Polysemic intersection representation for Bipartite Graphs, Subtree graphs, and Path graphs have been defined and linear time algorithms for the recognition of polysemic intersection pairs of Interval graphs, Circular – arc graphs, Vertex path graphs, and Perfect vertex path graphs have been developed. The algorithm mainly rely on the graph theoretical model, transitive tournament. When we consider a tree as the underlying structure and the family of sets correspond to paths in the tree, the tree can be thought of as a computer communication network with paths representing messages between users. Also the edge path has transmission links as the bottleneck in the computer network example, and the vertex path has switching nodes as the bottleneck.

Finding a Hamiltonian circuit in the Joint graph of two intersection graphs in the same vertex set, is also found as the characteristics to recognize a polysemic intersection pair.

The clique tree representation property for the polysemic intersection pairs has been discussed. Clique tree representation is used in various computer algorithms.

The strongly chordal property of polysemic intersection pair of PV graphs is also introduced. Graph polysemy is of great importance in both theoretical and practical aspects.
There are a number of open problems in the field of polysemic representation of graphs and the recognition of polysemic intersection pairs of various graphs. The polysemic intersection number is the minimum cardinality of the universal set in polysemic intersection representation. The problem of finding this number is also open.

Interesting directions for further study are given below.

1. Algorithms for recognizing polysemic pair of other classes of graphs.

2. Construct polysemic intersection representation in $O(n^4)$ time.

3. Determine for an arbitrary pair of intersection polysemic graphs, the exact value of their polysemic intersection number.

4. Find combinatorial techniques to determine for an arbitrary pair of polysemic intersection graphs, the exact value of their polysemic intersection number.

5. Find a polysemic intersection representation with respect to some set of size $O(n^3)$.

We do not claim that this study is complete and exhaustive in every respect. There are several related areas worth investigating. We hope that this work will create greater interest in Graph Polysemy and will lead to further research.

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