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Kronecker projections of Specht modules

The irreducible representations of the symmetric group $\mathfrak{S}_d$ (in characteristic zero) are classified by the Specht modules V_λ, where λ denotes a partition of d. The standard tableaux on shape λ (with entries $1, 2, \ldots, d$) form a basis for the space V_λ. Given two partitions λ and μ, the tensor product $V_\lambda \otimes V_\mu$ decomposes into a sum of irreducibles V_ν (usually called the Kronecker decomposition). This raises the question of describing the projection morphisms $V_\lambda \otimes V_\mu \longrightarrow V_\nu$ in terms of the standard tableaux bases. We give such explicit formulae in certain special cases. This is joint work with Tagreed Mohammed from the University of Manitoba.