ALGEBRA OF KERNELS

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- Can use intuition from linear algebra to analyse kernels and algorithms

- **Example:** Kernels commute if and only if:

- The order of algorithms doesn’t matter (can parallelise)

- **Example:** Kernels is reversible if and only if:

- Exercise: what the interpreations of orthogonality, eigenvalues, eigenvectors, normality, etc

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$$K_1 K_2 = K_2 K_1$$

- Operators are self-adjoint $$K^{\top} = K$$

- Product of reversible kernels is not always reversible:

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- Mixutre of reversible kernels is:

$$(\alpha K_1 + (1-\alpha)K_2)^\top = \alpha K_1^\top + (1-\alpha)K_2^\top$$

- Adjoint corresponds to chain running backward in time

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MARKOV KERNELS V4: MARKOV CHAINS