-row (6,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{23}b_{13})(a_{33}^2b_{23})$
- $\bullet$  The (6,2)-row (3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{33}^2b_{23})(a_{13}a_{23}b_{13})$

#### **2.48.3** Monomial $a_{12}a_{22}^2a_{23}b_{12}b_{23}$

- The (2,1)-row (2,3)-column entry of U is 30, for  $(a_{12}a_{22}b_{12})(a_{22}a_{23}b_{23})$
- The (2,3)-row (2,1)-column entry of U is 30, for  $(a_{22}a_{23}b_{23})(a_{12}a_{22}b_{12})$
- The (3,3)-row (6,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{23}b_{23})(a_{22}^2b_{12})$
- The (6,2)-row (3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}^2b_{12})(a_{12}a_{23}b_{23})$
- The (2,2,1)-row (5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{23}b_{12})(a_{22}^2b_{23})$
- The (5,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}^2b_{23})(a_{12}a_{23}b_{12})$

# **2.49** Monomial type $a_{12}^3 a_{13} b_{12} b_{13}$ with coefficient 48

# **2.49.1** Monomial $a_{12}^3 a_{13} b_{12} b_{13}$

- The (1)-row (2,2,3)-column entry of the (1,2)-copy of R is 21, for  $(a_{12}^2b_{12})(a_{12}a_{13}b_{13})$
- The (2,2,3)-row (1)-column entry of the (1,2)-copy of R is 21, for  $(a_{12}a_{13}b_{13})(a_{12}^2b_{12})$
- The (2,2,2)-row (5,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{13}b_{12})(a_{12}^2b_{13})$
- The (5,4,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}^2b_{13})(a_{12}a_{13}b_{12})$

# **2.49.2** Monomial $a_{13}^3 a_{23} b_{13} b_{23}$

- The (1)-row (3,2)-column entry of the (1,3)-copy of R is 21, for  $(a_{13}^2b_{13})(a_{13}a_{23}b_{23})$
- The (3,2)-row (1)-column entry of the (1,3)-copy of R is 21, for  $(a_{13}a_{23}b_{23})(a_{13}^2b_{13})$
- The (3,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{23}b_{13})(a_{13}^2b_{23})$
- The (6,5,1)-row (3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}^2b_{23})(a_{13}a_{23}b_{13})$

#### **2.49.3** Monomial $a_{12}a_{23}^3b_{12}b_{23}$

- The (3,3)-row (6,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{23}b_{23})(a_{23}^2b_{12})$
- The (6,5,3)-row (3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}^2b_{12})(a_{12}a_{23}b_{23})$
- The (1)-row (2,2,1)-column entry of the (2,3)-copy of R is 21, for  $(a_{23}^2b_{23})(a_{12}a_{23}b_{12})$
- The (2,2,1)-row (1)-column entry of the (2,3)-copy of R is 21, for  $(a_{12}a_{23}b_{12})(a_{23}^2b_{23})$

## **2.49.4** Monomial $a_{12}a_{13}^3b_{12}b_{13}$

- The (2,2,3)-row (5,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{13}b_{13})(a_{13}^2b_{12})$
- The (5,4,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}^2b_{12})(a_{12}a_{13}b_{13})$
- The (1)-row (2,2,2)-column entry of the (1,3)-copy of R is 21, for  $(a_{13}^2b_{13})(a_{12}a_{13}b_{12})$
- The (2,2,2)-row (1)-column entry of the (1,3)-copy of R is 21, for  $(a_{12}a_{13}b_{12})(a_{13}^2b_{13})$

#### **2.49.5** Monomial $a_{13}a_{23}^3b_{13}b_{23}$

- The (3,2)-row (6,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{23}b_{23})(a_{23}^2b_{13})$
- The (6,5,2)-row (3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}^2b_{13})(a_{13}a_{23}b_{23})$
- The (1)-row (3,1)-column entry of the (2,3)-copy of R is 21, for  $(a_{23}^2b_{23})(a_{13}a_{23}b_{13})$
- The (3,1)-row (1)-column entry of the (2,3)-copy of R is 21, for  $(a_{13}a_{23}b_{13})(a_{23}^2b_{23})$

## **2.49.6** Monomial $a_{12}^3 a_{23} b_{12} b_{23}$

- The (1)-row (3,3)-column entry of the (1,2)-copy of R is 21, for  $(a_{12}^2b_{12})(a_{12}a_{23}b_{23})$
- The (3,3)-row (1)-column entry of the (1,2)-copy of R is 21, for  $(a_{12}a_{23}b_{23})(a_{12}^2b_{12})$
- The (2,2,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{23}b_{12})(a_{12}^2b_{23})$
- The (5,4,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}^2b_{23})(a_{12}a_{23}b_{12})$

#### **2.50** Monomial type $a_{11}a_{12}a_{13}a_{22}b_{12}b_{13}$ with coefficient 48

#### **2.50.1** Monomial $a_{11}a_{12}a_{13}a_{22}b_{12}b_{13}$

- The (1,3)-row (2,1)-column entry of U is 12, for  $(a_{11}a_{13}b_{13})(a_{12}a_{22}b_{12})$
- The (2,1)-row (1,3)-column entry of U is 12, for  $(a_{12}a_{22}b_{12})(a_{11}a_{13}b_{13})$
- The (2,2,3)-row (4,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{13}b_{13})(a_{11}a_{22}b_{12})$
- The (4,1)-row (2,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{22}b_{12})(a_{12}a_{13}b_{13})$
- The (4,2,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{12}b_{13})(a_{13}a_{22}b_{12})$

#### **2.50.2** Monomial $a_{11}a_{13}a_{23}a_{33}b_{13}b_{23}$

- The (1,3)-row (3,2)-column entry of U is 12, for  $(a_{11}a_{13}b_{13})(a_{23}a_{33}b_{23})$
- The (3,2)-row (1,3)-column entry of U is 12, for  $(a_{23}a_{33}b_{23})(a_{11}a_{13}b_{13})$
- The (4,2,3)-row (5,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{33}b_{23})(a_{11}a_{23}b_{13})$
- The (3,2)-row (4,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{23}b_{23})(a_{11}a_{33}b_{13})$
- The (4,1)-row (3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{33}b_{13})(a_{13}a_{23}b_{23})$

#### **2.50.3** Monomial $a_{12}a_{22}a_{23}a_{33}b_{12}b_{23}$

- The (2,1)-row (3,2)-column entry of U is 12, for  $(a_{12}a_{22}b_{12})(a_{23}a_{33}b_{23})$
- The (3,2)-row (2,1)-column entry of U is 12, for  $(a_{23}a_{33}b_{23})(a_{12}a_{22}b_{12})$
- The (4,3,2)-row (6,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{22}a_{23}b_{12})(a_{12}a_{33}b_{23})$
- The (2,2,1)-row (4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{23}b_{12})(a_{22}a_{33}b_{23})$
- The (4,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{33}b_{23})(a_{12}a_{23}b_{12})$

#### **2.50.4** Monomial $a_{11}a_{12}a_{13}a_{33}b_{12}b_{13}$

- The (1,2)-row (3,1)-column entry of U is 12, for  $(a_{11}a_{12}b_{12})(a_{13}a_{33}b_{13})$
- The (3,1)-row (1,2)-column entry of U is 12, for  $(a_{13}a_{33}b_{13})(a_{11}a_{12}b_{12})$
- The (2,2,2)-row (4,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{13}b_{12})(a_{11}a_{33}b_{13})$
- The (4,1)-row (2,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{33}b_{13})(a_{12}a_{13}b_{12})$
- The (4,3,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{13}b_{12})(a_{12}a_{33}b_{13})$

#### **2.50.5** Monomial $a_{13}a_{22}a_{23}a_{33}b_{13}b_{23}$

- The (2,3)-row (3,1)-column entry of U is 12, for  $(a_{22}a_{23}b_{23})(a_{13}a_{33}b_{13})$
- The (3,1)-row (2,3)-column entry of U is 12, for  $(a_{13}a_{33}b_{13})(a_{22}a_{23}b_{23})$
- The (4,3,3)-row (6,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}a_{33}b_{13})(a_{13}a_{22}b_{23})$
- The (3,1)-row (4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{23}b_{13})(a_{22}a_{33}b_{23})$
- The (4,1)-row (3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{33}b_{23})(a_{13}a_{23}b_{13})$

#### **2.50.6** Monomial $a_{11}a_{12}a_{22}a_{23}b_{12}b_{23}$

- The (1,2)-row (2,3)-column entry of U is 12, for  $(a_{11}a_{12}b_{12})(a_{22}a_{23}b_{23})$
- The (2,3)-row (1,2)-column entry of U is 12, for  $(a_{22}a_{23}b_{23})(a_{11}a_{12}b_{12})$
- The (3,3)-row (4,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{23}b_{23})(a_{11}a_{22}b_{12})$
- The (4,1)-row (3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{22}b_{12})(a_{12}a_{23}b_{23})$
- The (4,2,2)-row (5,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{22}b_{23})(a_{11}a_{23}b_{12})$

# 2.51 Monomial type $a_{12}a_{13}a_{22}^2b_{12}b_{13}$ with coefficient 24

#### **2.51.1** Monomial $a_{12}a_{13}a_{22}^2b_{12}b_{13}$

- The (2,2,3)-row (6,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{13}b_{13})(a_{22}^2b_{12})$
- The (6,2)-row (2,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{22}^2b_{12})(a_{12}a_{13}b_{13})$
- The (4,2,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{12}a_{22}b_{13})$
- The (5,3,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{22}b_{13})(a_{13}a_{22}b_{12})$

# **2.51.2** Monomial $a_{11}^2 a_{13} a_{23} b_{13} b_{23}$

- The (4,2,3)-row (5,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{11}a_{13}b_{23})$
- The (5,3,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{13}b_{23})(a_{11}a_{23}b_{13})$
- The (3,2)-row (5,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{23}b_{23})(a_{11}^2b_{13})$
- The (5,1)-row (3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}^2b_{13})(a_{13}a_{23}b_{23})$

# **2.51.3** Monomial $a_{12}a_{23}a_{33}^2b_{12}b_{23}$

- The (4,3,2)-row (6,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{23}a_{33}b_{12})$
- The (6,3,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}a_{33}b_{12})(a_{12}a_{33}b_{23})$
- The (2,2,1)-row (6,2)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{23}b_{12})(a_{33}^2b_{23})$
- The (6,2)-row (2,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{33}^2b_{23})(a_{12}a_{23}b_{12})$

#### **2.51.4** Monomial $a_{12}a_{13}a_{33}^2b_{12}b_{13}$

- The (2,2,2)-row (6,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{13}b_{12})(a_{33}^2b_{13})$
- The (6,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{33}^2b_{13})(a_{12}a_{13}b_{12})$
- The (4,3,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{13}a_{33}b_{12})$
- The (6,3,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{33}b_{12})(a_{12}a_{33}b_{13})$

## **2.51.5** Monomial $a_{13}a_{22}^2a_{23}b_{13}b_{23}$

- The (4,3,3)-row (6,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{22}a_{23}b_{13})$
- The (6,3,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}a_{23}b_{13})(a_{13}a_{22}b_{23})$
- The (3,1)-row (5,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{23}b_{13})(a_{22}^2b_{23})$
- The (5,1)-row (3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}^2b_{23})(a_{13}a_{23}b_{13})$

#### **2.51.6** Monomial $a_{11}^2 a_{12} a_{23} b_{12} b_{23}$

- The (3,3)-row (5,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{23}b_{23})(a_{11}^2b_{12})$
- The (5,1)-row (3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}^2b_{12})(a_{12}a_{23}b_{23})$
- The (4,2,2)-row (5,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{11}a_{12}b_{23})$
- The (5,3,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{12}b_{23})(a_{11}a_{23}b_{12})$

# **2.52** Monomial type $a_{11}^3 a_{23} b_{12} b_{13}$ with coefficient 12

#### **2.52.1** Monomial $a_{11}^3 a_{23} b_{12} b_{13}$

- The (4,2,3)-row (5,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{11}^2b_{12})$
- The (5,1)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}^2b_{12})(a_{11}a_{23}b_{13})$
- The (4,2,2)-row (5,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{11}^2b_{13})$
- The (5,1)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}^2b_{13})(a_{11}a_{23}b_{12})$

## **2.52.2** Monomial $a_{12}a_{33}^3b_{13}b_{23}$

- The (4,3,2)-row (6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{33}^2b_{13})$
- The (6,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{33}^2b_{13})(a_{12}a_{33}b_{23})$
- The (4,3,1)-row (6,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{33}^2b_{23})$
- The (6,2)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{33}^2b_{23})(a_{12}a_{33}b_{13})$

## **2.52.3** Monomial $a_{13}a_{22}^3b_{12}b_{23}$

- The (4,3,3)-row (6,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{22}^2b_{12})$
- The (6,2)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}^2b_{12})(a_{13}a_{22}b_{23})$
- The (4,2,1)-row (5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{22}^2b_{23})$
- The (5,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}^2b_{23})(a_{13}a_{22}b_{12})$

# **2.53** Monomial type $a_{11}a_{12}^2a_{23}b_{12}b_{13}$ with coefficient 72

## **2.53.1** Monomial $a_{11}a_{12}^2a_{23}b_{12}b_{13}$

- The  $(\{1,2,3\},2)$ -row (1,2)-column entry of U is 18, for  $(a_{12}a_{23}b_{13})(a_{11}a_{12}b_{12})$
- The (1,2)-row  $(\{1,2,3\},2)$ -column entry of U is 18, for  $(a_{11}a_{12}b_{12})(a_{12}a_{23}b_{13})$
- The (1)-row (4,2,3)-column entry of the (1,2)-copy of R is 12, for  $(a_{12}^2b_{12})(a_{11}a_{23}b_{13})$
- The (4,2,3)-row (1)-column entry of the (1,2)-copy of R is 12, for  $(a_{11}a_{23}b_{13})(a_{12}^2b_{12})$
- The (4,2,2)-row (5,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{12}^2b_{13})$
- The (5,4,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}^2b_{13})(a_{11}a_{23}b_{12})$
- The (2,2,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{23}b_{12})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{12}b_{13})(a_{12}a_{23}b_{12})$

## **2.53.2** Monomial $a_{12}a_{13}^2a_{33}b_{13}b_{23}$

- The  $(\{1,2,3\},1)$ -row (3,1)-column entry of U is 18, for  $(a_{12}a_{13}b_{23})(a_{13}a_{33}b_{13})$
- The (3,1)-row  $(\{1,2,3\},1)$ -column entry of U is 18, for  $(a_{13}a_{33}b_{13})(a_{12}a_{13}b_{23})$
- The (2,2,3)-row (5,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{13}b_{13})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{33}b_{23})(a_{12}a_{13}b_{13})$
- The (1)-row (4,3,2)-column entry of the (1,3)-copy of R is 12, for  $(a_{13}^2b_{13})(a_{12}a_{33}b_{23})$
- The (4,3,2)-row (1)-column entry of the (1,3)-copy of R is 12, for  $(a_{12}a_{33}b_{23})(a_{13}^2b_{13})$
- The (4,3,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{13}^2b_{23})$
- The (6,5,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}^2b_{23})(a_{12}a_{33}b_{13})$

## **2.53.3** Monomial $a_{13}a_{22}a_{23}^2b_{12}b_{23}$

- The  $(\{1,2,3\},3)$ -row (2,3)-column entry of U is 18, for  $(a_{13}a_{23}b_{12})(a_{22}a_{23}b_{23})$
- The (2,3)-row  $(\{1,2,3\},3)$ -column entry of U is 18, for  $(a_{22}a_{23}b_{23})(a_{13}a_{23}b_{12})$
- The (4,3,3)-row (6,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{23}^2b_{12})$
- The (6,5,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}^2b_{12})(a_{13}a_{22}b_{23})$
- The (3,2)-row (6,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{23}b_{23})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{22}a_{23}b_{12})(a_{13}a_{23}b_{23})$
- The (1)-row (4,2,1)-column entry of the (2,3)-copy of R is 12, for  $(a_{23}^2b_{23})(a_{13}a_{22}b_{12})$
- The (4,2,1)-row (1)-column entry of the (2,3)-copy of R is 12, for  $(a_{13}a_{22}b_{12})(a_{23}^2b_{23})$

# **2.53.4** Monomial $a_{11}a_{13}^2a_{23}b_{12}b_{13}$

- The  $(\{1,2,3\},3)$ -row (1,3)-column entry of U is 18, for  $(a_{13}a_{23}b_{12})(a_{11}a_{13}b_{13})$
- The (1,3)-row  $(\{1,2,3\},3)$ -column entry of U is 18, for  $(a_{11}a_{13}b_{13})(a_{13}a_{23}b_{12})$
- The (4,2,3)-row (5,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{13}^2b_{12})$
- The (5,4,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}^2b_{12})(a_{11}a_{23}b_{13})$
- The (1)-row (4,2,2)-column entry of the (1,3)-copy of R is 12, for  $(a_{13}^2b_{13})(a_{11}a_{23}b_{12})$
- The (4,2,2)-row (1)-column entry of the (1,3)-copy of R is 12, for  $(a_{11}a_{23}b_{12})(a_{13}^2b_{13})$
- The (3,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{23}b_{13})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{13}b_{12})(a_{13}a_{23}b_{13})$

#### **2.53.5** Monomial $a_{12}a_{23}^2a_{33}b_{13}b_{23}$

- The  $(\{1,2,3\},2)$ -row (3,2)-column entry of U is 18, for  $(a_{12}a_{23}b_{13})(a_{23}a_{33}b_{23})$
- The (3,2)-row  $(\{1,2,3\},2)$ -column entry of U is 18, for  $(a_{23}a_{33}b_{23})(a_{12}a_{23}b_{13})$
- The (3,3)-row (6,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{23}b_{23})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}a_{33}b_{13})(a_{12}a_{23}b_{23})$
- The (4,3,2)-row (6,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{23}^2b_{13})$
- The (6,5,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}^2b_{13})(a_{12}a_{33}b_{23})$
- The (1)-row (4,3,1)-column entry of the (2,3)-copy of R is 12, for  $(a_{23}^2b_{23})(a_{12}a_{33}b_{13})$
- The (4,3,1)-row (1)-column entry of the (2,3)-copy of R is 12, for  $(a_{12}a_{33}b_{13})(a_{23}^2b_{23})$

# **2.53.6** Monomial $a_{12}^2 a_{13} a_{22} b_{12} b_{23}$

- The  $(\{1,2,3\},1)$ -row (2,1)-column entry of U is 18, for  $(a_{12}a_{13}b_{23})(a_{12}a_{22}b_{12})$
- The (2,1)-row  $(\{1,2,3\},1)$ -column entry of U is 18, for  $(a_{12}a_{22}b_{12})(a_{12}a_{13}b_{23})$
- The (1)-row (4,3,3)-column entry of the (1,2)-copy of R is 12, for  $(a_{12}^2b_{12})(a_{13}a_{22}b_{23})$
- The (4,3,3)-row (1)-column entry of the (1,2)-copy of R is 12, for  $(a_{13}a_{22}b_{23})(a_{12}^2b_{12})$
- The (2,2,2)-row (5,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{13}b_{12})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{22}b_{23})(a_{12}a_{13}b_{12})$
- The (4,2,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{12}^2b_{23})$
- The (5,4,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}^2b_{23})(a_{13}a_{22}b_{12})$

# **2.54** Monomial type $a_{11}^2 a_{22} a_{23} b_{12} b_{13}$ with coefficient 12

## **2.54.1** Monomial $a_{11}^2 a_{22} a_{23} b_{12} b_{13}$

- The (4,1)-row (4,2,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{22}b_{12})(a_{11}a_{23}b_{13})$
- The (4,2,3)-row (4,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{23}b_{13})(a_{11}a_{22}b_{12})$

#### **2.54.2** Monomial $a_{11}a_{12}a_{33}^2b_{13}b_{23}$

- The (4,1)-row (4,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{33}b_{13})(a_{12}a_{33}b_{23})$
- The (4,3,2)-row (4,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{33}b_{23})(a_{11}a_{33}b_{13})$

#### **2.54.3** Monomial $a_{13}a_{22}^2a_{33}b_{12}b_{23}$

- The (4,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}a_{33}b_{23})(a_{13}a_{22}b_{12})$
- The (4,2,1)-row (4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}a_{22}b_{12})(a_{22}a_{33}b_{23})$

## **2.54.4** Monomial $a_{11}^2 a_{23} a_{33} b_{12} b_{13}$

- The (4,1)-row (4,2,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{33}b_{13})(a_{11}a_{23}b_{12})$
- The (4,2,2)-row (4,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{23}b_{12})(a_{11}a_{33}b_{13})$

#### **2.54.5** Monomial $a_{12}a_{22}a_{33}^2b_{13}b_{23}$

- The (4,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}a_{33}b_{23})(a_{12}a_{33}b_{13})$
- The (4,3,1)-row (4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{33}b_{13})(a_{22}a_{33}b_{23})$

#### **2.54.6** Monomial $a_{11}a_{13}a_{22}^2b_{12}b_{23}$

- The (4,1)-row (4,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{22}b_{12})(a_{13}a_{22}b_{23})$
- The (4,3,3)-row (4,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{22}b_{23})(a_{11}a_{22}b_{12})$

# **2.55** Monomial type $a_{12}^2 a_{22} a_{23} b_{12} b_{13}$ with coefficient 72

# **2.55.1** Monomial $a_{12}^2 a_{22} a_{23} b_{12} b_{13}$

- The  $(\{1,2,3\},2)$ -row (2,1)-column entry of U is 24, for  $(a_{12}a_{23}b_{13})(a_{12}a_{22}b_{12})$
- The (2,1)-row  $(\{1,2,3\},2)$ -column entry of U is 24, for  $(a_{12}a_{22}b_{12})(a_{12}a_{23}b_{13})$
- The (1)-row (6,3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{22}a_{23}b_{13})$
- The (6,3,3)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{22}a_{23}b_{13})(a_{12}^2b_{12})$
- The (2,2,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{23}b_{12})(a_{12}a_{22}b_{13})$
- The (5,3,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{22}b_{13})(a_{12}a_{23}b_{12})$

## **2.55.2** Monomial $a_{11}a_{12}a_{13}^2b_{13}b_{23}$

- The  $(\{1,2,3\},1)$ -row (1,3)-column entry of U is 24, for  $(a_{12}a_{13}b_{23})(a_{11}a_{13}b_{13})$
- The (1,3)-row  $(\{1,2,3\},1)$ -column entry of U is 24, for  $(a_{11}a_{13}b_{13})(a_{12}a_{13}b_{23})$
- The (2,2,3)-row (5,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{13}b_{13})(a_{11}a_{13}b_{23})$
- The (5,3,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{13}b_{23})(a_{12}a_{13}b_{13})$
- The (1)-row (5,3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{11}a_{12}b_{23})$
- The (5,3,2)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{12}b_{23})(a_{13}^2b_{13})$

## **2.55.3** Monomial $a_{13}a_{23}^2a_{33}b_{12}b_{23}$

- The  $(\{1,2,3\},3)$ -row (3,2)-column entry of U is 24, for  $(a_{13}a_{23}b_{12})(a_{23}a_{33}b_{23})$
- The (3,2)-row  $(\{1,2,3\},3)$ -column entry of U is 24, for  $(a_{23}a_{33}b_{23})(a_{13}a_{23}b_{12})$
- The (3,2)-row (6,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{23}b_{23})(a_{23}a_{33}b_{12})$
- The (6,3,2)-row (3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}a_{33}b_{12})(a_{13}a_{23}b_{23})$
- The (1)-row (6,3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{13}a_{33}b_{12})$
- The (6,3,1)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{33}b_{12})(a_{23}^2b_{23})$

#### **2.55.4** Monomial $a_{13}^2 a_{23} a_{33} b_{12} b_{13}$

- The  $\{\{1,2,3\},3\}$ -row  $\{3,1\}$ -column entry of U is 24, for  $\{a_{13}a_{23}b_{12}\}(a_{13}a_{33}b_{13})$
- The (3,1)-row  $(\{1,2,3\},3)$ -column entry of U is 24, for  $(a_{13}a_{33}b_{13})(a_{13}a_{23}b_{12})$
- The (1)-row (6,3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{23}a_{33}b_{12})$
- The (6,3,2)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{23}a_{33}b_{12})(a_{13}^2b_{13})$
- The (3,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{23}b_{13})(a_{13}a_{33}b_{12})$
- The (6,3,1)-row (3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{33}b_{12})(a_{13}a_{23}b_{13})$

#### **2.55.5** Monomial $a_{12}a_{22}a_{23}^2b_{13}b_{23}$

- The  $(\{1,2,3\},2)$ -row (2,3)-column entry of U is 24, for  $(a_{12}a_{23}b_{13})(a_{22}a_{23}b_{23})$
- The (2,3)-row  $(\{1,2,3\},2)$ -column entry of U is 24, for  $(a_{22}a_{23}b_{23})(a_{12}a_{23}b_{13})$
- The (3,3)-row (6,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{23}b_{23})(a_{22}a_{23}b_{13})$
- The (6,3,3)-row (3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}a_{23}b_{13})(a_{12}a_{23}b_{23})$
- The (1)-row (5,3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{12}a_{22}b_{13})$
- The (5,3,1)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{22}b_{13})(a_{23}^2b_{23})$

#### **2.55.6** Monomial $a_{11}a_{12}^2a_{13}b_{12}b_{23}$

- The  $(\{1,2,3\},1)$ -row (1,2)-column entry of U is 24, for  $(a_{12}a_{13}b_{23})(a_{11}a_{12}b_{12})$
- The (1,2)-row  $(\{1,2,3\},1)$ -column entry of U is 24, for  $(a_{11}a_{12}b_{12})(a_{12}a_{13}b_{23})$
- The (1)-row (5,3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{11}a_{13}b_{23})$
- The (5,3,3)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{13}b_{23})(a_{12}^2b_{12})$
- The (2,2,2)-row (5,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{13}b_{12})(a_{11}a_{12}b_{23})$
- The (5,3,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{12}b_{23})(a_{12}a_{13}b_{12})$

# **2.56** Monomial type $a_{13}^2 a_{22} a_{23} b_{12} b_{13}$ with coefficient 36

# **2.56.1** Monomial $a_{13}^2 a_{22} a_{23} b_{12} b_{13}$

- The (1)-row (6,6,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{22}a_{23}b_{12})(a_{13}^2b_{13})$
- The (3,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{23}b_{13})(a_{13}a_{22}b_{12})$
- The (4,2,1)-row (3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{22}b_{12})(a_{13}a_{23}b_{13})$

#### **2.56.2** Monomial $a_{11}a_{12}a_{23}^2b_{13}b_{23}$

- The (3,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{23}b_{23})(a_{11}a_{23}b_{13})$
- The (4,2,3)-row (3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{23}b_{13})(a_{12}a_{23}b_{23})$
- The (1)-row (5,6,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{11}a_{12}b_{13})(a_{23}^2b_{23})$

#### **2.56.3** Monomial $a_{12}^2 a_{13} a_{33} b_{12} b_{23}$

- The (1)-row (5,6,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{33}b_{23})(a_{12}^2b_{12})$
- The (2,2,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{13}b_{12})(a_{12}a_{33}b_{23})$
- The (4,3,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{33}b_{23})(a_{12}a_{13}b_{12})$

#### **2.56.4** Monomial $a_{12}^2 a_{23} a_{33} b_{12} b_{13}$

- The (1)-row (6,6,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}^2b_{12})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (1)-column entry of the (1,2)-copy of R is 9, for  $(a_{23}a_{33}b_{13})(a_{12}^2b_{12})$
- The (2,2,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{23}b_{12})(a_{12}a_{33}b_{13})$
- The (4,3,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{33}b_{13})(a_{12}a_{23}b_{12})$

## **2.56.5** Monomial $a_{12}a_{13}^2a_{22}b_{13}b_{23}$

- The (2,2,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{13}b_{13})(a_{13}a_{22}b_{23})$
- The (4,3,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{22}b_{23})(a_{12}a_{13}b_{13})$
- The (1)-row (5,6,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}^2b_{13})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (1)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{22}b_{23})(a_{13}^2b_{13})$

#### **2.56.6** Monomial $a_{11}a_{13}a_{23}^2b_{12}b_{23}$

- The (3,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{23}b_{23})(a_{11}a_{23}b_{12})$
- The (4,2,2)-row (3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{23}b_{12})(a_{13}a_{23}b_{23})$
- The (1)-row (6,6,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}^2b_{23})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (1)-column entry of the (2,3)-copy of R is 9, for  $(a_{11}a_{13}b_{12})(a_{23}^2b_{23})$

# **2.57** Monomial type $a_{11}a_{22}^2a_{23}b_{12}b_{13}$ with coefficient 12

#### **2.57.1** Monomial $a_{11}a_{22}^2a_{23}b_{12}b_{13}$

- The (4,1)-row (6,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{22}a_{23}b_{13})$
- The (4,2,3)-row (6,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{22}^2b_{12})$
- The (6,2)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}^2b_{12})(a_{11}a_{23}b_{13})$
- The (6,3,3)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}a_{23}b_{13})(a_{11}a_{22}b_{12})$

## **2.57.2** Monomial $a_{11}^2 a_{12} a_{33} b_{13} b_{23}$

- The (4,1)-row (5,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{11}a_{12}b_{23})$
- The (4,3,2)-row (5,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{11}^2b_{13})$
- The (5,1)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}^2b_{13})(a_{12}a_{33}b_{23})$
- The (5,3,2)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{12}b_{23})(a_{11}a_{33}b_{13})$

# **2.57.3** Monomial $a_{13}a_{22}a_{33}^2b_{12}b_{23}$

- The (4,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{13}a_{33}b_{12})$
- The (4,2,1)-row (6,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{33}^2b_{23})$
- The (6,2)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{33}^2b_{23})(a_{13}a_{22}b_{12})$
- The (6,3,1)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{33}b_{12})(a_{22}a_{33}b_{23})$

#### **2.57.4** Monomial $a_{11}a_{23}a_{33}^2b_{12}b_{13}$

- The (4,1)-row (6,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{23}a_{33}b_{12})$
- The (4,2,2)-row (6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{33}^2b_{13})$
- The (6,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{33}^2b_{13})(a_{11}a_{23}b_{12})$
- The (6,3,2)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}a_{33}b_{12})(a_{11}a_{33}b_{13})$

## **2.57.5** Monomial $a_{12}a_{22}^2a_{33}b_{13}b_{23}$

- The (4,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{12}a_{22}b_{13})$
- The (4,3,1)-row (5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{22}^2b_{23})$
- The (5,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}^2b_{23})(a_{12}a_{33}b_{13})$
- The (5,3,1)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{22}b_{13})(a_{22}a_{33}b_{23})$

#### **2.57.6** Monomial $a_{11}^2 a_{13} a_{22} b_{12} b_{23}$

- The (4,1)-row (5,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{11}a_{13}b_{23})$
- The (4,3,3)-row (5,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{11}^2b_{12})$
- The (5,1)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}^2b_{12})(a_{13}a_{22}b_{23})$
- The (5,3,3)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{13}b_{23})(a_{11}a_{22}b_{12})$

# **2.58** Monomial type $a_{22}^3 a_{23} b_{12} b_{13}$ with coefficient 12

#### **2.58.1** Monomial $a_{22}^3 a_{23} b_{12} b_{13}$

- The (6,2)-row (6,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}^2b_{12})(a_{22}a_{23}b_{13})$
- The (6,3,3)-row (6,2)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}a_{23}b_{13})(a_{22}^2b_{12})$

## **2.58.2** Monomial $a_{11}^3 a_{12} b_{13} b_{23}$

- The (5,1)-row (5,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}^2b_{13})(a_{11}a_{12}b_{23})$
- The (5,3,2)-row (5,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{12}b_{23})(a_{11}^2b_{13})$

# **2.58.3** Monomial $a_{13}a_{33}^3b_{12}b_{23}$

- The (6,2)-row (6,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{33}^2b_{23})(a_{13}a_{33}b_{12})$
- The (6,3,1)-row (6,2)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}a_{33}b_{12})(a_{33}^2b_{23})$

## **2.58.4** Monomial $a_{23}a_{33}^3b_{12}b_{13}$

- The (6,2)-row (6,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{33}^2b_{13})(a_{23}a_{33}b_{12})$
- The (6,3,2)-row (6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}a_{33}b_{12})(a_{33}^2b_{13})$

#### **2.58.5** Monomial $a_{12}a_{22}^3b_{13}b_{23}$

- The (5,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}^2b_{23})(a_{12}a_{22}b_{13})$
- The (5,3,1)-row (5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{22}b_{13})(a_{22}^2b_{23})$

# **2.58.6** Monomial $a_{11}^3 a_{13} b_{12} b_{23}$

- The (5,1)-row (5,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}^2b_{12})(a_{11}a_{13}b_{23})$
- The (5,3,3)-row (5,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{13}b_{23})(a_{11}^2b_{12})$

# **2.59** Monomial type $a_{12}a_{13}a_{23}^2b_{12}b_{13}$ with coefficient 96

#### **2.59.1** Monomial $a_{12}a_{13}a_{23}^2b_{12}b_{13}$

- The  $(\{1,2,3\},2)$ -row  $(\{1,2,3\},3)$ -column entry of U is 18, for  $(a_{12}a_{23}b_{13})(a_{13}a_{23}b_{12})$
- The  $(\{1,2,3\},3)$ -row  $(\{1,2,3\},2)$ -column entry of U is 18, for  $(a_{13}a_{23}b_{12})(a_{12}a_{23}b_{13})$
- The (2,2,3)-row (6,5,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{13}b_{13})(a_{23}^2b_{12})$
- The (6,5,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{23}^2b_{12})(a_{12}a_{13}b_{13})$
- The (2,2,2)-row (6,5,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{13}b_{12})(a_{23}^2b_{13})$
- The (6,5,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{23}^2b_{13})(a_{12}a_{13}b_{12})$
- The (2,2,1)-row (3,1)-column entry of the (2,3)-copy of R is 12, for  $(a_{12}a_{23}b_{12})(a_{13}a_{23}b_{13})$
- The (3,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 12, for  $(a_{13}a_{23}b_{13})(a_{12}a_{23}b_{12})$

#### **2.59.2** Monomial $a_{12}^2 a_{13} a_{23} b_{13} b_{23}$

- The  $(\{1,2,3\},1)$ -row  $(\{1,2,3\},2)$ -column entry of U is 18, for  $(a_{12}a_{13}b_{23})(a_{12}a_{23}b_{13})$
- The  $(\{1,2,3\},2)$ -row  $(\{1,2,3\},1)$ -column entry of U is 18, for  $(a_{12}a_{23}b_{13})(a_{12}a_{13}b_{23})$
- The (2,2,3)-row (3,3)-column entry of the (1,2)-copy of R is 12, for  $(a_{12}a_{13}b_{13})(a_{12}a_{23}b_{23})$
- The (3,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 12, for  $(a_{12}a_{23}b_{23})(a_{12}a_{13}b_{13})$
- The (3,2)-row (5,4,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{23}b_{23})(a_{12}^2b_{13})$
- The (5,4,2)-row (3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}^2b_{13})(a_{13}a_{23}b_{23})$
- The (3,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{23}b_{13})(a_{12}^2b_{23})$
- The (5,4,1)-row (3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}^2b_{23})(a_{13}a_{23}b_{13})$

### **2.59.3** Monomial $a_{12}a_{13}^2a_{23}b_{12}b_{23}$

- The  $(\{1,2,3\},1)$ -row  $(\{1,2,3\},3)$ -column entry of U is 18, for  $(a_{12}a_{13}b_{23})(a_{13}a_{23}b_{12})$
- The  $(\{1,2,3\},3)$ -row  $(\{1,2,3\},1)$ -column entry of U is 18, for  $(a_{13}a_{23}b_{12})(a_{12}a_{13}b_{23})$
- The (3,3)-row (5,4,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{23}b_{23})(a_{13}^2b_{12})$
- The (5,4,3)-row (3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}^2b_{12})(a_{12}a_{23}b_{23})$
- The (2,2,2)-row (3,2)-column entry of the (1,3)-copy of R is 12, for  $(a_{12}a_{13}b_{12})(a_{13}a_{23}b_{23})$
- The (3,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 12, for  $(a_{13}a_{23}b_{23})(a_{12}a_{13}b_{12})$
- The (2,2,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{23}b_{12})(a_{13}^2b_{23})$
- The (6,5,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}^2b_{23})(a_{12}a_{23}b_{12})$

# **2.60** Monomial type $a_{11}a_{23}^3b_{12}b_{13}$ with coefficient 12

# **2.60.1** Monomial $a_{11}a_{23}^3b_{12}b_{13}$

- The (4,2,3)-row (6,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{23}^2b_{12})$
- The (6,5,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}^2b_{12})(a_{11}a_{23}b_{13})$
- The (4,2,2)-row (6,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{23}^2b_{13})$
- The (6,5,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}^2b_{13})(a_{11}a_{23}b_{12})$

# **2.60.2** Monomial $a_{12}^3 a_{33} b_{13} b_{23}$

- The (4,3,2)-row (5,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{12}^2b_{13})$
- The (5,4,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}^2b_{13})(a_{12}a_{33}b_{23})$
- The (4,3,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{12}^2b_{23})$
- The (5,4,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}^2b_{23})(a_{12}a_{33}b_{13})$

## **2.60.3** Monomial $a_{13}^3 a_{22} b_{12} b_{23}$

- The (4,3,3)-row (5,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{13}^2b_{12})$
- The (5,4,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}^2b_{12})(a_{13}a_{22}b_{23})$
- The (4,2,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{13}^2b_{23})$
- The (6,5,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}^2b_{23})(a_{13}a_{22}b_{12})$

# **2.61** Monomial type $a_{22}a_{23}^3b_{12}b_{13}$ with coefficient 24

#### **2.61.1** Monomial $a_{22}a_{23}^3b_{12}b_{13}$

- The (6,3,3)-row (6,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}a_{23}b_{13})(a_{23}^2b_{12})$
- The (6,5,3)-row (6,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}^2b_{12})(a_{22}a_{23}b_{13})$
- The (6,5,2)-row (6,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}^2b_{13})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (6,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{22}a_{23}b_{12})(a_{23}^2b_{13})$

#### **2.61.2** Monomial $a_{11}a_{12}^3b_{13}b_{23}$

- The (5,3,2)-row (5,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{12}b_{23})(a_{12}^2b_{13})$
- The (5,4,2)-row (5,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}^2b_{13})(a_{11}a_{12}b_{23})$
- The (5,4,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}^2b_{23})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{12}b_{13})(a_{12}^2b_{23})$

#### **2.61.3** Monomial $a_{13}^3 a_{33} b_{12} b_{23}$

- The (5,4,3)-row (5,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}^2b_{12})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (5,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{33}b_{23})(a_{13}^2b_{12})$
- The (6,3,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}a_{33}b_{12})(a_{13}^2b_{23})$
- The (6,5,1)-row (6,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}^2b_{23})(a_{13}a_{33}b_{12})$

#### **2.61.4** Monomial $a_{23}^3 a_{33} b_{12} b_{13}$

- The (6,5,3)-row (6,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}^2b_{12})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (6,5,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}a_{33}b_{13})(a_{23}^2b_{12})$
- The (6,3,2)-row (6,5,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}a_{33}b_{12})(a_{23}^2b_{13})$
- The (6,5,2)-row (6,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{23}^2b_{13})(a_{23}a_{33}b_{12})$

## **2.61.5** Monomial $a_{12}^3 a_{22} b_{13} b_{23}$

- The (5,4,2)-row (5,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}^2b_{13})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (5,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{22}b_{23})(a_{12}^2b_{13})$
- The (5,3,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{22}b_{13})(a_{12}^2b_{23})$
- The (5,4,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}^2b_{23})(a_{12}a_{22}b_{13})$

## **2.61.6** Monomial $a_{11}a_{13}^3b_{12}b_{23}$

- The (5,3,3)-row (5,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{13}b_{23})(a_{13}^2b_{12})$
- The (5,4,3)-row (5,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}^2b_{12})(a_{11}a_{13}b_{23})$
- The (6,5,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}^2b_{23})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{13}b_{12})(a_{13}^2b_{23})$

#### **2.62** Monomial type $a_{12}a_{13}a_{22}a_{33}b_{12}b_{13}$ with coefficient 24

#### **2.62.1** Monomial $a_{12}a_{13}a_{22}a_{33}b_{12}b_{13}$

- The (2,1)-row (3,1)-column entry of U is 6, for  $(a_{12}a_{22}b_{12})(a_{13}a_{33}b_{13})$
- The (3,1)-row (2,1)-column entry of U is 6, for  $(a_{13}a_{33}b_{13})(a_{12}a_{22}b_{12})$
- The (4,2,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{13}a_{22}b_{12})(a_{12}a_{33}b_{13})$
- The (4,3,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{33}b_{13})(a_{13}a_{22}b_{12})$

#### **2.62.2** Monomial $a_{11}a_{13}a_{22}a_{23}b_{13}b_{23}$

- The (1,3)-row (2,3)-column entry of U is 6, for  $(a_{11}a_{13}b_{13})(a_{22}a_{23}b_{23})$
- The (2,3)-row (1,3)-column entry of U is 6, for  $(a_{22}a_{23}b_{23})(a_{11}a_{13}b_{13})$
- The (4,2,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{23}b_{13})(a_{13}a_{22}b_{23})$
- The (4,3,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{22}b_{23})(a_{11}a_{23}b_{13})$

#### **2.62.3** Monomial $a_{11}a_{12}a_{23}a_{33}b_{12}b_{23}$

- The (1,2)-row (3,2)-column entry of U is 6, for  $(a_{11}a_{12}b_{12})(a_{23}a_{33}b_{23})$
- The (3,2)-row (1,2)-column entry of U is 6, for  $(a_{23}a_{33}b_{23})(a_{11}a_{12}b_{12})$
- The (4,2,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{23}b_{12})(a_{12}a_{33}b_{23})$
- The (4,3,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{33}b_{23})(a_{11}a_{23}b_{12})$

## **2.63** Monomial type $a_{11}a_{22}a_{23}a_{33}b_{12}b_{13}$ with coefficient 12

#### **2.63.1** Monomial $a_{11}a_{22}a_{23}a_{33}b_{12}b_{13}$

- The (4,1)-row (6,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}a_{33}b_{13})(a_{11}a_{22}b_{12})$
- The (4,1)-row (6,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{22}a_{23}b_{12})(a_{11}a_{33}b_{13})$

#### **2.63.2** Monomial $a_{11}a_{12}a_{22}a_{33}b_{13}b_{23}$

- The (4,1)-row (5,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{33}b_{13})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (4,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{22}b_{23})(a_{11}a_{33}b_{13})$
- The (4,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{12}b_{13})(a_{22}a_{33}b_{23})$

## **2.63.3** Monomial $a_{11}a_{13}a_{22}a_{33}b_{12}b_{23}$

- The (4,1)-row (5,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{22}b_{12})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (4,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{33}b_{23})(a_{11}a_{22}b_{12})$
- The (4,1)-row (6,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{33}b_{23})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{13}b_{12})(a_{22}a_{33}b_{23})$

# **2.64** Monomial type $a_{22}^2 a_{23} a_{33} b_{12} b_{13}$ with coefficient 12

#### **2.64.1** Monomial $a_{22}^2 a_{23} a_{33} b_{12} b_{13}$

- The (6,2)-row (6,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{22}^2b_{12})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (6,2)-column entry of the (1,2)-copy of R is 6, for  $(a_{23}a_{33}b_{13})(a_{22}^2b_{12})$

#### **2.64.2** Monomial $a_{11}^2 a_{12} a_{22} b_{13} b_{23}$

- The (5,1)-row (5,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}^2b_{13})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (5,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{22}b_{23})(a_{11}^2b_{13})$

#### **2.64.3** Monomial $a_{11}a_{13}a_{33}^2b_{12}b_{23}$

- The (6,2)-row (6,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{33}^2b_{23})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (6,2)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{13}b_{12})(a_{33}^2b_{23})$

#### **2.64.4** Monomial $a_{22}a_{23}a_{33}^2b_{12}b_{13}$

- The (6,2)-row (6,6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{33}^2b_{13})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (6,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{22}a_{23}b_{12})(a_{33}^2b_{13})$

#### **2.64.5** Monomial $a_{11}a_{12}a_{22}^2b_{13}b_{23}$

- The (5,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}^2b_{23})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (5,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{11}a_{12}b_{13})(a_{22}^2b_{23})$

# **2.64.6** Monomial $a_{11}^2 a_{13} a_{33} b_{12} b_{23}$

- The (5,1)-row (5,6,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}^2b_{12})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (5,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{33}b_{23})(a_{11}^2b_{12})$

# **2.65** Monomial type $a_{11}^2 a_{12}^2 b_{11} b_{22}$ with coefficient 18

## **2.65.1** Monomial $a_{11}^2 a_{12}^2 b_{11} b_{22}$

- The  $(\hat{1}, \hat{1})$ -row  $(\hat{2}, \hat{1})$ -column entry of U is 6, for  $(a_{11}^2b_{11})(a_{12}^2b_{22})$
- The  $(\hat{2},\hat{1})$ -row  $(\hat{1},\hat{1})$ -column entry of U is 6, for  $(a_{12}^2b_{22})(a_{11}^2b_{11})$
- The (2,1)-row (5,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{11})(a_{11}a_{12}b_{22})$
- The (5,2)-row (2,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{22})(a_{11}a_{12}b_{11})$

#### **2.65.2** Monomial $a_{13}^2 a_{33}^2 b_{11} b_{33}$

- The  $(\hat{1}, \hat{3})$ -row  $(\hat{3}, \hat{3})$ -column entry of U is 6, for  $(a_{13}^2 b_{11})(a_{33}^2 b_{33})$
- The  $(\hat{3}, \hat{3})$ -row  $(\hat{1}, \hat{3})$ -column entry of U is 6, for  $(a_{33}^2b_{33})(a_{13}^2b_{11})$
- The (3,3)-row (6,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{33})(a_{13}a_{33}b_{11})$
- The (6,1)-row (3,3)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{11})(a_{13}a_{33}b_{33})$

## **2.65.3** Monomial $a_{22}^2 a_{23}^2 b_{22} b_{33}$

- The  $(\hat{2},\hat{2})$ -row  $(\hat{3},\hat{2})$ -column entry of U is 6, for  $(a_{22}^2b_{22})(a_{23}^2b_{33})$
- The  $(\hat{3},\hat{2})$ -row  $(\hat{2},\hat{2})$ -column entry of U is 6, for  $(a_{23}^2b_{33})(a_{22}^2b_{22})$
- The (2,1)-row (5,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{22})(a_{22}a_{23}b_{33})$
- The (5,2)-row (2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{33})(a_{22}a_{23}b_{22})$

# **2.65.4** Monomial $a_{11}^2 a_{13}^2 b_{11} b_{33}$

- The  $(\hat{1},\hat{1})$ -row  $(\hat{3},\hat{1})$ -column entry of U is 6, for  $(a_{11}^2b_{11})(a_{13}^2b_{33})$
- The  $(\hat{3}, \hat{1})$ -row  $(\hat{1}, \hat{1})$ -column entry of U is 6, for  $(a_{13}^2b_{33})(a_{11}^2b_{11})$
- The (2,1)-row (5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{11})(a_{11}a_{13}b_{33})$
- The (5,2)-row (2,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{33})(a_{11}a_{13}b_{11})$

#### **2.65.5** Monomial $a_{23}^2 a_{33}^2 b_{22} b_{33}$

- The  $(\hat{2}, \hat{3})$ -row  $(\hat{3}, \hat{3})$ -column entry of U is 6, for  $(a_{23}^2 b_{22})(a_{33}^2 b_{33})$
- The  $(\hat{3}, \hat{3})$ -row  $(\hat{2}, \hat{3})$ -column entry of U is 6, for  $(a_{33}^2b_{33})(a_{23}^2b_{22})$
- The (3,3)-row (6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{33})(a_{23}a_{33}b_{22})$
- The (6,1)-row (3,3)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{22})(a_{23}a_{33}b_{33})$

# **2.65.6** Monomial $a_{12}^2 a_{22}^2 b_{11} b_{22}$

- The  $(\hat{1},\hat{2})$ -row  $(\hat{2},\hat{2})$ -column entry of U is 6, for  $(a_{12}^2b_{11})(a_{22}^2b_{22})$
- The  $(\hat{2}, \hat{2})$ -row  $(\hat{1}, \hat{2})$ -column entry of U is 6, for  $(a_{22}^2 b_{22})(a_{12}^2 b_{11})$
- The (3,2)-row (6,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{22})(a_{12}a_{22}b_{11})$
- The (6,1)-row (3,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{11})(a_{12}a_{22}b_{22})$

# **2.66** Monomial type $a_{12}^4b_{11}b_{22}$ with coefficient 12

#### **2.66.1** Monomial $a_{12}^4b_{11}b_{22}$

- The  $(\hat{1}, \hat{2})$ -row  $(\hat{2}, \hat{1})$ -column entry of U is 6, for  $(a_{12}^2b_{11})(a_{12}^2b_{22})$
- The  $(\hat{2}, \hat{1})$ -row  $(\hat{1}, \hat{2})$ -column entry of U is 6, for  $(a_{12}^2 b_{22})(a_{12}^2 b_{11})$

# **2.66.2** Monomial $a_{13}^4 b_{11} b_{33}$

- The  $(\hat{1}, \hat{3})$ -row  $(\hat{3}, \hat{1})$ -column entry of U is 6, for  $(a_{13}^2 b_{11})(a_{13}^2 b_{33})$
- The  $(\hat{3},\hat{1})$ -row  $(\hat{1},\hat{3})$ -column entry of U is 6, for  $(a_{13}^2b_{33})(a_{13}^2b_{11})$

#### **2.66.3** Monomial $a_{23}^4b_{22}b_{33}$

- The  $(\hat{2},\hat{3})$ -row  $(\hat{3},\hat{2})$ -column entry of U is 6, for  $(a_{23}^2b_{22})(a_{23}^2b_{33})$
- The  $(\hat{3}, \hat{2})$ -row  $(\hat{2}, \hat{3})$ -column entry of U is 6, for  $(a_{23}^2b_{33})(a_{23}^2b_{22})$

# **2.67** Monomial type $a_{12}^2 a_{13}^2 b_{11} b_{22}$ with coefficient 12

# **2.67.1** Monomial $a_{12}^2 a_{13}^2 b_{11} b_{22}$

- The  $(\hat{1},\hat{3})$ -row  $(\hat{2},\hat{1})$ -column entry of U is 3, for  $(a_{13}^2b_{11})(a_{12}^2b_{22})$
- The (4,4,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{22})(a_{12}a_{13}b_{11})$

# **2.67.2** Monomial $a_{13}^2 a_{23}^2 b_{11} b_{33}$

- The  $(\hat{3},\hat{2})$ -row  $(\hat{1},\hat{3})$ -column entry of U is 3, for  $(a_{23}^2b_{33})(a_{13}^2b_{11})$
- The (4,4,3)-row (6,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{11})(a_{13}a_{23}b_{33})$

# **2.67.3** Monomial $a_{12}^2 a_{23}^2 b_{22} b_{33}$

- The  $(\hat{2}, \hat{1})$ -row  $(\hat{3}, \hat{2})$ -column entry of U is 3, for  $(a_{12}^2b_{22})(a_{23}^2b_{33})$
- The (4,4,2)-row (5,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{33})(a_{12}a_{23}b_{22})$

# **2.67.4** Monomial $a_{12}^2 a_{13}^2 b_{11} b_{33}$

- The  $(\hat{1}, \hat{2})$ -row  $(\hat{3}, \hat{1})$ -column entry of U is 3, for  $(a_{12}^2b_{11})(a_{13}^2b_{33})$
- The  $(\hat{3}, \hat{1})$ -row  $(\hat{1}, \hat{2})$ -column entry of U is 3, for  $(a_{13}^2b_{33})(a_{12}^2b_{11})$
- The (4,4,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{33})(a_{12}a_{13}b_{11})$

# **2.67.5** Monomial $a_{13}^2 a_{23}^2 b_{22} b_{33}$

- The  $(\hat{2}, \hat{3})$ -row  $(\hat{3}, \hat{1})$ -column entry of U is 3, for  $(a_{23}^2 b_{22})(a_{13}^2 b_{33})$
- The  $(\hat{3}, \hat{1})$ -row  $(\hat{2}, \hat{3})$ -column entry of U is 3, for  $(a_{13}^2b_{33})(a_{23}^2b_{22})$
- The (4,4,3)-row (5,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{22})(a_{13}a_{23}b_{33})$

## **2.67.6** Monomial $a_{12}^2 a_{23}^2 b_{11} b_{22}$

- The  $(\hat{1},\hat{2})$ -row  $(\hat{2},\hat{3})$ -column entry of U is 3, for  $(a_{12}^2b_{11})(a_{23}^2b_{22})$
- The  $(\hat{2}, \hat{3})$ -row  $(\hat{1}, \hat{2})$ -column entry of U is 3, for  $(a_{23}^2 b_{22})(a_{12}^2 b_{11})$
- The (4,4,2)-row (6,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{11})(a_{12}a_{23}b_{22})$

# **2.68** Monomial type $a_{11}a_{12}^2a_{22}b_{11}b_{22}$ with coefficient 24

#### **2.68.1** Monomial $a_{11}a_{12}^2a_{22}b_{11}b_{22}$

- The (2,1)-row (3,2)-column entry of the (1,2)-copy of R is 12, for  $(a_{11}a_{12}b_{11})(a_{12}a_{22}b_{22})$
- The (3,2)-row (2,1)-column entry of the (1,2)-copy of R is 12, for  $(a_{12}a_{22}b_{22})(a_{11}a_{12}b_{11})$

#### **2.68.2** Monomial $a_{11}a_{13}^2a_{33}b_{11}b_{33}$

- The (2,1)-row (3,3)-column entry of the (1,3)-copy of R is 12, for  $(a_{11}a_{13}b_{11})(a_{13}a_{33}b_{33})$
- The (3,3)-row (2,1)-column entry of the (1,3)-copy of R is 12, for  $(a_{13}a_{33}b_{33})(a_{11}a_{13}b_{11})$

#### **2.68.3** Monomial $a_{22}a_{23}^2a_{33}b_{22}b_{33}$

- The (2,1)-row (3,3)-column entry of the (2,3)-copy of R is 12, for  $(a_{22}a_{23}b_{22})(a_{23}a_{33}b_{33})$
- The (3,3)-row (2,1)-column entry of the (2,3)-copy of R is 12, for  $(a_{23}a_{33}b_{33})(a_{22}a_{23}b_{22})$

## **2.69** Monomial type $a_{11}a_{12}a_{13}a_{23}b_{11}b_{22}$ with coefficient 24

#### **2.69.1** Monomial $a_{11}a_{12}a_{13}a_{23}b_{11}b_{22}$

- The (2,1)-row (5,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{11})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (2,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{22})(a_{11}a_{12}b_{11})$
- The (2,1)-row (4,4,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{11})(a_{12}a_{23}b_{22})$
- The (4,4,2)-row (2,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{23}b_{22})(a_{11}a_{13}b_{11})$

#### **2.69.2** Monomial $a_{12}a_{13}a_{23}a_{33}b_{11}b_{33}$

- The (3,3)-row (6,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{33})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (3,3)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{11})(a_{13}a_{33}b_{33})$
- The (3,3)-row (4,4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{33})(a_{12}a_{13}b_{11})$
- The (4,4,1)-row (3,3)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{13}b_{11})(a_{23}a_{33}b_{33})$

#### **2.69.3** Monomial $a_{12}a_{13}a_{22}a_{23}b_{22}b_{33}$

- The (3,2)-row (4,4,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{22})(a_{13}a_{23}b_{33})$
- The (4,4,3)-row (3,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{23}b_{33})(a_{12}a_{22}b_{22})$
- The (2,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{22})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{33})(a_{22}a_{23}b_{22})$

#### **2.69.4** Monomial $a_{11}a_{12}a_{13}a_{23}b_{11}b_{33}$

- The (2,1)-row (4,4,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{11})(a_{13}a_{23}b_{33})$
- The (4,4,3)-row (2,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{23}b_{33})(a_{11}a_{12}b_{11})$
- The (2,1)-row (5,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{11})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (2,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{33})(a_{11}a_{13}b_{11})$

#### **2.69.5** Monomial $a_{12}a_{13}a_{23}a_{33}b_{22}b_{33}$

- The (3,3)-row (4,4,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{33})(a_{12}a_{23}b_{22})$
- The (4,4,2)-row (3,3)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{23}b_{22})(a_{13}a_{33}b_{33})$
- The (3,3)-row (6,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{33})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (3,3)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{22})(a_{23}a_{33}b_{33})$

## **2.69.6** Monomial $a_{12}a_{13}a_{22}a_{23}b_{11}b_{22}$

- The (3,2)-row (6,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{22})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (3,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{11})(a_{12}a_{22}b_{22})$
- The (2,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{22})(a_{12}a_{13}b_{11})$
- The (4,4,1)-row (2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{13}b_{11})(a_{22}a_{23}b_{22})$

# 2.70 Monomial type $a_{13}^2 a_{23}^2 b_{11} b_{22}$ with coefficient 6

#### **2.70.1** Monomial $a_{13}^2 a_{23}^2 b_{11} b_{22}$

- The  $(\hat{1}, \hat{3})$ -row  $(\hat{2}, \hat{3})$ -column entry of U is 3, for  $(a_{13}^2 b_{11})(a_{23}^2 b_{22})$

#### **2.70.2** Monomial $a_{12}^2 a_{23}^2 b_{11} b_{33}$

- The  $(\hat{1}, \hat{2})$ -row  $(\hat{3}, \hat{2})$ -column entry of U is 3, for  $(a_{12}^2 b_{11})(a_{23}^2 b_{33})$
- The  $(\hat{3},\hat{2})$ -row  $(\hat{1},\hat{2})$ -column entry of U is 3, for  $(a_{23}^2b_{33})(a_{12}^2b_{11})$

#### **2.70.3** Monomial $a_{12}^2 a_{13}^2 b_{22} b_{33}$

- The  $(\hat{2}, \hat{1})$ -row  $(\hat{3}, \hat{1})$ -column entry of U is 3, for  $(a_{12}^2 b_{22})(a_{13}^2 b_{33})$
- The  $(\hat{3}, \hat{1})$ -row  $(\hat{2}, \hat{1})$ -column entry of U is 3, for  $(a_{13}^2b_{33})(a_{12}^2b_{22})$

## **2.71** Monomial type $a_{12}a_{13}a_{23}a_{33}b_{11}b_{22}$ with coefficient 12

#### **2.71.1** Monomial $a_{12}a_{13}a_{23}a_{33}b_{11}b_{22}$

- The (4,4,2)-row (6,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{13}a_{33}b_{11})$
- The (6,1)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{11})(a_{12}a_{23}b_{22})$
- The (4,4,1)-row (6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{23}a_{33}b_{22})$
- The (6,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{22})(a_{12}a_{13}b_{11})$

## **2.71.2** Monomial $a_{12}a_{13}a_{22}a_{23}b_{11}b_{33}$

- The (4,4,3)-row (6,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{12}a_{22}b_{11})$
- The (6,1)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{11})(a_{13}a_{23}b_{33})$
- The (4,4,1)-row (5,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{22}a_{23}b_{33})$
- The (5,2)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{33})(a_{12}a_{13}b_{11})$

#### **2.71.3** Monomial $a_{11}a_{12}a_{13}a_{23}b_{22}b_{33}$

- The (4,4,3)-row (5,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{11}a_{12}b_{22})$
- The (5,2)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{22})(a_{13}a_{23}b_{33})$
- The (4,4,2)-row (5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{11}a_{13}b_{33})$
- The (5,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{33})(a_{12}a_{23}b_{22})$

# **2.72** Monomial type $a_{11}a_{12}^2a_{13}b_{13}b_{22}$ with coefficient 24

#### **2.72.1** Monomial $a_{11}a_{12}^2a_{13}b_{13}b_{22}$

- The (1,3)-row  $(\hat{2},\hat{1})$ -column entry of U is 9, for  $(a_{11}a_{13}b_{13})(a_{12}^2b_{22})$
- The  $(\hat{2}, \hat{1})$ -row (1, 3)-column entry of U is 9, for  $(a_{12}^2 b_{22})(a_{11} a_{13} b_{13})$
- The (2,2,3)-row (5,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{13}b_{13})(a_{11}a_{12}b_{22})$
- The (5,2)-row (2,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{22})(a_{12}a_{13}b_{13})$

#### **2.72.2** Monomial $a_{13}^2 a_{23} a_{33} b_{11} b_{23}$

- The (3,2)-row  $(\hat{1},\hat{3})$ -column entry of U is 9, for  $(a_{23}a_{33}b_{23})(a_{13}^2b_{11})$
- The  $(\hat{1}, \hat{3})$ -row (3, 2)-column entry of U is 9, for  $(a_{13}^2 b_{11})(a_{23} a_{33} b_{23})$
- The (3,2)-row (6,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{23}b_{23})(a_{13}a_{33}b_{11})$
- The (6,1)-row (3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{11})(a_{13}a_{23}b_{23})$

## **2.72.3** Monomial $a_{12}a_{22}a_{23}^2b_{12}b_{33}$

- The (2,1)-row  $(\hat{3},\hat{2})$ -column entry of U is 9, for  $(a_{12}a_{22}b_{12})(a_{23}^2b_{33})$
- The  $(\hat{3}, \hat{2})$ -row (2, 1)-column entry of U is 9, for  $(a_{23}^2b_{33})(a_{12}a_{22}b_{12})$
- The (2,2,1)-row (5,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{23}b_{12})(a_{22}a_{23}b_{33})$
- The (5,2)-row (2,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{33})(a_{12}a_{23}b_{12})$

## **2.72.4** Monomial $a_{11}a_{12}a_{13}^2b_{12}b_{33}$

- The (1,2)-row  $(\hat{3},\hat{1})$ -column entry of U is 9, for  $(a_{11}a_{12}b_{12})(a_{13}^2b_{33})$
- The  $(\hat{3}, \hat{1})$ -row (1, 2)-column entry of U is 9, for  $(a_{13}^2b_{33})(a_{11}a_{12}b_{12})$
- The (2,2,2)-row (5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{13}b_{12})(a_{11}a_{13}b_{33})$
- The (5,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{33})(a_{12}a_{13}b_{12})$

#### **2.72.5** Monomial $a_{13}a_{23}^2a_{33}b_{13}b_{22}$

- The (3,1)-row  $(\hat{2},\hat{3})$ -column entry of U is 9, for  $(a_{13}a_{33}b_{13})(a_{23}^2b_{22})$
- The  $(\hat{2}, \hat{3})$ -row (3, 1)-column entry of U is 9, for  $(a_{23}^2 b_{22})(a_{13} a_{33} b_{13})$
- The (3,1)-row (6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{23}b_{13})(a_{23}a_{33}b_{22})$
- The (6,1)-row (3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{22})(a_{13}a_{23}b_{13})$

# **2.72.6** Monomial $a_{12}^2 a_{22} a_{23} b_{11} b_{23}$

- The (2,3)-row  $(\hat{1},\hat{2})$ -column entry of U is 9, for  $(a_{22}a_{23}b_{23})(a_{12}^2b_{11})$
- The  $(\hat{1}, \hat{2})$ -row (2, 3)-column entry of U is 9, for  $(a_{12}^2b_{11})(a_{22}a_{23}b_{23})$
- The (3,3)-row (6,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{23}b_{23})(a_{12}a_{22}b_{11})$
- The (6,1)-row (3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{11})(a_{12}a_{23}b_{23})$

# **2.73** Monomial type $a_{12}^2 a_{13} a_{22} b_{13} b_{22}$ with coefficient 24

#### **2.73.1** Monomial $a_{12}^2 a_{13} a_{22} b_{13} b_{22}$

- The (2,2,3)-row (3,2)-column entry of the (1,2)-copy of R is 12, for  $(a_{12}a_{13}b_{13})(a_{12}a_{22}b_{22})$
- The (3,2)-row (2,2,3)-column entry of the (1,2)-copy of R is 12, for  $(a_{12}a_{22}b_{22})(a_{12}a_{13}b_{13})$

#### **2.73.2** Monomial $a_{11}a_{13}^2a_{23}b_{11}b_{23}$

- The (2,1)-row (3,2)-column entry of the (1,3)-copy of R is 12, for  $(a_{11}a_{13}b_{11})(a_{13}a_{23}b_{23})$
- The (3,2)-row (2,1)-column entry of the (1,3)-copy of R is 12, for  $(a_{13}a_{23}b_{23})(a_{11}a_{13}b_{11})$

#### **2.73.3** Monomial $a_{12}a_{23}^2a_{33}b_{12}b_{33}$

- The (2,2,1)-row (3,3)-column entry of the (2,3)-copy of R is 12, for  $(a_{12}a_{23}b_{12})(a_{23}a_{33}b_{33})$
- The (3,3)-row (2,2,1)-column entry of the (2,3)-copy of R is 12, for  $(a_{23}a_{33}b_{33})(a_{12}a_{23}b_{12})$

## **2.73.4** Monomial $a_{12}a_{13}^2a_{33}b_{12}b_{33}$

- The (2,2,2)-row (3,3)-column entry of the (1,3)-copy of R is 12, for  $(a_{12}a_{13}b_{12})(a_{13}a_{33}b_{33})$
- The (3,3)-row (2,2,2)-column entry of the (1,3)-copy of R is 12, for  $(a_{13}a_{33}b_{33})(a_{12}a_{13}b_{12})$

## **2.73.5** Monomial $a_{13}a_{22}a_{23}^2b_{13}b_{22}$

- The (2,1)-row (3,1)-column entry of the (2,3)-copy of R is 12, for  $(a_{22}a_{23}b_{22})(a_{13}a_{23}b_{13})$
- The (3,1)-row (2,1)-column entry of the (2,3)-copy of R is 12, for  $(a_{13}a_{23}b_{13})(a_{22}a_{23}b_{22})$

#### **2.73.6** Monomial $a_{11}a_{12}^2a_{23}b_{11}b_{23}$

- The (2,1)-row (3,3)-column entry of the (1,2)-copy of R is 12, for  $(a_{11}a_{12}b_{11})(a_{12}a_{23}b_{23})$
- The (3,3)-row (2,1)-column entry of the (1,2)-copy of R is 12, for  $(a_{12}a_{23}b_{23})(a_{11}a_{12}b_{11})$

# **2.74** Monomial type $a_{11}^2 a_{12} a_{23} b_{13} b_{22}$ with coefficient 12

## **2.74.1** Monomial $a_{11}^2 a_{12} a_{23} b_{13} b_{22}$

- The (4,2,3)-row (5,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{11}a_{12}b_{22})$
- The (5,2)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{22})(a_{11}a_{23}b_{13})$
- The (4,4,2)-row (5,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{11}^2b_{13})$
- The (5,1)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}^2b_{13})(a_{12}a_{23}b_{22})$

# **2.74.2** Monomial $a_{12}a_{13}a_{33}^2b_{11}b_{23}$

- The (4,3,2)-row (6,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{13}a_{33}b_{11})$
- The (6,1)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{11})(a_{12}a_{33}b_{23})$
- The (4,4,1)-row (6,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{33}^2b_{23})$
- The (6,2)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{33}^2b_{23})(a_{12}a_{13}b_{11})$

#### **2.74.3** Monomial $a_{13}a_{22}^2a_{23}b_{12}b_{33}$

- The (4,4,3)-row (6,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{22}^2b_{12})$
- The (6,2)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}^2b_{12})(a_{13}a_{23}b_{33})$
- The (4,2,1)-row (5,2)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{22}a_{23}b_{33})$
- The (5,2)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{33})(a_{13}a_{22}b_{12})$

#### **2.74.4** Monomial $a_{11}^2 a_{13} a_{23} b_{12} b_{33}$

- The (4,4,3)-row (5,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{11}^2b_{12})$
- The (5,1)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}^2b_{12})(a_{13}a_{23}b_{33})$
- The (4,2,2)-row (5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{11}a_{13}b_{33})$
- The (5,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{33})(a_{11}a_{23}b_{12})$

#### **2.74.5** Monomial $a_{12}a_{23}a_{33}^2b_{13}b_{22}$

- The (4,4,2)-row (6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{33}^2b_{13})$
- The (6,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{33}^2b_{13})(a_{12}a_{23}b_{22})$
- The (4,3,1)-row (6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{23}a_{33}b_{22})$
- The (6,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{22})(a_{12}a_{33}b_{13})$

## **2.74.6** Monomial $a_{12}a_{13}a_{22}^2b_{11}b_{23}$

- The (4,3,3)-row (6,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{12}a_{22}b_{11})$
- The (6,1)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{11})(a_{13}a_{22}b_{23})$
- The (4,4,1)-row (5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{22}^2b_{23})$
- The (5,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}^2b_{23})(a_{12}a_{13}b_{11})$

# 2.75 Monomial type $a_{12}^3 a_{23} b_{13} b_{22}$ with coefficient 24

# **2.75.1** Monomial $a_{12}^3 a_{23} b_{13} b_{22}$

- The  $(\{1,2,3\},2)$ -row  $(\hat{2},\hat{1})$ -column entry of U is 9, for  $(a_{12}a_{23}b_{13})(a_{12}^2b_{22})$
- The  $(\hat{2}, \hat{1})$ -row  $(\{1, 2, 3\}, 2)$ -column entry of U is 9, for  $(a_{12}^2 b_{22})(a_{12} a_{23} b_{13})$
- The (4,4,2)-row (5,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{12}^2b_{13})$
- The (5,4,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}^2b_{13})(a_{12}a_{23}b_{22})$

#### **2.75.2** Monomial $a_{12}a_{13}^3b_{11}b_{23}$

- The  $(\{1,2,3\},1)$ -row  $(\hat{1},\hat{3})$ -column entry of U is 9, for  $(a_{12}a_{13}b_{23})(a_{13}^2b_{11})$
- The  $(\hat{1}, \hat{3})$ -row  $(\{1, 2, 3\}, 1)$ -column entry of U is 9, for  $(a_{13}^2 b_{11})(a_{12}a_{13}b_{23})$
- The (4,4,1)-row (6,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{13}^2b_{23})$
- The (6,5,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}^2b_{23})(a_{12}a_{13}b_{11})$

## **2.75.3** Monomial $a_{13}a_{23}^3b_{12}b_{33}$

- The  $(\{1,2,3\},3)$ -row  $(\hat{3},\hat{2})$ -column entry of U is 9, for  $(a_{13}a_{23}b_{12})(a_{23}^2b_{33})$
- The  $(\hat{3}, \hat{2})$ -row  $(\{1, 2, 3\}, 3)$ -column entry of U is 9, for  $(a_{23}^2 b_{33})(a_{13} a_{23} b_{12})$
- The (4,4,3)-row (6,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{23}^2b_{12})$
- The (6,5,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}^2b_{12})(a_{13}a_{23}b_{33})$

#### **2.75.4** Monomial $a_{13}^3 a_{23} b_{12} b_{33}$

- The  $(\{1,2,3\},3)$ -row  $(\hat{3},\hat{1})$ -column entry of U is 9, for  $(a_{13}a_{23}b_{12})(a_{13}^2b_{33})$
- The  $(\hat{3}, \hat{1})$ -row  $(\{1, 2, 3\}, 3)$ -column entry of U is 9, for  $(a_{13}^2 b_{33})(a_{13} a_{23} b_{12})$
- The (4,4,3)-row (5,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{33})(a_{13}^2b_{12})$
- The (5,4,3)-row (4,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}^2b_{12})(a_{13}a_{23}b_{33})$

#### **2.75.5** Monomial $a_{12}a_{23}^3b_{13}b_{22}$

- The  $(\{1,2,3\},2)$ -row  $(\hat{2},\hat{3})$ -column entry of U is 9, for  $(a_{12}a_{23}b_{13})(a_{23}^2b_{22})$
- The  $(\hat{2}, \hat{3})$ -row  $(\{1, 2, 3\}, 2)$ -column entry of U is 9, for  $(a_{23}^2 b_{22})(a_{12} a_{23} b_{13})$
- The (4,4,2)-row (6,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{22})(a_{23}^2b_{13})$
- The (6,5,2)-row (4,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}^2b_{13})(a_{12}a_{23}b_{22})$

#### **2.75.6** Monomial $a_{12}^3 a_{13} b_{11} b_{23}$

- The  $(\{1,2,3\},1)$ -row  $(\hat{1},\hat{2})$ -column entry of U is 9, for  $(a_{12}a_{13}b_{23})(a_{12}^2b_{11})$
- The  $(\hat{1}, \hat{2})$ -row  $(\{1, 2, 3\}, 1)$ -column entry of U is 9, for  $(a_{12}^2 b_{11})(a_{12} a_{13} b_{23})$
- The (4,4,1)-row (5,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{11})(a_{12}^2b_{23})$
- The (5,4,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}^2b_{23})(a_{12}a_{13}b_{11})$

# **2.76** Monomial type $a_{12}a_{13}^2a_{23}b_{13}b_{22}$ with coefficient 36

# **2.76.1** Monomial $a_{12}a_{13}^2a_{23}b_{13}b_{22}$

- The (2,2,3)-row (5,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{13}b_{13})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (2,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{22})(a_{12}a_{13}b_{13})$
- $\bullet$  The (1)-row (4,4,2)-column entry of the (1,3)-copy of R is 12, for  $(a_{13}^2b_{13})(a_{12}a_{23}b_{22})$
- The (4,4,2)-row (1)-column entry of the (1,3)-copy of R is 12, for  $(a_{12}a_{23}b_{22})(a_{13}^2b_{13})$
- The (3,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{23}b_{13})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{22})(a_{13}a_{23}b_{13})$

#### **2.76.2** Monomial $a_{12}a_{13}a_{23}^2b_{11}b_{23}$

- The (3,3)-row (6,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{23}b_{23})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{11})(a_{12}a_{23}b_{23})$
- The (3,2)-row (6,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{23}b_{23})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{11})(a_{13}a_{23}b_{23})$
- The (1)-row (4,4,1)-column entry of the (2,3)-copy of R is 12, for  $(a_{23}^2b_{23})(a_{12}a_{13}b_{11})$
- The (4,4,1)-row (1)-column entry of the (2,3)-copy of R is 12, for  $(a_{12}a_{13}b_{11})(a_{23}^2b_{23})$

#### **2.76.3** Monomial $a_{12}^2 a_{13} a_{23} b_{12} b_{33}$

- The (1)-row (4,4,3)-column entry of the (1,2)-copy of R is 12, for  $(a_{12}^2b_{12})(a_{13}a_{23}b_{33})$
- The (4,4,3)-row (1)-column entry of the (1,2)-copy of R is 12, for  $(a_{13}a_{23}b_{33})(a_{12}^2b_{12})$
- The (2,2,2)-row (5,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{13}b_{12})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (2,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{33})(a_{12}a_{13}b_{12})$
- The (2,2,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{23}b_{12})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (2,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{33})(a_{12}a_{23}b_{12})$

#### **2.77** Monomial type $a_{11}a_{12}a_{22}a_{23}b_{13}b_{22}$ with coefficient 24

#### **2.77.1** Monomial $a_{11}a_{12}a_{22}a_{23}b_{13}b_{22}$

- The (3,2)-row (4,2,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{12}a_{22}b_{22})(a_{11}a_{23}b_{13})$
- The (4,2,3)-row (3,2)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{23}b_{13})(a_{12}a_{22}b_{22})$
- The (2,1)-row (5,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{22})(a_{11}a_{12}b_{13})$
- The (5,6,1)-row (2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{12}b_{13})(a_{22}a_{23}b_{22})$

## **2.77.2** Monomial $a_{11}a_{12}a_{13}a_{33}b_{11}b_{23}$

- The (2,1)-row (5,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{11})(a_{13}a_{33}b_{23})$
- The (5,6,3)-row (2,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{33}b_{23})(a_{11}a_{12}b_{11})$
- The (2,1)-row (4,3,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{13}b_{11})(a_{12}a_{33}b_{23})$
- The (4,3,2)-row (2,1)-column entry of the (1,3)-copy of R is 9, for  $(a_{12}a_{33}b_{23})(a_{11}a_{13}b_{11})$

#### **2.77.3** Monomial $a_{13}a_{22}a_{23}a_{33}b_{12}b_{33}$

- The (3,3)-row (6,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{33})(a_{22}a_{23}b_{12})$
- The (6,6,2)-row (3,3)-column entry of the (1,3)-copy of R is 3, for  $(a_{22}a_{23}b_{12})(a_{13}a_{33}b_{33})$
- The (3,3)-row (4,2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{23}a_{33}b_{33})(a_{13}a_{22}b_{12})$
- The (4,2,1)-row (3,3)-column entry of the (2,3)-copy of R is 9, for  $(a_{13}a_{22}b_{12})(a_{23}a_{33}b_{33})$

## **2.77.4** Monomial $a_{11}a_{13}a_{23}a_{33}b_{12}b_{33}$

- The (3,3)-row (4,2,2)-column entry of the (1,3)-copy of R is 9, for  $(a_{13}a_{33}b_{33})(a_{11}a_{23}b_{12})$
- The (4,2,2)-row (3,3)-column entry of the (1,3)-copy of R is 9, for  $(a_{11}a_{23}b_{12})(a_{13}a_{33}b_{33})$
- The (3,3)-row (6,6,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{33})(a_{11}a_{13}b_{12})$
- The (6,6,1)-row (3,3)-column entry of the (2,3)-copy of R is 3, for  $(a_{11}a_{13}b_{12})(a_{23}a_{33}b_{33})$

#### **2.77.5** Monomial $a_{12}a_{22}a_{23}a_{33}b_{13}b_{22}$

- The (3,2)-row (6,6,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{22})(a_{23}a_{33}b_{13})$
- The (6,6,3)-row (3,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{23}a_{33}b_{13})(a_{12}a_{22}b_{22})$
- The (2,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{22}a_{23}b_{22})(a_{12}a_{33}b_{13})$
- The (4,3,1)-row (2,1)-column entry of the (2,3)-copy of R is 9, for  $(a_{12}a_{33}b_{13})(a_{22}a_{23}b_{22})$

#### **2.77.6** Monomial $a_{11}a_{12}a_{13}a_{22}b_{11}b_{23}$

- The (2,1)-row (4,3,3)-column entry of the (1,2)-copy of R is 9, for  $(a_{11}a_{12}b_{11})(a_{13}a_{22}b_{23})$
- The (4,3,3)-row (2,1)-column entry of the (1,2)-copy of R is 9, for  $(a_{13}a_{22}b_{23})(a_{11}a_{12}b_{11})$
- The (2,1)-row (5,6,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{11})(a_{12}a_{22}b_{23})$
- The (5,6,2)-row (2,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{22}b_{23})(a_{11}a_{13}b_{11})$

# **2.78** Monomial type $a_{12}a_{22}^2a_{23}b_{13}b_{22}$ with coefficient 36

# **2.78.1** Monomial $a_{12}a_{22}^2a_{23}b_{13}b_{22}$

- The  $(\{1,2,3\},2)$ -row  $(\hat{2},\hat{2})$ -column entry of U is 12, for  $(a_{12}a_{23}b_{13})(a_{22}^2b_{22})$
- The  $(\hat{2}, \hat{2})$ -row  $(\{1, 2, 3\}, 2)$ -column entry of U is 12, for  $(a_{22}^2 b_{22})(a_{12} a_{23} b_{13})$
- The (3,2)-row (6,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{12}a_{22}b_{22})(a_{22}a_{23}b_{13})$
- The (6,3,3)-row (3,2)-column entry of the (1,2)-copy of R is 3, for  $(a_{22}a_{23}b_{13})(a_{12}a_{22}b_{22})$
- The (2,1)-row (5,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{22}a_{23}b_{22})(a_{12}a_{22}b_{13})$
- The (5,3,1)-row (2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{22}b_{13})(a_{22}a_{23}b_{22})$

# **2.78.2** Monomial $a_{11}^2 a_{12} a_{13} b_{11} b_{23}$

- The  $(\{1,2,3\},1)$ -row  $(\hat{1},\hat{1})$ -column entry of U is 12, for  $(a_{12}a_{13}b_{23})(a_{11}^2b_{11})$
- The  $(\hat{1}, \hat{1})$ -row  $(\{1, 2, 3\}, 1)$ -column entry of U is 12, for  $(a_{11}^2 b_{11})(a_{12}a_{13}b_{23})$
- The (2,1)-row (5,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{12}b_{11})(a_{11}a_{13}b_{23})$
- The (5,3,3)-row (2,1)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{13}b_{23})(a_{11}a_{12}b_{11})$
- The (2,1)-row (5,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{13}b_{11})(a_{11}a_{12}b_{23})$
- The (5,3,2)-row (2,1)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{12}b_{23})(a_{11}a_{13}b_{11})$

#### **2.78.3** Monomial $a_{13}a_{23}a_{33}^2b_{12}b_{33}$

- The  $(\{1,2,3\},3)$ -row  $(\hat{3},\hat{3})$ -column entry of U is 12, for  $(a_{13}a_{23}b_{12})(a_{33}^2b_{33})$
- The  $(\hat{3}, \hat{3})$ -row  $(\{1, 2, 3\}, 3)$ -column entry of U is 12, for  $(a_{33}^2b_{33})(a_{13}a_{23}b_{12})$
- The (3,3)-row (6,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{13}a_{33}b_{33})(a_{23}a_{33}b_{12})$
- The (6,3,2)-row (3,3)-column entry of the (1,3)-copy of R is 3, for  $(a_{23}a_{33}b_{12})(a_{13}a_{33}b_{33})$
- The (3,3)-row (6,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{23}a_{33}b_{33})(a_{13}a_{33}b_{12})$
- The (6,3,1)-row (3,3)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{33}b_{12})(a_{23}a_{33}b_{33})$

# **2.79** Monomial type $a_{11}a_{13}a_{23}^2b_{13}b_{22}$ with coefficient 12

#### **2.79.1** Monomial $a_{11}a_{13}a_{23}^2b_{13}b_{22}$

- The (1,3)-row  $(\hat{2},\hat{3})$ -column entry of U is 3, for  $(a_{11}a_{13}b_{13})(a_{23}^2b_{22})$
- The  $(\hat{2}, \hat{3})$ -row (1, 3)-column entry of U is 3, for  $(a_{23}^2 b_{22})(a_{11} a_{13} b_{13})$
- The (4,2,3)-row (5,5,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{11}a_{23}b_{13})(a_{13}a_{23}b_{22})$
- The (5,5,3)-row (4,2,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{22})(a_{11}a_{23}b_{13})$

#### **2.79.2** Monomial $a_{12}^2 a_{23} a_{33} b_{11} b_{23}$

- The (3,2)-row  $(\hat{1},\hat{2})$ -column entry of U is 3, for  $(a_{23}a_{33}b_{23})(a_{12}^2b_{11})$
- The  $(\hat{1}, \hat{2})$ -row (3, 2)-column entry of U is 3, for  $(a_{12}^2 b_{11})(a_{23}a_{33}b_{23})$
- The (4,3,2)-row (6,4,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{33}b_{23})(a_{12}a_{23}b_{11})$
- The (6,4,2)-row (4,3,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{11})(a_{12}a_{33}b_{23})$

## **2.79.3** Monomial $a_{12}a_{13}^2a_{22}b_{12}b_{33}$

- The (2,1)-row  $(\hat{3},\hat{1})$ -column entry of U is 3, for  $(a_{12}a_{22}b_{12})(a_{13}^2b_{33})$
- The  $(\hat{3}, \hat{1})$ -row (2, 1)-column entry of U is 3, for  $(a_{13}^2b_{33})(a_{12}a_{22}b_{12})$
- The (4,2,1)-row (5,5,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{13}a_{22}b_{12})(a_{12}a_{13}b_{33})$
- The (5,5,1)-row (4,2,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{33})(a_{13}a_{22}b_{12})$

## **2.79.4** Monomial $a_{11}a_{12}a_{23}^2b_{12}b_{33}$

- The (1,2)-row  $(\hat{3},\hat{2})$ -column entry of U is 3, for  $(a_{11}a_{12}b_{12})(a_{23}^2b_{33})$
- The  $(\hat{3}, \hat{2})$ -row (1, 2)-column entry of U is 3, for  $(a_{23}^2b_{33})(a_{11}a_{12}b_{12})$
- The (4,2,2)-row (5,5,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{11}a_{23}b_{12})(a_{12}a_{23}b_{33})$
- The (5,5,2)-row (4,2,2)-column entry of the (1,3)-copy of R is 3, for  $(a_{12}a_{23}b_{33})(a_{11}a_{23}b_{12})$

## **2.79.5** Monomial $a_{12}^2 a_{13} a_{33} b_{13} b_{22}$

- The (3,1)-row  $(\hat{2},\hat{1})$ -column entry of U is 3, for  $(a_{13}a_{33}b_{13})(a_{12}^2b_{22})$
- The  $(\hat{2}, \hat{1})$ -row (3, 1)-column entry of U is 3, for  $(a_{12}^2 b_{22})(a_{13} a_{33} b_{13})$
- The (4,3,1)-row (6,4,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{33}b_{13})(a_{12}a_{13}b_{22})$
- The (6,4,1)-row (4,3,1)-column entry of the (2,3)-copy of R is 3, for  $(a_{12}a_{13}b_{22})(a_{12}a_{33}b_{13})$

# **2.79.6** Monomial $a_{13}^2 a_{22} a_{23} b_{11} b_{23}$

- The (2,3)-row  $(\hat{1},\hat{3})$ -column entry of U is 3, for  $(a_{22}a_{23}b_{23})(a_{13}^2b_{11})$
- The  $(\hat{1}, \hat{3})$ -row (2, 3)-column entry of U is 3, for  $(a_{13}^2 b_{11})(a_{22}a_{23}b_{23})$
- The (4,3,3)-row (6,4,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{22}b_{23})(a_{13}a_{23}b_{11})$
- The (6,4,3)-row (4,3,3)-column entry of the (1,2)-copy of R is 3, for  $(a_{13}a_{23}b_{11})(a_{13}a_{22}b_{23})$

# **2.80** Monomial type $a_{11}a_{12}a_{23}a_{33}b_{13}b_{22}$ with coefficient 12

#### **2.80.1** Monomial $a_{11}a_{12}a_{23}a_{33}b_{13}b_{22}$

- The (4,1)-row (4,4,2)-column entry of the (1,3)-copy of R is 6, for  $(a_{11}a_{33}b_{13})(a_{12}a_{23}b_{22})$
- The (4,4,2)-row (4,1)-column entry of the (1,3)-copy of R is 6, for  $(a_{12}a_{23}b_{22})(a_{11}a_{33}b_{13})$

## **2.80.2** Monomial $a_{12}a_{13}a_{22}a_{33}b_{11}b_{23}$

- The (4,1)-row (4,4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{22}a_{33}b_{23})(a_{12}a_{13}b_{11})$
- The (4,4,1)-row (4,1)-column entry of the (2,3)-copy of R is 6, for  $(a_{12}a_{13}b_{11})(a_{22}a_{33}b_{23})$

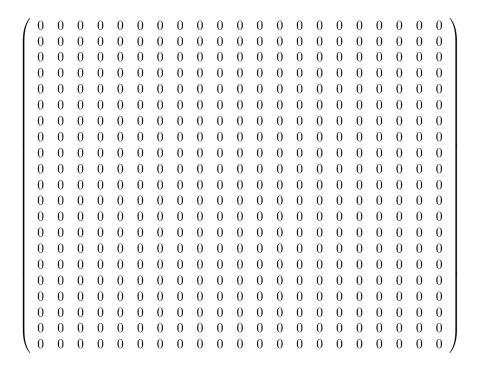
#### **2.80.3** Monomial $a_{11}a_{13}a_{22}a_{23}b_{12}b_{33}$

- The (4,1)-row (4,4,3)-column entry of the (1,2)-copy of R is 6, for  $(a_{11}a_{22}b_{12})(a_{13}a_{23}b_{33})$
- The (4,4,3)-row (4,1)-column entry of the (1,2)-copy of R is 6, for  $(a_{13}a_{23}b_{33})(a_{11}a_{22}b_{12})$

# 3 Checking matrix entries were not doubly-used

#### **3.1** *U*

## **3.2** The (1,2)-copy of R



# **3.3** The (1,3)-copy of R

 $0 \quad 0$ 0 0 0  $0 \quad 0$  $0 \ 0 \ 0$  $0 \ 0 \ 0$  $0 \ 0 \ 0$  $0 \ 0 \ 0$  $0 \ 0 \ 0$ 0 0 0 0  $0 \quad 0$  $0 \ 0 \ 0$ 0 0 

# **3.4** The (2,3)-copy of R

 $0 \quad 0$  $0 \ 0 \ 0$  $0 \ 0 \ 0$ 0 0 0 0 0  $0 \ 0 \ 0$ 0 0 0  $0 \ 0 \ 0$  $0 \quad 0$  $0 \quad 0$