The results are:

	$T_1 \cdot T_2$	A_H	$\delta a_2\, 2\pi^2(\pi^2-12)$
$N\overline{N} \to 1$	$-\frac{N^2-1}{2N}$	$\frac{1}{8}(N-1)N(N+1)$	0
$N\overline{N} \to \text{adj}$	$\frac{1}{2N}$	$\frac{1}{8}N$	$N^2\pi^2(\pi^2-12)$
$NN \to a$	$-\frac{N+1}{2N}$	$\frac{1}{4}(N+1)$	$\frac{1}{2}N(N-2)\pi^2(\pi^2-12)$
$NN \to s$	$\frac{N-1}{2N}$	$\frac{1}{4}(N-1)$	$\frac{1}{2}N(N+2)\pi^2(\pi^2-12)$
$\text{adj} \otimes \text{adj} \to 1$	$-N$	$\frac{1}{4}N^3$	0
$\text{adj} \otimes \text{adj} \to \text{adj}_S$	$-\frac{N}{2}$	$\frac{1}{8}N^3$	0
$\text{adj} \otimes \text{adj} \to \text{adj}_A$	$-\frac{N}{2}$	$\frac{1}{8}N(N^2+12)$	$-6\pi^2(\pi^2-12)$
$\text{adj} \otimes \text{adj} \to \bar{a}s + \bar{s}a$	0	$\frac{}{4}N$	$V_H = -\frac{3}{2}N\,\pi^2(\pi^2-12)$
$\text{adj} \otimes \text{adj} \to \bar{a}a$	-1	$\frac{3}{4}N - \frac{1}{2}$	$\frac{1}{2}(N-1)(N-2)\pi^2(\pi^2-12)$
$\text{adj} \otimes \text{adj} \to \bar{s}s$	1	$\frac{3}{4}N + \frac{1}{2}$	$\frac{1}{2}(N+1)(N+2)\pi^2(\pi^2-12)$
$N \otimes \text{adj} \to N$	$-\frac{N}{2}$	$\frac{1}{8}N(N^2+2)$	$-\pi^2(\pi^2-12)$
$N \otimes \text{adj} \to a\bar{i}$	$-\frac{1}{2}$	$\frac{3}{8}N$	$\frac{1}{2}N(N-3)\pi^2(\pi^2-12)$
$N \otimes \text{adj} \to s\bar{i}$	$\frac{1}{2}$	$\frac{3}{8}N$	$\frac{1}{2}N(N+3)\pi^2(\pi^2-12)$

(8.8)

9 H Graph

{sec:coul

The H-graph in Coulomb gauge was computed in Ref. [7]. Their Eq. (2.8) is

$$V = -\frac{81}{128}\pi(12-\pi^2)\frac{\alpha^3}{\mathbf{q}^2} \tag{9.1}$$

with $\alpha = (4/3)\alpha_s$.

$$V = \pi^2(\pi^2-12)\left[\frac{81}{128\pi}\left(\frac{4}{3}\right)^3 4\pi\right]\frac{4\pi\alpha_s}{\mathbf{q}^2}\left(\frac{\alpha_s}{4\pi}\right)^2 = \pi^2(\pi^2-12)\,[6]\,\frac{4\pi\alpha_s}{\mathbf{q}^2}\left(\frac{\alpha_s}{4\pi}\right)^2 \tag{9.2}$$

The QCD group theory factor for $N\overline{N} \to 1$ is 3, from the table, so the Coulomb H-graph is $2\pi^2(\pi^2-12)$ as expected in Eq. (8.7).

Summary: the graph

The results are:

	$T_1 \cdot T_2$	A_H	$\delta a_2\, 2\pi^2(\pi^2-12)$
$N\overline{N} \to 1$	$-\frac{N^2-1}{2N}$	$\frac{1}{8}(N-1)N(N+1)$	0
$N\overline{N} \to \text{adj}$	$\frac{1}{2N}$	$\frac{1}{8}N$	$N^2\pi^2(\pi^2-12)$
$NN \to a$	$-\frac{N+1}{2N}$	$\frac{1}{4}(N+1)$	$\frac{1}{2}N(N-2)\pi^2(\pi^2-12)$
$NN \to s$	$\frac{N-1}{2N}$	$\frac{1}{4}(N-1)$	$\frac{1}{2}N(N+2)\pi^2(\pi^2-12)$
$\text{adj} \otimes \text{adj} \to 1$	$-N$	$\frac{1}{4}N^3$	0
$\text{adj} \otimes \text{adj} \to \text{adj}_S$	$-\frac{N}{2}$	$\frac{1}{8}N^3$	0
$\text{adj} \otimes \text{adj} \to \text{adj}_A$	$-\frac{N}{2}$	$\frac{1}{8}N(N^2+12)$	$-6\pi^2(\pi^2-12)$
$\text{adj} \otimes \text{adj} \to \bar{a}s + \bar{s}a$	0	$\frac{3}{4}N$	$V_H = -\frac{3}{2}N\,\pi^2(\pi^2-12)$
$\text{adj} \otimes \text{adj} \to \bar{a}a$	-1	$\frac{3}{4}N - \frac{1}{2}$	$\frac{1}{2}(N-1)(N-2)\pi^2(\pi^2-12)$
$\text{adj} \otimes \text{adj} \to \bar{s}s$	1	$\frac{3}{4}N + \frac{1}{2}$	$\frac{1}{2}(N+1)(N+2)\pi^2(\pi^2-12)$
$N \otimes \text{adj} \to N$	$-\frac{N}{2}$	$\frac{1}{8}N(N^2+2)$	$-\pi^2(\pi^2-12)$
$N \otimes \text{adj} \to a\bar{i}$	$-\frac{1}{2}$	$\frac{3}{8}N$	$\frac{1}{2}N(N-3)\pi^2(\pi^2-12)$
$N \otimes \text{adj} \to s\bar{i}$	$\frac{1}{2}$	$\frac{3}{8}N$	$\frac{1}{2}N(N+3)\pi^2(\pi^2-12)$

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{sec:coulomb

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Summary: the graph