Pensieve Header: Code to find equivalence classes, given some "decleration of equivalence".

Copied from the FastKh` code within KnotTheory`.

Fold

Fold[f, x, list] gives the last element of FoldList[f, x, list].

FoldList

FoldList[f, x, [a, b, ...]] gives [x, f[x, a], f[f[x, a], b], ...].

Position

Position[expr, pattern] gives a list of the positions at which objects matching pattern appear in expr.
Position[expr, pattern, levelspec] finds only objects that appear on levels specified by levelspec.
Position[expr, pattern, levelspec, n] gives the positions of the first n objects found.

EquivalenceClasses[l_List] := Module[{pos},
  Fold[
    {pos = First/@Position[#1, #2];
      Append[Delete[#1, List/@pos], Union @@ (#1[[pos]])]
    } &,
    l,
    Union @@ l
  ];
  l = {{1, 2, 3}, {2, 6}, {7, 8}, {4, 7}, {5, 6}}
  {Union @@ l}
  l = {{1, 2, 3}, {2, 6}, {7, 8}, {4, 7}, {5, 6}}
  Union @@ l
  {1, 2, 3, 4, 5, 6, 7, 8}
  EquivalenceClasses[l]
  {Union @@ l}
  {Union @@ l}