a

$$w(\mathbf{x}, \mathbf{A}) \stackrel{\text{def}}{=} \prod_{i=1}^{3} (\text{if } A_i \text{ then } w_{i1}(\mathbf{x}) \text{ else } w_{i2}(\mathbf{x}))$$

c

$$w_{\bar{A}_1,\bar{A}_2,\bar{A}_3}(\mathbf{x}) = w_{12}(\mathbf{x})w_{22}(\mathbf{x})w_{32}(\mathbf{x})$$
$$w_{\bar{A}_1,\bar{A}_2,A_3}(\mathbf{x}) = w_{12}(\mathbf{x})w_{22}(\mathbf{x})w_{31}(\mathbf{x})$$
$$w_{\bar{A}_1,A_2,\bar{A}_3}(\mathbf{x}) = w_{12}(\mathbf{x})w_{21}(\mathbf{x})w_{32}(\mathbf{x})$$
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$$w_{A_1,\bar{A}_2,\bar{A}_3}(\mathbf{x}) = w_{11}(\mathbf{x})w_{22}(\mathbf{x})w_{32}(\mathbf{x})$$
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$$w_{A_1,A_2,A_3}(\mathbf{x}) = w_{11}(\mathbf{x})w_{21}(\mathbf{x})w_{31}(\mathbf{x})$$

b