$$\Rightarrow a_1^* = a_2^* = 6 > a_3^* = a_4^* = 5 > a_5^* = 2 > a_6^* = 1$$

$$a^* - a^*_{a_3} = a^* - a^*_4 = \underset{\underset{6}{\shortparallel}}{\underset{a_1'}{\shortparallel}}{a_1},\ \underset{\underset{6}{\shortparallel}}{\underset{a_2'}{\shortparallel}}{a_2},\ \underset{\underset{5}{\shortparallel}}{\underset{a_3'}{\shortparallel}}{a_3},\ \underset{\underset{2}{\shortparallel}}{\underset{a_4'}{\shortparallel}}{a_5^*}.\ \underset{\underset{1}{\shortparallel}}{\underset{a_5'.}{\shortparallel}}{a_6^*}$$

$$\Rightarrow a^*_{a_1'} = a_6^* = 2 \quad a^*_{a_3'} = a_5^* = 3 \quad a^*_{a_4'} = a_2^* = 4 \quad a^*_{a_5'} = a_1^* = 5$$

$$\Rightarrow \underset{a_1 - 1}{\underset{\shortparallel}{a_1'^*}} = 5 > \underset{a_2 - 1}{\underset{\shortparallel}{a_2^{*\prime}}} = 4 > \underset{a_3 - 1 = a_4 - 1 = a_5 - 1}{\underset{\shortparallel}{a_3^{*\prime}}} = a_4^{*\prime} = a_5^{*\prime} = 3 > \underset{a_6.}{\underset{\shortparallel}{a_6^{*\prime}}} = 2$$

$$\Rightarrow (a^* - a^*_{a_3})^* = (a^* - a^*_{a_4})^* = (a^* - a^*_{a_4})^* \Rightarrow$$

$$a_1'^* = a_1 - 1,\quad a_2'^* = a_2 - 1,\quad \underset{a_3 - 1}{\underset{\shortparallel}{a_3'^*}} = \underset{a_4 - 1}{\underset{\shortparallel}{a_4^{*\prime}}} = \underset{a_5 - 1}{\underset{\shortparallel}{a_5^{*\prime}}} > \underset{a_6.}{\underset{\shortparallel}{a_6^{*\prime}}}$$

From the example above, we have to choose a_5 to get the right formula.
Choose the index α s.t $a_\alpha > a_{\alpha+1}$.
Then we get the correct Reduction Formula II.

$$a_1 = \cdots = a_{m_1} > a_{m_1+1} = \cdots = a_{m_2} > a_{m_2+1} = \cdots = a_{m_3} > \cdots > a_{m_j+1} = \cdots = a_{m_{(j+1)}}$$

$$a^*_{a_1} = \cdots = \underset{m_1}{\underset{\shortparallel}{a^*_{a_{m_1}}}} < a^*_{a_{m_1+1}} = \cdots = \underset{m_2}{\underset{\shortparallel}{a^*_{a_{m_2}}}} < a^*_{a_{m_2+1}} = \cdots = a^*_{a_{m_3}} < \cdots < a^*_{a_{m_j+1}} = \cdots = \underset{m_{(j+1)}}{\underset{\shortparallel}{a^*_{a_{m_{(j+1)}}}}}$$

$$\cdots\ a_{m_1} > \cdots\ a_{m_2} > \cdots > \cdots \overbrace{a_{m_{(j+1)}}} > \cdots > \cdots a_{m_\ell} \neq 0$$

$$a^*_{a_{m_1}} \cdots < a^*_{a_{m_2}} \cdots < \cdots < a^*_{a_{m_{(j+1)}}} = \cdots = a^*_{a_\alpha} < \cdots < \underset{m_\ell.}{\underset{\shortparallel}{a^*_{a_{m_\ell}}}}$$