j	$\mathrm{inv}_j(u,v)$
0,1,2	$1,\ v,\ u$
3,4	$\|\nabla v\|^2 = v_x^2 + v_y^2,\ \|\nabla u\|^2 = u_x^2 + u_y^2$
5	$(\nabla v)^T \nabla u = v_x u_x + v_y u_y$
6,7	$\mathrm{tr}(\mathbf{H}_v) = v_{xx} + v_{yy},\ \mathrm{tr}(\mathbf{H}_u) = u_{xx} + u_{yy}$
8	$(\nabla v)^T \mathbf{H}_v \nabla v = v_x^2 v_{xx} + 2v_x v_y v_{xy} + v_y^2 v_{yy}$
9	$(\nabla v)^T \mathbf{H}_u \nabla v = v_x^2 u_{xx} + 2v_x v_y u_{xy} + v_y^2 u_{yy}$
10	$(\nabla v)^T \mathbf{H}_v \nabla u = v_x u_x v_{xx} + (v_x u_y + v_y u_x) v_{xy} + v_y u_y v_{yy}$
11	$(\nabla v)^T \mathbf{H}_u \nabla u = v_x u_x u_{xx} + (v_x u_y + v_y u_x) u_{xy} + v_y u_y u_{yy}$
12	$(\nabla u)^T \mathbf{H}_v \nabla u = u_x^2 v_{xx} + 2u_x u_y v_{xy} + u_y^2 v_{yy}$
13	$(\nabla u)^T \mathbf{H}_u \nabla u = u_x^2 u_{xx} + 2u_x u_y u_{xy} + u_y^2 u_{yy}$
14	$\mathrm{tr}(\mathbf{H}_v^2) = v_{xx}^2 + 2v_{xy}^2 + v_{yy}^2$
15	$\mathrm{tr}(\mathbf{H}_v \mathbf{H}_u) = v_{xx} u_{xx} + 2v_{xy} u_{xy} + v_{yy} u_{yy}$
16	$\mathrm{tr}(\mathbf{H}_u^2) = u_x^2 + 2u_{xy}^2 + u_y^2$