Corrigendum

Magnon dispersion to four loops in the ABJM and ABJ models
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A sign inconsistency in the definition of the Feynman rules alters the overall signs of the expressions for $F_{tv3}$, $F_{tv4}$, $F_{tv5}$ in (3.13). This sign change modifies the final results and requires the following replacements:

- In the abstract:
  'The ABJM 4-loop correction has mixed transcendality, while the ABJ extension adds a term to the ABJM correction with highest transcendality.'
  →
  'We find that all coefficients have maximal transcendality.'

- In equation (1.5) on page 3 the expression for $h_4$ has to be corrected as
  \[
  h_4 = -4 \zeta(2) \approx -6.58, \quad h_{4,\sigma} = -\zeta(2).
  \]  \hspace{1cm} (1.5)

- Sentences after equation (1.5) on page 3:
  'Interestingly, $h_4$ has mixed transcendentality but the rational contributions to $h_{4,\sigma}$ cancel, leaving a maximally transcendental result. It is also striking that all coefficients in (1.5) are integers.'
  →
  'It is interesting that $h_4$ has no rational contributions, leaving a maximally transcendental result. It is also striking that the coefficients in (1.5) are integers.'

- Equation (3.5) on page 6:
  Due to an inconsistency in the Feynman rules used, there is an overall minus sign missing. The corrected equation reads
  \[
  \Sigma_\psi = -\bullet - \frac{\lambda^2}{16} \frac{1}{\varepsilon} \left( 6 - \frac{2\pi^2}{3} \right) \left\{ 1 \right\}, \]  \hspace{1cm} (3.5)

- Equation (3.13) on page 8:
  Due to an inconsistency in the Feynman rules used, there are overall minus signs missing in the expressions for $F_{tv3}$, $F_{tv4}$, $F_{tv5}$. The corrected results are
  \[
  F_{tv3}(\lambda, \hat{\lambda}) = -\lambda^2 \frac{1}{16} \frac{1}{\varepsilon} \left( 6 - \frac{2\pi^2}{3} \right) \left\{ 1 \right\},
  \]
  \[
  F_{tv4}(\lambda, \hat{\lambda}) = -\lambda^2 \frac{1}{16} \frac{1}{\varepsilon} \left( 3 - \frac{\pi^2}{4} \right) \left\{ 1 \right\}, \]
  \[
  F_{tv5}(\lambda, \hat{\lambda}) = -\lambda^2 \frac{1}{16} \frac{1}{\varepsilon} \left( -1 + \frac{\pi^2}{4} \right) \left\{ 1 \right\}. \]  \hspace{1cm} (3.13)
• Equation (3.14) on page 9:
  Due to the changes in (3.13), the corrected equation reads
  \[ F_t = \varepsilon \frac{\lambda \hat{\lambda}}{16} \left[ \hat{\lambda} \left( \frac{3}{\varepsilon^2} + \frac{1}{\varepsilon} \left( 12 - \frac{\pi^2}{3} \right) \right) \right] + (\lambda - \hat{\lambda}) \frac{\pi^2}{2 \varepsilon} \{1\}. \] (3.14)

• Equation (4.2) on page 10:
  Due to the changes in (3.14), the corrected equation reads
  \[ Z_4 \rightarrow \frac{1}{16} \left[ \left( \frac{1}{2\varepsilon^2} - \frac{2}{\varepsilon} \right) \{1, 3\} + \{3, 1\} + \frac{1}{\varepsilon^2} \{1, 2\} \right. \]
  \[ + \left( -\frac{15}{4\varepsilon^2} + \frac{1}{\varepsilon} \left( 12 + \frac{4}{3}\pi^2 \right) + \sigma^2 \left( \frac{1}{8\varepsilon^2} + \frac{\pi^2}{3\varepsilon} \right) \right) \{1\} \]. (4.2)

• Equation (4.4) on page 11:
  Due to the changes in (4.2), the corrected equation reads
  \[ D_{4,\text{odd}} = -(4 + 4\zeta(2) + \sigma^2 \zeta(2))\{1\} + (6 + 4\zeta(2) + \sigma^2 \zeta(2))\{1\} - \{1, 3\} - \{3, 1\}. \] (4.4)

• Equation (4.5) on page 11:
  Due to the changes in (4.4), the corrected equation reads
  \[ h_4(\sigma) = -4\zeta(2) - \sigma^2 \zeta(2). \] (4.5)

• Equation (5.1) on page 11:
  Due to the changes in (4.5), the corrected equation reads
  \[ D_{4,\text{odd}}^{\text{sub}} = (4 + 4\zeta(2) + \sigma^2 \zeta(2))\{1\} - \{\}. \] (5.1)

• Equation (5.5) on page 12:
  Due to the changes in (5.1), the corrected equation reads
  \[ \gamma_{20} = 4 + 8\lambda^2 - (48\zeta(2) + 8\sigma^2 \zeta(2))\lambda^4. \] (5.5)

• Second sentence in the ‘Discussion’ section on page 12:
  ‘The coefficient \( h_4 \) has mixed transcendentality while the coefficient \( h_{4,\sigma} \) has maximal transcendentality.’

  ⇒

  ‘The coefficients \( h_4 \) and \( h_{4,\sigma} \) both have maximal transcendentality.’

• Last sentence in the ‘Discussion’ section on page 13 should be removed:
  ‘Finally, we note that the structure of the wrapping term is quite similar to \( h_4 \), suggesting that \( h^2(\lambda, \sigma) \) could be determined using analytic methods.’