

## Competition Graphs of Semi orders

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The widely-studied notion of semi order has its origins in the study of preferences under non transitive indifference. If  $R$  is a binary relation on a set  $A$ , the competition graph corresponding to  $(A,R)$  has the set  $A$  as its vertex set and an undirected edge between  $a$  and  $b$  in  $A$  if there is some  $x$  in  $A$  so that  $aRx$  and  $bRx$ . The notion of competition graph arose originally from ecology but has since had a wide variety of applications involving communication, coding, and modelling of complex systems. Motivated by ideas of how individuals influence each other in decision making situations and how information is transmitted in computer and communication networks, we shall study the competition graphs arising from semi orders  $(A,R)$ . Variants of the notion of the weak order associated with a semi order, introduced originally by Luce and Scott and Suppes, will play an important role in our analysis.