Main theorems in the theory of Markov chains from Hopf algebras (in the sense of [Pan15]). This version:
website.

If you spot an error, or know of any other Markov chains built in a similar way, please let me know.

Defining map	any linear map	coproduct-then-product, Hopf powers
Reference	[Pan14]	[DPR14]
construction	Th. 3.1.1	Th. 3.4
diagonalisation	Prop. 3.2.1	Th. 3.15, Th. 3.16, Th. 3.19, Th. 3.20
stationary distribution	Prop. 3.3.1	Prop. 3.21, Prop. 3.23
time-reversal and reversibility	Th. 3.3.2	
strong lumping (projection)	Th. 3.4.1	
weak lumping (projection)	forthcoming	
unidirectionality for free-commutative basis		Sec. 3.3
right eigenfunctions for free-commutative basis		Th. 3.19
probability bounds from above eigenfunctions		
absorption probabilities and terminality of *QSym*		Prop. 3.25, Prop 3.26

References

[DPR14] P. Diaconis, C. Y. A. Pang, and A. Ram. Hopf algebras and Markov chains: two examples and a theory

[Pan14] C. Y. A. Pang. Hopf algebras and Markov chains. *ArXiv e-prints*, December 2014. A revised thesis.

[Pan15] C. Y. A. Pang. Card-shuffling via convolutions of projections on combinatorial Hopf algebras. In *27th* Theor. Comput. Sci. Proc., ??, pages ??–?? Assoc. Discrete Math. Theor. Comput. Sci., Nancy, 2015. a

March 28, 2015. Curated by Amy Pang. Printer-friendly version, plus related summary tables, available at my

		descent operators (convolutions-of-projections)
	[Pan14]	[Pan15]
	Def. 4.3.1, Def. 4.3.4	Def. 3.1
	Th. 2.5.1	Th. 4.2 (spectrum only), see separate table
	Th. 4.5.1	Th. 4.5
	Th. 4.6.1, Th. 4.6.3	
	Th. 4.7.1	Th. 4.1
	Sec. 5.1.2	
	Th. 5.1.9	
	Prop. 5.1.11, Prop. 5.1.14	
	Sec. 5.1.4	

J. Algebraic Combin., 39(3):527–585, 2014.

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available on Arxiv.

1