

**Example 1:** Suppose you are given the data below in a two by two table.

**(0) iteration :** Start with the raw data in a two-way table, I represents the row effect, J represent the column effect.

I	J		
	1	2	3
1	14	11	14
2	7	4	7
3	8	5	8
4	12	9	12
5	0	-3	0

**(1) iteration, step a:** The previous row  $a_i^{(0)}$ , column  $b_j^{(0)}$ , and main effect  $m^{(0)}$  are initialized to 0. Then, find the median of each row.

I	J			Row median	Previous row effect
	1	2	3	$\Delta a_i^{(1)}$	$a_i^{(0)}$
1	14	11	14	14	0
2	7	4	7	7	0
3	8	5	8	8	0
4	12	9	12	12	0
5	0	-3	0	0	0
Prev Column Effect $b_j^{(0)}$	0	0	0		$m^{(0)}=0$

**(1) iteration, step b:** Row polish by subtracting the row median values from the corresponding row observations. Find the column medians after the row polish.

I	J			Row median $\Delta a_i^{(1)}$	Previous row effect $a_i^{(0)}$
	1	2	3		
1	0	-3	0	14	0
2	0	-3	0	7	0
3	0	-3	0	8	0
4	0	-3	0	12	0
5	0	-3	0	0	0
Column median $\Delta b_j^{(1)}$	0	-3	0	8	
Prev Column Effect $b_j^{(0)}$	0	0	0	0	$m^{(0)}=0$

**(1) iteration, step c:** Column polish by subtracting the column median values from the corresponding column observations.

I	J			Row median $\Delta a_i^{(1)}$	Previous row effect $a_i^{(0)}$
	1	2	3		
1	0	0	0	14	0
2	0	0	0	7	0
3	0	0	0	8	0
4	0	0	0	12	0
5	0	0	0	0	0
Column median $\Delta b_j^{(1)}$	0	-3	0		
Prev Column Effect $b_j^{(0)}$	0	0	0		$m^{(0)}=0$

**(1) iteration, step d:** Estimate the effects by

$$\Delta m_a^{(1)} = \text{median}(a_i^{(0)} + \Delta a_i^{(1)}) = 8$$

$$\Delta m_b^{(1)} = \text{median}(b_j^{(0)}) = 0$$

$$m^{(1)} = m^{(0)} + \Delta m_a^{(1)} + \Delta m_b^{(1)} = 0 + 8 + 0 = 8$$

$$a_i^{(1)} = a_i^{(0)} + \Delta a_i^{(1)} - \Delta m_a^{(1)} = (6, -1, 0, 2, 8)$$

$$b_j^{(1)} = b_j^{(0)} + \Delta b_j^{(1)} - \Delta m_b^{(1)} = (0, -3, 0)$$

I	J			Row median $\Delta a_i^{(1)}$	Previous row effect $a_i^{(0)}$	$a_i^{(0)} + \Delta a_i^{(1)}$	$a_i^{(1)} = a_i^{(0)} + \Delta a_i^{(1)} - \Delta m_a^{(1)}$
	1	2	3				
1	0	0	0	14	0	14	6
2	0	0	0	7	0	7	-1
3	0	0	0	8	0	8	0
4	0	0	0	12	0	12	2
5	0	0	0	0	0	0	8
Column median $\Delta b_j^{(1)}$	0	-3	0				
Prev Column Effect $b_j^{(0)}$	0	0	0		$m^{(0)} = 0$		
$b_j^{(1)} = b_j^{(0)} + \Delta b_j^{(1)} - \Delta m_b^{(1)}$	0	-3	0				