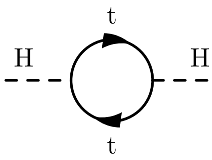
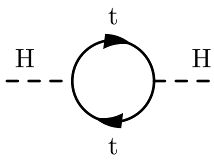
1 Typesetting equations with Feynman diagrams

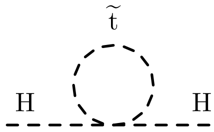
This is an equation of the dominant correction to the Higgs mass squared, containing a Feynman diagram:

$$\Delta m_H^2 \; =$$


$$+ \; \dots \; = -\frac{|\lambda_{\mathrm{t}}|^2}{8\pi}\Lambda^2 + \dots \qquad (1)$$

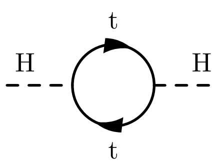
To avoid finetuning in Eq. (1), one can introduce supersymmetry (SUSY), which assumes each fermion has a scalar superpartner. SUSY will introduce an extra loop diagram:

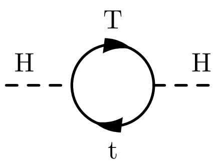
$$\Delta m_H^2 \; =$$


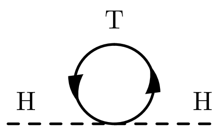
$$+$$


$$+ \; \dots \qquad (2)$$

Yet another solution to finetuning are models with vector-like quarks (VLQs):

$$\Delta m_H^2 \; =$$


$$+$$


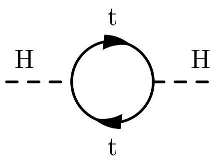
$$+$$


$$+ \; \dots \qquad (3)$$

Notice that in the code, `\,` was used to add extra space between the diagrams and math symbols. Alternatively, you can use the wider `\quad`.

Because the stop label $\widetilde{\mathrm{t}}$ and VLQ top partner T labels were sticking out, an extra `\vspace{5mm}` was needed above the equation to prevent these label from overlapping with the line above.

Equations with `feymp` diagrams might not compile in the `align` environment. Instead, use `aligned` within the `equation` environment. For example:

$$\Delta m_H^2 \; =$$


$$\begin{aligned} &+ \; \dots \\[10pt] &= -\frac{|\lambda_{\mathrm{t}}|^2}{8\pi}\Lambda^2 \; + \; \dots \end{aligned} \qquad (4)$$

Another tip: use `\\[10pt]` instead of just `\\` at the end of a line in the `aligned` environment to add extra vertical white space between two lines of equations.