In[ ]:=
```
Get@FileNameJoin@{NotebookDirectory[], "SupplementalMaterials.m"};
```

```
------------------------------------------------------------
Package xAct`xPerm`  version 1.2.3, {2015, 8, 23}
CopyRight (C) 2003-2020, Jose M. Martin-Garcia, under the General Public License.
Connecting to external linux executable...
Connection established.
------------------------------------------------------------
Package xAct`xTensor`  version 1.2.0, {2021, 10, 17}
CopyRight (C) 2002-2021, Jose M. Martin-Garcia, under the General Public License.
------------------------------------------------------------
Package xAct`xPlain` version 1.0.0-developer, {2023, 6, 27}
CopyRight © 2023, Will E. V. Barker and Sebastian Zell, under the General Public License.
------------------------------------------------------------
These packages come with ABSOLUTELY NO WARRANTY; for details type
  Disclaimer[]. This is free software, and you are welcome to redistribute
  it under certain conditions. See the General Public License for details.
------------------------------------------------------------
```

Supplemental materials: Hamiltonian analysis

Introduction

How to use this document

These calculations are designed to accompany our manuscript in the form of supplemental materials, for the sake of reproducibility. Throughout, commentary by the authors takes the form of green text. Citations, where needed, will be managed by direct reference to arXiv numbers, and all such references are already provided in full within the body of our manuscript. One exception is the source referred to throughout as `Blagojević'; this pertains to the book `Gravitation and Gauge Symmetries', which is also referenced within the manuscript.

Concrete relation to manuscript: In boxes like this, we will make specific connections between a result which is obtained in the supplemental material and a claim which is made in the manuscript. These points of contact are not always numbered equations, they could be textual.

Note that a programmatical session in the Wolfram language does not really correspond to the clean flow of thoughts in a LaTeX document: there are differences that can't (and shouldn't) be ignored. Thus, whilst this document should be at least readable in standalone format, the reader is encouraged to follow it in tandem with the Wolfram language source codes, so as to avoid ambiguities. In this way, the specific operations and manipulations of quantities will become absolutely clear.

Loading HiGGS

For these calculations, we will use the HiGGS package. The version of HiGGS used for the computations here are both developer-only, and so we include copies of the sources with these supplemental materials.

```
------------------------------------------------------------

Package xAct`xPert`  version 1.0.6, {2018, 2, 28}

CopyRight (C) 2005-2020, David Brizuela, Jose M. Martin-Garcia
  and Guillermo A. Mena Marugan, under the General Public License.

** Variable $PrePrint assigned value ScreenDollarIndices

** Variable $CovDFormat changed from Prefix to Postfix

** Option AllowUpperDerivatives of ContractMetric changed from False to True

** Option MetricOn of MakeRule changed from None to All

** Option ContractMetrics of MakeRule changed from False to True

------------------------------------------------------------

Package xAct`Invar`  version 2.0.5, {2013, 7, 1}

CopyRight (C) 2006-2020, J. M. Martin-Garcia,
  D. Yllanes and R. Portugal, under the General Public License.

** DefConstantSymbol: Defining constant symbol sigma.

** DefConstantSymbol: Defining constant symbol dim.

** Option CurvatureRelations of DefCovD changed from True to False

** Variable $CommuteCovDsOnScalars changed from True to False

------------------------------------------------------------

Package xAct`xCoba`  version 0.8.6, {2021, 2, 28}

CopyRight (C) 2005-2021, David Yllanes and
  Jose M. Martin-Garcia, under the General Public License.

------------------------------------------------------------

Package xAct`SymManipulator`  version 0.9.5, {2021, 9, 14}

CopyRight (C) 2011-2021, Thomas Bäckdahl, under the General Public License.

------------------------------------------------------------
```

```
Package xAct`xTras`  version 1.4.2, {2014, 10, 30}

CopyRight (C) 2012-2014, Teake Nutma, under the General Public License.

** Variable $CovDFormat changed from Postfix to Prefix

** Option CurvatureRelations of DefCovD changed from False to True

------------------------------------------------------------

Package xAct`HiGGS`  version 2.0.0-developer, {2023, 6, 27}

CopyRight © 2022, Will E. V. Barker and Manuel Hohmann, under the General Public License.

------------------------------------------------------------

HiGGS incorporates code by Cyril Pitrou.

------------------------------------------------------------

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  Disclaimer[]. This is free software, and you are welcome to redistribute
  it under certain conditions. See the General Public License for details.

------------------------------------------------------------
```

The HiGGS package is now loaded. We are interested only in the computations which lead to our Fig. 5. (in the appendix) in the manuscript. Two theories are considered. To perform the Hamiltonian analysis we use the StudyTheory[] command in HiGGS, specifying the parameters of the theory. For details of this command, and for all notation used in this supplement, see arXiv:2206.00658. The results were precomputed on a desktop computer. This is because the full Hamiltonian analysis of a theory, even run on a modern desktop computer with multiple processor cores, still takes up to half an hour. Below we will display the results using the ViewTheory[] command, which takes the pre-computed binary files (.thr.mx) and formats them. If you want to re-compute the analysis locally, the few lines of code you will need are stored at the top of this (.m) file, so just un-comment them. If there are problems with the execution, please refer to the HiGGS docs, or email wb263@cam.ac.uk.

Singular spectrum without multipliers

Introductory comments

In the first instance we perform the Hamiltonian analysis of the theory without multipliers. As we know, this theory suffers from strong coupling. Accordingly, in Eq. (4) in arXiv:2205.13534 we set $\hat{\alpha}_{\cdot 1}$, $\hat{\alpha}_{\cdot 2}$, $\hat{\alpha}_{\cdot 3}$, $\hat{\alpha}_{\cdot 4}$, $\hat{\alpha}_{\cdot 6}$, $\mathcal{M}_{\text{Pl}}{}^2\,\hat{\beta}_{\cdot 1}$, $\mathcal{M}_{\text{Pl}}{}^2\,\hat{\beta}_{\cdot 2}$, $\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\cdot 3}$, to zero, suppressing most of the higher-curvature invariants, two of the three torsion invariants, and all of the Lagrange multipliers, but allow for nonvanishing $\mathcal{M}_{\text{Pl}}{}^2\,\hat{\alpha}_{\cdot 0}$, (Einstein-Hilbert term) $\hat{\alpha}_{\cdot 5}$ (Riemann-Cartan-Maxwell invariant of curvature) and $\mathcal{M}_{\text{Pl}}{}^2\,\hat{\beta}_{\cdot 3}$.

The results of the analysis are presented below; the HiGGS output is designed to be reasonably self-explanatory, but we will nonetheless add some guiding commentary.

The first set of data are the primary constraints ϕ of the theory. These are implied by the impossibility of inverting the conjugate field-momenta for the velocities of the fields. As is now common in the PGT literature, we refer to these as `if-constraints', i.e. their existence depends on the linear relations assumed among the Lagrangian parameters.

Next, the Legendre-transformed Lagrangian is presented. This is broken into terms; the super-Hamiltonian (i.e. the coefficient $\overset{0^+}{\cdot}\mathcal{H}_b$ of the lapse function $\mathcal{N}$), the linear super-momentum (i.e. the coefficient $\overset{1^-}{\cdot}\mathcal{H}_{b\,l}$ of the shift vector) and the angular super-momentum (i.e. the antisymmetric coefficient $\overset{1^+}{\cdot}\mathcal{H}_{\mathcal{A}\,nm}$ of the timelike part of the rotational gauge field). These concepts are introduced in Blagojević.

Once the primary constraints are listed, the matrix $\{\phi, \phi\}$ of Poisson brackets between the primaries is computed. Of course, these brackets only need to be computed for the upper triangular part of the matrix. The resulting entries lie behind the red, white and yellow squares in the left-hand panel of Fig. 5.

Finally, the velocities of these primaries ϕ are computed, i.e. their Poisson brackets with the super-Hamiltonian $\overset{0^+}{\cdot}\mathcal{H}_b$. These velocities serve two purposes; (i) they can be used to determine the `missing velocities' or `Hamiltonian multipliers' u (not to be confused with the geometric multipliers λ used in the manuscript), or (ii) they can define the secondary constraints of the theory. Whichever of these applies depends of course on $\{\phi, \phi\}$, according to the consistency condition.

Lists of constraints and Poisson brackets from HiGGS

Having briefly recounted the notation of arXiv:2206.00658, we make a call to the HiGGS command ViewTheory[] on the appropriate model. This command presents all the results which were pre-computed by the earlier call to StudyTheory[].

```
** DefTheory: Incorporating the binary at ConstraintAlgebraAlp0Alp5Bet3.thr.mx
```

```
** DefTheory: Found the following primary if-constraints:
```

$$\overset{0^+}{\cdot}\phi_b \equiv \frac{\overset{0^+}{\cdot}\hat{\pi}_b}{\mathcal{J}} \approx 0$$

$$\overset{1^-}{\cdot}\phi_{b\,i} \equiv \frac{\overset{1^-}{\cdot}\hat{\pi}_{b\,i}}{\mathcal{J}} \approx 0$$

$$\overset{2^+}{\cdot}\phi_{b\,i\,j} \equiv \frac{\overset{2^+}{\cdot}\hat{\pi}_{b\,i\,j}}{\mathcal{J}} \approx 0$$

$$\overset{0^+}{\cdot}\phi_{\mathcal{A}} \equiv 3\,M_{Pl}{}^2\,\hat{\alpha}_{\underset{0}{\cdot}} + \frac{\overset{0^+}{\cdot}\hat{\pi}_{\mathcal{A}}}{\mathcal{J}} \approx 0$$

$$\overset{0^-}{\cdot}\phi_{\mathcal{A}} \equiv \frac{\overset{0^-}{\cdot}\hat{\pi}_{\mathcal{A}}}{\mathcal{J}} \approx 0$$

$$\overset{2^+}{\cdot}\phi_{\mathcal{A}\,i\,j} \equiv \frac{\overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}\,i\,j}}{\mathcal{J}} \approx 0$$

$$ {}^{2^-}\phi_{\mathcal{A}ijh} \equiv \frac{2\,{}^{2^-}\hat{\pi}_{\mathcal{A}ijh}}{3\mathcal{J}} + \frac{{}^{2^-}\hat{\pi}_{\mathcal{A}ihj}}{3\mathcal{J}} - \frac{{}^{2^-}\hat{\pi}_{\mathcal{A}jhi}}{3\mathcal{J}} \approx 0 $$

** DefTheory: Found the following primary parallel if-constraints associated with geometric multiplier momenta (if the sector is singular, the parallel constraint is taken to be the singular constraint and the identical perpendicular constraint below is dropped):

** DefTheory: Found the following primary perpendicular if-constraints associated with geometric multiplier momenta:

** DefTheory: Found the following secondary perpendicular if-constraints:

** DefTheory: Found the following secondary parallel if-constraints:

** DefTheory: Found the following secondary singular if-constraints:

** DefTheory: Defining association key $IfConstraints for the theory association ConstraintAlgebraAlp0Alp5Bet3

** ViewTheory: The super-Hamiltonian is:

$$ \begin{aligned} {}^{0^+}\mathcal{H}_{b} \equiv\; & \frac{{}^{1^-}\hat{\pi}_{\mathcal{A}a}\;{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}}{16\,\hat{\alpha}_{5}\,\mathcal{J}} + \frac{{}^{1^+}\hat{\pi}_{\mathcal{A}ab}\;{}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{ab}}{8\,\hat{\alpha}_{5}\,\mathcal{J}} + \frac{3\;{}^{1^+}\hat{\pi}_{bab}\;{}^{1^+}\hat{\pi}_{b}{}^{ab}}{16\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{3}\,\mathcal{J}} + \frac{{}^{1^-}\hat{\pi}_{b}{}^{a}\;\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\mathcal{D}^{\parallel}{}_{a}\mathcal{J}\right]}{\mathcal{J}} + \\ & \frac{\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\alpha}_{0}\,\mathcal{J}\;{}^{0^+}\mathcal{R}^{\parallel}}{2} - \frac{1}{2}\;{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\;{}^{1^-}\mathcal{R}^{\parallel}{}_{a} + {}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{ab}\;{}^{1^+}\mathcal{R}^{\parallel}{}_{ab} + \frac{1}{6}\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{3}\,\mathcal{J}\;{}^{0^-}\mathcal{T}^{\parallel 2} - {}^{1^-}\hat{\pi}_{b}{}^{a}\;{}^{1^-}\mathcal{T}^{\parallel}{}_{a} + \\ & \frac{1}{2}\;{}^{1^+}\hat{\pi}_{b}{}^{ab}\;{}^{1^+}\mathcal{T}^{\parallel}{}_{ab} - \frac{16}{27}\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{3}\,\mathcal{J}\;{}^{2^-}\mathcal{T}^{\parallel}{}_{abb'}\;{}^{2^-}\mathcal{T}^{\parallel\,abb'} + \frac{32}{27}\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{3}\,\mathcal{J}\;{}^{2^-}\mathcal{T}^{\parallel}{}_{ab'b}\;{}^{2^-}\mathcal{T}^{\parallel\,abb'} - \\ & n^{a}\left({}^{3}\mathcal{D}^{\parallel}{}_{b}\,{}^{1^+}\hat{\pi}_{ba}{}^{b}\right) - n^{a}\left({}^{3}\mathcal{D}^{\parallel}{}_{b}\,{}^{2^+}\hat{\pi}_{ba}{}^{b}\right) - \eta^{\parallel}{}_{ab}\left({}^{3}\mathcal{D}^{\parallel b}\,{}^{1^-}\hat{\pi}_{b}{}^{a}\right) + \frac{1}{3}\,\eta^{\parallel}{}_{ab}\;{}^{0^+}\hat{\pi}_{b}\left({}^{3}\mathcal{D}^{\parallel b}\,n^{a}\right) \approx 0 \end{aligned} $$

** ViewTheory: The linear super-momentum is:

$$ \begin{aligned} {}^{1^-}\mathcal{H}_{bl} \equiv\; & -\frac{1}{2}\;{}^{1^-}\hat{\pi}_{b}{}^{a}\;\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\mathcal{D}^{\parallel}{}_{a}n_{l}\right] + \frac{{}^{1^+}\hat{\pi}_{bla}\;\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\mathcal{D}^{\parallel a}\mathcal{J}\right]}{\mathcal{J}} + \frac{{}^{2^+}\hat{\pi}_{bla}\;\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\mathcal{D}^{\parallel a}\mathcal{J}\right]}{\mathcal{J}} - \underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel\,aa'}\left({}^{3}\mathcal{D}^{\parallel}{}_{a'}\,{}^{1^+}\hat{\pi}_{bla}\right)\right] - \\ & \underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel\,aa'}\left({}^{3}\mathcal{D}^{\parallel}{}_{a'}\,{}^{2^+}\hat{\pi}_{bla}\right)\right] + \frac{{}^{0^+}\hat{\pi}_{b}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\mathcal{D}^{\parallel}{}_{l}\mathcal{J}\right]}{3\mathcal{J}} - \frac{1}{3}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\mathcal{D}^{\parallel}{}_{l}\,{}^{0^+}\hat{\pi}_{b}\right] - \frac{1}{2}\;{}^{1^-}\hat{\pi}_{b}{}^{a}\;\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\mathcal{D}^{\parallel}{}_{l}n_{a}\right] + \frac{1}{6}\,\epsilon^{\parallel}{}_{laa'}\;{}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{aa'}\;{}^{0^-}\mathcal{R}^{\parallel} - \\ & \frac{{}^{1^-}\hat{\pi}_{\mathcal{A}l}\;{}^{0^+}\mathcal{R}^{\parallel}}{6} - \frac{1}{2}\;{}^{1^+}\hat{\pi}_{\mathcal{A}la}\;{}^{1^-}\mathcal{R}^{\parallel a} - \frac{1}{2}\;{}^{2^+}\hat{\pi}_{\mathcal{A}la}\;{}^{1^-}\mathcal{R}^{\parallel a} + \frac{{}^{0^+}\hat{\pi}_{\mathcal{A}}\;{}^{1^-}\mathcal{R}^{\parallel}{}_{l}}{3} - \frac{4}{3}\;{}^{2^-}\hat{\pi}_{\mathcal{A}l}{}^{aa'}\;{}^{1^+}\mathcal{R}^{\parallel}{}_{aa'} + \\ & \frac{1}{6}\,\epsilon^{\parallel}{}_{laa'}\;{}^{0^-}\hat{\pi}_{\mathcal{A}}\;{}^{1^+}\mathcal{R}^{\parallel\,aa'} - \frac{1}{2}\;{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\;{}^{1^+}\mathcal{R}^{\parallel}{}_{la} - \frac{4}{3}\;{}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{aa'}\;{}^{2^-}\mathcal{R}^{\parallel}{}_{laa'} + \frac{4}{3}\;{}^{2^+}\hat{\pi}_{\mathcal{A}}{}^{aa'}\;{}^{2^-}\mathcal{R}^{\parallel}{}_{laa'} + \\ & \frac{4}{3}\;{}^{2^-}\hat{\pi}_{\mathcal{A}l}{}^{aa'}\;{}^{2^+}\mathcal{R}^{\parallel}{}_{aa'} - \frac{1}{2}\;{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\;{}^{2^+}\mathcal{R}^{\parallel}{}_{la} + \frac{1}{6}\,\epsilon^{\parallel}{}_{laa'}\;{}^{1^+}\hat{\pi}_{b}{}^{aa'}\;{}^{0^-}\mathcal{T}^{\parallel} - \frac{3}{2}\;{}^{1^+}\hat{\pi}_{bla}\;{}^{1^-}\mathcal{T}^{\parallel a} - \\ & \frac{3}{2}\;{}^{2^+}\hat{\pi}_{bla}\;{}^{1^-}\mathcal{T}^{\parallel a} + \frac{1}{2}\;{}^{1^-}\hat{\pi}_{b}{}^{a}\;{}^{1^+}\mathcal{T}^{\parallel}{}_{la} - \frac{4}{3}\;{}^{1^+}\hat{\pi}_{b}{}^{aa'}\;{}^{2^-}\mathcal{T}^{\parallel}{}_{laa'} + \frac{4}{3}\;{}^{2^+}\hat{\pi}_{b}{}^{aa'}\;{}^{2^-}\mathcal{T}^{\parallel}{}_{laa'} \approx 0 \end{aligned} $$

** ViewTheory: The 1+ part of the angular super-momentum is:

$$\overset{1^+}{\cdot}\mathcal{H}_{\mathcal{A}\,nm} \equiv -2\,\overset{1^+}{\cdot}\hat{\pi}_{b\,mn} - \frac{\epsilon^{\parallel}{}_{mna}\,\overset{0^-}{\cdot}\hat{\pi}_{\mathcal{A}}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel a}\mathcal{J}\right]}{6\mathcal{J}} + \frac{4\,\overset{2^-}{\cdot}\hat{\pi}_{\mathcal{A}mna}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel a}\mathcal{J}\right]}{3\mathcal{J}} + \frac{1}{6}\,\epsilon^{\parallel}{}_{mna}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel a}\,\overset{0^-}{\cdot}\hat{\pi}_{\mathcal{A}}\right] -$$
$$\frac{1}{2}\,\overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}na}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel a}\,n_m\right] - \frac{1}{2}\,\overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}na}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel a}\,n_m\right] + \frac{1}{2}\,\overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}ma}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel a}\,n_n\right] + \frac{1}{2}\,\overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}ma}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel a}\,n_n\right] -$$
$$\frac{4}{3}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel aa'}\left({}^{3}\!\!\cdot\mathcal{D}^{\parallel}{}_{a'}\,\overset{2^-}{\cdot}\hat{\pi}_{\mathcal{A}mna}\right)\right] + \frac{\overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}n}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel}{}_{m}\mathcal{J}\right]}{2\mathcal{J}} - \frac{1}{2}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel}{}_{m}\,\overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}n}\right] - \frac{1}{2}\,\overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}na}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel}{}_{m}\,n^{a}\right] -$$
$$\frac{1}{2}\,\overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}na}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel}{}_{m}\,n^{a}\right] - \frac{\overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}m}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel}{}_{n}\mathcal{J}\right]}{2\mathcal{J}} + \frac{1}{2}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel}{}_{n}\,\overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}m}\right] + \frac{1}{2}\,\overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}ma}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel}{}_{n}\,n^{a}\right] +$$
$$\frac{1}{2}\,\overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}ma}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}\!\!\cdot\mathcal{D}^{\parallel}{}_{n}\,n^{a}\right] + \frac{1}{6}\,\epsilon^{\parallel}{}_{mna}\,\overset{0^-}{\cdot}\hat{\pi}_{\mathcal{A}}\,\overset{1^-}{\cdot}\mathcal{T}^{\parallel a} - \frac{4}{3}\,\overset{2^-}{\cdot}\hat{\pi}_{\mathcal{A}mna}\,\overset{1^-}{\cdot}\mathcal{T}^{\parallel a} - \frac{1}{2}\,\overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}n}\,\overset{1^-}{\cdot}\mathcal{T}^{\parallel}{}_{m} + \frac{1}{2}\,\overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}m}\,\overset{1^-}{\cdot}\mathcal{T}^{\parallel}{}_{n} -$$
$$\frac{1}{2}\,\overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}n}{}^{a}\,\overset{1^+}{\cdot}\mathcal{T}^{\parallel}{}_{ma} - \frac{1}{2}\,\overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}n}{}^{a}\,\overset{1^+}{\cdot}\mathcal{T}^{\parallel}{}_{ma} - \frac{1}{3}\,\overset{0^+}{\cdot}\hat{\pi}_{\mathcal{A}}\,\overset{1^+}{\cdot}\mathcal{T}^{\parallel}{}_{mn} + \frac{1}{2}\,\overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}m}{}^{a}\,\overset{1^+}{\cdot}\mathcal{T}^{\parallel}{}_{na} + \frac{1}{2}\,\overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}m}{}^{a}\,\overset{1^+}{\cdot}\mathcal{T}^{\parallel}{}_{na} \approx 0$$

** ViewTheory: The on-shell brackets between the various if-constraints are:

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(2)}{\cdot}\mathcal{S}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\cdot}\phi_{b\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\cdot}\phi_{b\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(2)}{\cdot}\mathcal{S}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx$$
$$\iiint\left(-\frac{6\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{0}{\hat{\alpha}}\,\overset{(1)}{\cdot}\mathcal{S}\,\overset{(2)}{\cdot}\mathcal{S}}{\mathcal{J}}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(2)}{\cdot}\mathcal{S}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\cdot}\phi_{\mathcal{A}\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\cdot}\phi_{\mathcal{A}\,lmn}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lmn}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{1^-}{\cdot}\phi_{b\,i}\cdot\overset{(1)}{\cdot}\mathcal{S}^{i}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\cdot}\phi_{b\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx$$
$$\iiint\frac{2\,\overset{1^+}{\cdot}\hat{\pi}_{b\,aa'}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\cdot}\mathcal{S}^{a}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{a'}\right]}{\mathcal{J}^{2}}[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{1^-}{\cdot}\phi_{b\,i}\cdot\overset{(1)}{\cdot}\mathcal{S}^{i}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\cdot}\phi_{b\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\phi_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\bullet}\phi_{\mathcal{A}}\cdot\overset{(2)}{\bullet}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\left(-\frac{\overset{1^-}{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\ \underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\bullet}\mathcal{S}_{a}\right]\overset{(2)}{\bullet}\mathcal{S}}{\mathcal{J}^2}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\phi_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^-}{\bullet}\phi_{\mathcal{A}}\cdot\overset{(2)}{\bullet}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{2\ \epsilon\gamma_{a a' i Za1}\ \overset{1^+}{\bullet}\hat{\pi}_{\mathcal{A}}{}^{i Za1}\ \underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\bullet}\mathcal{S}^{a'}\right]\overset{(2)}{\bullet}\mathcal{S}\ n^{a}}{\mathcal{J}^2}[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\phi_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\bullet}\phi_{\mathcal{A}\,l m}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l m}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{\overset{1^-}{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\left(3\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\bullet}\mathcal{S}^{a'}\right]\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}_{a a'}\right]+\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}_{a' a}\right]\right)-2\ \eta^{\parallel}{}_{a' b}\ \underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\bullet}\mathcal{S}_{a}\right]\overset{(2)}{\bullet}\mathcal{S}^{a' b}\right)}{12\,\mathcal{J}^2}[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\phi_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\bullet}\phi_{\mathcal{A}\,l m n}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l m n}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{8\,\mathcal{J}^2}\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\bullet}\mathcal{S}^{a}\right]\left(\overset{1^+}{\bullet}\hat{\pi}_{\mathcal{A}\,a' b}\left(-2\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}_{a}{}^{a' b}\right]+2\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}^{a'}{}_{a}{}^{b}\right]+4\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}^{a' b}{}_{a}\right]\right)+\right.$$

$$\left.3\ \overset{1^+}{\bullet}\hat{\pi}_{\mathcal{A}\,a}{}^{a'}\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{b b'}\ \overset{(2)}{\bullet}\mathcal{S}_{a'}{}^{b b'}\right]-\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{b b'}\ \overset{(2)}{\bullet}\mathcal{S}^{b}{}_{a'}{}^{b'}\right]\right)\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{2^+}{\bullet}\phi_{b\,i j}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i j}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\bullet}\phi_{b\,l m}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l m}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\bullet}\mathcal{S}^{a a'}\right]\left(\overset{1^+}{\bullet}\hat{\pi}_{b\,a' b}\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}_{a}{}^{b}\right]+\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}^{b}{}_{a}\right]\right)+\overset{1^+}{\bullet}\hat{\pi}_{b\,a b}\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}_{a'}{}^{b}\right]+\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}^{b}{}_{a'}\right]\right)\right)}{2\,\mathcal{J}^2}[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{2^+}{\bullet}\phi_{b\,i j}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i j}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\bullet}\phi_{\mathcal{A}}\cdot\overset{(2)}{\bullet}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{2^+}{\bullet}\phi_{b\,i j}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i j}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^-}{\bullet}\phi_{\mathcal{A}}\cdot\overset{(2)}{\bullet}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{2^+}{\bullet}\phi_{b\,i j}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i j}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\bullet}\phi_{\mathcal{A}\,l m}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l m}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{12\,\mathcal{J}^2}\left(3\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\bullet}\mathcal{S}^{a a'}\right]\left(2\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\underset{0}{\hat{\alpha}}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}_{a a'}\right]+2\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\underset{0}{\hat{\alpha}}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}_{a' a}\right]+\right.\right.$$

$$\left.\overset{1^+}{\bullet}\hat{\pi}_{\mathcal{A}\,a b}\ \underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}_{a'}{}^{b}\right]+\overset{1^+}{\bullet}\hat{\pi}_{\mathcal{A}\,a' b}\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}_{a}{}^{b}\right]+\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}^{b}{}_{a}\right]\right)+\overset{1^+}{\bullet}\hat{\pi}_{\mathcal{A}\,a b}\ \underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\bullet}\mathcal{S}^{b}{}_{a'}\right]\right)-$$

$$\left.4\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\underset{0}{\hat{\alpha}}\ \eta^{\parallel}{}_{a a'}\ \eta^{\parallel}{}_{b b'}\ \mathcal{J}\ \overset{(1)}{\bullet}\mathcal{S}^{a a'}\ \overset{(2)}{\bullet}\mathcal{S}^{b b'}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{2^+}\phi_{b\,ij}\cdot{}^{(1)}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}\phi_{\mathcal{A}\,lmn}\cdot{}^{(2)}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\begin{aligned}\iiint\frac{1}{32\,\mathcal{J}^2}\,3\,{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\Big(&\underset{\eta^\parallel}{\mathrm{P}}\big[{}^{(1)}\mathcal{S}^{a'}{}_{a}\big]\,\underset{\eta^\parallel}{\mathrm{P}}\big[\eta^\parallel{}_{bb'}\,{}^{(2)}\mathcal{S}_{a'}{}^{bb'}\big]+2\,\underset{\eta^\parallel}{\mathrm{P}}\big[{}^{(1)}\mathcal{S}^{a'b}\big]\Big(\underset{\eta^\parallel}{\mathrm{P}}\big[{}^{(2)}\mathcal{S}_{aa'b}\big]+\underset{\eta^\parallel}{\mathrm{P}}\big[{}^{(2)}\mathcal{S}_{aba'}\big]-\underset{\eta^\parallel}{\mathrm{P}}\big[{}^{(2)}\mathcal{S}_{a'ab}\big]-\underset{\eta^\parallel}{\mathrm{P}}\big[{}^{(2)}\mathcal{S}_{baa'}\big]\Big)+\\&\underset{\eta^\parallel}{\mathrm{P}}\big[{}^{(1)}\mathcal{S}_{a}{}^{a'}\big]\Big(\underset{\eta^\parallel}{\mathrm{P}}\big[\eta^\parallel{}_{bb'}\,{}^{(2)}\mathcal{S}_{a'}{}^{bb'}\big]-\underset{\eta^\parallel}{\mathrm{P}}\big[\eta^\parallel{}_{bb'}\,{}^{(2)}\mathcal{S}^{b}{}_{a'}{}^{b'}\big]\Big)-\underset{\eta^\parallel}{\mathrm{P}}\big[{}^{(1)}\mathcal{S}^{a'}{}_{a}\big]\,\underset{\eta^\parallel}{\mathrm{P}}\big[\eta^\parallel{}_{bb'}\,{}^{(2)}\mathcal{S}^{b}{}_{a'}{}^{b'}\big]-\\&2\,\eta^\parallel{}_{a'b}\,\underset{\eta^\parallel}{\mathrm{P}}\big[\eta^\parallel{}_{b'c}\,{}^{(2)}\mathcal{S}_{a}{}^{b'c}\big]\,{}^{(1)}\mathcal{S}^{a'b}+2\,\eta^\parallel{}_{a'b}\,\underset{\eta^\parallel}{\mathrm{P}}\big[\eta^\parallel{}_{b'c}\,{}^{(2)}\mathcal{S}^{b'}{}_{a}{}^{c}\big]\,{}^{(1)}\mathcal{S}^{a'b}\Big)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1\end{aligned}$$

$$\left\{\iiint\left({}^{0^+}\phi_{\mathcal{A}}\cdot{}^{(1)}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}\phi_{\mathcal{A}}\cdot{}^{(2)}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}\phi_{\mathcal{A}}\cdot{}^{(1)}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^-}\phi_{\mathcal{A}}\cdot{}^{(2)}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}\phi_{\mathcal{A}}\cdot{}^{(1)}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}\phi_{\mathcal{A}\,lm}\cdot{}^{(2)}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}\phi_{\mathcal{A}}\cdot{}^{(1)}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}\phi_{\mathcal{A}\,lmn}\cdot{}^{(2)}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^-}\phi_{\mathcal{A}}\cdot{}^{(1)}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^-}\phi_{\mathcal{A}}\cdot{}^{(2)}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^-}\phi_{\mathcal{A}}\cdot{}^{(1)}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}\phi_{\mathcal{A}\,lm}\cdot{}^{(2)}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^-}\phi_{\mathcal{A}}\cdot{}^{(1)}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}\phi_{\mathcal{A}\,lmn}\cdot{}^{(2)}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^+}\phi_{\mathcal{A}\,ij}\cdot{}^{(1)}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}\phi_{\mathcal{A}\,lm}\cdot{}^{(2)}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^+}\phi_{\mathcal{A}\,ij}\cdot{}^{(1)}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}\phi_{\mathcal{A}\,lmn}\cdot{}^{(2)}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^-}\phi_{\mathcal{A}\,ijh}\cdot{}^{(1)}\mathcal{S}^{ijh}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}\phi_{\mathcal{A}\,lmn}\cdot{}^{(2)}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

** ViewTheory: The commutators between

the various if-constraints and the super-Hamiltonian are:

$$\left\{\iiint\left({}^{0^+}\phi_{b}\cdot{}^{(1)}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}\mathcal{H}_{b}\cdot{}^{(2)}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\begin{aligned}\iiint\frac{1}{144\,\hat{\alpha}_{5}\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\mathcal{J}^2}\,{}^{(1)}\mathcal{S}\,{}^{(2)}\mathcal{S}\Big(&9\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,{}^{1^-}\hat{\pi}_{\mathcal{A}a}\,{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}+18\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,{}^{1^+}\hat{\pi}_{\mathcal{A}aa'}\,{}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{aa'}+\\&81\,\hat{\alpha}_{5}\,{}^{1^+}\hat{\pi}_{b\,aa'}\,{}^{1^+}\hat{\pi}_{b}{}^{aa'}-8\,\hat{\alpha}_{5}\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\mathcal{J}\Big(9\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\alpha}_{0}\,\mathcal{J}\,{}^{0^+}\mathcal{R}^\parallel+9\,{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\,{}^{1^-}\mathcal{R}^\parallel{}_{a}+54\,{}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{aa'}\,{}^{1^+}\mathcal{R}^\parallel{}_{aa'}+\\&3\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\mathcal{J}\,{}^{0^-}\mathcal{T}^{\parallel 2}-9\,{}^{1^+}\hat{\pi}_{b}{}^{aa'}\,{}^{1^+}\mathcal{T}^\parallel{}_{aa'}-32\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\mathcal{J}\,{}^{2^-}\mathcal{T}^\parallel{}_{aa'Za1}\,{}^{2^-}\mathcal{T}^{\parallel\,aa'Za1}+64\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\\&\mathcal{J}\,{}^{2^-}\mathcal{T}^\parallel{}_{aZa1a'}\,{}^{2^-}\mathcal{T}^{\parallel\,aa'Za1}+18\,\eta^{\parallel\,a'Za1}\,n^{a}\left({}^{3}\mathcal{D}^\parallel{}_{Za1}\,{}^{1^+}\hat{\pi}_{b\,aa'}\right)\Big)\Big)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1\end{aligned}$$

$$\left\{\iiint\left({}^{1^-}\phi_{b\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}\mathcal{H}_b\cdot{}^{(2)}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{12\,\hat{\alpha}_{5}\,\mathcal{J}^2}\,{}^{(2)}\mathcal{S}\Bigg(-\mathcal{J}\,{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\left(\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}_{a}\right]\left(3\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\alpha}_{0}+2\,\hat{\alpha}_{5}\,{}^{0^+}\mathcal{R}^\parallel\right)+6\,\hat{\alpha}_{5}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}^{a'}\right]\,{}^{2^+}\mathcal{R}^\parallel{}_{aa'}\right)+$$

$$2\,\hat{\alpha}_{5}\left(12\,{}^{1^+}\hat{\pi}_{b\,aa'}\left(\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}^{a}\right]\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{3}\mathcal{D}^{\parallel a'}\,\mathcal{J}\right]+\mathcal{J}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}^{a'}\right]\,{}^{1^-}\mathcal{T}^{\parallel a}\right)-\right.$$

$$4\,\mathcal{J}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}^{a}\right]\left(3\,\underset{\eta^\parallel}{\mathrm{P}}\left[\eta^{\parallel a'b}\left({}^{3}\mathcal{D}^\parallel{}_{b}\,{}^{1^+}\hat{\pi}_{b\,aa'}\right)\right]-2\,{}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{a'b}\,{}^{2^-}\mathcal{R}^\parallel{}_{aa'b}+\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\epsilon^\parallel{}_{aa'b}\,\mathcal{J}\,{}^{0^-}\mathcal{T}^\parallel\,{}^{1^+}\mathcal{T}^{\parallel a'b}\right)+$$

$$\mathcal{J}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}^{a'}\right]\left(6\,{}^{1^+}\hat{\pi}_{\mathcal{A}\,aa'}\,{}^{1^-}\mathcal{R}^{\parallel a}+\epsilon\gamma_{aa'bc}\,{}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{bc}\,{}^{0^-}\mathcal{R}^\parallel\,n^{a}\right)-$$

$$\left.6\,\mathcal{J}\,{}^{1^+}\hat{\pi}_{b\,a}{}^{a'}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}^{a}\right]\left(\underset{\eta^\parallel}{\mathrm{P}}\left[n^{b}\left({}^{3}\mathcal{D}^\parallel{}_{a'}\,n_{b}\right)\right]-2\left({}^{3}\mathcal{D}^\parallel{}_{b}\,\eta^\parallel{}_{a'}{}^{b}\right)\right)\right)\Bigg)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{2^+}\phi_{b\,ij}\cdot{}^{(1)}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}\mathcal{H}_b\cdot{}^{(2)}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{144\,\hat{\alpha}_{5}\,\mathcal{J}^2}\,{}^{(2)}\mathcal{S}$$

$$\Bigg(3\,{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\left(3\,{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a'}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}_{aa'}\right]-12\,\hat{\alpha}_{5}\,\mathcal{J}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}_{aa'}\right]\,{}^{1^-}\mathcal{R}^{\parallel a'}-12\,\hat{\alpha}_{5}\,\mathcal{J}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}_{a'a}\right]\,{}^{1^-}\mathcal{R}^{\parallel a'}-16\,\hat{\alpha}_{5}\,\mathcal{J}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}^{a'b}\right]\right.$$

$$\left.{}^{2^-}\mathcal{R}^\parallel{}_{aa'b}-16\,\hat{\alpha}_{5}\,\mathcal{J}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}^{a'b}\right]\,{}^{2^-}\mathcal{R}^\parallel{}_{aba'}-\eta^\parallel{}_{a'b}\,{}^{1^-}\hat{\pi}_{\mathcal{A}\,a}\,{}^{(1)}\mathcal{S}^{a'b}+8\,\hat{\alpha}_{5}\,\eta^\parallel{}_{a'b}\,\mathcal{J}\,{}^{1^-}\mathcal{R}^\parallel{}_{a}\,{}^{(1)}\mathcal{S}^{a'b}\right)+$$

$$4\left(-9\,{}^{1^+}\hat{\pi}_{\mathcal{A}\,a}{}^{b}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}^{aa'}\right]\left({}^{1^+}\hat{\pi}_{\mathcal{A}\,a'b}+2\,\hat{\alpha}_{5}\,\mathcal{J}\,{}^{2^+}\mathcal{R}^\parallel{}_{a'b}\right)+\hat{\alpha}_{5}\,\mathcal{J}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{(1)}\mathcal{S}^{aa'}\right]\left(18\,\underset{\eta^\parallel}{\mathrm{P}}\left[n^{b}\left({}^{3}\mathcal{D}^\parallel{}_{a}\,{}^{1^+}\hat{\pi}_{b\,a'b}\right)\right]+\right.\right.$$

$$18\,\underset{\eta^\parallel}{\mathrm{P}}\left[n^{b}\left({}^{3}\mathcal{D}^\parallel{}_{a'}\,{}^{1^+}\hat{\pi}_{b\,ab}\right)\right]+9\,{}^{1^+}\hat{\pi}_{b\,ab}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{3}\mathcal{D}^\parallel{}_{a'}\,n^{b}\right]+9\,{}^{1^+}\hat{\pi}_{b\,a'b}\left(\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{3}\mathcal{D}^\parallel{}_{a}\,n^{b}\right]+\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{3}\mathcal{D}^{\parallel b}\,n_{a}\right]\right)+9$$

$${}^{1^+}\hat{\pi}_{b\,ab}\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{3}\mathcal{D}^{\parallel b}\,n_{a'}\right]+36\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\alpha}_{0}\,\mathcal{J}\,{}^{2^+}\mathcal{R}^\parallel{}_{aa'}-18\,{}^{1^+}\hat{\pi}_{\mathcal{A}\,a'}{}^{b}\,{}^{2^+}\mathcal{R}^\parallel{}_{ab}+9\,{}^{1^+}\hat{\pi}_{b\,a'}{}^{b}\,{}^{1^+}\mathcal{T}^\parallel{}_{ab}+9$$

$${}^{1^+}\hat{\pi}_{b\,a}{}^{b}\,{}^{1^+}\mathcal{T}^\parallel{}_{a'b}+16\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\epsilon^\parallel{}_{a'bb'}\,\mathcal{J}\,{}^{0^-}\mathcal{T}^\parallel\,{}^{2^-}\mathcal{T}^\parallel{}_{a}{}^{bb'}+16\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\epsilon^\parallel{}_{abb'}\,\mathcal{J}\,{}^{0^-}\mathcal{T}^\parallel$$

$$\left.{}^{2^-}\mathcal{T}^\parallel{}_{a'}{}^{bb'}-8\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\epsilon^\parallel{}_{a'bb'}\,\mathcal{J}\,{}^{0^-}\mathcal{T}^\parallel\,{}^{2^-}\mathcal{T}^{\parallel bb'}{}_{a}-8\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\epsilon^\parallel{}_{abb'}\,\mathcal{J}\,{}^{0^-}\mathcal{T}^\parallel\,{}^{2^-}\mathcal{T}^{\parallel bb'}{}_{a'}\right)+$$

$$3\,\eta^\parallel{}_{aa'}\,{}^{(1)}\mathcal{S}^{aa'}\left({}^{1^+}\hat{\pi}_{\mathcal{A}\,bb'}\,{}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{bb'}-2\,\hat{\alpha}_{5}\,\mathcal{J}\,{}^{1^+}\hat{\pi}_{b}{}^{bb'}\,{}^{1^+}\mathcal{T}^\parallel{}_{bb'}+4\,\hat{\alpha}_{5}\,\eta^{\parallel b'c}\right.$$

$$\left.\left.\mathcal{J}\,n^{b}\left({}^{3}\mathcal{D}^\parallel{}_{c}\,{}^{1^+}\hat{\pi}_{b\,bb'}\right)\right)\right)\Bigg)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{0^+}\phi_{\mathcal{A}}\cdot{}^{(1)}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}\mathcal{H}_b\cdot{}^{(2)}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{8\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\mathcal{J}^2}\,{}^{(1)}\mathcal{S}\,{}^{(2)}\mathcal{S}\left({}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{ab}\left(3\,{}^{1^+}\hat{\pi}_{b\,ab}+4\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\mathcal{J}\,{}^{1^+}\mathcal{T}^\parallel{}_{ab}\right)+4\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\left(2\,\underset{\eta^\parallel}{\mathrm{P}}\left[{}^{3}\mathcal{D}^\parallel{}_{a}\,\mathcal{J}\right]-\mathcal{J}\,{}^{1^-}\mathcal{T}^\parallel{}_{a}+\right.\right.$$

$$\left.\left.2\,\mathcal{J}\left({}^{3}\mathcal{D}^\parallel{}_{b}\,\eta^\parallel{}_{a}{}^{b}\right)\right)-8\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{3}\,\eta^\parallel{}_{ab}\,\mathcal{J}\left({}^{3}\mathcal{D}^{\parallel b}\,{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\right)\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{0^-}_{\cdot}\phi_{\mathcal{A}}\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}_{\cdot}\mathcal{H}_b\cdot{}^{(2)}_{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{24\,\mathcal{M}_{Pl}^2\,\hat\beta_{\dot 3}\,\mathcal{J}^2}\,{}^{(1)}_{\cdot}\mathcal{S}\Big(24\,\mathcal{M}_{Pl}^2\,\hat\beta_{\dot3}\,\epsilon^\parallel{}_{aa'b}\,\Big({}^{1^+}_{\cdot}\hat\pi_{\mathcal{A}}{}^{a'b}\Big(4\mathcal{J}\,\mathrm{P}_{\eta^\parallel}[{}^{3}_{\cdot}\mathcal{D}^{\parallel a}\,{}^{(2)}_{\cdot}\mathcal{S}]-4\,\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^{\parallel a}\mathcal{J}]\,{}^{(2)}_\cdot\mathcal{S}+3\mathcal{J}\,{}^{(2)}_\cdot\mathcal{S}\,{}^{1^-}_\cdot\mathcal{T}^{\parallel a}\Big)+$$

$$\mathcal{J}\,{}^{(2)}_\cdot\mathcal{S}\Big(2\,\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^{\parallel b}\,{}^{1^+}_\cdot\hat\pi_{\mathcal{A}}{}^{aa'}]+{}^{1^-}_\cdot\hat\pi_{\mathcal{A}}{}^{a}\,{}^{1^+}_\cdot\mathcal{T}^{\parallel a'b}\Big)\Big)+{}^{(2)}_\cdot\mathcal{S}\Big(64\,\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\,\epsilon^\parallel{}_{a'bb'}\,\mathcal{J}\,{}^{1^+}_\cdot\hat\pi_{\mathcal{A}}{}^{aa'}\,{}^{2^-}_\cdot\mathcal{T}^\parallel{}_a{}^{bb'}-$$

$$3\Big(\epsilon\gamma_{aa'bb'}\Big(-{}^{1^-}_\cdot\hat\pi_{\mathcal{A}}{}^a\Big(3\,{}^{1^+}_\cdot\hat\pi_b{}^{bb'}+4\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}\,{}^{1^+}_\cdot\mathcal{T}^{\parallel bb'}\Big)n^{a'}+16\,\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\,{}^{1^+}_\cdot\hat\pi_{\mathcal{A}}{}^{bb'}$$

$$\Big(\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^{\parallel a'}\mathcal{J}]\,n^a+\mathcal{J}\,{}^{1^-}_\cdot\mathcal{T}^{\parallel a}\,n^{a'}\Big)\Big)+8\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}\Big(\Big(\mathcal{M}_{Pl}^2\hat\alpha_{\dot0}+8\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\Big)\mathcal{J}\,{}^{0^-}_\cdot\mathcal{T}^\parallel-$$

$$2\,\epsilon^\parallel{}_{aa'b'}\,{}^{1^+}_\cdot\hat\pi_{\mathcal{A}}{}^{aa'}\Big({}^3_\cdot\mathcal{D}^\parallel{}_b\,\eta^{\parallel bb'}\Big)\Big)\Big)\Big)\Big)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{2^+}_{\cdot}\phi_{\mathcal{A}ij}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}_{\cdot}\mathcal{H}_b\cdot{}^{(2)}_{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{48\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}^2}{}^{(2)}_\cdot\mathcal{S}\Big(12\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{aa'}]\Big(\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_a\,{}^{1^-}_\cdot\hat\pi_{\mathcal{A}a'}]+\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_{a'}\,{}^{1^-}_\cdot\hat\pi_{\mathcal{A}a}]+$$

$${}^{1^+}_\cdot\hat\pi_{\mathcal{A}ab}\,\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_{a'}n^b]+{}^{1^+}_\cdot\hat\pi_{\mathcal{A}a'b}\Big(\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_a n^b]+\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^{\parallel b}n_a]\Big)+{}^{1^+}_\cdot\hat\pi_{\mathcal{A}ab}\,\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^{\parallel b}n_{a'}]\Big)+$$

$$3\,{}^{1^+}_\cdot\hat\pi_{\mathcal{A}a'}{}^b\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{aa'}]\Big(3\,{}^{1^+}_\cdot\hat\pi_{b\,ab}+16\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}\,{}^{1^+}_\cdot\mathcal{T}^\parallel{}_{ab}\Big)+3\,{}^{1^+}_\cdot\hat\pi_{\mathcal{A}a}{}^b\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{aa'}]$$

$$\Big(3\,{}^{1^+}_\cdot\hat\pi_{b\,a'b}+16\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}\,{}^{1^+}_\cdot\mathcal{T}^\parallel{}_{a'b}\Big)+2\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\,{}^{1^-}_\cdot\hat\pi_{\mathcal{A}}{}^a$$

$$\Big(4\,\eta^\parallel{}_{a'b}\,\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_a\mathcal{J}]\,{}^{(1)}_\cdot\mathcal{S}^{a'b}-2\,\eta^\parallel{}_{a'b}\,\mathcal{J}\,{}^{(1)}_\cdot\mathcal{S}^{a'b}\,{}^{1^-}_\cdot\mathcal{T}^\parallel{}_a+3\mathcal{J}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}_{aa'}]\,{}^{1^-}_\cdot\mathcal{T}^{\parallel a'}+3\mathcal{J}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}_{a'a}]\,{}^{1^-}_\cdot\mathcal{T}^{\parallel a'}+$$

$$8\mathcal{J}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{a'b}]\,{}^{2^-}_\cdot\mathcal{T}^\parallel{}_{aa'b}+8\mathcal{J}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{a'b}]\,{}^{2^-}_\cdot\mathcal{T}^\parallel{}_{aba'}-6\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}_a{}^{a'}]\Big(\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_{a'}\mathcal{J}]+\mathcal{J}\Big({}^3_\cdot\mathcal{D}^\parallel{}_b\,\eta^\parallel{}_{a'}{}^b\Big)\Big)-$$

$$6\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{a'}{}_a]\Big(\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_{a'}\mathcal{J}]+\mathcal{J}\Big({}^3_\cdot\mathcal{D}^\parallel{}_b\,\eta^\parallel{}_{a'}{}^b\Big)\Big)+4\,\eta^\parallel{}_{a'b}\,\mathcal{J}\,{}^{(1)}_\cdot\mathcal{S}^{a'b}\Big({}^3_\cdot\mathcal{D}^\parallel{}_{b'}\,\eta^\parallel{}_a{}^{b'}\Big)\Big)-$$

$$2\,\eta^\parallel{}_{aa'}\,{}^{(1)}_\cdot\mathcal{S}^{aa'}\Big({}^{1^+}_\cdot\hat\pi_{\mathcal{A}}{}^{bb'}\Big(3\,{}^{1^+}_\cdot\hat\pi_{b\,bb'}+16\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}\,{}^{1^+}_\cdot\mathcal{T}^\parallel{}_{bb'}\Big)+4\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\,\eta^\parallel{}_{bb'}\,\mathcal{J}\Big({}^3_\cdot\mathcal{D}^{\parallel b'}\,{}^{1^-}_\cdot\hat\pi_{\mathcal{A}}{}^b\Big)\Big)\Big)[$$

$$x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{2^-}_{\cdot}\phi_{\mathcal{A}ijk}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ijk}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}_{\cdot}\mathcal{H}_b\cdot{}^{(2)}_{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\Big(-\frac{1}{384\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}^2}\Big(192\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}\,{}^{1^+}_\cdot\hat\pi_{\mathcal{A}ab}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{aa'b}]\,\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_{a'}\,{}^{(2)}_\cdot\mathcal{S}]+384\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}\,{}^{1^+}_\cdot\hat\pi_{\mathcal{A}aa'}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{aa'b}]$$

$$\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_b\,{}^{(2)}_\cdot\mathcal{S}]-18\,{}^{1^-}_\cdot\hat\pi_{\mathcal{A}}{}^a\,{}^{1^+}_\cdot\hat\pi_{b\,a'b}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}_a{}^{a'b}]\,{}^{(2)}_\cdot\mathcal{S}+27\,{}^{1^-}_\cdot\hat\pi_{\mathcal{A}}{}^a\,{}^{1^+}_\cdot\hat\pi_{b\,a}{}^{a'}\,\mathrm{P}_{\eta^\parallel}[\eta^\parallel{}_{bb'}\,{}^{(1)}_\cdot\mathcal{S}_{a'}{}^{bb'}]\,{}^{(2)}_\cdot\mathcal{S}+$$

$$18\,{}^{1^-}_\cdot\hat\pi_{\mathcal{A}}{}^a\,{}^{1^+}_\cdot\hat\pi_{b\,a'b}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{a'}{}_a{}^b]\,{}^{(2)}_\cdot\mathcal{S}+36\,{}^{1^-}_\cdot\hat\pi_{\mathcal{A}}{}^a\,{}^{1^+}_\cdot\hat\pi_{b\,a'b}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{a'b}{}_a]\,{}^{(2)}_\cdot\mathcal{S}-$$

$$27\,{}^{1^-}_\cdot\hat\pi_{\mathcal{A}}{}^a\,{}^{1^+}_\cdot\hat\pi_{b\,a}{}^{a'}\,\mathrm{P}_{\eta^\parallel}[\eta^\parallel{}_{bb'}\,{}^{(1)}_\cdot\mathcal{S}^b{}_{a'}{}^{b'}]\,{}^{(2)}_\cdot\mathcal{S}-96\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\mathcal{J}\,\mathrm{P}_{\eta^\parallel}[{}^{(1)}_\cdot\mathcal{S}^{aa'b}]\,\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_a\,{}^{1^+}_\cdot\hat\pi_{\mathcal{A}a'b}]\,{}^{(2)}_\cdot\mathcal{S}+$$

$$36\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\,\delta_{a'}{}^b\,\mathcal{J}\,{}^{1^-}_\cdot\hat\pi_{\mathcal{A}}{}^a\,\mathrm{P}_{\eta^\parallel}[\eta^\parallel{}_{b'c}\,{}^{(1)}_\cdot\mathcal{S}_b{}^{b'c}]\,\mathrm{P}_{\eta^\parallel}[{}^3_\cdot\mathcal{D}^\parallel{}_a n^{a'}]\,{}^{(2)}_\cdot\mathcal{S}-36\mathcal{M}_{Pl}^2\hat\beta_{\dot3}\,\delta_{a'}{}^b\,\mathcal{J}$$

$$ {}^{1^-}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(1)}_{\bullet}\mathcal{S}^{b'}{}_{b}{}^{c}\right]\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{a}\, n^{a'}\right]{}^{(2)}_{\bullet}\mathcal{S} - 96\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}ab}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{a'}\,\mathcal{J}\right]{}^{(2)}_{\bullet}\mathcal{S} + $$

$$ 96\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\,\mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{a'}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}ab}\right]{}^{(2)}_{\bullet}\mathcal{S} + 72\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^-}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}_{a}{}^{a'b}\right]\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{a'}\, n_{b}\right]{}^{(2)}_{\bullet}\mathcal{S} - $$

$$ 72\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^-}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{a'}{}_{a}{}^{b}\right]\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{a'}\, n_{b}\right]{}^{(2)}_{\bullet}\mathcal{S} + 36\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^-}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{bb'}\ {}^{(1)}_{\bullet}\mathcal{S}_{a'}{}^{bb'}\right] $$

$$ \mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel a'}\ n_{a}\right]{}^{(2)}_{\bullet}\mathcal{S} - 36\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^-}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{bb'}\ {}^{(1)}_{\bullet}\mathcal{S}^{b}{}_{a'}{}^{b'}\right]\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel a'}\ n_{a}\right]{}^{(2)}_{\bullet}\mathcal{S} - $$

$$ 192\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}aa'}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{b}\,\mathcal{J}\right]{}^{(2)}_{\bullet}\mathcal{S} + 192\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\,\mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{b}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}aa'}\right]{}^{(2)}_{\bullet}\mathcal{S} + $$

$$ 72\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^-}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}_{a}{}^{a'b}\right]\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{b}\, n_{a'}\right]{}^{(2)}_{\bullet}\mathcal{S} - 72\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^-}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{a'}{}_{a}{}^{b}\right]\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{b}\, n_{a'}\right]{}^{(2)}_{\bullet}\mathcal{S} - $$

$$ 144\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\,\mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{a'b}\ {}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]\mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel b'c}\ \left({}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{c}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}ab'}\right)\right]{}^{(2)}_{\bullet}\mathcal{S} + 144\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\,\mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{ab}\ {}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right] $$

$$ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel b'c}\ \left({}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{c}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}a'b'}\right)\right]{}^{(2)}_{\bullet}\mathcal{S} - 16\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ \epsilon^{\parallel}{}_{a'bb'}\ \mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}a}{}^{b'}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{0^-}_{\bullet}\mathcal{T}^{\parallel} + $$

$$ 16\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ \epsilon^{\parallel}{}_{abb'}\ \mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}a'}{}^{b'}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{0^-}_{\bullet}\mathcal{T}^{\parallel} + 32\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ \epsilon^{\parallel}{}_{aa'b'}\ \mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}b}{}^{b'} $$

$$ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{0^-}_{\bullet}\mathcal{T}^{\parallel} - 24\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ \epsilon^{\parallel}{}_{aa'}{}^{b}\ \mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{aa'}\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(1)}_{\bullet}\mathcal{S}_{b}{}^{b'c}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{0^-}_{\bullet}\mathcal{T}^{\parallel} + $$

$$ 24\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ \epsilon^{\parallel}{}_{aa'}{}^{b}\ \mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{aa'}\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(1)}_{\bullet}\mathcal{S}^{b'}{}_{b}{}^{c}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{0^-}_{\bullet}\mathcal{T}^{\parallel} + 72\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}a}{}^{a'} $$

$$ \left(\mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{bb'}\ {}^{(1)}_{\bullet}\mathcal{S}_{a'}{}^{bb'}\right] - \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{bb'}\ {}^{(1)}_{\bullet}\mathcal{S}^{b}{}_{a'}{}^{b'}\right]\right)\left(4\,\mathcal{J}\,\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel a}\ {}^{(2)}_{\bullet}\mathcal{S}\right] - 2\,\mathrm{P}_{\eta^{\parallel}}\left[{}^{3}_{\bullet}\mathcal{D}^{\parallel a}\,\mathcal{J}\right]{}^{(2)}_{\bullet}\mathcal{S} + \mathcal{J}\ {}^{(2)}_{\bullet}\mathcal{S}\ {}^{1^-}_{\bullet}\mathcal{T}^{\parallel a}\right) + $$

$$ 256\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\alpha}_{\underset{0}{\bullet}}\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}^{2}\,\mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{aa'b} + 128\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\alpha}_{\underset{0}{\bullet}}\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}^{2} $$

$$ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{aba'} - 192\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{aa'}\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(1)}_{\bullet}\mathcal{S}_{b}{}^{b'c}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{a}{}^{b}{}_{a'} + $$

$$ 192\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{aa'}\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(1)}_{\bullet}\mathcal{S}^{b'}{}_{b}{}^{c}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{a}{}^{b}{}_{a'} + 128\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}b}{}^{b'} $$

$$ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{ab'a'} + 256\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}a'}{}^{b'}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{ab'b} - $$

$$ 128\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\alpha}_{\underset{0}{\bullet}}\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}^{2}\,\mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{a'ba} - 128\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}b}{}^{b'} $$

$$ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{a'b'a} - 256\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}a}{}^{b'}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{a'b'b} + $$

$$ 128\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}a'}{}^{b'}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{bb'a} - 128\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}a}{}^{b'} $$

$$ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{aa'b}\right]{}^{(2)}_{\bullet}\mathcal{S}\ {}^{2^-}_{\bullet}\mathcal{T}^{\parallel}{}_{bb'a'} + 144\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{aa'}\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(1)}_{\bullet}\mathcal{S}_{a'}{}^{b'c}\right]{}^{(2)}_{\bullet}\mathcal{S}\left({}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{b}\,\eta^{\parallel}{}_{a}{}^{b}\right) - $$

$$ 144\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\,\mathcal{J}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{aa'}\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(1)}_{\bullet}\mathcal{S}^{b'}{}_{a'}{}^{c}\right]{}^{(2)}_{\bullet}\mathcal{S}\left({}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{b}\,\eta^{\parallel}{}_{a}{}^{b}\right) - 72\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ \eta^{\parallel}{}_{a'b}\ \mathcal{J}\ {}^{1^-}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a} $$

$$ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(1)}_{\bullet}\mathcal{S}_{a}{}^{b'c}\right]{}^{(2)}_{\bullet}\mathcal{S}\left({}^{3}_{\bullet}\mathcal{D}^{\parallel b}\ n^{a'}\right) + 72\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ \eta^{\parallel}{}_{a'b}\ \mathcal{J}\ {}^{1^-}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(1)}_{\bullet}\mathcal{S}^{b'}{}_{a}{}^{c}\right]{}^{(2)}_{\bullet}\mathcal{S}\left({}^{3}_{\bullet}\mathcal{D}^{\parallel b}\ n^{a'}\right) - $$

$$ 48\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\hat{\beta}_{\underset{3}{\bullet}}\ {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}a'b}\ \left(\mathcal{J}\left(\mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}_{a}{}^{a'b}\right] - \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{a'}{}_{a}{}^{b}\right] - 2\,\mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\bullet}\mathcal{S}^{a'b}{}_{a}\right]\right)\right){}^{(2)}_{\bullet}\mathcal{S}\ {}^{1^-}_{\bullet}\mathcal{T}^{\parallel a} + $$

$$2\,\underset{\eta^{\parallel}}{\mathrm{P}}\Big[\overset{(1)}{\cdot}\mathcal{S}^{\mathrm{a}\mathrm{a}'\mathrm{b}}\Big]\Big(2\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\Big[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{\mathrm{a}}\,\overset{(2)}{\cdot}\mathcal{S}\Big]-\underset{\eta^{\parallel}}{\mathrm{P}}\Big[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{\mathrm{a}}\mathcal{J}\Big]\,\overset{(2)}{\cdot}\mathcal{S}+\mathcal{J}\,\overset{(2)}{\cdot}\mathcal{S}\Big(\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{\mathrm{b}'}\,\eta^{\parallel}{}_{\mathrm{a}}{}^{\mathrm{b}'}\Big)\Big)\Big)+$$

$$96\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\,\mathcal{J}\,\overset{1^{+}}{\cdot}\hat{\pi}_{\mathcal{A}\mathrm{a}\mathrm{b}}\,\underset{\eta^{\parallel}}{\mathrm{P}}\Big[\overset{(1)}{\cdot}\mathcal{S}^{\mathrm{a}\mathrm{a}'\mathrm{b}}\Big]\,\overset{(2)}{\cdot}\mathcal{S}\Big(\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{\mathrm{b}'}\,\eta^{\parallel}{}_{\mathrm{a}'}{}^{\mathrm{b}'}\Big)+192\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\,\mathcal{J}\,\overset{1^{+}}{\cdot}\hat{\pi}_{\mathcal{A}\mathrm{a}\mathrm{a}'}$$

$$\underset{\eta^{\parallel}}{\mathrm{P}}\Big[\overset{(1)}{\cdot}\mathcal{S}^{\mathrm{a}\mathrm{a}'\mathrm{b}}\Big]\,\overset{(2)}{\cdot}\mathcal{S}\Big(\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{\mathrm{b}'}\,\eta^{\parallel}{}_{\mathrm{b}}{}^{\mathrm{b}'}\Big)\Big)\Bigg)\Bigg|[x^{0},\,x^{1},\,x^{2},\,x^{3}]\,dx^{3}\,dx^{2}\,dx^{1}$$

This concludes the HiGGS output.

Concrete relation to manuscript: The above constraints and Poisson brackets constitute the data represented by coloured squares in the left-hand panel of Fig. 5 in our Manuscript. The primary constraints ϕ are listed along the top row. The primary Poisson brackets $\{\phi,\ \phi\}$ are used to infer the white, red or yellow squares in the matrix depending on whether they are vanishing, or appear only in proportion to phase space variables, or are order unity (e.g. proportional to the metric or unit-timelike vector). The $\{\phi,\ \overset{0^{+}}{\cdot}\mathcal{H}_{b}\}$ Poisson brackets define the secondary constraints "χ", which appear on the sides of the matrix. Most of the Poisson brackets $\{\chi,\ \phi\}$ need not be computed (grey squares), but it can be noticed without detailed calculation that the remaining required brackets (yellow squares) do indeed arise, and that these determine all the missing velocities and so terminate the Dirac algorithm.

Healthy spectrum with multipliers

Introductory comments

We now turn to the case in which multipliers have been applied. This time we set $\underset{1}{\hat{\alpha}}$, $\underset{2}{\hat{\alpha}}$, $\underset{3}{\hat{\alpha}}$, $\underset{4}{\hat{\alpha}}$, $\underset{6}{\hat{\alpha}}$, $\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{1}{\hat{\beta}}$, $\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{2}{\hat{\beta}}$, $\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\bar{\beta}}$, to zero, and allow for nonvanishing $\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{0}{\hat{\alpha}}$, $\underset{5}{\hat{\alpha}}$ and $\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}$, but we also admit $\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{1}{\bar{\beta}}$ and $\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{2}{\bar{\beta}}$. These final two couplings switch on the multipliers in the Lagrangian.

Note this time that because some of the Lagrange multiplier fields are present, certain secondary constraints can be anticipated by HiGGS a priori: this is in accordance with the theory set out in arXiv:2205.13534.

Lists of constraints and Poisson brackets from HiGGS

We will again present the results using the ViewTheory[] command.

```
** DefTheory: Incorporating the binary at ConstraintAlgebraAlp0Alp5Bet3cBet1cBet2.thr.mx
```

```
** DefTheory: Found the following primary if-constraints:
```

$$\overset{0^{+}}{\cdot}\phi_{b}\ \equiv\ \frac{\overset{0^{+}}{\cdot}\hat{\pi}_{b}}{\mathcal{J}}+2\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{2}{\bar{\beta}}\,\overset{0^{+}}{\cdot}\lambda^{\perp}_{\mathcal{T}}\ \approx\ 0$$

$$\overset{1^-}{\cdot}\phi_{b\,i} \equiv \frac{\overset{1^-}{\cdot}\hat{\pi}_{b\,i}}{\mathcal{J}} - \frac{2}{3}\left(\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}} - \mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{2}{\cdot}}\right)\overset{1^-}{\cdot}\lambda^{\parallel}_{\mathcal{T}\,i} + \frac{2}{3}\left(2\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}} + \mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{2}{\cdot}}\right)\overset{1^-}{\cdot}\lambda^{\perp}_{\mathcal{T}\,i} \approx 0$$

$$\overset{2^+}{\cdot}\phi_{b\,i\,j} \equiv \frac{\overset{2^+}{\cdot}\hat{\pi}_{b\,i\,j}}{\mathcal{J}} + 2\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}}\,\overset{2^+}{\cdot}\lambda^{\perp}_{\mathcal{T}\,i\,j} \approx 0$$

$$\overset{0^+}{\cdot}\phi_{\mathcal{A}} \equiv 3\,\mathcal{M}_{\text{Pl}}{}^2\,\hat{\alpha}_{\underset{0}{\cdot}} + \frac{\overset{0^+}{\cdot}\hat{\pi}_{\mathcal{A}}}{\mathcal{J}} \approx 0$$

$$\overset{0^-}{\cdot}\phi_{\mathcal{A}} \equiv \frac{\overset{0^-}{\cdot}\hat{\pi}_{\mathcal{A}}}{\mathcal{J}} \approx 0$$

$$\overset{2^+}{\cdot}\phi_{\mathcal{A}\,i\,j} \equiv \frac{\overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}\,i\,j}}{\mathcal{J}} \approx 0$$

$$\overset{2^-}{\cdot}\phi_{\mathcal{A}\,i\,j\,h} \equiv \frac{2\,\overset{2^-}{\cdot}\hat{\pi}_{\mathcal{A}\,i\,j\,h}}{3\,\mathcal{J}} + \frac{\overset{2^-}{\cdot}\hat{\pi}_{\mathcal{A}\,i\,h\,j}}{3\,\mathcal{J}} - \frac{\overset{2^-}{\cdot}\hat{\pi}_{\mathcal{A}\,j\,h\,i}}{3\,\mathcal{J}} \approx 0$$

** DefTheory: Found the following primary parallel if-constraints associated with geometric multiplier momenta (if the sector is singular, the parallel constraint is taken to be the singular constraint and the identical perpendicular constraint below is dropped):

$$\overset{1^+}{\cdot}\varphi^{\parallel}_{b\,i\,j} \equiv -\frac{2}{3}\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}}\,\overset{1^+}{\cdot}\varpi^{\parallel}_{\mathcal{T}\,i\,j} + \frac{2}{3}\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}}\,\overset{1^+}{\cdot}\varpi^{\perp}_{\mathcal{T}\,i\,j} \approx 0$$

$$\overset{1^-}{\cdot}\varphi^{\parallel}_{b\,i} \equiv \frac{1}{3}\left(-\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}} - 2\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{2}{\cdot}}\right)\overset{1^-}{\cdot}\varpi^{\parallel}_{\mathcal{T}\,i} + \frac{2}{3}\left(\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}} - \mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{2}{\cdot}}\right)\overset{1^-}{\cdot}\varpi^{\perp}_{\mathcal{T}\,i} \approx 0$$

$$\overset{2^-}{\cdot}\varphi^{\parallel}_{b\,i\,j\,h} \equiv -\frac{2}{3}\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}}\,\overset{2^-}{\cdot}\varpi^{\parallel}_{\mathcal{T}\,i\,j\,h} - \frac{1}{3}\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}}\,\overset{2^-}{\cdot}\varpi^{\parallel}_{\mathcal{T}\,i\,h\,j} + \frac{1}{3}\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}}\,\overset{2^-}{\cdot}\varpi^{\parallel}_{\mathcal{T}\,j\,h\,i} \approx 0$$

** DefTheory: Found the following primary perpendicular if-constraints associated with geometric multiplier momenta:

$$\overset{0^+}{\cdot}\varphi^{\perp}_{b} \equiv 2\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{2}{\cdot}}\,\overset{0^+}{\cdot}\varpi^{\perp}_{\mathcal{T}} \approx 0$$

$$\overset{1^-}{\cdot}\varphi^{\perp}_{b\,i} \equiv -\frac{2}{3}\left(\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}} - \mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{2}{\cdot}}\right)\overset{1^-}{\cdot}\varpi^{\parallel}_{\mathcal{T}\,i} + \frac{2}{3}\left(2\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}} + \mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{2}{\cdot}}\right)\overset{1^-}{\cdot}\varpi^{\perp}_{\mathcal{T}\,i} \approx 0$$

$$\overset{2^+}{\cdot}\varphi^{\perp}_{b\,i\,j} \equiv 2\,\mathcal{M}_{\text{Pl}}{}^2\,\bar{\beta}_{\underset{1}{\cdot}}\,\overset{2^+}{\cdot}\varpi^{\perp}_{\mathcal{T}\,i\,j} \approx 0$$

** DefTheory: Found the following secondary perpendicular if-constraints:

** DefTheory: Found the following secondary parallel if-constraints:

$$\overset{1^-}{\cdot}\chi^{\parallel}_{b\,i} \equiv \overset{1^-}{\cdot}\mathcal{T}^{\parallel}{}_{i} \approx 0$$

$$\overset{2^-}{\cdot}\chi^{\parallel}_{b\,i\,j\,h} \equiv \overset{2^-}{\cdot}\mathcal{T}^{\parallel}{}_{i\,j\,h} \approx 0$$

** DefTheory: Found the following secondary singular if-constraints:

$$ {}^{1^+}\chi^{\vDash}_{\flat ij} \equiv \frac{{}^{1^+}\hat{\pi}_{\flat ij}}{\mathcal{J}} - \frac{2}{3} M_{Pl}^2 \bar{\beta}_{1}\, {}^{1^+}\lambda^{\parallel}_{\mathcal{T}\, ij} + \frac{2}{3} M_{Pl}^2 \bar{\beta}_{1}\, {}^{1^+}\lambda^{\perp}_{\mathcal{T}\, ij} + 4 M_{Pl}^2 \hat{\beta}_{3}\, {}^{1^+}\mathcal{T}^{\parallel}{}_{ij} \approx 0 $$

```
** DefTheory: Defining association key $IfConstraints
   for the theory association ConstraintAlgebraAlp0Alp5Bet3cBet1cBet2
```

```
** ViewTheory: The super-Hamiltonian is:
```

$$ {}^{0^+}\mathcal{H}_{\flat} \equiv \frac{{}^{1^-}\hat{\pi}_{\mathcal{A} a}\, {}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}}{16\, \hat{\alpha}_{5}\, \mathcal{J}} + \frac{{}^{1^+}\hat{\pi}_{\mathcal{A} ab}\, {}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{ab}}{8\, \hat{\alpha}_{5}\, \mathcal{J}} + \frac{3\, {}^{1^+}\hat{\pi}_{\flat ab}\, {}^{1^+}\hat{\pi}_{\flat}{}^{ab}}{16\, M_{Pl}^2\, \hat{\beta}_{3}\, \mathcal{J}} + \frac{{}^{1^-}\hat{\pi}_{\flat}{}^{a}\, \mathrm{P}_{\eta^{\parallel}}\left[{}^{3}\mathcal{D}^{\parallel}{}_{a}\mathcal{J}\right]}{\mathcal{J}} + \frac{M_{Pl}^2\, \hat{\alpha}_{0}\, \mathcal{J}\, {}^{0^+}\mathcal{R}^{\parallel}}{2} - $$

$$ \frac{1}{2}\, {}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\, {}^{1^-}\mathcal{R}^{\parallel}{}_{a} + {}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{ab}\, {}^{1^+}\mathcal{R}^{\parallel}{}_{ab} - \frac{M_{Pl}^2\, \bar{\beta}_{1}\, {}^{1^+}\hat{\pi}_{\flat}{}^{ab}\, {}^{1^+}\lambda^{\parallel}_{\mathcal{T}\, ab}}{4\, M_{Pl}^2\, \hat{\beta}_{3}} + \frac{M_{Pl}^2\, \bar{\beta}_{1}^{2}\, \mathcal{J}\, {}^{1^+}\lambda^{\parallel}_{\mathcal{T}\, ab}\, {}^{1^+}\lambda^{\parallel}_{\mathcal{T}}{}^{ab}}{12\, M_{Pl}^2\, \hat{\beta}_{3}} + $$

$$ \frac{M_{Pl}^2\, \bar{\beta}_{1}\, {}^{1^+}\hat{\pi}_{\flat}{}^{ab}\, {}^{1^+}\lambda^{\perp}_{\mathcal{T}\, ab}}{4\, M_{Pl}^2\, \hat{\beta}_{3}} - \frac{M_{Pl}^2\, \bar{\beta}_{1}^{2}\, \mathcal{J}\, {}^{1^+}\lambda^{\parallel}_{\mathcal{T}}{}^{ab}\, {}^{1^+}\lambda^{\perp}_{\mathcal{T}\, ab}}{6\, M_{Pl}^2\, \hat{\beta}_{3}} + \frac{M_{Pl}^2\, \bar{\beta}_{1}^{2}\, \mathcal{J}\, {}^{1^+}\lambda^{\perp}_{\mathcal{T}\, ab}\, {}^{1^+}\lambda^{\perp}_{\mathcal{T}}{}^{ab}}{12\, M_{Pl}^2\, \hat{\beta}_{3}} + \frac{1}{6} M_{Pl}^2\, \hat{\beta}_{3}\, \mathcal{J}\, {}^{0^-}\mathcal{T}^{\parallel 2} - $$

$$ {}^{1^-}\hat{\pi}_{\flat}{}^{a}\, {}^{1^-}\mathcal{T}^{\parallel}{}_{a} + \frac{1}{2}\, {}^{1^+}\hat{\pi}_{\flat}{}^{ab}\, {}^{1^+}\mathcal{T}^{\parallel}{}_{ab} - M_{Pl}^2\, \bar{\beta}_{1}\, \mathcal{J}\, {}^{1^+}\lambda^{\parallel}_{\mathcal{T}}{}^{ab}\, {}^{1^+}\mathcal{T}^{\parallel}{}_{ab} + M_{Pl}^2\, \bar{\beta}_{1}\, \mathcal{J}\, {}^{1^+}\lambda^{\perp}_{\mathcal{T}}{}^{ab}\, {}^{1^+}\mathcal{T}^{\parallel}{}_{ab} - $$

$$ n^{a}\left({}^{3}\mathcal{D}^{\parallel}{}_{b}\, {}^{1^+}\hat{\pi}_{\flat a}{}^{b}\right) - n^{a}\left({}^{3}\mathcal{D}^{\parallel}{}_{b}\, {}^{2^+}\hat{\pi}_{\flat a}{}^{b}\right) - \eta^{\parallel}{}_{ab}\left({}^{3}\mathcal{D}^{\parallel b}\, {}^{1^-}\hat{\pi}_{\flat}{}^{a}\right) + \frac{1}{3}\, \eta^{\parallel}{}_{ab}\, {}^{0^+}\hat{\pi}_{\flat}\left({}^{3}\mathcal{D}^{\parallel b} n^{a}\right) \approx 0 $$

```
** ViewTheory: The linear super-momentum is:
```

$$ {}^{1^-}\mathcal{H}_{\flat l} \equiv -\frac{1}{2}\, {}^{1^-}\hat{\pi}_{\flat}{}^{a}\, \mathrm{P}_{\eta^{\parallel}}\left[{}^{3}\mathcal{D}^{\parallel}{}_{a} n_{l}\right] + \frac{{}^{1^+}\hat{\pi}_{\flat la}\, \mathrm{P}_{\eta^{\parallel}}\left[{}^{3}\mathcal{D}^{\parallel a}\mathcal{J}\right]}{\mathcal{J}} + \frac{{}^{2^+}\hat{\pi}_{\flat la}\, \mathrm{P}_{\eta^{\parallel}}\left[{}^{3}\mathcal{D}^{\parallel a}\mathcal{J}\right]}{\mathcal{J}} - \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel aa'}\left({}^{3}\mathcal{D}^{\parallel}{}_{a'}\, {}^{1^+}\hat{\pi}_{\flat la}\right)\right] - $$

$$ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel aa'}\left({}^{3}\mathcal{D}^{\parallel}{}_{a'}\, {}^{2^+}\hat{\pi}_{\flat la}\right)\right] + \frac{{}^{0^+}\hat{\pi}_{\flat}\, \mathrm{P}_{\eta^{\parallel}}\left[{}^{3}\mathcal{D}^{\parallel}{}_{l}\mathcal{J}\right]}{3\, \mathcal{J}} - \frac{1}{3}\, \mathrm{P}_{\eta^{\parallel}}\left[{}^{3}\mathcal{D}^{\parallel}{}_{l}\, {}^{0^+}\hat{\pi}_{\flat}\right] - \frac{1}{2}\, {}^{1^-}\hat{\pi}_{\flat}{}^{a}\, \mathrm{P}_{\eta^{\parallel}}\left[{}^{3}\mathcal{D}^{\parallel}{}_{l} n_{a}\right] + \frac{1}{6}\, \epsilon^{\parallel}{}_{laa'}\, {}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{aa'}\, {}^{0^-}\mathcal{R}^{\parallel} - $$

$$ \frac{{}^{1^-}\hat{\pi}_{\mathcal{A} l}\, {}^{0^+}\mathcal{R}^{\parallel}}{6} - \frac{1}{2}\, {}^{1^+}\hat{\pi}_{\mathcal{A} la}\, {}^{1^-}\mathcal{R}^{\parallel a} - \frac{1}{2}\, {}^{2^+}\hat{\pi}_{\mathcal{A} la}\, {}^{1^-}\mathcal{R}^{\parallel a} + \frac{{}^{0^+}\hat{\pi}_{\mathcal{A}}\, {}^{1^-}\mathcal{R}^{\parallel}{}_{l}}{3} - \frac{4}{3}\, {}^{2^-}\hat{\pi}_{\mathcal{A} l}{}^{aa'}\, {}^{1^+}\mathcal{R}^{\parallel}{}_{aa'} + $$

$$ \frac{1}{6}\, \epsilon^{\parallel}{}_{laa'}\, {}^{0^-}\hat{\pi}_{\mathcal{A}}\, {}^{1^+}\mathcal{R}^{\parallel aa'} - \frac{1}{2}\, {}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\, {}^{1^+}\mathcal{R}^{\parallel}{}_{la} - \frac{4}{3}\, {}^{1^+}\hat{\pi}_{\mathcal{A}}{}^{aa'}\, {}^{2^-}\mathcal{R}^{\parallel}{}_{laa'} + \frac{4}{3}\, {}^{2^+}\hat{\pi}_{\mathcal{A}}{}^{aa'}\, {}^{2^-}\mathcal{R}^{\parallel}{}_{laa'} + $$

$$ \frac{4}{3}\, {}^{2^-}\hat{\pi}_{\mathcal{A} l}{}^{aa'}\, {}^{2^+}\mathcal{R}^{\parallel}{}_{aa'} - \frac{1}{2}\, {}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\, {}^{2^+}\mathcal{R}^{\parallel}{}_{la} + \frac{1}{6}\, \epsilon^{\parallel}{}_{laa'}\, {}^{1^+}\hat{\pi}_{\flat}{}^{aa'}\, {}^{0^-}\mathcal{T}^{\parallel} - \frac{3}{2}\, {}^{1^+}\hat{\pi}_{\flat la}\, {}^{1^-}\mathcal{T}^{\parallel a} - $$

$$ \frac{3}{2}\, {}^{2^+}\hat{\pi}_{\flat la}\, {}^{1^-}\mathcal{T}^{\parallel a} + \frac{1}{2}\, {}^{1^-}\hat{\pi}_{\flat}{}^{a}\, {}^{1^+}\mathcal{T}^{\parallel}{}_{la} - \frac{4}{3}\, {}^{1^+}\hat{\pi}_{\flat}{}^{aa'}\, {}^{2^-}\mathcal{T}^{\parallel}{}_{laa'} + \frac{4}{3}\, {}^{2^+}\hat{\pi}_{\flat}{}^{aa'}\, {}^{2^-}\mathcal{T}^{\parallel}{}_{laa'} \approx 0 $$

```
** ViewTheory: The 1+ part of the angular super-momentum is:
```

$$\overset{1^+}{\cdot}\mathcal{H}_{\mathcal{A}nm} \equiv -2\ \overset{1^+}{\cdot}\hat{\pi}_{bmn} - \frac{\epsilon^{\parallel}{}_{mna}\ \overset{0^-}{\cdot}\hat{\pi}_{\mathcal{A}}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel a}\mathcal{J}\right]}{6\mathcal{J}} + \frac{4\ \overset{2^-}{\cdot}\hat{\pi}_{\mathcal{A}mna}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel a}\mathcal{J}\right]}{3\mathcal{J}} + \frac{1}{6}\ \epsilon^{\parallel}{}_{mna}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel a}\ \overset{0^-}{\cdot}\hat{\pi}_{\mathcal{A}}\right] -$$
$$\frac{1}{2}\ \overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}na}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel a}\ n_m\right] - \frac{1}{2}\ \overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}na}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel a}\ n_m\right] + \frac{1}{2}\ \overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}ma}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel a}\ n_n\right] + \frac{1}{2}\ \overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}ma}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel a}\ n_n\right] -$$
$$\frac{4}{3}\ \underset{\eta^{\parallel}}{P}\left[\eta^{\parallel aa'}\ \left(\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a'}\ \overset{2^-}{\cdot}\hat{\pi}_{\mathcal{A}mna}\right)\right] + \frac{\overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}n}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_m\mathcal{J}\right]}{2\mathcal{J}} - \frac{1}{2}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_m\ \overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}n}\right] - \frac{1}{2}\ \overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}na}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_m\ n^a\right] -$$
$$\frac{1}{2}\ \overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}na}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_m\ n^a\right] - \frac{\overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}m}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_n\mathcal{J}\right]}{2\mathcal{J}} + \frac{1}{2}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_n\ \overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}m}\right] + \frac{1}{2}\ \overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}ma}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_n\ n^a\right] +$$
$$\frac{1}{2}\ \overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}ma}\ \underset{\eta^{\parallel}}{P}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_n\ n^a\right] + \frac{1}{6}\ \epsilon^{\parallel}{}_{mna}\ \overset{0^-}{\cdot}\hat{\pi}_{\mathcal{A}}\ \overset{1^-}{\cdot}\mathcal{T}^{\parallel a} - \frac{4}{3}\ \overset{2^-}{\cdot}\hat{\pi}_{\mathcal{A}mna}\ \overset{1^-}{\cdot}\mathcal{T}^{\parallel a} - \frac{1}{2}\ \overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}n}\ \overset{1^-}{\cdot}\mathcal{T}^{\parallel}{}_m + \frac{1}{2}\ \overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}m}\ \overset{1^-}{\cdot}\mathcal{T}^{\parallel}{}_n -$$
$$\frac{1}{2}\ \overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}n}{}^{a}\ \overset{1^+}{\cdot}\mathcal{T}^{\parallel}{}_{ma} - \frac{1}{2}\ \overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}n}{}^{a}\ \overset{1^+}{\cdot}\mathcal{T}^{\parallel}{}_{ma} - \frac{1}{3}\ \overset{0^+}{\cdot}\hat{\pi}_{\mathcal{A}}\ \overset{1^+}{\cdot}\mathcal{T}^{\parallel}{}_{mn} + \frac{1}{2}\ \overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}m}{}^{a}\ \overset{1^+}{\cdot}\mathcal{T}^{\parallel}{}_{na} + \frac{1}{2}\ \overset{2^+}{\cdot}\hat{\pi}_{\mathcal{A}m}{}^{a}\ \overset{1^+}{\cdot}\mathcal{T}^{\parallel}{}_{na} \approx 0$$

** ViewTheory: The on-shell brackets between the various if-constraints are:

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(2)}{\cdot}\mathcal{S}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\cdot}\phi_{b\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx$$
$$\iiint\frac{2\,\mathcal{M}_{Pl}{}^2\,\underset{1}{\bar{\beta}}\cdot\ \underset{\eta^{\parallel}}{P}\left[\overset{(2)}{\cdot}\mathcal{S}_a\right]\ \overset{(1)}{\cdot}\mathcal{S}\left(\overset{1^-}{\cdot}\lambda^{\parallel a}_{\mathcal{T}} - 2\ \overset{1^-}{\cdot}\lambda^{\perp a}_{\mathcal{T}}\right)}{\mathcal{J}}[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\cdot}\phi_{b\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx$$
$$\iiint\left(-\frac{6\,\mathcal{M}_{Pl}{}^2\,\underset{1}{\bar{\beta}}\cdot\ \underset{\eta^{\parallel}}{P}\left[\overset{(2)}{\cdot}\mathcal{S}^{aa'}\right]\ \overset{(1)}{\cdot}\mathcal{S}\ \overset{2^+}{\cdot}\lambda^{\perp}_{\mathcal{T}aa'}}{\mathcal{J}}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(2)}{\cdot}\mathcal{S}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx$$
$$\iiint\left(-\frac{6\,\mathcal{M}_{Pl}{}^2\,\underset{0}{\hat{\alpha}}\cdot\ \overset{(1)}{\cdot}\mathcal{S}\ \overset{(2)}{\cdot}\mathcal{S}}{\mathcal{J}}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(2)}{\cdot}\mathcal{S}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\cdot}\phi_{\mathcal{A}\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\cdot}\phi_{\mathcal{A}\,lmn}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lmn}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^+}{\cdot}\varphi^{\parallel}_{b\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_b\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0, x^1, x^2, x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\cdot}\varphi^{\parallel}_{b\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0, y^1, y^2, y^3]\,dy^3\,dy^2\,dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\phi_b\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}_{\cdot}\varphi^{\parallel}_{b\,lmn}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\phi_b\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}_{\cdot}\varphi^{\perp}_b\cdot{}^{(2)}_{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$
$$\iiint\left(12\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\bar{\beta}_{\dot{2}}{}^2\,{}^{(1)}_{\cdot}\mathcal{S}\,{}^{(2)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\phi_b\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\cdot}\varphi^{\perp}_{b\,l}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\phi_b\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}_{\cdot}\varphi^{\perp}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\phi_b\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\cdot}\chi^{\parallel}_{b\,l}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$
$$\iiint\frac{2\,{}^{(1)}_{\cdot}\mathcal{S}\left(-\mathrm{P}_{\eta^\parallel}\!\left[{}^{(2)}_{\cdot}\mathcal{S}^{a}\right]\mathrm{P}_{\eta^\parallel}\!\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\mathcal{J}\right]+\eta^{\parallel}{}_{aa'}\,\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,\mathrm{P}_{\eta^\parallel}\!\left[{}^{(2)}_{\cdot}\mathcal{S}^{a}\right]\right)\right)}{\mathcal{J}^2}[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\phi_b\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}_{\cdot}\chi^{\parallel}_{b\,lmn}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\phi_b\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^+}_{\cdot}\chi^{\models}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$
$$\iiint\frac{2\,\mathrm{P}_{\eta^\parallel}\!\left[{}^{(2)}_{\cdot}\mathcal{S}^{aa'}\right]{}^{(1)}_{\cdot}\mathcal{S}\left(\mathcal{M}_{\mathrm{Pl}}{}^2\,\bar{\beta}_{\dot{1}}\,{}^{1^+}_{\cdot}\lambda^{\parallel}_{\mathcal{T}\,aa'}-\mathcal{M}_{\mathrm{Pl}}{}^2\,\bar{\beta}_{\dot{1}}\,{}^{1^+}_{\cdot}\lambda^{\perp}_{\mathcal{T}\,aa'}-4\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{\dot{3}}\,{}^{1^+}_{\cdot}\mathcal{T}^{\parallel}{}_{aa'}\right)}{\mathcal{J}}[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\phi_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\cdot}\phi_{b\,l}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$
$$\iiint\left(-\frac{8\,\mathrm{P}_{\eta^\parallel}\!\left[{}^{(1)}_{\cdot}\mathcal{S}^{a}\right]\mathrm{P}_{\eta^\parallel}\!\left[{}^{(2)}_{\cdot}\mathcal{S}^{a'}\right]\left(\mathcal{M}_{\mathrm{Pl}}{}^2\,\bar{\beta}_{\dot{1}}\,{}^{1^+}_{\cdot}\lambda^{\parallel}_{\mathcal{T}\,aa'}-\mathcal{M}_{\mathrm{Pl}}{}^2\,\bar{\beta}_{\dot{1}}\,{}^{1^+}_{\cdot}\lambda^{\perp}_{\mathcal{T}\,aa'}+3\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\hat{\beta}_{\dot{3}}\,{}^{1^+}_{\cdot}\mathcal{T}^{\parallel}{}_{aa'}\right)}{3\,\mathcal{J}}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\phi_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}_{\cdot}\phi_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$
$$\iiint\frac{1}{6\,\mathcal{J}}\mathcal{M}_{\mathrm{Pl}}{}^2\,\bar{\beta}_{\dot{1}}\left(-8\,\mathrm{P}_{\eta^\parallel}\!\left[{}^{(1)}_{\cdot}\mathcal{S}^{a}\right]\mathrm{P}_{\eta^\parallel}\!\left[{}^{(2)}_{\cdot}\mathcal{S}^{a'b}\right]\left({}^{2^-}_{\cdot}\lambda^{\parallel}_{\mathcal{T}\,aa'b}+{}^{2^-}_{\cdot}\lambda^{\parallel}_{\mathcal{T}\,aba'}\right)+3\,\mathrm{P}_{\eta^\parallel}\!\left[{}^{(1)}_{\cdot}\mathcal{S}^{a'}\right]\left(\mathrm{P}_{\eta^\parallel}\!\left[{}^{(2)}_{\cdot}\mathcal{S}_{aa'}\right]+\mathrm{P}_{\eta^\parallel}\!\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'a}\right]\right)\right.$$
$$\left.\left({}^{1^-}_{\cdot}\lambda^{\parallel}_{\mathcal{T}}{}^{a}-2\,{}^{1^-}_{\cdot}\lambda^{\perp}_{\mathcal{T}}{}^{a}\right)-2\,\eta^{\parallel}{}_{aa'}\,\mathrm{P}_{\eta^\parallel}\!\left[{}^{(1)}_{\cdot}\mathcal{S}_{b}\right]{}^{(2)}_{\cdot}\mathcal{S}^{aa'}\left({}^{1^-}_{\cdot}\lambda^{\parallel}_{\mathcal{T}}{}^{b}-2\,{}^{1^-}_{\cdot}\lambda^{\perp}_{\mathcal{T}}{}^{b}\right)\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\phi_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}_{\cdot}\phi_{\mathcal{A}}\cdot{}^{(2)}_{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$
$$\iiint\left(-\frac{{}^{1^-}_{\cdot}\hat{\pi}_{\mathcal{A}}{}^{a}\,\mathrm{P}_{\eta^\parallel}\!\left[{}^{(1)}_{\cdot}\mathcal{S}_{a}\right]{}^{(2)}_{\cdot}\mathcal{S}}{\mathcal{J}^2}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\phi_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^-}_{\cdot}\phi_{\mathcal{A}}\cdot{}^{(2)}_{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$
$$\iiint\frac{2\,\epsilon\gamma_{aa'\,iZa1}\,{}^{1^+}_{\cdot}\hat{\pi}_{\mathcal{A}}{}^{iZa1}\,\mathrm{P}_{\eta^\parallel}\!\left[{}^{(1)}_{\cdot}\mathcal{S}^{a'}\right]{}^{(2)}_{\cdot}\mathcal{S}\,n^{a}}{\mathcal{J}^2}[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}\phi_{\flat\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}\phi_{\mathcal{A}\,lm}\cdot{}^{(2)}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{{}^{1^-}\hat{\pi}_{\mathcal{A}}{}^{a}\left(3\,\mathrm{P}_{\eta^\parallel}\left[{}^{(1)}\mathcal{S}^{a'}\right]\left(\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}_{aa'}\right]+\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}_{a'a}\right]\right)-2\,\eta^\parallel{}_{a'b}\,\mathrm{P}_{\eta^\parallel}\left[{}^{(1)}\mathcal{S}_{a}\right]\,{}^{(2)}\mathcal{S}^{a'b}\right)}{12\,\mathcal{J}^2}[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}\phi_{\flat\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}\phi_{\mathcal{A}\,lmn}\cdot{}^{(2)}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{8\,\mathcal{J}^2}\mathrm{P}_{\eta^\parallel}\left[{}^{(1)}\mathcal{S}^{a}\right]\left({}^{1^+}\hat{\pi}_{\mathcal{A}a'b}\left(-2\,\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}_{a}{}^{a'b}\right]+2\,\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}^{a'}{}_{a}{}^{b}\right]+4\,\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}^{a'b}{}_{a}\right]\right)+\right.$$
$$\left.3\,{}^{1^+}\hat{\pi}_{\mathcal{A}a}{}^{a'}\left(\mathrm{P}_{\eta^\parallel}\left[\eta^\parallel{}_{bb'}\,{}^{(2)}\mathcal{S}_{a'}{}^{bb'}\right]-\mathrm{P}_{\eta^\parallel}\left[\eta^\parallel{}_{bb'}\,{}^{(2)}\mathcal{S}^{b}{}_{a'}{}^{b'}\right]\right)\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}\phi_{\flat\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^+}\varphi^\parallel_{\flat\,lm}\cdot{}^{(2)}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}\phi_{\flat\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}\varphi^\parallel_{\flat\,l}\cdot{}^{(2)}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\left(\frac{4}{3}\left(\mathcal{M}_{\mathrm{Pl}}{}^2\,\bar{\beta}_{1}{}^2-\mathcal{M}_{\mathrm{Pl}}{}^2\,\bar{\beta}_{2}{}^2\right)\mathrm{P}_{\eta^\parallel}\left[{}^{(1)}\mathcal{S}^{a}\right]\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}_{a}\right]\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}\phi_{\flat\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}\varphi^\parallel_{\flat\,lmn}\cdot{}^{(2)}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}\phi_{\flat\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}\varphi^\perp_{\flat}\cdot{}^{(2)}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}\phi_{\flat\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}\varphi^\perp_{\flat\,l}\cdot{}^{(2)}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\left(\frac{4}{3}\left(2\,\mathcal{M}_{\mathrm{Pl}}{}^2\,\bar{\beta}_{1}{}^2+\mathcal{M}_{\mathrm{Pl}}{}^2\,\bar{\beta}_{2}{}^2\right)\mathrm{P}_{\eta^\parallel}\left[{}^{(1)}\mathcal{S}^{a}\right]\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}_{a}\right]\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}\phi_{\flat\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}\varphi^\perp_{\flat\,lm}\cdot{}^{(2)}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}\phi_{\flat\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}\chi^\parallel_{\flat\,l}\cdot{}^{(2)}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{\mathrm{P}_{\eta^\parallel}\left[{}^{(1)}\mathcal{S}^{a}\right]\left(-\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}^{a'}\right]\left(\mathrm{P}_{\eta^\parallel}\left[{}^{3}\mathcal{D}^\parallel{}_{a}\,n_{a'}\right]+\mathrm{P}_{\eta^\parallel}\left[{}^{3}\mathcal{D}^\parallel{}_{a'}\,n_{a}\right]-{}^{1^+}\mathcal{T}^\parallel{}_{aa'}\right)+2\,\eta^\parallel{}_{a'b}\,\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}_{a}\right]\left({}^{3}\mathcal{D}^{\parallel b}\,n^{a'}\right)\right)}{2\,\mathcal{J}}[x^0,x^1,x^2,x^3]$$
$$dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}\phi_{\flat\,i}\cdot{}^{(1)}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}\chi^\parallel_{\flat\,lmn}\cdot{}^{(2)}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{16\,\mathcal{J}}\mathrm{P}_{\eta^\parallel}\left[{}^{(1)}\mathcal{S}^{a}\right]\left(3\,\delta_{a'}{}^{b}\left(\mathrm{P}_{\eta^\parallel}\left[\eta^\parallel{}_{b'm}\,{}^{(2)}\mathcal{S}_{b}{}^{b'm}\right]-\mathrm{P}_{\eta^\parallel}\left[\eta^\parallel{}_{b'm}\,{}^{(2)}\mathcal{S}^{b'}{}_{b}{}^{m}\right]\right)\mathrm{P}_{\eta^\parallel}\left[{}^{3}\mathcal{D}^\parallel{}_{a}\,n^{a'}\right]-6\,\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}^{a'}{}_{a}{}^{b}\right]\mathrm{P}_{\eta^\parallel}\left[{}^{3}\mathcal{D}^\parallel{}_{a'}\,n_{b}\right]+\right.$$
$$3\,\mathrm{P}_{\eta^\parallel}\left[\eta^\parallel{}_{bb'}\,{}^{(2)}\mathcal{S}_{a'}{}^{bb'}\right]\mathrm{P}_{\eta^\parallel}\left[{}^{3}\mathcal{D}^{\parallel a'}\,n_{a}\right]-3\,\mathrm{P}_{\eta^\parallel}\left[\eta^\parallel{}_{bb'}\,{}^{(2)}\mathcal{S}^{b}{}_{a'}{}^{b'}\right]\mathrm{P}_{\eta^\parallel}\left[{}^{3}\mathcal{D}^{\parallel a'}\,n_{a}\right]-6\,\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}^{a'}{}_{a}{}^{b}\right]\mathrm{P}_{\eta^\parallel}\left[{}^{3}\mathcal{D}^\parallel{}_{b}\,n_{a'}\right]-$$
$$3\,\mathrm{P}_{\eta^\parallel}\left[\eta^\parallel{}_{bb'}\,{}^{(2)}\mathcal{S}_{a'}{}^{bb'}\right]\,{}^{1^+}\mathcal{T}^\parallel{}_{a}{}^{a'}+3\,\mathrm{P}_{\eta^\parallel}\left[\eta^\parallel{}_{bb'}\,{}^{(2)}\mathcal{S}^{b}{}_{a'}{}^{b'}\right]\,{}^{1^+}\mathcal{T}^\parallel{}_{a}{}^{a'}-2\,\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}^{a'}{}_{a}{}^{b}\right]\,{}^{1^+}\mathcal{T}^\parallel{}_{a'b}-$$
$$4\,\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}^{a'b}{}_{a}\right]\,{}^{1^+}\mathcal{T}^\parallel{}_{a'b}+2\,\mathrm{P}_{\eta^\parallel}\left[{}^{(2)}\mathcal{S}_{a}{}^{a'b}\right]\left(3\,\mathrm{P}_{\eta^\parallel}\left[{}^{3}\mathcal{D}^\parallel{}_{a'}\,n_{b}\right]+3\,\mathrm{P}_{\eta^\parallel}\left[{}^{3}\mathcal{D}^\parallel{}_{b}\,n_{a'}\right]+{}^{1^+}\mathcal{T}^\parallel{}_{a'b}\right)-$$
$$\left.6\,\eta^\parallel{}_{a'b}\,\mathrm{P}_{\eta^\parallel}\left[\eta^\parallel{}_{b'm}\,{}^{(2)}\mathcal{S}_{a}{}^{b'm}\right]\left({}^{3}\mathcal{D}^{\parallel b}\,n^{a'}\right)+6\,\eta^\parallel{}_{a'b}\,\mathrm{P}_{\eta^\parallel}\left[\eta^\parallel{}_{b'm}\,{}^{(2)}\mathcal{S}^{b'}{}_{a}{}^{m}\right]\left({}^{3}\mathcal{D}^{\parallel b}\,n^{a'}\right)\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{1^-}_{\bullet}\phi_{b\,i}\cdot{}^{(1)}_{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^+}_{\bullet}\chi^{\vDash}_{b\,lm}\cdot{}^{(2)}_{\bullet}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\begin{aligned}&\iiint\frac{1}{18\,\mathcal{J}^2}\Bigg(-36\,M_{Pl}{}^2\,\hat{\beta}_{\bullet 3}\,\delta_{a'}{}^{b}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(1)}_{\bullet}\mathcal{S}^{a}\big]\Big(\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{b}{}^{b'}\,n_{b'}\big]-\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}^{b'}{}_{b}\,n_{b'}\big]\Big)\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{a}\,n^{a'}\big]-\\
&\quad 9\,M_{Pl}{}^2\,\bar{\beta}_{\bullet 1}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(1)}_{\bullet}\mathcal{S}^{a'}\big]\Big(\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{aa'}\big]-\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{a'a}\big]\Big)\Big({}^{1^-}_{\bullet}\lambda^{\parallel}_{\mathcal{T}}{}^{a}-2\,{}^{1^-}_{\bullet}\lambda^{\perp}_{\mathcal{T}}{}^{a}\Big)+\\
&\quad 4\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(1)}_{\bullet}\mathcal{S}^{a}\big]\Bigg(18\,M_{Pl}{}^2\,\hat{\beta}_{\bullet 3}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{a}{}^{a'}\big]\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{a'}\,\mathcal{J}\big]-18\,M_{Pl}{}^2\,\hat{\beta}_{\bullet 3}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}^{a'}{}_{a}\big]\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{3}_{\bullet}\mathcal{D}^{\parallel}{}_{a'}\,\mathcal{J}\big]+\\
&\quad\quad \mathcal{J}\Big(2\,M_{Pl}{}^2\,\bar{\beta}_{\bullet 1}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}^{a'b}\big]\Big({}^{2^-}_{\bullet}\lambda^{\parallel}_{\mathcal{T}\,aa'b}-{}^{2^-}_{\bullet}\lambda^{\parallel}_{\mathcal{T}\,aba'}-2\,{}^{2^-}_{\bullet}\lambda^{\parallel}_{\mathcal{T}\,a'ba}\Big)+9\,M_{Pl}{}^2\,\hat{\beta}_{\bullet 3}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{a'}{}^{b}\,n_{b}\big]\\
&\quad\quad\quad \Big(\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{3}_{\bullet}\mathcal{D}^{\parallel a'}\,n_{a}\big]-{}^{1^+}_{\bullet}\mathcal{T}^{\parallel}{}_{a}{}^{a'}\Big)+9\,M_{Pl}{}^2\,\hat{\beta}_{\bullet 3}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}^{b}{}_{a'}\,n_{b}\big]\Big(-\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{3}_{\bullet}\mathcal{D}^{\parallel a'}\,n_{a}\big]+{}^{1^+}_{\bullet}\mathcal{T}^{\parallel}{}_{a}{}^{a'}\Big)+\\
&\quad\quad\quad 18\,M_{Pl}{}^2\,\hat{\beta}_{\bullet 3}\,\eta^{\parallel}{}_{a'b}\Big(-\Big({}^{3}_{\bullet}\mathcal{D}^{\parallel b}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{a}{}^{a'}\big]\Big)+{}^{3}_{\bullet}\mathcal{D}^{\parallel b}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}^{a'}{}_{a}\big]\Big)\Big)\Bigg)\Bigg)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1\end{aligned}$$

$$\left\{\iiint\left({}^{2^+}_{\bullet}\phi_{b\,ij}\cdot{}^{(1)}_{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}_{\bullet}\phi_{b\,lm}\cdot{}^{(2)}_{\bullet}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\begin{aligned}&\iiint\frac{1}{3\,\mathcal{J}}\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(1)}_{\bullet}\mathcal{S}^{aa'}\big]\Bigg(\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{a'}{}^{b}\big]\Big(M_{Pl}{}^2\,\bar{\beta}_{\bullet 1}\,{}^{1^+}_{\bullet}\lambda^{\parallel}_{\mathcal{T}\,ab}-M_{Pl}{}^2\,\bar{\beta}_{\bullet 1}\,{}^{1^+}_{\bullet}\lambda^{\perp}_{\mathcal{T}\,ab}-6\,M_{Pl}{}^2\,\hat{\beta}_{\bullet 3}\,{}^{1^+}_{\bullet}\mathcal{T}^{\parallel}{}_{ab}\Big)+\\
&\quad \underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}^{b}{}_{a'}\big]\Big(M_{Pl}{}^2\,\bar{\beta}_{\bullet 1}\,{}^{1^+}_{\bullet}\lambda^{\parallel}_{\mathcal{T}\,ab}-M_{Pl}{}^2\,\bar{\beta}_{\bullet 1}\,{}^{1^+}_{\bullet}\lambda^{\perp}_{\mathcal{T}\,ab}-6\,M_{Pl}{}^2\,\hat{\beta}_{\bullet 3}\,{}^{1^+}_{\bullet}\mathcal{T}^{\parallel}{}_{ab}\Big)+\Big(\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{a}{}^{b}\big]+\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}^{b}{}_{a}\big]\Big)\\
&\quad \Big(M_{Pl}{}^2\,\bar{\beta}_{\bullet 1}\,{}^{1^+}_{\bullet}\lambda^{\parallel}_{\mathcal{T}\,a'b}-M_{Pl}{}^2\,\bar{\beta}_{\bullet 1}\,{}^{1^+}_{\bullet}\lambda^{\perp}_{\mathcal{T}\,a'b}-6\,M_{Pl}{}^2\,\hat{\beta}_{\bullet 3}\,{}^{1^+}_{\bullet}\mathcal{T}^{\parallel}{}_{a'b}\Big)\Bigg)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1\end{aligned}$$

$$\left\{\iiint\left({}^{2^+}_{\bullet}\phi_{b\,ij}\cdot{}^{(1)}_{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}_{\bullet}\phi_{\mathcal{A}}\cdot{}^{(2)}_{\bullet}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^+}_{\bullet}\phi_{b\,ij}\cdot{}^{(1)}_{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^-}_{\bullet}\phi_{\mathcal{A}}\cdot{}^{(2)}_{\bullet}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^+}_{\bullet}\phi_{b\,ij}\cdot{}^{(1)}_{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}_{\bullet}\phi_{\mathcal{A}\,lm}\cdot{}^{(2)}_{\bullet}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\begin{aligned}&\iiint\frac{1}{12\,\mathcal{J}^2}\Bigg(3\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(1)}_{\bullet}\mathcal{S}^{aa'}\big]\Big(2\,M_{Pl}{}^2\,\hat{\alpha}_{\bullet 0}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{aa'}\big]+2\,M_{Pl}{}^2\,\hat{\alpha}_{\bullet 0}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{a'a}\big]+\\
&\quad\quad {}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}\,ab}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{a'}{}^{b}\big]+{}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}\,a'b}\Big(\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{a}{}^{b}\big]+\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}^{b}{}_{a}\big]\Big)+{}^{1^+}_{\bullet}\hat{\pi}_{\mathcal{A}\,ab}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}^{b}{}_{a'}\big]\Big)-\\
&\quad 4\,M_{Pl}{}^2\,\hat{\alpha}_{\bullet 0}\,\eta^{\parallel}{}_{aa'}\,\eta^{\parallel}{}_{bb'}\,\mathcal{J}\,{}^{(1)}_{\bullet}\mathcal{S}^{aa'}\,{}^{(2)}_{\bullet}\mathcal{S}^{bb'}\Bigg)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1\end{aligned}$$

$$\left\{\iiint\left({}^{2^+}_{\bullet}\phi_{b\,ij}\cdot{}^{(1)}_{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}_{\bullet}\phi_{\mathcal{A}\,lmn}\cdot{}^{(2)}_{\bullet}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\begin{aligned}&\iiint\frac{1}{32\,\mathcal{J}^2}3\,{}^{1^-}_{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\Bigg(\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(1)}_{\bullet}\mathcal{S}^{a'}{}_{a}\big]\underset{\eta^{\parallel}}{\mathrm{P}}\big[\eta^{\parallel}{}_{bb'}\,{}^{(2)}_{\bullet}\mathcal{S}_{a'}{}^{bb'}\big]+2\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(1)}_{\bullet}\mathcal{S}^{a'b}\big]\Big(\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{aa'b}\big]+\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{aba'}\big]-\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{a'ab}\big]-\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(2)}_{\bullet}\mathcal{S}_{baa'}\big]\Big)+\\
&\quad \underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(1)}_{\bullet}\mathcal{S}_{a}{}^{a'}\big]\Big(\underset{\eta^{\parallel}}{\mathrm{P}}\big[\eta^{\parallel}{}_{bb'}\,{}^{(2)}_{\bullet}\mathcal{S}_{a'}{}^{bb'}\big]-\underset{\eta^{\parallel}}{\mathrm{P}}\big[\eta^{\parallel}{}_{bb'}\,{}^{(2)}_{\bullet}\mathcal{S}^{b}{}_{a'}{}^{b'}\big]\Big)-\underset{\eta^{\parallel}}{\mathrm{P}}\big[{}^{(1)}_{\bullet}\mathcal{S}^{a'}{}_{a}\big]\underset{\eta^{\parallel}}{\mathrm{P}}\big[\eta^{\parallel}{}_{bb'}\,{}^{(2)}_{\bullet}\mathcal{S}^{b}{}_{a'}{}^{b'}\big]-\\
&\quad 2\,\eta^{\parallel}{}_{a'b}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[\eta^{\parallel}{}_{b'c}\,{}^{(2)}_{\bullet}\mathcal{S}_{a}{}^{b'c}\big]\,{}^{(1)}_{\bullet}\mathcal{S}^{a'b}+2\,\eta^{\parallel}{}_{a'b}\,\underset{\eta^{\parallel}}{\mathrm{P}}\big[\eta^{\parallel}{}_{b'c}\,{}^{(2)}_{\bullet}\mathcal{S}^{b'}{}_{a}{}^{c}\big]\,{}^{(1)}_{\bullet}\mathcal{S}^{a'b}\Bigg)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1\end{aligned}$$

$$\left\{\iiint\left({}^{2^+}_{\bullet}\phi_{b\,ij}\cdot{}^{(1)}_{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^+}_{\bullet}\varphi^{\parallel}_{b\,lm}\cdot{}^{(2)}_{\bullet}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^+}_{\bullet}\phi_{b\,ij}\cdot{}^{(1)}_{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\bullet}\varphi^{\parallel}_{b\,l}\cdot{}^{(2)}_{\bullet}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{2^{+}}{\cdot}\phi_{\flat\,ij}\cdot\overset{(1)}{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^{-}}{\cdot}\varphi^{\parallel}_{\flat\,lmn}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{2^{+}}{\cdot}\phi_{\flat\,ij}\cdot\overset{(1)}{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^{+}}{\cdot}\varphi^{\perp}_{\flat}\cdot\overset{(2)}{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{2^{+}}{\cdot}\phi_{\flat\,ij}\cdot\overset{(1)}{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^{-}}{\cdot}\varphi^{\perp}_{\flat\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{2^{+}}{\cdot}\phi_{\flat\,ij}\cdot\overset{(1)}{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^{+}}{\cdot}\varphi^{\perp}_{\flat\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\left(\frac{2}{3}\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\bar{\beta}_{\underset{1}{\cdot}}{}^{2}\left(3\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\cdot}\mathcal{S}^{aa'}\right]\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{aa'}\right]+\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{a'a}\right]\right)-2\,\eta^{\parallel}{}_{aa'}\,\eta^{\parallel}{}_{bb'}\,\overset{(1)}{\cdot}\mathcal{S}^{aa'}\,\overset{(2)}{\cdot}\mathcal{S}^{bb'}\right)\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{2^{+}}{\cdot}\phi_{\flat\,ij}\cdot\overset{(1)}{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^{-}}{\cdot}\chi^{\parallel}_{\flat\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{6\,\mathcal{J}^2}\left(3\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\cdot}\mathcal{S}^{ab}\right]\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a}\mathcal{J}\right]+\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{a}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b}\mathcal{J}\right]-\mathcal{J}\left(\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b}\right]+\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{a}\right]\right)\right)+\right.$$

$$\left.2\,\eta^{\parallel}{}_{ab}\,\overset{(1)}{\cdot}\mathcal{S}^{ab}\left(-\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{a'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a'}\mathcal{J}\right]+\eta^{\parallel}{}_{a'b'}\,\mathcal{J}\left(\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{a'}\right]\right)\right)\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{2^{+}}{\cdot}\phi_{\flat\,ij}\cdot\overset{(1)}{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^{-}}{\cdot}\chi^{\parallel}_{\flat\,lmn}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{96\,\mathcal{J}^2}\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(1)}{\cdot}\mathcal{S}^{ab}\right]\left(-18\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{b'c}\,\overset{(2)}{\cdot}\mathcal{S}_{b}{}^{b'c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a}\mathcal{J}\right]+18\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{b'c}\,\overset{(2)}{\cdot}\mathcal{S}^{b'}{}_{b}{}^{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a}\mathcal{J}\right]+27\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{bc}{}^{c'}\,n_{c'}\right]\right.\right.$$

$$\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a}n^{b'}\right]+9\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b}{}^{c'}{}_{c}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a}n^{b'}\right]-27\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{cb}{}^{c'}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a}n^{b'}\right]-$$

$$18\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{c}{}^{c'}{}_{b}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a}n^{b'}\right]-9\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{c'}{}_{bc}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a}n^{b'}\right]+$$

$$18\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{c'}{}_{cb}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{a}n^{b'}\right]-18\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{b'c}\,\overset{(2)}{\cdot}\mathcal{S}_{a}{}^{b'c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b}\mathcal{J}\right]+18\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{b'c}\,\overset{(2)}{\cdot}\mathcal{S}^{b'}{}_{a}{}^{c}\right]$$

$$\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b}\mathcal{J}\right]+27\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{ac}{}^{c'}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b}n^{b'}\right]+9\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{a}{}^{c'}{}_{c}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b}n^{b'}\right]-$$

$$27\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{ca}{}^{c'}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b}n^{b'}\right]-18\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{c}{}^{c'}{}_{a}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b}n^{b'}\right]-$$

$$9\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{c'}{}_{ac}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b}n^{b'}\right]+18\,\delta_{b'}{}^{c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{c'}{}_{ca}\,n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b}n^{b'}\right]+$$

$$36\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{a}{}^{b'}{}_{b}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b'}\mathcal{J}\right]+36\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b}{}^{b'}{}_{a}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b'}\mathcal{J}\right]-36\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{b'}{}_{ab}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b'}\mathcal{J}\right]-$$

$$36\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{b'}{}_{ba}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel}{}_{b'}\mathcal{J}\right]-27\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{bb'}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{a}\right]-9\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b}{}^{c}{}_{b'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{a}\right]+$$

$$27\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b'b}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{a}\right]+18\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b'}{}^{c}{}_{b}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{a}\right]+9\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{c}{}_{bb'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{a}\right]-$$

$$18\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{c}{}_{b'b}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{a}\right]-27\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{ab'}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{b}\right]-9\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{a}{}^{c}{}_{b'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{b}\right]+$$

$$27\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b'a}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{b}\right]+18\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b'}{}^{c}{}_{a}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{b}\right]+9\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{c}{}_{ab'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{b}\right]-$$

$$18\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{c}{}_{b'a}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{3}{\cdot}\mathcal{D}^{\parallel b'}\,n_{b}\right]-4\,\epsilon^{\parallel}{}_{bb'c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{a}{}^{b'c}\right]\overset{0^{-}}{\cdot}\mathcal{T}^{\parallel}-4\,\epsilon^{\parallel}{}_{ab'c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b}{}^{b'c}\right]\overset{0^{-}}{\cdot}\mathcal{T}^{\parallel}+$$

$$4\,\epsilon^{\parallel}{}_{bb'c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{b'}{}_{a}{}^{c}\right]\overset{0^{-}}{\cdot}\mathcal{T}^{\parallel}+4\,\epsilon^{\parallel}{}_{ab'c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{b'}{}_{b}{}^{c}\right]\overset{0^{-}}{\cdot}\mathcal{T}^{\parallel}+8\,\epsilon^{\parallel}{}_{bb'c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{b'c}{}_{a}\right]\overset{0^{-}}{\cdot}\mathcal{T}^{\parallel}+$$

$$8\,\epsilon^{\parallel}{}_{ab'c}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{b'c}{}_{b}\right]\overset{0^{-}}{\cdot}\mathcal{T}^{\parallel}+27\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{bb'}{}^{c}\,n_{c}\right]\overset{1^{+}}{\cdot}\mathcal{T}^{\parallel}{}_{a}{}^{b'}+9\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}_{b}{}^{c}{}_{b'}\,n_{c}\right]\overset{1^{+}}{\cdot}\mathcal{T}^{\parallel}{}_{a}{}^{b'}-$$

$$27\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{b'b}{}^{c}\;n_{c}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{a}{}^{b'}-18\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{b'}{}^{c}{}_{b}\;n_{c}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{a}{}^{b'}-9\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{c}{}_{bb'}\;n_{c}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{a}{}^{b'}+$$

$$18\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{c}{}_{b'b}\;n_{c}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{a}{}^{b'}+27\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{ab'}{}^{c}\;n_{c}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{b}{}^{b'}+9\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{a}{}^{c}{}_{b'}\;n_{c}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{b}{}^{b'}-$$

$$27\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{b'a}{}^{c}\;n_{c}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{b}{}^{b'}-18\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{b'}{}^{c}{}_{a}\;n_{c}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{b}{}^{b'}-9\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{c}{}_{ab'}\;n_{c}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{b}{}^{b'}+$$

$$18\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{c}{}_{b'a}\;n_{c}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{b}{}^{b'}+18\;\eta^{\parallel}{}_{b'c}\;\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{b}{}^{b'c}\right]\right)-18\;\eta^{\parallel}{}_{b'c}\;\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{b'}{}_{b}{}^{c}\right]\right)+$$

$$18\;\eta^{\parallel}{}_{b'c}\;\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{a}{}^{b'c}\right]\right)-18\;\eta^{\parallel}{}_{b'c}\;\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{b'}{}_{a}{}^{c}\right]\right)-36\;\eta^{\parallel}{}_{b'c}\;\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel c}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{a}{}^{b'}{}_{b}\right]\right)-$$

$$36\;\eta^{\parallel}{}_{b'c}\;\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel c}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{b}{}^{b'}{}_{a}\right]\right)+36\;\eta^{\parallel}{}_{b'c}\;\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel c}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{b'}{}_{ab}\right]\right)+36\;\eta^{\parallel}{}_{b'c}\;\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel c}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{b'}{}_{ba}\right]\right)\Bigg)+$$

$$18\;\eta^{\parallel}{}_{ab}\;\;{}^{(1)}_{\;\cdot}\mathcal{S}^{ab}\;\Bigg(2\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{cc'}\;\;{}^{(2)}_{\;\cdot}\mathcal{S}_{b'}{}^{cc'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel b'}\;\mathcal{J}\right]-2\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{cc'}\;\;{}^{(2)}_{\;\cdot}\mathcal{S}^{c}{}_{b'}{}^{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel b'}\;\mathcal{J}\right]+$$

$$\mathcal{J}\Bigg(\delta_{b'}{}^{c'}\left(-\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{a'}{}_{cc'}\;n_{a'}\right]-\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{a'}{}_{c'c}\;n_{a'}\right]+\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{c}{}^{a'}{}_{c'}\;n_{a'}\right]+\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{c'}{}^{a'}{}_{c}\;n_{a'}\right]\right)\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel c}\,n^{b'}\right]-$$

$$2\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{cb'}{}^{c'}\;n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel c}\,n^{b'}\right]-2\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{c}{}^{c'}{}_{b'}\;n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel c}\,n^{b'}\right]+2\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{c'}{}_{cb'}\;n_{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel c}\,n^{b'}\right]-$$

$$2\left(\eta^{\parallel}{}_{a'b}\;\;{}^{(2)}_{\;\cdot}\mathcal{S}^{aa'b}\;\;n_{a}\right)\left(\eta^{\parallel}{}_{aa'}\;\;\left({}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\;n^{a}\right)\right)+2\left(\eta^{\parallel}{}_{ab}\;\;{}^{(2)}_{\;\cdot}\mathcal{S}^{aa'b}\;\;n_{a'}\right)\left(\eta^{\parallel}{}_{aa'}\;\;\left({}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\;n^{a}\right)\right)+$$

$$2\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{b'c}{}^{c'}\;n_{c'}\right]\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel c}\,n^{b'}\right]-{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel b'c}\right)-\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{b'}{}^{c'}{}_{c}\;n_{c'}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel b'c}+\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{c'}{}_{b'c}\;n_{c'}\right]\,{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel b'c}+2$$

$$\eta^{\parallel}{}_{b'c'}\;\;\eta^{\parallel}{}_{ca'}\;\left({}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\;\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{b'cc'}\right]\right)-2\;\eta^{\parallel}{}_{b'a'}\;\;\eta^{\parallel}{}_{cc'}\;\left({}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\;\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{b'cc'}\right]\right)+2\;\eta^{\parallel}{}_{a'd}\;\;\eta^{\parallel}{}_{cc'}\;\;{}^{(2)}_{\;\cdot}\mathcal{S}^{b'cc'}$$

$$n_{b'}\;\left({}^{3}_{\cdot}\mathcal{D}^{\parallel d}\;n^{a'}\right)-2\;\eta^{\parallel}{}_{a'd}\;\;\eta^{\parallel}{}_{b'c'}\;\;{}^{(2)}_{\;\cdot}\mathcal{S}^{b'cc'}\;\;n_{c}\;\left({}^{3}_{\cdot}\mathcal{D}^{\parallel d}\;n^{a'}\right)\Bigg)\Bigg)\Bigg)\Bigg)[x^0,\,x^1,\,x^2,\,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{2^+}_{\;\cdot}\phi_{b\,ij}\;\cdot\;{}^{(1)}_{\;\cdot}\mathcal{S}^{ij}\right)[x^0,\,x^1,\,x^2,\,x^3]\,dx^3\,dx^2\,dx^1,\;\iiint\left({}^{1^+}_{\;\cdot}\chi^{\vDash}_{b\,lm}\;\cdot\;{}^{(2)}_{\;\cdot}\mathcal{S}^{lm}\right)[x^0,\,y^1,\,y^2,\,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\Bigg(-\frac{1}{3\,\mathcal{J}}\Bigg(3\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\;\cdot}\mathcal{S}^{aa'}\right]\Bigg(\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{a'}{}^{b}\right]\left(\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,n_{b}\right]+\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b}\,n_{a}\right]+\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{1}{\bar{\beta}}\;{}^{2^+}_{\;\cdot}\lambda^{\perp}_{\mathcal{T}\,ab}-\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\;{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{ab}\right)-$$

$$\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{b}{}_{a'}\right]\left(\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,n_{b}\right]+\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b}\,n_{a}\right]+\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{1}{\bar{\beta}}\;{}^{2^+}_{\;\cdot}\lambda^{\perp}_{\mathcal{T}\,ab}-\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\;{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{ab}\right)+$$

$$\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}_{a}{}^{b}\right]-\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{b}{}_{a}\right]\right)\Bigg(\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\,n_{b}\right]+\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b}\,n_{a'}\right]+\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{1}{\bar{\beta}}\;{}^{2^+}_{\;\cdot}\lambda^{\perp}_{\mathcal{T}\,a'b}-\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}$$

$${}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{a'b}\Bigg)\Bigg)+4\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{3}{\hat{\beta}}\;\eta^{\parallel}{}_{aa'}\;\;\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\;\cdot}\mathcal{S}^{bb'}\right]\;{}^{(1)}_{\;\cdot}\mathcal{S}^{aa'}\;\;{}^{1^+}_{\;\cdot}\mathcal{T}^{\parallel}{}_{bb'}\Bigg)\Bigg)[x^0,\,x^1,\,x^2,\,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{0^+}_{\;\cdot}\phi_{\mathcal{A}}\cdot{}^{(1)}_{\;\cdot}\mathcal{S}\right)[x^0,\,x^1,\,x^2,\,x^3]\,dx^3\,dx^2\,dx^1,\;\iiint\left({}^{0^+}_{\;\cdot}\phi_{\mathcal{A}}\cdot{}^{(2)}_{\;\cdot}\mathcal{S}\right)[x^0,\,y^1,\,y^2,\,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\;\cdot}\phi_{\mathcal{A}}\cdot{}^{(1)}_{\;\cdot}\mathcal{S}\right)[x^0,\,x^1,\,x^2,\,x^3]\,dx^3\,dx^2\,dx^1,\;\iiint\left({}^{0^-}_{\;\cdot}\phi_{\mathcal{A}}\cdot{}^{(2)}_{\;\cdot}\mathcal{S}\right)[x^0,\,y^1,\,y^2,\,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\;\cdot}\phi_{\mathcal{A}}\cdot{}^{(1)}_{\;\cdot}\mathcal{S}\right)[x^0,\,x^1,\,x^2,\,x^3]\,dx^3\,dx^2\,dx^1,\;\iiint\left({}^{2^+}_{\;\cdot}\phi_{\mathcal{A}\,lm}\;\cdot\;{}^{(2)}_{\;\cdot}\mathcal{S}^{lm}\right)[x^0,\,y^1,\,y^2,\,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\;\cdot}\phi_{\mathcal{A}}\cdot{}^{(1)}_{\;\cdot}\mathcal{S}\right)[x^0,\,x^1,\,x^2,\,x^3]\,dx^3\,dx^2\,dx^1,\;\iiint\left({}^{2^-}_{\;\cdot}\phi_{\mathcal{A}\,lmn}\;\cdot\;{}^{(2)}_{\;\cdot}\mathcal{S}^{lmn}\right)[x^0,\,y^1,\,y^2,\,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\;\cdot}\phi_{\mathcal{A}}\cdot{}^{(1)}_{\;\cdot}\mathcal{S}\right)[x^0,\,x^1,\,x^2,\,x^3]\,dx^3\,dx^2\,dx^1,\;\iiint\left({}^{1^+}_{\;\cdot}\varphi^{\parallel}_{b\,lm}\;\cdot\;{}^{(2)}_{\;\cdot}\mathcal{S}^{lm}\right)[x^0,\,y^1,\,y^2,\,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\;\cdot}\phi_{\mathcal{A}}\cdot{}^{(1)}_{\;\cdot}\mathcal{S}\right)[x^0,\,x^1,\,x^2,\,x^3]\,dx^3\,dx^2\,dx^1,\;\iiint\left({}^{1^-}_{\;\cdot}\varphi^{\parallel}_{b\,l}\;\cdot\;{}^{(2)}_{\;\cdot}\mathcal{S}^{l}\right)[x^0,\,y^1,\,y^2,\,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\cdot}\varphi^{\parallel}_{b\,lmn}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\cdot}\varphi^{\perp}_{b}\cdot\overset{(2)}{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\cdot}\varphi^{\perp}_{b\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\cdot}\varphi^{\perp}_{b\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\cdot}\chi^{\parallel}_{b\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\cdot}\chi^{\parallel}_{b\,lmn}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^+}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^+}{\cdot}\chi^{\perp}_{b\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{\overset{1^+}{\cdot}\hat{\pi}_{\mathcal{A}\,aa'}\ \underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{aa'}\right]\overset{(1)}{\cdot}\mathcal{S}}{\mathcal{J}^2}[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(2)}{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\cdot}\phi_{\mathcal{A}\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\cdot}\phi_{\mathcal{A}\,lmn}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^+}{\cdot}\varphi^{\parallel}_{b\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\cdot}\varphi^{\parallel}_{b\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\cdot}\varphi^{\parallel}_{b\,lmn}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\cdot}\varphi^{\perp}_{b}\cdot\overset{(2)}{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\cdot}\varphi^{\perp}_{b\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\cdot}\varphi^{\perp}_{b\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\cdot}\chi^{\parallel}_{b\,l}\cdot\overset{(2)}{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\cdot}\chi^{\parallel}_{b\,lmn}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{0^-}{\cdot}\phi_{\mathcal{A}}\cdot\overset{(1)}{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^+}{\cdot}\chi^{\perp}_{b\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{\epsilon\gamma_{aa'lm}\ \overset{1^-}{\cdot}\hat{\pi}_{\mathcal{A}}{}^{a}\ \underset{\eta^{\parallel}}{\mathrm{P}}\left[\overset{(2)}{\cdot}\mathcal{S}^{lm}\right]\overset{(1)}{\cdot}\mathcal{S}\ n^{a'}}{\mathcal{J}^2}[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{2^+}{\cdot}\phi_{\mathcal{A}\,ij}\cdot\overset{(1)}{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\cdot}\phi_{\mathcal{A}\,lm}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{2^+}{\cdot}\phi_{\mathcal{A}\,ij}\cdot\overset{(1)}{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\cdot}\phi_{\mathcal{A}\,lmn}\cdot\overset{(2)}{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^{+}}_{\cdot}\phi_{\mathcal{A}\,ij} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{1^{+}}_{\cdot}\varphi^{\parallel}_{b\,lm} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{+}}_{\cdot}\phi_{\mathcal{A}\,ij} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{1^{-}}_{\cdot}\varphi^{\parallel}_{b\,l} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{+}}_{\cdot}\phi_{\mathcal{A}\,ij} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{2^{-}}_{\cdot}\varphi^{\parallel}_{b\,lmn} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{+}}_{\cdot}\phi_{\mathcal{A}\,ij} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{0^{+}}_{\cdot}\varphi^{\perp}_{b} \cdot {}^{(2)}_{\cdot}\mathcal{S}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{+}}_{\cdot}\phi_{\mathcal{A}\,ij} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{1^{-}}_{\cdot}\varphi^{\perp}_{b\,l} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{+}}_{\cdot}\phi_{\mathcal{A}\,ij} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{2^{+}}_{\cdot}\varphi^{\perp}_{b\,lm} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{+}}_{\cdot}\phi_{\mathcal{A}\,ij} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{1^{-}}_{\cdot}\chi^{\parallel}_{b\,l} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{+}}_{\cdot}\phi_{\mathcal{A}\,ij} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{2^{-}}_{\cdot}\chi^{\parallel}_{b\,lmn} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{+}}_{\cdot}\phi_{\mathcal{A}\,ij} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{1^{+}}_{\cdot}\chi^{\models}_{b\,lm} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx$$

$$\iiint\frac{1}{12\mathcal{J}^2}\Bigg(3\ {}^{1^{+}}_{\cdot}\hat{\pi}_{\mathcal{A}\,a'b}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'}\right]\left(\mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a}{}^{b}\right]-\mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{b}{}_{a}\right]\right)+3\ {}^{1^{+}}_{\cdot}\hat{\pi}_{\mathcal{A}\,ab}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'}\right]\left(\mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'}{}^{b}\right]-\mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{b}{}_{a'}\right]\right)-$$

$$4\ \eta^{\parallel}{}_{aa'}\ {}^{1^{+}}_{\cdot}\hat{\pi}_{\mathcal{A}\,bb'}\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{bb'}\right]\ {}^{(1)}_{\cdot}\mathcal{S}^{aa'}\Bigg)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1$$

$$\left\{\iiint\left({}^{2^{-}}_{\cdot}\phi_{\mathcal{A}\,ij\hbar} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{2^{-}}_{\cdot}\phi_{\mathcal{A}\,lmn} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{-}}_{\cdot}\phi_{\mathcal{A}\,ij\hbar} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{1^{+}}_{\cdot}\varphi^{\parallel}_{b\,lm} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{-}}_{\cdot}\phi_{\mathcal{A}\,ij\hbar} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{1^{-}}_{\cdot}\varphi^{\parallel}_{b\,l} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{-}}_{\cdot}\phi_{\mathcal{A}\,ij\hbar} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{2^{-}}_{\cdot}\varphi^{\parallel}_{b\,lmn} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{-}}_{\cdot}\phi_{\mathcal{A}\,ij\hbar} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{0^{+}}_{\cdot}\varphi^{\perp}_{b} \cdot {}^{(2)}_{\cdot}\mathcal{S}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{-}}_{\cdot}\phi_{\mathcal{A}\,ij\hbar} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{1^{-}}_{\cdot}\varphi^{\perp}_{b\,l} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{-}}_{\cdot}\phi_{\mathcal{A}\,ij\hbar} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{2^{+}}_{\cdot}\varphi^{\perp}_{b\,lm} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{-}}_{\cdot}\phi_{\mathcal{A}\,ij\hbar} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{1^{-}}_{\cdot}\chi^{\parallel}_{b\,l} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx 0$$

$$\left\{\iiint\left({}^{2^{-}}_{\cdot}\phi_{\mathcal{A}\,ij\hbar} \cdot {}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1,\ \iiint\left({}^{2^{-}}_{\cdot}\chi^{\parallel}_{b\,lmn} \cdot {}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0, y^1, y^2, y^3]\, dy^3\, dy^2\, dy^1\right\} \approx$$

$$\iiint\frac{1}{32\mathcal{J}}\Bigg(-6\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b}\right]\left(2\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{aa'b}\right]+\mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{aba'}\right]-2\ \mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'ab}\right]-\mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'ba}\right]-\mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{baa'}\right]+\mathrm{P}_{\eta^{\parallel}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{ba'a}\right]\right)+$$

$$9\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{a'b}\ {}^{(1)}_{\cdot}\mathcal{S}^{aa'b}\right]\left(\mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(2)}_{\cdot}\mathcal{S}_{a}{}^{b'c}\right]-\mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(2)}_{\cdot}\mathcal{S}^{b'}{}_{a}{}^{c}\right]\right)+$$

$$9\ \mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{ab}\ {}^{(1)}_{\cdot}\mathcal{S}^{aa'b}\right]\left(-\mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(2)}_{\cdot}\mathcal{S}_{a'}{}^{b'c}\right]+\mathrm{P}_{\eta^{\parallel}}\left[\eta^{\parallel}{}_{b'c}\ {}^{(2)}_{\cdot}\mathcal{S}^{b'}{}_{a'}{}^{c}\right]\right)\Bigg)[x^0, x^1, x^2, x^3]\, dx^3\, dx^2\, dx^1$$

$$\left\{\iiint\left(\overset{2^-}{\bullet}\phi_{\mathcal{A}\,ij\hbar}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij\hbar}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^+}{\bullet}\chi^{\vDash}_{b\,lm}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{32\,\mathcal{J}^2}\,\overset{1^-}{\bullet}\hat{\pi}_{\mathcal{A}}{}^{a}\left(-3\,\underset{\eta^\parallel}{P}\left[\eta^\parallel{}_{bb'}\ \overset{(1)}{\bullet}\mathcal{S}_{a'}{}^{bb'}\right]\left(\underset{\eta^\parallel}{P}\left[\overset{(2)}{\bullet}\mathcal{S}_{a}{}^{a'}\right]-\underset{\eta^\parallel}{P}\left[\overset{(2)}{\bullet}\mathcal{S}^{a'}{}_{a}\right]\right)+3\,\underset{\eta^\parallel}{P}\left[\eta^\parallel{}_{bb'}\ \overset{(1)}{\bullet}\mathcal{S}^{b}{}_{a'}{}^{b'}\right]\left(\underset{\eta^\parallel}{P}\left[\overset{(2)}{\bullet}\mathcal{S}_{a}{}^{a'}\right]-\underset{\eta^\parallel}{P}\left[\overset{(2)}{\bullet}\mathcal{S}^{a'}{}_{a}\right]\right)+2\left(\underset{\eta^\parallel}{P}\left[\overset{(1)}{\bullet}\mathcal{S}_{a}{}^{a'b}\right]-\underset{\eta^\parallel}{P}\left[\overset{(1)}{\bullet}\mathcal{S}^{a'}{}_{a}{}^{b}\right]-2\,\underset{\eta^\parallel}{P}\left[\overset{(1)}{\bullet}\mathcal{S}^{a'b}{}_{a}\right]\right)\left(\underset{\eta^\parallel}{P}\left[\overset{(2)}{\bullet}\mathcal{S}_{a'b}\right]-\underset{\eta^\parallel}{P}\left[\overset{(2)}{\bullet}\mathcal{S}_{ba'}\right]\right)\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{1^+}{\bullet}\varphi^{\parallel}_{b\,ij}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^+}{\bullet}\varphi^{\parallel}_{b\,lm}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^+}{\bullet}\varphi^{\parallel}_{b\,ij}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\bullet}\varphi^{\parallel}_{b\,l}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^+}{\bullet}\varphi^{\parallel}_{b\,ij}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\bullet}\varphi^{\parallel}_{b\,lmn}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^+}{\bullet}\varphi^{\parallel}_{b\,ij}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\bullet}\varphi^{\perp}_{b}\cdot\overset{(2)}{\bullet}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^+}{\bullet}\varphi^{\parallel}_{b\,ij}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\bullet}\varphi^{\perp}_{b\,l}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^+}{\bullet}\varphi^{\parallel}_{b\,ij}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\bullet}\varphi^{\perp}_{b\,lm}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^+}{\bullet}\varphi^{\parallel}_{b\,ij}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\bullet}\chi^{\parallel}_{b\,l}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^+}{\bullet}\varphi^{\parallel}_{b\,ij}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\bullet}\chi^{\parallel}_{b\,lmn}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^+}{\bullet}\varphi^{\parallel}_{b\,ij}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^+}{\bullet}\chi^{\vDash}_{b\,lm}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\left(\frac{2}{3}\,\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\underset{1}{\bar{\beta}_{\bullet}}{}^{2}\,\underset{\eta^\parallel}{P}\left[\overset{(1)}{\bullet}\mathcal{S}^{aa'}\right]\left(-\underset{\eta^\parallel}{P}\left[\overset{(2)}{\bullet}\mathcal{S}_{aa'}\right]+\underset{\eta^\parallel}{P}\left[\overset{(2)}{\bullet}\mathcal{S}_{a'a}\right]\right)\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\varphi^{\parallel}_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\bullet}\varphi^{\parallel}_{b\,l}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\varphi^{\parallel}_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\bullet}\varphi^{\parallel}_{b\,lmn}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\varphi^{\parallel}_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\bullet}\varphi^{\perp}_{b}\cdot\overset{(2)}{\bullet}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\varphi^{\parallel}_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\bullet}\varphi^{\perp}_{b\,l}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\varphi^{\parallel}_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^+}{\bullet}\varphi^{\perp}_{b\,lm}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\varphi^{\parallel}_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\bullet}\chi^{\parallel}_{b\,l}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\varphi^{\parallel}_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\bullet}\chi^{\parallel}_{b\,lmn}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{1^-}{\bullet}\varphi^{\parallel}_{b\,i}\cdot\overset{(1)}{\bullet}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^+}{\bullet}\chi^{\vDash}_{b\,lm}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{2^-}{\bullet}\varphi^{\parallel}_{b\,ij\hbar}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij\hbar}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{2^-}{\bullet}\varphi^{\parallel}_{b\,lmn}\cdot\overset{(2)}{\bullet}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{2^-}{\bullet}\varphi^{\parallel}_{b\,ij\hbar}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij\hbar}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{0^+}{\bullet}\varphi^{\perp}_{b}\cdot\overset{(2)}{\bullet}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left(\overset{2^-}{\bullet}\varphi^{\parallel}_{b\,ij\hbar}\cdot\overset{(1)}{\bullet}\mathcal{S}^{ij\hbar}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left(\overset{1^-}{\bullet}\varphi^{\perp}_{b\,l}\cdot\overset{(2)}{\bullet}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^-}_{\cdot}\varphi^{\parallel}_{b\,ij\hbar}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}_{\cdot}\varphi^{\perp}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^-}_{\cdot}\varphi^{\parallel}_{b\,ij\hbar}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\cdot}\chi^{\parallel}_{b\,l}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^-}_{\cdot}\varphi^{\parallel}_{b\,ij\hbar}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}_{\cdot}\chi^{\parallel}_{b\,lmn}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^-}_{\cdot}\varphi^{\parallel}_{b\,ij\hbar}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ij\hbar}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^+}_{\cdot}\chi^{\vDash}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\varphi^{\perp}_{b}\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{0^+}_{\cdot}\varphi^{\perp}_{b}\cdot{}^{(2)}_{\cdot}\mathcal{S}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\varphi^{\perp}_{b}\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\cdot}\varphi^{\perp}_{b\,l}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\varphi^{\perp}_{b}\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}_{\cdot}\varphi^{\perp}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\varphi^{\perp}_{b}\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\cdot}\chi^{\parallel}_{b\,l}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\varphi^{\perp}_{b}\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}_{\cdot}\chi^{\parallel}_{b\,lmn}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{0^+}_{\cdot}\varphi^{\perp}_{b}\cdot{}^{(1)}_{\cdot}\mathcal{S}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^+}_{\cdot}\chi^{\vDash}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\varphi^{\perp}_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\cdot}\varphi^{\perp}_{b\,l}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\varphi^{\perp}_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}_{\cdot}\varphi^{\perp}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\varphi^{\perp}_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\cdot}\chi^{\parallel}_{b\,l}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\varphi^{\perp}_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}_{\cdot}\chi^{\parallel}_{b\,lmn}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\varphi^{\perp}_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^+}_{\cdot}\chi^{\vDash}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^+}_{\cdot}\varphi^{\perp}_{b\,ij}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^+}_{\cdot}\varphi^{\perp}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^+}_{\cdot}\varphi^{\perp}_{b\,ij}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\cdot}\chi^{\parallel}_{b\,l}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^+}_{\cdot}\varphi^{\perp}_{b\,ij}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}_{\cdot}\chi^{\parallel}_{b\,lmn}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^+}_{\cdot}\varphi^{\perp}_{b\,ij}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^+}_{\cdot}\chi^{\vDash}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\chi^{\parallel}_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^-}_{\cdot}\chi^{\parallel}_{b\,l}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{l}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\chi^{\parallel}_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}_{\cdot}\chi^{\parallel}_{b\,lmn}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{1^-}_{\cdot}\chi^{\parallel}_{b\,i}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{i}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^+}_{\cdot}\chi^{\vDash}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{4\mathcal{J}^2}\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{a}\right]$$

$$\Bigg(\delta_{a'}{}^{b}\,\mathcal{J}\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{b}{}^{b'}\,n_{b'}\right]-\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{b'}{}_{b}\,n_{b'}\right]\right)\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,n^{a'}\right]-2\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a}{}^{a'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\,\mathcal{J}\right]+2\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{a'}{}_{a}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\,\mathcal{J}\right]-$$

$$\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'}{}^{b}\,n_{b}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,n_{a}\right]+\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{b}{}_{a'}\,n_{b}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,n_{a}\right]+\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'}{}^{b}\,n_{b}\right]\,{}^{1^+}_{\cdot}\mathcal{T}^{\parallel}{}_{a}{}^{a'}-\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{b}{}_{a'}\,n_{b}\right]$$

$${}^{1^+}_{\cdot}\mathcal{T}^{\parallel}{}_{a}{}^{a'}+2\,\eta^{\parallel}{}_{a'b}\,\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel b}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a}{}^{a'}\right]\right)-2\,\eta^{\parallel}{}_{a'b}\,\mathcal{J}\left({}^{3}_{\cdot}\mathcal{D}^{\parallel b}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{a'}{}_{a}\right]\right)\Bigg)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1$$

$$\left\{\iiint\left({}^{2^-}_{\cdot}\chi^{\parallel}_{b\,ijk}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ijk}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{2^-}_{\cdot}\chi^{\parallel}_{b\,lmn}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lmn}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx 0$$

$$\left\{\iiint\left({}^{2^-}_{\cdot}\chi^{\parallel}_{b\,ijk}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ijk}\right)[x^0,x^1,x^2,x^3]\,dx^3\,dx^2\,dx^1,\ \iiint\left({}^{1^+}_{\cdot}\chi^{\vDash}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^0,y^1,y^2,y^3]\,dy^3\,dy^2\,dy^1\right\}\approx$$

$$\iiint\frac{1}{32\mathcal{J}^2}\Bigg(-6\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{b'c}\;{}^{(1)}_{\cdot}\mathcal{S}_{a'}{}^{b'c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{aa'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\mathcal{J}\right]+6\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{b'c}\;{}^{(1)}_{\cdot}\mathcal{S}^{b'}{}_{a'}{}^{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{aa'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\mathcal{J}\right]+4\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]$$

$$\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\mathcal{J}\right]-4\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{b'a'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\mathcal{J}\right]+4\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{b'}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,n_{a'}\right]-$$

$$4\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{b'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,n_{a'}\right]+2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,n_{b'}\right]-$$

$$2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{a'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,n_{b'}\right]-4\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{ab'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\mathcal{J}\right]+$$

$$6\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{b'c}\;{}^{(1)}_{\cdot}\mathcal{S}_{a}{}^{b'c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{aa'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\mathcal{J}\right]-6\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{b'c}\;{}^{(1)}_{\cdot}\mathcal{S}^{b'}{}_{a}{}^{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{aa'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\mathcal{J}\right]+$$

$$4\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{b'a}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\mathcal{J}\right]-4\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{b'}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\,n_{a}\right]+$$

$$4\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{b'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\,n_{a}\right]-2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\,n_{b'}\right]+$$

$$2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{a}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\,n_{b'}\right]+3\,\delta_{a}{}^{b'}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{c'i}\;{}^{(1)}_{\cdot}\mathcal{S}_{b'}{}^{c'i}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,n^{a}\right]-$$

$$3\,\delta_{a}{}^{b'}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{c'i}\;{}^{(1)}_{\cdot}\mathcal{S}^{c'}{}_{b'}{}^{i}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,n^{a}\right]-3\,\delta_{a}{}^{b'}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{c'i}\;{}^{(1)}_{\cdot}\mathcal{S}_{a'}{}^{c'i}\right]$$

$$\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{b'}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,n^{a}\right]+3\,\delta_{a}{}^{b'}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{c'i}\;{}^{(1)}_{\cdot}\mathcal{S}^{c'}{}_{a'}{}^{i}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{b'}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,n^{a}\right]-$$

$$3\,\delta_{a}{}^{b'}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{c'i}\;{}^{(1)}_{\cdot}\mathcal{S}_{b'}{}^{c'i}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{a'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,n^{a}\right]+3\,\delta_{a}{}^{b'}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{c'i}\;{}^{(1)}_{\cdot}\mathcal{S}^{c'}{}_{b'}{}^{i}\right]$$

$$\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{a'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,n^{a}\right]+3\,\delta_{a}{}^{b'}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{c'i}\;{}^{(1)}_{\cdot}\mathcal{S}_{a'}{}^{c'i}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{b'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,n^{a}\right]-$$

$$3\,\delta_{a}{}^{b'}\,\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{c'i}\;{}^{(1)}_{\cdot}\mathcal{S}^{c'}{}_{a'}{}^{i}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{b'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel a'}\,n^{a}\right]-8\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{aa'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b'}\mathcal{J}\right]+$$

$$8\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'a}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b'}\mathcal{J}\right]-2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b'}\,n_{a}\right]+$$

$$2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{a'}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b'}\,n_{a}\right]+2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a}{}^{c}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b'}\,n_{a'}\right]-$$

$$2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{a}\,n_{c}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b'}\,n_{a'}\right]+4\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{b'}{}^{c}\,n_{c}\right]\,{}^{1^+}_{\cdot}\mathcal{T}^{\parallel}{}_{aa'}-$$

$$4\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{b'}\,n_{c}\right]\,{}^{1^+}_{\cdot}\mathcal{T}^{\parallel}{}_{aa'}+2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'}{}^{c}\,n_{c}\right]\,{}^{1^+}_{\cdot}\mathcal{T}^{\parallel}{}_{ab'}-$$

$$2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{a'}\;n_{c}\right]\,{}^{1^{+}}_{\cdot}\mathcal{T}^{\parallel}{}_{ab'}+3\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{cc'}\;{}^{(1)}_{\cdot}\mathcal{S}_{a'}{}^{cc'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a}{}^{b'}\;n_{b'}\right]\,{}^{1^{+}}_{\cdot}\mathcal{T}^{\parallel aa'}-$$

$$3\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{cc'}\;{}^{(1)}_{\cdot}\mathcal{S}^{c}{}_{a'}{}^{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a}{}^{b'}\;n_{b'}\right]\,{}^{1^{+}}_{\cdot}\mathcal{T}^{\parallel aa'}-3\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{cc'}\;{}^{(1)}_{\cdot}\mathcal{S}_{a'}{}^{cc'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{b'}{}_{a}\;n_{b'}\right]\,{}^{1^{+}}_{\cdot}\mathcal{T}^{\parallel aa'}+$$

$$3\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{cc'}\;{}^{(1)}_{\cdot}\mathcal{S}^{c}{}_{a'}{}^{c'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{b'}{}_{a}\;n_{b'}\right]\,{}^{1^{+}}_{\cdot}\mathcal{T}^{\parallel aa'}-2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a}{}^{c}\;n_{c}\right]\,{}^{1^{+}}_{\cdot}\mathcal{T}^{\parallel}{}_{a'b'}+$$

$$2\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{c}{}_{a}\;n_{c}\right]\,{}^{1^{+}}_{\cdot}\mathcal{T}^{\parallel}{}_{a'b'}-4\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\left({}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'b'}\right]\right)+$$

$$4\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\left({}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{b'a'}\right]\right)+4\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\left({}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{ab'}\right]\right)-$$

$$4\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\left({}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{a'}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{b'a}\right]\right)+8\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\left({}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b'}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{aa'}\right]\right)-$$

$$8\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'b'}\right]\left({}^{3}_{\cdot}\mathcal{D}^{\parallel}{}_{b'}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'a}\right]\right)-6\;\eta^{\parallel}{}_{a'b'}\;\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{cc'}\;{}^{(1)}_{\cdot}\mathcal{S}_{a}{}^{cc'}\right]\left({}^{3}_{\cdot}\mathcal{D}^{\parallel b'}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{aa'}\right]\right)+$$

$$6\;\eta^{\parallel}{}_{ab'}\;\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{cc'}\;{}^{(1)}_{\cdot}\mathcal{S}_{a'}{}^{cc'}\right]\left({}^{3}_{\cdot}\mathcal{D}^{\parallel b'}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{aa'}\right]\right)+6\;\eta^{\parallel}{}_{a'b'}\;\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{cc'}\;{}^{(1)}_{\cdot}\mathcal{S}^{c}{}_{a}{}^{c'}\right]\left({}^{3}_{\cdot}\mathcal{D}^{\parallel b'}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{aa'}\right]\right)-$$

$$6\;\eta^{\parallel}{}_{ab'}\;\mathcal{J}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[\eta^{\parallel}{}_{cc'}\;{}^{(1)}_{\cdot}\mathcal{S}^{c}{}_{a'}{}^{c'}\right]\left({}^{3}_{\cdot}\mathcal{D}^{\parallel b'}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{aa'}\right]\right)\Bigg)[x^{0},\,x^{1},\,x^{2},\,x^{3}]\,dx^{3}\,dx^{2}\,dx^{1}$$

$$\left\{\iiint\left({}^{1^{+}}_{\cdot}\chi^{\vDash}_{b\,ij}\cdot{}^{(1)}_{\cdot}\mathcal{S}^{ij}\right)[x^{0},\,x^{1},\,x^{2},\,x^{3}]\,dx^{3}\,dx^{2}\,dx^{1},\;\iiint\left({}^{1^{+}}_{\cdot}\chi^{\vDash}_{b\,lm}\cdot{}^{(2)}_{\cdot}\mathcal{S}^{lm}\right)[x^{0},\,y^{1},\,y^{2},\,y^{3}]\,dy^{3}\,dy^{2}\,dy^{1}\right\}\approx$$

$$\iiint\frac{1}{3\mathcal{J}}\mathcal{M}_{\mathrm{Pl}}{}^{2}\,\bar{\beta}_{\underset{1}{\cdot}}\,\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(1)}_{\cdot}\mathcal{S}^{aa'}\right]\Bigg(\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a'}{}^{b}\right]\left({}^{1^{+}}_{\cdot}\lambda^{\parallel}_{\mathcal{T}\,ab}-{}^{1^{+}}_{\cdot}\lambda^{\perp}_{\mathcal{T}\,ab}\right)+\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{b}{}_{a'}\right]\left(-{}^{1^{+}}_{\cdot}\lambda^{\parallel}_{\mathcal{T}\,ab}+{}^{1^{+}}_{\cdot}\lambda^{\perp}_{\mathcal{T}\,ab}\right)-$$

$$\left(\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}_{a}{}^{b}\right]-\underset{\eta^{\parallel}}{\mathrm{P}}\left[{}^{(2)}_{\cdot}\mathcal{S}^{b}{}_{a}\right]\right)\left({}^{1^{+}}_{\cdot}\lambda^{\parallel}_{\mathcal{T}\,a'b}-{}^{1^{+}}_{\cdot}\lambda^{\perp}_{\mathcal{T}\,a'b}\right)\Bigg)[x^{0},\,x^{1},\,x^{2},\,x^{3}]\,dx^{3}\,dx^{2}\,dx^{1}$$

This concludes the HiGGS output.

Concrete relation to manuscript: The above constraints and Poisson brackets constitute the data represented by coloured squares in the right-hand panel of Fig. 5 in our Manuscript. The primary constraints ϕ are listed along the top row. The primary Poisson brackets $\{\phi,\ \phi\}$ are used to infer the white, red or yellow squares in the matrix depending on whether they are vanishing, or appear only in proportion to phase space variables, or are order unity (e.g. proportional to the metric or unit-timelike vector). The $\{\phi,\ {}^{0^{+}}_{\cdot}\mathcal{H}_{b}\}$ Poisson brackets define the secondary constraints "χ", which appear on the sides of the matrix. Most of the Poisson brackets $\{\chi,\ \phi\}$ need not be computed (grey squares), but it can be noticed without detailed calculation that many of the remaining required brackets (yellow squares) do indeed arise. Unlike in the strongly coupled case, we find that tertiary and quaternary constraints arise in the theory: but these are also not computed in detail above. Instead, their existence can readily be inferred by considering whether the consistency chain in question can be absorbed by determining a multiplier, or whether it must continue. In case of continuation, the relevant terms in the induced constraints which arise can be understood by considering Eq. (4) in arXiv:2205.13534.