```
EdgeSequence@k_MD := EdgeSequence@k = Block[{s, w = List @@@ List @@ ToPD@k},
    s = (w //. (Max@# → Min@# & /@ w[[ ;; , {3, 5}]]))ᵀ[[2 ;; 4]]ᵀ;
    Complement @@@ (Table[{#⋃i[[ ;; 2]] ↦ #⋃i[[2 ;;]], #⋃i[[2 ;;]] ↦ #⋃i} & /@
            Subsets[Complement[Union @@ s, i]], {i, s}] // Flatten // Graph //
        FindPath[#, Sort[WeaklyConnectedComponents[#, {Union @@ s}][[1]]][[1]],
            Union @@ s][[1]] & // {#, {{}}⋃#[[ ;; -2]]}ᵀ &)];
```