

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 =
Block[{1, n = Length@k, p = List @@ Build@k
  // ( $\pi^T \cup (\text{Abs} @ \text{Reverse} @ \#$ 
    Sign /@ List @@ Build[MDT @@ (-List @@ k)]) $\pi^T$ 
  2]] &, v = True},
Do[If[(Sign@p[[Mod[i + j (Range@o - 1), 2 n, 1]]]  $\cup$ 
  {}) $^2$  == {1},
  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[[#]]  $\cup$  {} &, Goto@1]],
  {e, Select[Table[SortBy[
    {c, i}  $\cup$  Abs@p[[Mod[{i, i + j}, 2 n, 1]]],
    Mod[#, 2 n, i] &], {c, 2 n}],
    Length@# == 4 &] $\pi^T$ 
    If[j == 1, {2, 3, 4, 1}, ;;]] $\pi^T$ ]],
  {o, {3, 2}}, {i, 2 n}, {j, {1, -1}}];
v = False;
Label@1;
v];

```