Devo fare il limite per $m\to\infty$ (solo ultimo flavour.)

$$\lim_{m\to\infty}\prod_{j=1}^{N_c}\Gamma_h(\sigma_j+\mu_{N+1})\,\Gamma_h(-\sigma_j+\nu_{N+1})$$

$\mu_{N+1} = m - m_A N_f + m_B + \omega\Delta$

$\nu_{N+1} = (\pm) m - m_A N_F - m_B + \omega\Delta$

$$\log\Gamma_h(\omega R + \rho(\sigma) + \tau(\mu)) =$$

$$\mathrm{sign}(\tau(\mu_0))\frac{\pi i}{2\omega_1\omega_2}\left([\omega(R-1)+\rho(\sigma)+\tau(\mu)]^2-\frac{\omega_1^2+\omega_2^2}{12}\right)+O(e^{-\alpha s})$$

Now: $\rho(\sigma) = \sigma_i$ or $-\sigma_j$ $\qquad \mu_0 = m \qquad \mu = \mu_N$

Avremo quindi: $\log\Gamma_h(\sigma_i+\mu_a) = \mathrm{sign}(m)\frac{\pi i}{2\omega_1\omega_2}\left([\omega(\Delta_H-1)+\sigma_i+(\mu)]^2-\frac{\omega_1^2+\omega_2^2}{12}\right)$ $\longrightarrow$ Posso riscriverla come: $\Gamma_h(\sigma_i+\mu_a) = \exp\left\{\frac{\pi i}{2\omega_1\omega_2}\left[(\sigma_i+\mu_a-\omega)^2-\frac{\omega_1^2+\omega_2^2}{12}\right]\right\}$

$$\lim_{m\to\infty}\Gamma_h(\sigma_i+\mu_N) = \exp\left[\mathrm{sgn}(m')\frac{\pi i}{2\omega_1\omega_2}\left([\omega(\Delta_H-1)+\sigma_i+(m+m_B-m_A N_F)]^2-\frac{\omega_1^2+\omega_2^2}{12}\right)\right] \longrightarrow$$

Rinomino le variabili:

$\omega\Delta + m_B - m_A N_F = \mu_a'$

$\omega\Delta - m_B - m_A N_F = \nu_a'$

$$\lim_{m\to\infty}\Gamma_h(-\sigma_i+\nu_N) = \exp\left[\mathrm{sgn}(-m)\frac{\pi i}{2\omega_1\omega_2}\left([\omega(\Delta_H-1)-\sigma_i+(-m-m_B-m_A N_F)]^2-\frac{\omega_1^2+\omega_2^2}{12}\right)\right] \longrightarrow$$

Mettendoli insieme ottengo: (i quadrati si cancellano per via del meno nelle masse. Solo doppi prodotti)

$$\exp\left[\frac{\pi i}{2\omega_1\omega_2}\left[\Big(4\omega(\Delta_H-1)m + 4\omega(\Delta_H-1)\sigma_i + 4\omega(\Delta_H-1)m_B - 4\sigma_i(m_A N_F) - 4(m+m_B)(m_A N_F)\Big) - \frac{\omega_1^2+\omega_2^2}{6}\right]\right]$$

$$= \exp\left[\frac{\pi i}{\omega_1\omega_2}\left(\omega(\Delta_M-1)[m+m_B+\sigma_i] - \sigma_i(m_A N_F) - (m+m_B)(m_A N_F)\right) + \pi i\frac{(\omega_1^2+\omega_2^2)}{12\omega_1\omega_2}\right]$$

$$= \exp\left[\frac{\pi i}{2\omega_1\omega_2}\left(4(m+m_B)(\omega\underbrace{(\Delta_M-1) - m_A N_F}_{\text{Si Becca } N_c})\right) + \frac{\pi i}{2\omega_1\omega_2}4\left(\sigma_i\left(\omega(\Delta_M-1) - m_A N_F\right)\right) + \pi i\frac{\omega_1^2+\omega_2^2}{12\omega_1\omega_2}\right]$$

$$\sum_i \sigma_i$$

La condizione di R-Symmetry anomaly è da modificare.
Proviamo così:

$$+ \left(\sum m_a + \sum \tilde{m}_a\right) = 0$$

$$\sum_a \mu_a + \nu_a = \omega\left(N_c\Delta_X + N_F(1-\Delta) + (1-\Delta_M)\right) = m_B\cancel{(N_F+1)} + \omega\Delta N_F + \omega\Delta_M$$
$$+ (-m_B)\cancel{(N_F+1)} + \omega\Delta N_F + \omega\Delta_M = 2\omega(N_F\Delta + \Delta_M)$$

$$\longrightarrow \omega\left(N_c\Delta_X + N_F(1-\Delta) + (1-\Delta_M)\right) = 2\omega(N_F\Delta + \Delta_M)$$

$$\omega(N_c\Delta_X + N_F + 1) = 3\omega(N_F\Delta + \Delta_M)$$

Per Antonio avrei: $\omega(\Delta_M-1) = \omega\left(N_F(\Delta-1) + N_c\Delta_X\right) \longrightarrow \omega\left(N_F(\Delta-1) + N_c\Delta_X + (1-\Delta_M)\right) = 0$