

$$e\left(\begin{array}{c} e \quad f \quad g \\ \diagdown \quad \diagup \\ b \quad c \quad d \\ \diagup \quad \diagdown \\ a \end{array}\right) = e\left(\begin{array}{c} e \quad f \quad g \\ \diagdown \quad \diagup \\ b \quad c \quad d \\ \diagup \quad \diagdown \\ a \end{array}\right) - e\left(\begin{array}{c} f \quad g \\ \diagdown \quad \diagup \\ c \quad d \\ \diagup \quad \diagdown \\ e \quad a \\ \diagdown \quad \diagup \\ b \end{array}\right)$$

The first equation shows the expansion of the edge  $e$  in a graph with vertices  $a, b, c, d, e, f, g$ . The left side has edge  $e$  highlighted in red. The right side consists of two terms: the first is the same graph with edge  $e$  removed, and the second is the same graph with edge  $e$  removed and edge  $bc$  added, with edge  $bc$  highlighted in red.

$$e\left(\begin{array}{c} e \quad f \quad g \\ \diagdown \quad \diagup \\ b \quad c \quad d \\ \diagup \quad \diagdown \\ a \end{array}\right) = e\left(\begin{array}{c} e \quad f \quad g \\ \diagdown \quad \diagup \\ b \quad c \quad d \\ \diagup \quad \diagdown \\ a \end{array}\right) - e\left(\begin{array}{c} f \quad g \\ \diagdown \quad \diagup \\ c \quad d \\ \diagup \quad \diagdown \\ e \quad a \\ \diagdown \quad \diagup \\ b \end{array}\right)$$

The second equation shows the expansion of the edge  $a$  in the same graph. The left side has edge  $a$  highlighted in red. The right side consists of two terms: the first is the same graph with edge  $a$  removed, and the second is the same graph with edge  $a$  removed and edge  $bc$  added, with edge  $bc$  highlighted in red.