

TwoPass@ k gives all the knots that can be obtained by applying one 2-pass to the knot k , which is given in modified DT form.

```
TwoPass@k_MDT := TwoPass@k = Block[{a, c, n = Length@k,
  p = List@@Build@k //
    ( $\#^T \cup (\text{Abs@Reverse@}\#\text{Sign@}\#)^T$ )T[[
      2]] &, v, y = {}},
  Do[v = Abs@p[[Mod[{i, i + 1}, 2 n, 1]]];
  If[Sort@Sign@p[[Mod[{i, i + 1}, 2 n, 1]]] == {-1, 1},
    Do[If[Total@Mod[1, 2] == 2,
      c = Range @@@ Partition[1 + {1, -1, 1, -1}, 2];
      If[¬ MemberQ[Join@@c, i], l = RotateLeft@1;
      c = Mod[Range @@@ Partition[
        1 + {1, -1, 1, 2 n - 1}, 2], 2 n, 1]];
      If[Length[Join@@c] < 2 n - 4
        && v ∪ Join@@c ==
          Abs@p[[Join@@c]] ∪ Mod[{i, i + 1}, 2 n, 1],
        AppendTo[y, Convert[Build@k /. x_Integer ->
          PassMapping[v, 1, p, c, n, Abs@x, i]]]],
    {1, Sort@Join[#, v] & /@
      Subsets[Delete[Range[2 n],
        Mod[{i, i + 1}]T, 2 n, 1]], {2}]]],
    {i, 2 n}];
  KnotSort[Minimal /@ y ∪ {}]]];
```