

Volume 3: List of Multi-run Quadratizations

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$$b_1 b_2 b_3 \dots b_k = \min(b_1, b_2, b_3, \dots, b_k) \quad (1)$$

$$b_1 b_2 b_3 b_4 + b_3 b_4 b_5 b_6 = \min(b_2 b_3 + b_3 b_6, b_1 b_4 + b_4 b_5, b_1 b_2 + b_5 b_6 - b_3 - b_4 + 2) \quad (2)$$

$$b_1 b_2 b_3 b_4 + b_5 b_6 b_7 b_8 : \quad (3)$$

$$\longrightarrow b_1 b_2 + b_6 b_8 + b_a (1 - b_6 + b_7 - b_8) \quad (4)$$

$$\longrightarrow b_3 b_4 + b_6 b_8 + 2b_8 b_a \quad (5)$$

$$\longrightarrow b_2 b_3 + b_5 b_7 + b_a (1 - b_6 + b_7) \quad (6)$$

$$\longrightarrow b_1 b_4 + b_5 b_7 - b_6 b_8 + b_7 b_a + b_6 \quad (7)$$