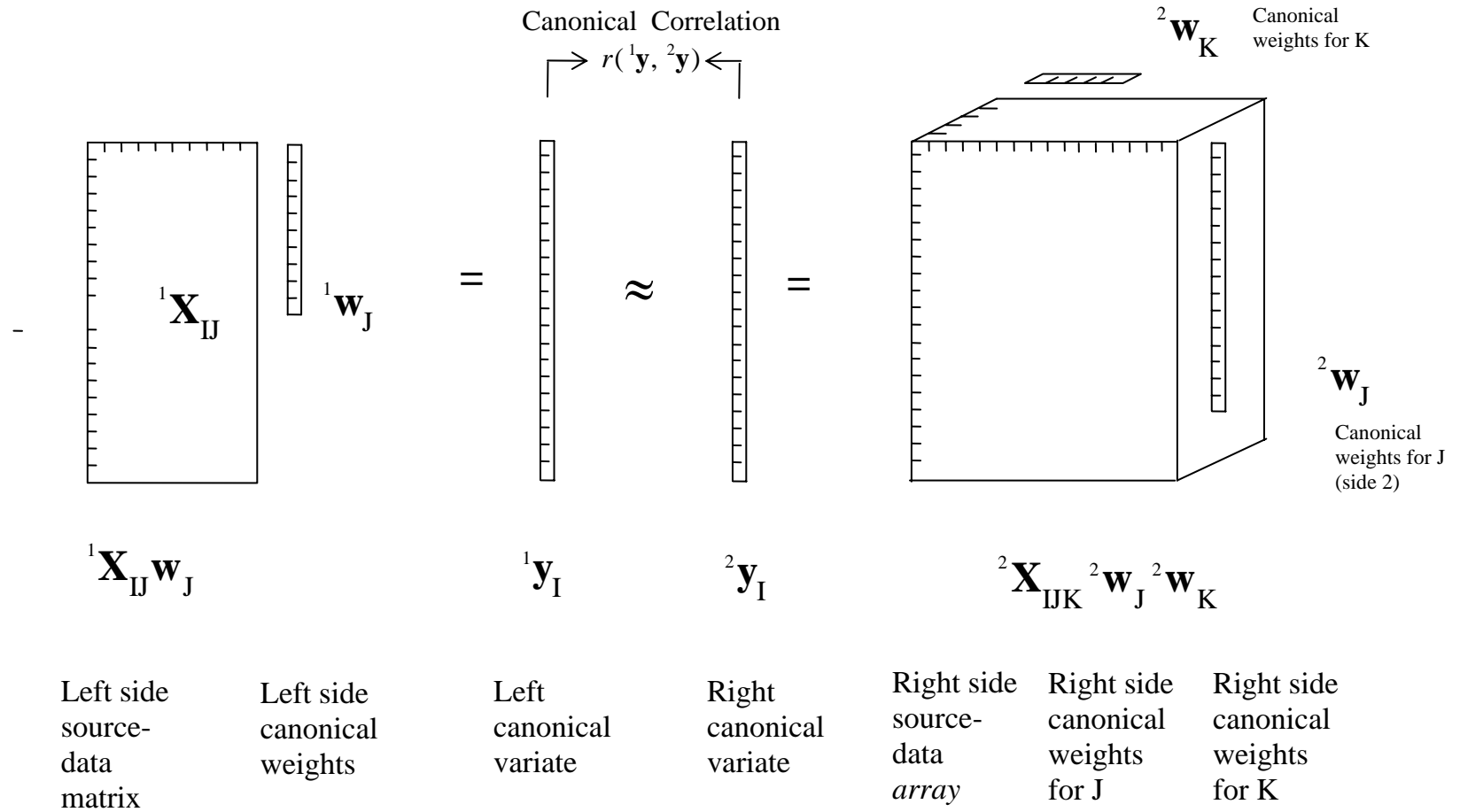


$${}^1\mathbf{X}_{IJ} {}^1\mathbf{W}_{JR} = {}^1\mathbf{Y}_{IR} \quad {}^2\mathbf{Y}_{IR} = {}^2\mathbf{X}_{IJ} {}^2\mathbf{W}_{JR}$$

Left side source data matrix Left side canonical weight matrix Left Canonical variates Right Canonical variates Right side source data matrix Right side canonical weight matrix

“Level 0”: Standard Canonical Correlation:
 2 matrices, 1 shared mode, 2CCs



Multilinear Canonical Correlation (PARACCON /TUCCON): Level 1a.

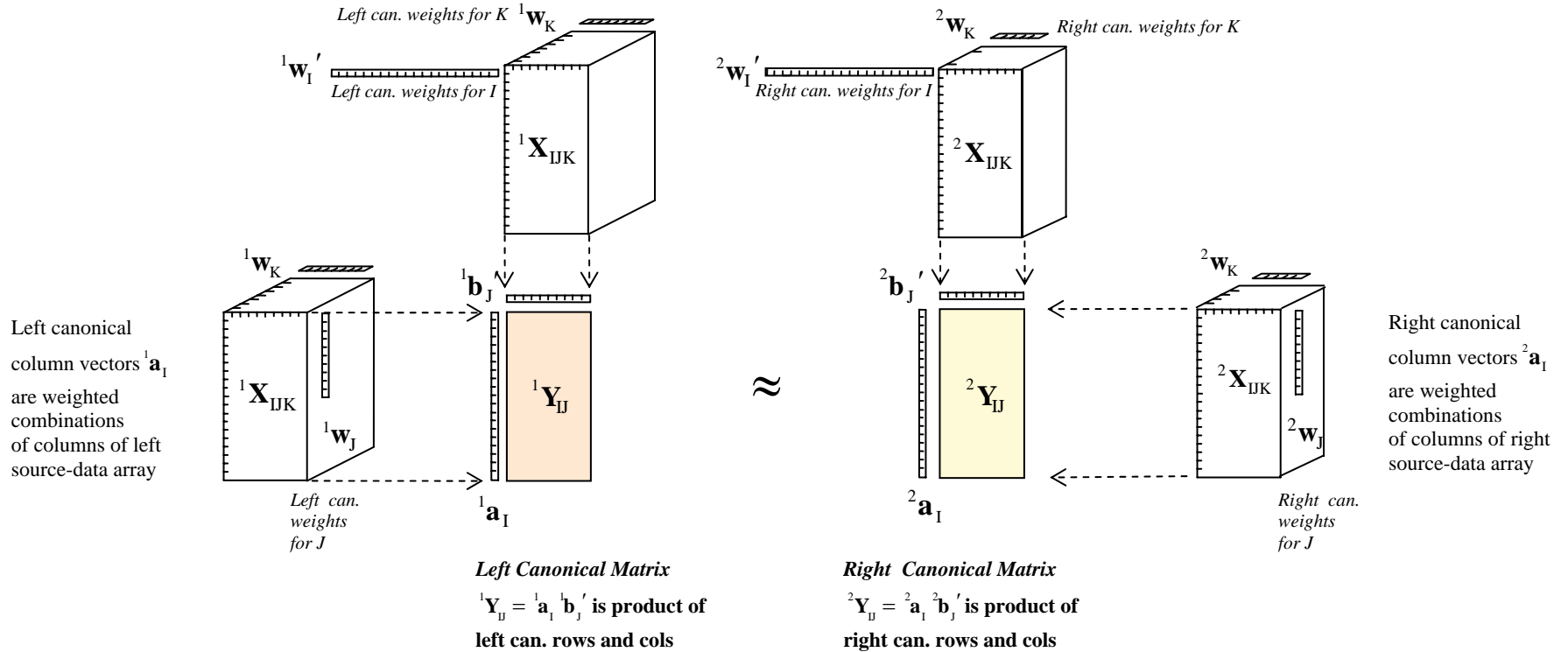
Multilinear canonical-weights applied to 3-way data array (here on just one side)

Left canonical row vectors

${}^1\mathbf{b}_j'$ are weighted combinations of rows of left source-data array

Right canonical row vectors

${}^2\mathbf{b}_j'$ are weighted combinations of rows of right source-data array



$$({}^1\mathbf{X}_{IJK} {}^1\mathbf{w}_J {}^1\mathbf{w}_K) \otimes ({}^1\mathbf{X}_{IJK} {}^1\mathbf{w}_I {}^1\mathbf{w}_K) = {}^1\mathbf{a} {}^1\mathbf{b}' = {}^1\mathbf{Y}_{IJ} \approx {}^2\mathbf{Y}_{IJ} = {}^2\mathbf{a} {}^2\mathbf{b}' = ({}^2\mathbf{X}_{IJK} {}^2\mathbf{w}_J {}^2\mathbf{w}_K) \otimes ({}^2\mathbf{X}_{IJK} {}^2\mathbf{w}_I {}^2\mathbf{w}_K)$$

ML-CC Level 2b: ML canonical objects, ML canonical weights, and ML source data (1 CC)