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A family of tridiagonal pairs.

In 1999 Professors Ito, Tanabe and Terwilliger introduced a mild generalization of a Leonard pair called a tridiagonal pair (or TD pair). Since then, researchers have learned a lot about these pairs, but the classification problem is still open.

In this talk, I will describe the TD pairs of shape $(1,2,1)$. My approach will be as follows. Let A, A^* denote a TD pair on V that has shape $(1,2,1)$.

1. I will present 6 direct sum decompositions for V .
2. Using each of the 6 decompositions above, I will obtain a basis for V .
3. I will describe the action of A and A^* on each of the 6 bases.
4. For each ordered pair of bases from above, I will display the corresponding transition matrix.
5. I will give a classification of the TD pairs of shape $(1,2,1)$. (Received August 06, 2007)