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David Hill* (dehill@virginia.edu), **Sean Clark** and **Weiqiang Wang**. *Quantum Shuffles, Canonical Bases, and Simple Lie Superalgebras*.

We study the embedding of the (half) quantum group of a simple Lie superalgebra of basic type into a quantum shuffle superalgebra.

First, we establish a Lyndon theory for the image of the embedding, generalizing the results of Lalonde-Ram and Leclerc. Next, we construct a family of PBW-type bases, and give a direct combinatorial proof that these bases are orthogonal with respect to a non-degenerate bilinear form in all but finitely many cases. Finally, we prove the existence of a bar invariant basis obtained by triangular change from the PBW basis, and analyze the cases where this basis is canonical (i.e. almost orthonormal with respect to the bilinear form).

The orthogonality result for the PBW bases is new even for simple Lie algebras, and leads to a self-contained proof of the existence of canonical bases. (Received August 20, 2013)