```
\derivativesetup{
    d = roman,
}
```

表 1 常微分マクロの仕様確認。コード 1 による設定を適用した場合の挙動

| No | command | expected | result |
|----|--|--|--|
| 1 | $\order{x}{f}$ | $\frac{\mathrm{d}f}{\mathrm{d}x}$ | $\frac{\mathrm{d}f}{\mathrm{d}x}$ |
| 2 | \odr{x}[2]{f} | $\frac{\mathrm{d}^2 f}{\mathrm{d}x^2}$ | $\frac{\mathrm{d}^2 f}{\mathrm{d}x^2}$ |
| 3 | \odr{x}[n]{f} | $\frac{\mathrm{d}^n f}{\mathrm{d} x^n}$ | $\frac{\mathrm{d}^n f}{\mathrm{d} x^n}$ |
| 4 | $\ordr{x_1}{f}$ | $\frac{\mathrm{d}f}{\mathrm{d}x_1}$ | $\frac{\mathrm{d}f}{\mathrm{d}x_1}$ |
| 5 | $\label{eq:condition} $$ \operatorname{x_1}\{y_2\} $$$ | $\frac{\mathrm{d}y_2}{\mathrm{d}x_1}$ | $\frac{\mathrm{d}y_2}{\mathrm{d}x_1}$ |
| 6 | $\order{t}{\bm{u}}$ | $\frac{\mathrm{d} oldsymbol{u}}{\mathrm{d} t}$ | $\frac{\mathrm{d} \boldsymbol{u}}{\mathrm{d} t}$ |
| 7 | $\operatorname{\operatorname{dr}}\{m\{x\}\}\{f\}$ | $rac{\mathrm{d}f}{\mathrm{d}oldsymbol{x}}$ | $\frac{\mathrm{d}f}{\mathrm{d}\boldsymbol{x}}$ |

ソースコード 2 derivative パッケージの setup 例 2

```
\derivativesetup{
    d = italic,
}
```

表 2 常微分マクロの仕様確認。コード 2 による設定を適用した場合の挙動

| No | command | expected | result |
|----|---|---------------------------|-------------------------------|
| 1 | \odr{x}{f} | $\frac{df}{dx}$ | $\frac{df}{dx}$ |
| 2 | \odr{x}[2]{f} | $\frac{d^2f}{dx^2}$ | $\frac{d^2f}{dx^2}$ |
| 3 | \odr{x}[n]{f} | $\frac{d^n f}{dx^n}$ | $\frac{d^n f}{dx^n}$ |
| 4 | $\order{x_1}{f}$ | $\frac{df}{dx_1}$ | $\frac{df}{dx_1}$ |
| 5 | \odr{x_1}{y_2} | $\frac{dy_2}{dx_1}$ | $\frac{dy_2}{dx_1}$ |
| 6 | $\order{t}{\bm{u}}$ | $rac{doldsymbol{u}}{dt}$ | $\frac{d \boldsymbol{u}}{dt}$ |
| 7 | $\operatorname{dr}\{\operatorname{m}\{x\}\}\{f\}$ | $rac{df}{dm{x}}$ | $rac{df}{dm{x}}$ |

表 3 偏微分マクロの仕様確認

| No | $\operatorname{command}$ | expected | result |
|----|-------------------------------------|---|---|
| 1 | \pdr{{x}{f}} | $\frac{\partial f}{\partial x}$ | $\frac{\partial f}{\partial x}$ |
| 2 | \pdr{{x}[2]{f}} | $\frac{\partial^2 f}{\partial x^2}$ | $\frac{\partial^2 f}{\partial x^2}$ |
| 3 | \pdr{{x}{y}{f}} | $\frac{\partial^2 f}{\partial x \partial y}$ | $\frac{\partial^2 f}{\partial x \partial y}$ |
| 4 | \pdr{{x}[2]{y}{f}} | $\frac{\partial^3 f}{\partial x^2 \partial y}$ | $\frac{\partial^3 f}{\partial x^2 \partial y}$ |
| 5 | \pdr{{x}[2]{y}[3]{f}} | $\frac{\partial^5 f}{\partial x^2 \partial y^3}$ | $\frac{\partial^5 f}{\partial x^2 \partial y^3}$ |
| 6 | \pdr{{x_1}{y}} | $\frac{\partial y}{\partial x_1}$ | $\frac{\partial y}{\partial x_1}$ |
| 7 | \pdr{{x}{f_2}} | $\frac{\partial f_2}{\partial x}$ | $\frac{\partial f_2}{\partial x}$ |
| 8 | $\pdr{{x_1}{t}{f}}$ | $\frac{\partial^2 f}{\partial x_1 \partial t}$ | $\frac{\partial^2 f}{\partial x_1 \partial t}$ |
| 9 | \pdr{{x_1}{x_2}{f}} | $\frac{\partial^2 f}{\partial x_1 \partial x_2}$ | $\frac{\partial^2 f}{\partial x_1 \partial x_2}$ |
| 10 | \pdr{{\bm{x}}{f}} | $rac{\partial f}{\partial oldsymbol{x}}$ | $rac{\partial f}{\partial oldsymbol{x}}$ |
| 11 | \pdr{{\bm{x}}{\bm{y}}{f}} | $rac{\partial^2 f}{\partial m{x} \partial m{y}}$ | $rac{\partial^2 f}{\partial m{x} \partial m{y}}$ |
| 12 | \pdr{{\bm{x}_1}{\bm{y}_2}{f}} | $rac{\partial^2 f}{\partial oldsymbol{x}_1 \partial oldsymbol{y}_2}$ | $rac{\partial^2 f}{\partial oldsymbol{x}_1 \partial oldsymbol{y}_2}$ |
| 13 | \pdr{{x}[2]{\bm{u}}} | $\frac{\partial^2 \boldsymbol{u}}{\partial x^2}$ | $\frac{\partial^2 \boldsymbol{u}}{\partial x^2}$ |
| 14 | \pdr{{x}{\bm{u}}}+\pdr{{y}{\bm{u}}} | $\frac{\partial \boldsymbol{u}}{\partial x} + \frac{\partial \boldsymbol{u}}{\partial y}$ | $\frac{\partial \boldsymbol{u}}{\partial x} + \frac{\partial \boldsymbol{u}}{\partial y}$ |
| 15 | \pdr{{x}{}} | $\frac{\partial}{\partial x}$ | $\frac{\partial}{\partial x}$ |
| 16 | \pdr{{x_1}{}} | $\frac{\partial}{\partial x_1}$ | $\frac{\partial}{\partial x_1}$ |
| 17 | \pdr{{\bm{x}}{}} | $rac{\partial}{\partial m{x}}$ | $rac{\partial}{\partial m{x}}$ |

表 4 偏微分マクロの仕様確認。階数の自動計算抑制

| No | command | expected | result |
|----|-----------------------------|--|--|
| 1 | \pdr*{{x}[n]{f}[n]} | $\frac{\partial^n f}{\partial x^n}$ | $\frac{\partial^n f}{\partial x^n}$ |
| 2 | \pdr*{{x}[n]{}[n]} | $\frac{\partial^n}{\partial x^n}$ | $\frac{\partial^n f}{\partial x^n}$ |
| 3 | \pdr*{{x}[n]{y}[m]{f}[n+m]} | $\frac{\partial^{n+m} f}{\partial x^n \partial y^m}$ | $\frac{\partial^{n+m} f}{\partial x^n \partial y^m}$ |
| 4 | \pdr*{{x}[1]{y}[1]{f}[1+1]} | $\frac{\partial^{1+1} f}{\partial x^1 \partial y^1}$ | $\frac{\partial^{1+1} f}{\partial x^1 \partial y^1}$ |
| 5 | \pdr*{{x}{y}[n]{f}[n+1]} | $\frac{\partial^{n+1} f}{\partial x \partial y^n}$ | $\frac{\partial^{n+1} f}{\partial x \partial y^n}$ |

表 5 偏微分マクロ (リーマン幾何学の記法) の仕様確認

| No | command | expected | result |
|----|-------------------|---------------------------|---------------------------|
| 1 | \pdrr{{x}{f}} | $\partial_x f$ | $\partial_x f$ |
| 2 | \pdrr{{i}{j}{f}} | $\partial_i \partial_j f$ | $\partial_i \partial_j f$ |
| 3 | \pdrr{{i}*{j}{f}} | $\partial_i \partial^j f$ | $\partial_i \partial^j f$ |
| 4 | \pdrr{*{i}{j}{f}} | $\partial^i \partial_j f$ | $\partial^i \partial_j f$ |

ソースコード 3 derivative パッケージの setup 例 3

```
\derivativesetup{
    nabla-deco-1 = ',
    nabla-deco-2 = '',
    nabla-deco-3 = _{\bm{r}'''},
    laplace = delta,
}
```

表 6 ベクトル演算子マクロの仕様確認。コード 3 による設定を適用した場合の挙動

| • - / | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1 0 10 0 0 10 10 | |
|-------|--|---|--|
| No | command | expected | result |
| 1 | \grad{f} | ∇f | ∇f |
| 2 | $\displaystyle \div \geq \{v\}$ | $ abla \cdot oldsymbol{v}$ | $ abla \cdot oldsymbol{v}$ |
| 3 | \rot\bm{v} | $ abla	imes oldsymbol{v}$ | $ abla	imes oldsymbol{v}$ |
| 4 | \curl\bm{v} | $ abla	imes oldsymbol{v}$ | $ abla	imes oldsymbol{v}$ |
| 5 | \laplace{f} | Δf | Δf |
| 6 | $\displaystyle \begin{array}{c} \\ \\ \end{array}$ | Δf | Δf |
| 7 | $\displaystyle \begin{array}{c} {\bf f} \end{array}$ | $ abla^2 f$ | $ abla^2 f$ |
| 8 | \hesse{f} | $\nabla \otimes \nabla f$ | $\nabla \otimes \nabla f$ |
| 9 | \gradr{f} | $\operatorname{grad} f$ | $\operatorname{grad} f$ |
| 10 | \divr{\bm{v}} | $\operatorname{div} \boldsymbol{v}$ | $\operatorname{div} \boldsymbol{v}$ |
| 11 | \rotr{\bm{v}} | $\mathrm{rot}\boldsymbol{v}$ | $\mathrm{rot} \boldsymbol{v}$ |
| 12 | \curlr{\bm{v}} | $\operatorname{curl} oldsymbol{v}$ | $\operatorname{curl} \boldsymbol{v}$ |
| 13 | \grad'{f} | $\nabla' f$ | $\nabla' f$ |
| 14 | \grad''{f} | $\nabla'' f$ | $\nabla'' f$ |
| 15 | \grad'''(\frac{f}{g}) | $ abla_{m{r}^{\prime\prime\prime}}\left(rac{f}{g} ight)$ | $\nabla_{m{r}'''}\left(rac{f}{g} ight)$ |
| 16 | \gradr''[f] | $\operatorname{grad}''[f]$ | $\operatorname{grad}''[f]$ |
| 17 | \laplacen''{f} | $\nabla''^2 f$ | $\nabla''^2 f$ |
| 18 | \hesse''!{f} | $\nabla''\otimes\nabla''\left\{f\right\}$ | $\nabla'' \otimes \nabla'' \{f\}$ |