

# Comments and Errata: Stephen R Doty

## Comments

1. (Reporting an inaccuracy.) Starting in 2001, many papers giving presentations of Schur algebras,  $q$ -Schur algebras, and generalized Schur (and  $q$ -Schur) algebras were published, by myself with Giaquinto, myself, Du and Parshall, and a number of others. In all of those papers, the  $(q)$ -Serre relations were imposed on the generators of the plus and minus parts of the (quantized) enveloping algebra. However, as pointed out by R. Rouquier, the  $(q)$ -Serre relations are *consequences* of the other defining relations, and thus can be omitted from the presentations in all of those papers. Details and a proof can be found in the paper (with Anthony Giaquinto): [*Cellular bases of generalised  $q$ -Schur algebras*, Math. Proc. Camb. Philos. Soc. 162, 533–560 (2017)].

## Errata

1. (with J. Matthew Douglass) *Schur–Weyl duality and the free Lie algebra*. Proc. Amer. Math. Soc. 145, 3263–3277 (2017).  
  
Corollary 2.4 is incorrect. See Remark 6.1 in [S. Donkin, J. Algebra 526 (2018)].
2. (with David J. Benson) *Schur–Weyl duality over finite fields*. Arch. Math. 93, 425–435 (2009).  
  
The proof of Lemma 4.1 has a minor mistake, but the result is correct. See the proof of Lemma 3.2 in [T. Cruz, Commun. in Algebra 47 (2019)] for a correct argument.
3. (with Richard Dipper) *The rational Schur algebra*. Represent. Theory. 12, 58–83 (2008).  
  
There are several mistakes in this paper. See [S. Donkin, J. Algebra 405 (2014)] for corrections.
4. (with Anthony Giaquinto) *Presenting Schur algebras*. Internat. Math. Res. Notices. 2002, 1907 (2002).  
  
There is a small mistake in the statement of Theorems 2.3 and 3.3. The definitions of  $Y_-$  in equations (2.7) and (3.9) are incorrect as stated. In

those sets one should replace the content  $\chi$  by a different content function  $\chi'$  which is defined so that  $\chi'(x_\alpha) = \varepsilon_{\min(i,j)}$  if  $\alpha = \varepsilon_i - \varepsilon_j$ .

5. (with Karin Erdmann, Stuart Martin, and Daniel K. Nakano) *Representation type of Schur algebras*. Math Z. 232, 137–182 (1999).

The Schur algebra  $S(2, 11)$  for  $p = 2$  is tame. Theorems (A) and (B) in Section 1.2 should be corrected accordingly. The mistake comes from the first sentence in 3.5, which is incorrect. (Thanks to Qi Wang for pointing out the error.)