```mathematica
ReidemeisterThree@k_MD := ReidemeisterThree@k =
    Block[{b, f, n = Length@k,
      p = List @@ Build@k //
         (#ᵀ ⋃ (Abs@Reverse@# Sign@#)ᵀ)ᵀ⟦2⟧ &,
      v, y = {}},
     b = Abs@p // #⟦Mod[#⟦1⟧ + {1, -1}, 2 n, 1]⟧ &;
     Do[f = Mod[Abs@p⟦i⟧ + {1, -1}, 2 n, 1]
         // If[OddQ@i, Abs@p⟦#⟧, #] &;
      Do[If[{c, i - 1, i}
          // Total[Sign@p⟦#⟧]² == 1 ⋀
            MemberQ[(Abs@p⟦#⟧ ⋃ #)⟦2 ;; 3⟧, i] &,
        (*The third Reidemeister move can
         be made with the given settings.*)
        v = p⟦{Abs@p⟦c⟧, Abs@p⟦i - Mod[i, 2]⟧,
            i - Mod[i + 1, 2]}⟧ / 2;
        If[DuplicateFreeQ@v,
         AppendTo[y, k /.
            (v⟦#1⟧ → -Abs@v⟦#2⟧ Sign@v⟦#3⟧ & @@@
             {{1, 2, 3}, {2, 3, 1}, {3, 1, 2}})]]],
       {c, b ⋂ f}];
      b = f, {i, 2, 2 n}];
     KnotSort[Minimal /@ y ⋃ {}]];
```