1154-15-884 **Sarah Bockting-Conrad*** (sarah.bockting@depaul.edu). *Tridiagonal pairs of Racah type and the universal enveloping algebra $U(\mathfrak{sl}_2)$.*

Let $\mathbb{F}$ denote a field and let V denote a vector space over $\mathbb{F}$ with finite positive dimension. Let A, A^* denote a tridiagonal pair of Racah type with diameter $d \geq 1$. Let $\{U_i\}_{i=0}^d$ (resp. $\{U_i^{\Downarrow}\}_{i=0}^d$) denote the first (resp. second) split decomposition of A, A^*. In an earlier paper, we associated with A, A^* a linear transformation $\psi : V \to V$ such that $\psi U_i \subseteq U_{i-1}$ and $\psi U_i^{\Downarrow} \subseteq U_{i-1}^{\Downarrow}$ for $0 \leq i \leq d$. One of the relations involving ψ was reminiscent of a defining relation for the universal enveloping algebra $U(\mathfrak{sl}_2)$. We explore this connection further. In doing so, we will give two natural $U(\mathfrak{sl}_2)$-module structures for V and discuss how they are related. This leads to a number of interesting relations involving the operator ψ and other operators associated with A, A^*. (Received September 11, 2019)