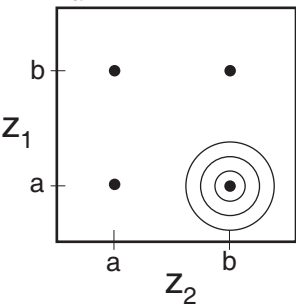
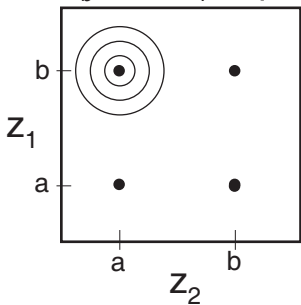


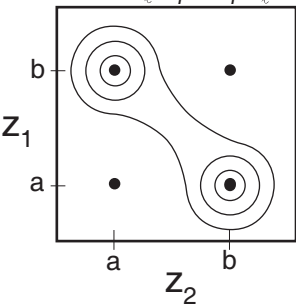
**(a)**  $\Phi_a(1,2) = \chi_\ell(1)\chi_r(2)$



**(b)**  $\Phi_b(1,2) = \chi_r(1)\chi_\ell(2)$



**(c)**  $\Phi_g = \Phi_a + \Phi_b$   
 $= \chi_\ell \chi_r + \chi_r \chi_\ell$



**(d)**  $\Phi_u = \Phi_a - \Phi_b$   
 $= \chi_\ell \chi_r - \chi_r \chi_\ell$

