```
<< KnotTheory`
```

```
Loading KnotTheory` version of April 20, 2009, 14:18:34.482.
Read more at http://katlas.org/wiki/KnotTheory.
```

```
SubLink[pd_PD, js_List] := Module[
   {k, t0, t, t1, t2, S, P}, t0 = Flatten[List @@@ Skeleton[pd][[js]]];
   t = pd /. x_X :> Select[x, MemberQ[t0, #] &];
   t = DeleteCases[t, X[]];
   k = 1;
   While[
    k ≤ Length[t],
    If[Length[t[[k]]] < 4,
      t = Delete[t, k] /. (Rule @@ t[[k]]), ++k];
   ];
   t1 = List @@ Union @@ t;
   t2 = Thread[(t1) → Range[Length[t1]]];
   S = t /. t2;
   P = If[
     S ≠ PD[] && Length[S] ≥ 2,
     S,
     PD[Knot[0, 1]],
     S
    ]
  ];
SubLink[pd_PD, j_] := SubLink[pd, {j}];
SubLink[L_, js_] := SubLink[PD[L], js];
```

```
Length[Ls = Select[AllLinks[{2, 11}], Length[Skeleton[#]] == 3 &]]
```

```
KnotTheory::loading : Loading precomputed data in PD4Links`.
```

```
438
```

```
PD[NewLink[1]] = PD[X[1, 23, 2, 22], X[3, 24, 4, 17], X[4, 12, 5, 11],
   X[6, 13, 7, 14], X[9, 3, 10, 2], X[12, 20, 13, 19], X[14, 21, 15, 22], X[15, 8, 16, 1],
   X[17, 11, 18, 10], X[18, 5, 19, 6], X[20, 8, 21, 7], X[23, 16, 24, 9]];
AppendTo[Ls, NewLink[1]];
```

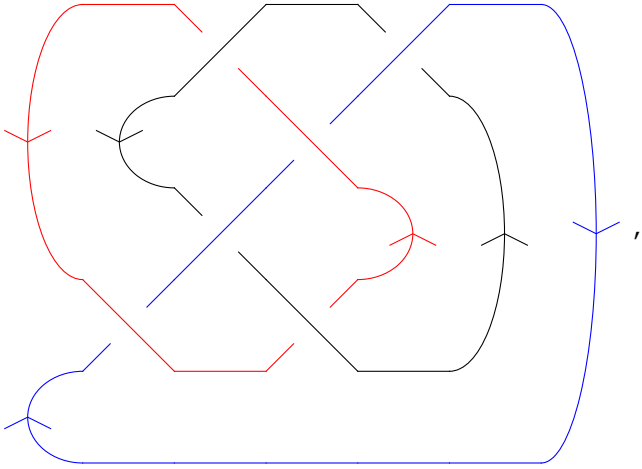
```
trivials = {-1/Sqrt[q] - Sqrt[q], 1, -1/q^2 - 1/q, -q - q^2}
```

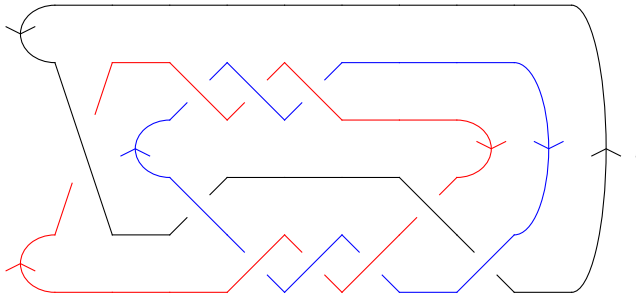
$$\left\{-\frac{1}{\sqrt{q}}-\sqrt{q},\ 1,\ -\frac{1}{q^2}-\frac{1}{q},\ -q-q^2\right\}$$

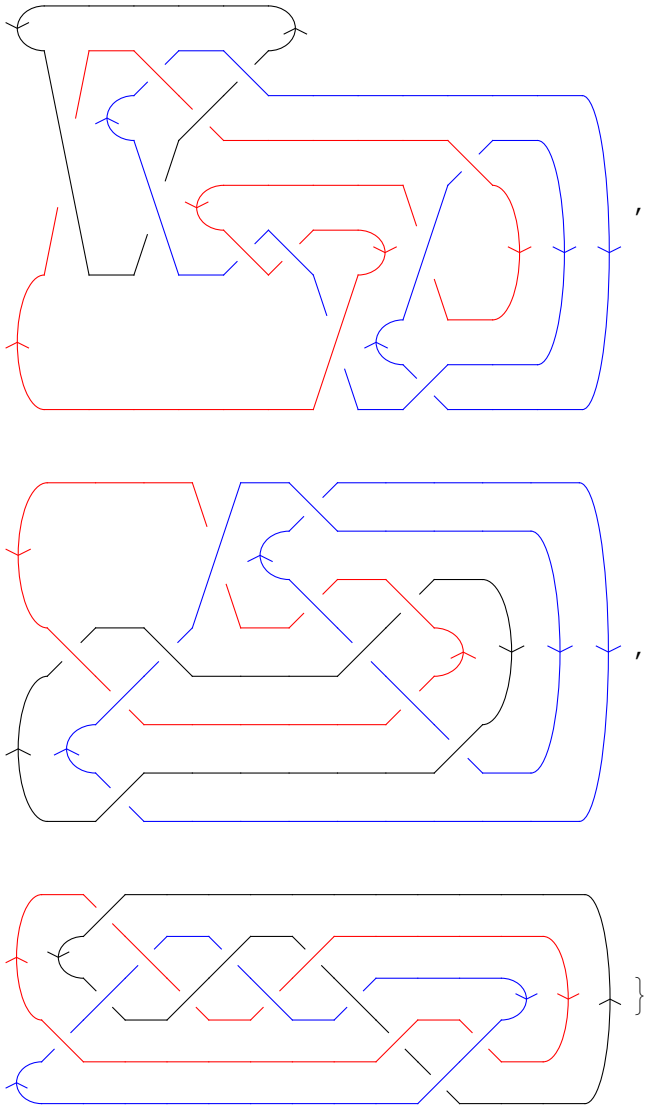
```
Bs = Select[Ls, And[
     MemberQ[trivials, Jones[SubLink[#, {1, 2}]][q]],
     MemberQ[trivials, Jones[SubLink[#, {2, 3}]][q]],
     MemberQ[trivials, Jones[SubLink[#, {3, 1}]][q]]
   ] &]
```

```
{Link[6, Alternating, 4], Link[10, Alternating, 140],
 Link[11, Alternating, 434], Link[11, NonAlternating, 436], NewLink[1]}
```

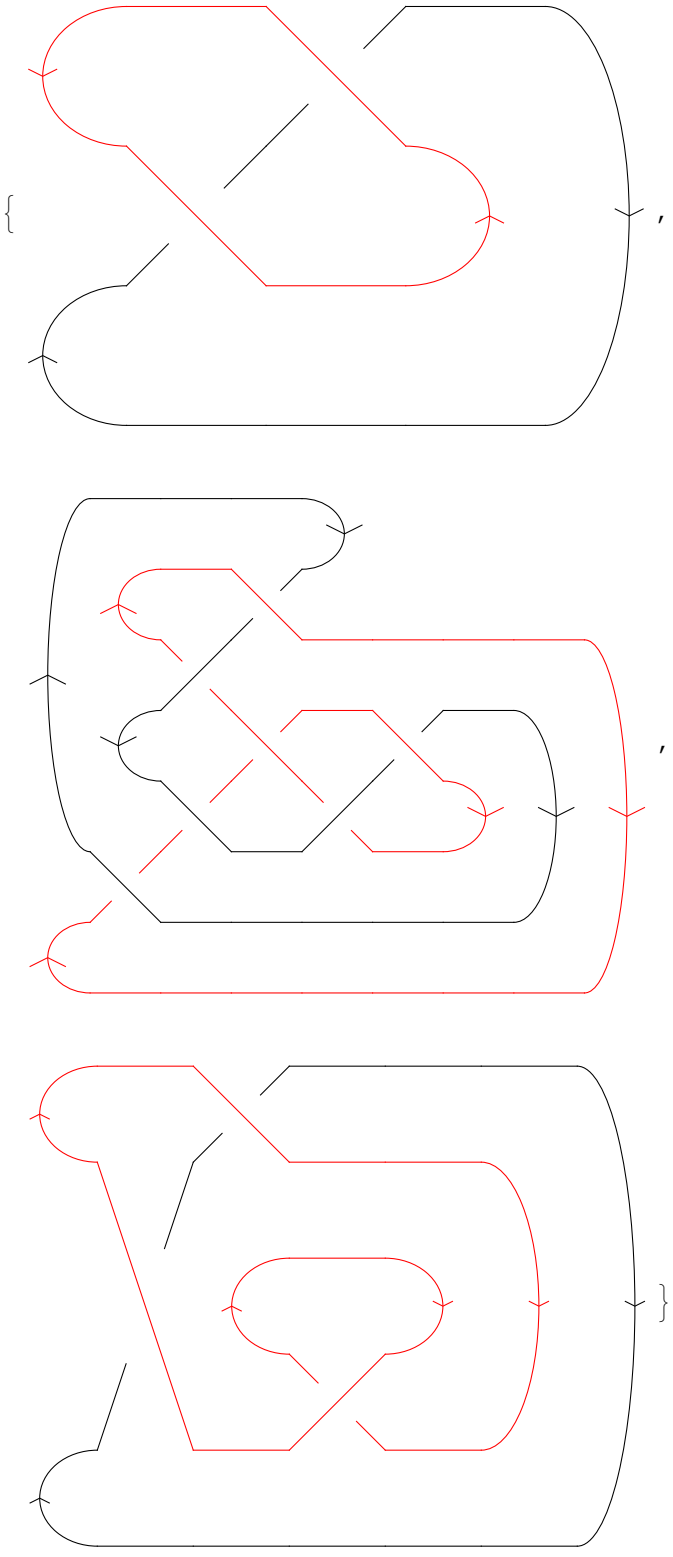
```
DrawMorseLink /@ Bs
```

{  ,

 ,



```
DrawMorseLink[SubLink[Link[11, Alternating, 434], #]] & /@ {{1, 2}, {2, 3}, {3, 1}}
```



```
MultivariableAlexander[SubLink[Link["L11a434"], #]][t] & /@ {{1, 2}, {2, 3}, {3, 1}}
```

KnotTheory::credits :

The multivariable Alexander program "MVA2" was written by Jana Archibald at the University of Toronto in 2007–2008.

```
{0, 0, 0}
```

```
trivialAs = {0};
Select[Ls, And[
   MemberQ[trivialAs, MultivariableAlexander[SubLink[#, {1, 2}]][t]],
   MemberQ[trivialAs, MultivariableAlexander[SubLink[#, {2, 3}]][t]],
   MemberQ[trivialAs, MultivariableAlexander[SubLink[#, {3, 1}]][t]]
  ] &]
```

```
{Link[6, Alternating, 4], Link[10, Alternating, 140],
 Link[11, Alternating, 434], Link[11, NonAlternating, 436], NewLink[1]}
```