

PassReducible@ $k$  gives True if the knot  $k$ , which is given in modified DT form, is reducible with a 2,1-pass move or a 3,2-pass move, and False otherwise.

PassReducible@k\_MDT := PassReducible@k =

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Block[{1, n = Length@k, p = List@@Build@k
  // (#† ∪ (Abs@Reverse@#
    Sign /@ List@@Build[MDT@@(-List@@k)])†)†
  2]] &, v = True},
Do[If[(Sign@p[[Mod[i + j (Range@o - 1), 2 n, 1]]] ∪
  {})2 == {1},
  (*There is a (o, o-1)-pass.*)
  If[o == 3, Goto@1];
  Do[If[Total@Mod[e, 2] == 2, If[(Mod[e, 2 n, e[[1]]]
    // Partition[#, 2] &
    // Range@@@# &)] [;;, 2 ;; -2]]
    // Mod[#, 2 n, 1] &
    // Union@@# &
    // # == Abs@p[[#]] ∪ {} &, Goto@1]],
  {e, Select[Table[SortBy[
    {c, i} ∪ Abs@p[[Mod[{i, i + j}, 2 n, 1]]],
    Mod[#, 2 n, i] &], {c, 2 n}],
    Length@# == 4 &]†
    If[j == 1, {2, 3, 4, 1}, ;;]]†]],
  {o, {3, 2}}, {i, 2 n}, {j, {1, -1}}];
v = False;
Label@1;
v];
```