$$2\underbrace{1+v\overset{*}{v}}\urcorner^{u} = \cfrac{1+v\overset{*}{v}}{\cfrac{1-v\overset{*}{v}}{2v}}$$

$$2\underbrace{1+v\overset{*}{v}}\urcorner^{w} = \cfrac{1+v\overset{*}{v}}{\cfrac{v\overset{*}{v}-1}{-2v}}$$

$$\varkappa = \overbrace{{}_{u}\llcorner - {}_{w}\llcorner}^{a}\,\Omega$$

$${}_{+}\urcorner^{u} = 1 : \quad {}_{-}\urcorner^{u} = \frac{1-v\overset{*}{v}}{1+v\overset{*}{v}} = x^0 : \quad {}_{j}\urcorner^{u} = \frac{2v^j}{1+v\overset{*}{v}} = x^j$$

$${}_{+}\urcorner^{w} = 1 : \quad {}_{-}\urcorner^{w} = \frac{v\overset{*}{v}-1}{1+v\overset{*}{v}} = -x^0 : \quad {}_{j}\urcorner^{w} = \frac{-2v^j}{1+v\overset{*}{v}} = -x^j$$

$$\begin{array}{c|c|c|c|c} 1 & 1 & 0 & \cdot\cdot & 0 \\ \hline x^0 & -x^0 & dx^0\overbrace{{}_{u}\llcorner - {}_{w}\llcorner} & \cdot\cdot & dx^0\overbrace{{}_{u}\llcorner - {}_{w}\llcorner} \\ \hline x^j & -x^j & dx^j\overbrace{{}_{u}\llcorner - {}_{w}\llcorner} & \cdot\cdot & dx^j\overbrace{{}_{u}\llcorner - {}_{w}\llcorner} \end{array} = \overbrace{{}_{u}\llcorner - {}_{w}\llcorner}^{a} \begin{array}{c|c|c|c|c} 1 & 1 & 0 & \cdot\cdot & 0 \\ \hline x^0 & -x^0 & dx^0 & \cdot\cdot & dx^0 \\ \hline x^j & -x^j & dx^j & \cdot\cdot & dx^j \end{array}$$

$$= \overbrace{{}_{u}\llcorner - {}_{w}\llcorner}^{a} \begin{array}{c|c|c|c|c} 2 & 1 & 0 & \cdot\cdot & 0 \\ \hline 0 & -x^0 & dx^0 & \cdot\cdot & dx^0 \\ \hline 0 & -x^j & dx^j & \cdot\cdot & dx^j \end{array} = \overbrace{{}_{u}\llcorner - {}_{w}\llcorner}^{a} \begin{array}{c|c|c|c} -x^0 & dx^0 & \cdot\cdot & dx^0 \\ \hline -x^j & dx^j & \cdot\cdot & dx^j \end{array}$$

$$\urcorner^{u} \,\big|\, \urcorner^{w} = \frac{1}{1+v\overset{*}{v}} \begin{array}{c|c} 1+v\overset{*}{v} & 1+v\overset{*}{v} \\ \hline 1-v\overset{*}{v} & v\overset{*}{v}-1 \\ \hline 2v & -2v \end{array}$$

$$\begin{array}{c|c|c|c|c} 1 & 1 & 0 & \cdot\cdot & 0 \\ \hline x^0 & -x^0 & dx^0\underbrace{{}_{u}\llcorner - {}_{w}\llcorner} & \cdot\cdot & dx^0\underbrace{{}_{u}\llcorner - {}_{w}\llcorner} \\ \hline x^j & -x^j & dx^j\underbrace{{}_{u}\llcorner - {}_{w}\llcorner} & \cdot\cdot & dx^j \end{array}$$

$$\ker\ \urcorner^{\cdot} = \overbrace{\mathrm{Ran}\ \urcorner^{\cdot}}^{\perp} \ni 0 \left| \frac{2v}{v\overset{*}{v}-1}\gamma \right| \gamma$$

$${}_{u}\llcorner = 1 \left| \frac{1+v\overset{*}{v}}{1-v\overset{*}{v}} - \frac{2\gamma v}{1-v\overset{*}{v}} \right| \gamma$$

$${}_{w}\llcorner = 1 \left| \frac{1+v\overset{*}{v}}{v\overset{*}{v}-1} + \frac{2\tau v}{v\overset{*}{v}-1} \right| \tau$$

$$X_v^0 \times X_v^1 \ni \frac{1}{2}\ u+w \,\Big|\, (u-w)\,\frac{1-v\overset{*}{v}}{1+v\overset{*}{v}} \,\Big|\, \frac{2v\,(u-w)}{1+v\overset{*}{v}} \;=\; \frac{1}{2\underbrace{1+v\overset{*}{v}}}\,\begin{bmatrix} u & w \end{bmatrix} \frac{1+v\overset{*}{v} \,\big|\, 1-v\overset{*}{v} \,\big|\, 2v}{1+v\overset{*}{v} \,\big|\, v\overset{*}{v}-1 \,\big|\, -2v}$$

$$\frac{u \,|\, 0}{0 \,|\, w}\ \ell_v = \frac{u \,|\, 0}{0 \,|\, w}\ P_{2c-e+v}\, P^{-1/2}_{e+v^2} = \frac{\overbrace{1+v\overset{*}{v}}^{-1/2}\underbrace{u+vw\overset{*}{v}}\overbrace{1+v\overset{*}{v}}^{-1/2} \,\Big|\, \overbrace{1+v\overset{*}{v}}^{-1/2}\underbrace{uv-vw}\overbrace{1+\overset{*}{v}v}^{-1/2}}{\overbrace{1+\overset{*}{v}v}^{-1/2}\underbrace{\overset{*}{v}u-w\overset{*}{v}}\overbrace{1+v\overset{*}{v}}^{-1/2} \,\Big|\, \overbrace{1+\overset{*}{v}v}^{-1/2}\underbrace{\overset{*}{v}uv+w}\overbrace{1+\overset{*}{v}v}^{-1/2}}$$

$$X_v^1 \ni \frac{u \,|\, uv}{\overset{*}{v}u \,|\, \overset{*}{v}uv} \;=u\ \frac{1}{2}\,\Big|\,\frac{1}{2}\,\Big|\,0\ +\overset{*}{v}uv\ \frac{1}{2}\,\Big|\,-\frac{1}{2}\,\Big|\,0\ +\ 0\,|\,0\,|\,uv\ =\frac{u}{2}\ 1+v\overset{*}{v}\,\big|\,1-v\overset{*}{v}\,\big|\,2v$$

$$X_v^0 \ni \frac{vw\overset{*}{v} \,|\, -vw}{-w\overset{*}{v} \,|\, w} \;=vw\overset{*}{v}\ \frac{1}{2}\,\Big|\,\frac{1}{2}\,\Big|\,0\ +w\ \frac{1}{2}\,\Big|\,-\frac{1}{2}\,\Big|\,0\ -\ 0\,|\,0\,|\,vw\ =\frac{w}{2}\ v\overset{*}{v}+1\,\big|\,v\overset{*}{v}-1\,\big|\,-2v$$

$$X_v^1 \times X_v^0 \ni\ (u+w)\,\frac{1+v\overset{*}{v}}{2}\,\Big|\,(u-w)\,\frac{1-v\overset{*}{v}}{2}\,\Big|\,(u-w)\,v\ =\frac{1}{2}\begin{bmatrix} u & w \end{bmatrix}\frac{1+v\overset{*}{v} \,\big|\, 1-v\overset{*}{v} \,\big|\, 2v}{1+v\overset{*}{v} \,\big|\, v\overset{*}{v}-1 \,\big|\, -2v}$$

$$2\ {}_u\mathsf{L}_v =\ 1+v\overset{*}{v}\,\big|\,1-v\overset{*}{v}\,\big|\,2v\ :\quad 2\ {}_w\mathsf{L}_v =\ 1+v\overset{*}{v}\,\big|\,v\overset{*}{v}-1\,\big|\,-2v$$

$${}^{2c-e+u+w}\ell_v =\ u+w\,\Big|\,(1+u-w)\,\frac{1-v\overset{*}{v}}{1+v\overset{*}{v}}\,\Big|\,\frac{2v\,(1+u-w)}{1+v\overset{*}{v}}$$

$$=\frac{1}{1+v\overset{*}{v}}\ (u+w)\,(1+v\overset{*}{v})\,\big|\,(1+u-w)\,(1-v\overset{*}{v})\,\big|\,2v\,(1+u-w)$$

$$x^+ = u+w$$

$$x^- = (1+u-w)\,\frac{1-v\overset{*}{v}}{1+v\overset{*}{v}}$$

$$x^j = (1+u-w)\,\frac{2v^j}{1+v\overset{*}{v}}$$

$$\partial_u\varphi = \underbrace{\partial_u x^+}\,\partial_+\varphi + \underbrace{\partial_u x^-}\,\partial_-\varphi + \sum_j^{1|a}\underbrace{\partial_u x^j}\,\partial_j\varphi = \partial_+\varphi + \frac{1-v\overset{*}{v}}{1+v\overset{*}{v}}\,\partial_-\varphi + \sum_j^{1|a}\frac{2v^j}{1+v\overset{*}{v}}\,\partial_j\varphi$$

$$\partial_w\varphi = \underbrace{\partial_w x^+}\,\partial_+\varphi + \underbrace{\partial_w x^-}\,\partial_-\varphi + \sum_j^{1|a}\underbrace{\partial_w x^j}\,\partial_j\varphi = \partial_+\varphi - \frac{1-v\overset{*}{v}}{1+v\overset{*}{v}}\,\partial_-\varphi - \sum_j^{1|a}\frac{2v^j}{1+v\overset{*}{v}}\,\partial_j\varphi$$

$$\underbrace{\partial_u\varphi}\,d\,{}_u\mathsf{L}_v + \underbrace{\partial_w\varphi}\,d\,{}_w\mathsf{L}_v = \begin{bmatrix}\partial_u\varphi & \partial_w\varphi\end{bmatrix}\begin{bmatrix} d\,{}_u\mathsf{L}_v \\ d\,{}_w\mathsf{L}_v \end{bmatrix}$$

$$=\ \partial_0\,\big|\,\partial_1\,\big|\,\partial_a\ \frac{\begin{array}{c|c} 1+v\overset{*}{v} & 1+v\overset{*}{v} \\ \hline 1-v\overset{*}{v} & v\overset{*}{v}-1 \\ \hline 2v & -2v \end{array}}{}\ \frac{d\,(1+v\overset{*}{v})\,\big|\,d\,(1-v\overset{*}{v})\,\big|\,2dv}{d\,(1+v\overset{*}{v})\,\big|\,d\,(v\overset{*}{v}-1)\,\big|\,-2dv}$$

$$
= \; \partial_0 \,\big|\, \partial_1 \,\big|\, \partial_a \;
\begin{array}{c|c|c}
(1+v\overset{*}{v})\,d\,(1+v\overset{*}{v}) & 0 & 0 \\ \hline
0 & (1-v\overset{*}{v})\,d\,(1-v\overset{*}{v}) & (1-v\overset{*}{v})\,dv \\ \hline
0 & vd\,(1-v\overset{*}{v}) & vdv
\end{array}
$$

$$
= \; \partial_0\,(1+v\overset{*}{v})\,d\,(1+v\overset{*}{v}) \,\big|\, \partial_1\,(1-v\overset{*}{v})\,d\,(1-v\overset{*}{v}) + \partial_v d\,(1-v\overset{*}{v}) \,\big|\, \partial_1\,(1-v\overset{*}{v})\,dv + \partial_v dv
$$

$$
\begin{array}{c|c|c}
1+v\overset{*}{v} & 1-v\overset{*}{v} & 2v \\ \hline
1+v\overset{*}{v} & v\overset{*}{v}-1 & -2v \\ \hline
\partial_0\,(1+v\overset{*}{v})\,d\,(1+v\overset{*}{v}) & \partial_1\,(1-v\overset{*}{v})\,d\,(1-v\overset{*}{v}) + \partial_v d\,(1-v\overset{*}{v}) & \partial_1\,(1-v\overset{*}{v})\,dv + \partial_v dv
\end{array}
$$

$$
= \underbrace{1+v\overset{*}{v}}
\begin{array}{c|c|c}
1 & 1-v\overset{*}{v} & 2v \\ \hline
1 & v\overset{*}{v}-1 & -2v \\ \hline
\partial_0 d\,(1+v\overset{*}{v}) & \underbrace{\partial_1\,(1-v\overset{*}{v}) + \partial_v}\, d\,(1-v\overset{*}{v}) & \underbrace{\partial_1\,(1-v\overset{*}{v}) + \partial_v}\, dv
\end{array}
$$