

TwoPass@k_MD :=

```
TwoPass@k = Block[{a, c, n = Length@k,
  p = List@@Build@k //
    (#T ∪ (Abs@Reverse@# 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],
(*A 2-pass can be made with
  the given settings.*)
AppendTo[y, Convert[
  Build@k /. x_Integer =>
    PassMapping[v, l, 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 ∪ {}]]];
```