

ToPD@k gives a planar diagram notation

for the knot k , which is given in modified DT form.

ToPD@k_MDT := ToPD@k =

```
Block[
  {a = Abs /@ k, n = Length@k, o, r}, o = Ordering@a;
  Do[If[PlanarGraphQ@Graph[Join@@Table[
    Array[{v, # - 1}  $\rightarrow$  {v, #} &, 3]  $\cup$ 
    {{v, 0}  $\rightarrow$  {v, 3}}]  $\cup$ 
    Join@@ ({ {v, #[1]}  $\rightarrow$ 
      {#[2], #[1] + (1 - c[[v]] c[[#[2]]]) / 2},
      {v, 3 - #[1]}  $\rightarrow$  {#[2], #[1] +
        (1 + c[[v]] c[[#[2]]]) / 2}} &
      /@ ({#, o[[Mod[v - # / 2, n, 1]]]} & /@
        {0, 2})}],
    {v, n}]]],
  (*The crossing
  assignment c is a valid assignment.*)
  r =
  c;
  Break[]], {c, Tuples[{1, -1}, n]};
  PD@@ (X### & @@@
    Array[{2 # - 1, 2 a[[#]], 2 #, Mod[2 a[[#]] + 1, 2 n, 1]}
      [If[Sign@k[[#]] == 1, ;;, {2, 3, 4, 1}]]
      [If[r[[#]] == 1, ;;, {1, 4, 3, 2}]] &, n)];
```