

## END SIMPLICIAL VERTICES IN PATH GRAPHS

MARISA GUTIERREZ

*Conicet*

*Departamento de Matemática, Facultad de Ciencias Exactas*  
*Universidad Nacional de La Plata, Argentina*

**e-mail:** marisa@mate.unlp.edu.ar

AND

SILVIA B. TONDATO

*Departamento de Matemática, Facultad de Ciencias Exactas*  
*Universidad Nacional de La Plata, Argentina*

**e-mail:** tondato@mate.unlp.edu.ar

### Abstract

A graph is a path graph if there is a tree, called *UV*-model, whose vertices are the maximal cliques of the graph and for each vertex  $x$  of the graph the set of maximal cliques that contains it induces a path in the tree. A graph is an interval graph if there is a *UV*-model that is a path, called an interval model. Gimbel [3] characterized those vertices in interval graphs for which there is some interval model where the interval corresponding to those vertices is an end interval. In this work, we give a characterization of those simplicial vertices  $x$  in path graphs for which there is some *UV*-model where the maximal clique containing  $x$  is a leaf in this *UV*-model.

**Keywords:** chordal graphs, clique trees, path graphs.

**2010 Mathematics Subject Classification:** 05C75.

### REFERENCES

- [1] J.R.S. Blair and B.W. Peyton, *On finding minimum-diameter clique trees*, Nordic J. Comput. **1** (1994) 173–201.

- [2] F. Gavril, *The intersection graphs of subtrees in trees are exactly the chordal graphs*, J. Combin. Theory Ser. B **16** (1974) 47–56.  
doi:10.1016/0095-8956(74)90094-X
- [3] J. Gimbel, *End vertices in interval graphs*, Discrete Appl. Math. **21** (1988) 257–259.  
doi:10.1016/0166-218X(88)90071-6
- [4] B. L ev eque, F. Maffray and M. Preissmann, *Characterizing path graphs by forbidden induced subgraphs*, J. Graph Theory **62** (2009) 369–384.  
doi:10.1002/jgt.20407
- [5] C. Monma and V. Wei, *Intersection graphs of paths in a tree*, J. Combin. Theory Ser. B **41** (1986) 141–181.  
doi:10.1016/0095-8956(86)90042-0
- [6] Y. Shibata, *On the tree representation of chordal graphs*, J. Graph Theory **12** (1988) 421–428.  
doi:10.1002/jgt.3190120313
- [7] J.R. Walter, *Representations of chordal graphs as subtrees of a tree*, J. Graph Theory **2** (1978) 265–267.  
doi:10.1002/jgt.3190020311

Received 28 November 2013

Revised 17 July 2015

Accepted 17 July 2015