

```

Zip1_{ } = Identity;
Zip1_{vs_} @ {  $\mathcal{F}_$ ,  $\mathbb{E}[Q_$ ,  $P_{___}]$  } :=
PP_{Zip1} @ Module [ {  $\mathcal{I}$ ,  $F$ ,  $G$ ,  $u$ ,  $v$  },
   $\mathcal{I}$  = IdentityMatrix @ Length @  $vs$ ;
   $F$  = Table [ If [ Wt [  $u$  ] + Wt [  $v$  ] == $n,  $\partial_{F[u], F[v]} \mathcal{F}$ ,
    0 ], {  $u$ ,  $vs$  }, {  $v$ ,  $vs$  } ];
   $G$  = Table [ If [ Wt [  $u$  ] + Wt [  $v$  ] == $n,  $\partial_{u,v} Q$ , 0 ],
    {  $u$ ,  $vs$  }, {  $v$ ,  $vs$  } ];
  { CF [ (  $F$  /@  $vs$  ) . (  $F$ .Inverse [  $\mathcal{I}$  -  $G.F$  ] ) . (  $F$  /@  $vs$  ) /
    2 ],
     $\mathbb{E}$  [ CF [  $Q$  - PowerExpand @ Log [ Det [  $\mathcal{I}$  -  $G.F$  ] ] / 2 -
       $vs.G.vs$  / 2 ],  $P$  ] }
]

```