Addendum to: *Braid group statistics and their superselection rules* by K.-H. Rehren (to be included after the Proposition of Sect. 5)

In the general case, one finds the sum rule

$$|\sigma|^2 = (\sum_m d_m^2) \cdot (\sum_\mu \omega_\mu d_\mu^2)$$

where $\sum_\mu$ extends over the degenerate sectors. $\sum_\mu \omega_\mu d_\mu^2$ vanishes if there are any fermionic degenerate sectors, and is > 1 in the purely bosonic degenerate case. Therefore, $|\sigma|^2 = \sum_m d_m^2$ is a *sufficient* condition for nondegeneracy.

The formulae

$$\sum_j Y_{ij} \omega_j^* d_j = \sigma \cdot \omega_i d_i,$$

$$\sum_j Y_{ij} \omega_j^* Y_{kj} = \sigma \cdot \omega_i \omega_k Y_{ik}^*$$

remain true in the degenerate case. Furthermore, one has

$$Y^* \cdot Y = (\sum_m d_m^2) \cdot \sum_\mu d_\mu N_\mu,$$

$$(\sum_m d_m^2)^{-1} \sum_j \frac{Y_{ij} Y_{kj} Y_{mj}^*}{d_j} = \sum_n N_{ik}^n (\sum_\mu d_\mu N_\mu)_n^m.$$