1030-05-426          **Ian M Musson\*** (`musson@csd.uwm.edu`), Computer Science Department, University of
Wisconsin, Milwaukee, Milwaukee, WI. *Comparison of Character Formulas for the Lie superalgebra*
*gl(m, n)*. Preliminary report.

Let $g$ be the Lie superalgebra $gl(m, n)$. Finite dimensional simple $g$ modules $L(\lambda)$ are specified by a dominant integral weight $\lambda$. For dominant integral $\mu$ the Kac module $K(\mu)$ is a finite dimensional module induced from a certain parabolic subalgebra of $g$. Algorithms for computing the multiplicity of $L(\lambda)$ as a composition factor of $K(\mu)$ were given by Vera Serganova, and Jon Brundan, using completely different methods.

Recently Brundan and Stroppel have developed a new formulation of Brundan's result in terms of weight and cap diagrams. We use these diagrams to give a combinatorial proof of the equivalence of the two algorithms.

In a special case the number of composition factors of $K(\mu)$ is a Catalan number and the cap diagrams that arise in this case are closely related to the diagrams in Exercise 6.19 o of Stanley's book. (Received August 08, 2007)