Presentation Abstract

Presentation Title	Application of Graph Theory to Requirements Traceability
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Presentation Abstract	A method is described to visualize complex requirements sets amongst multiple documents, providing quick and intuitive insight into large problem sets. Graph theory is the study of mathematical structures used to model relationships between objects in finite collections. While the theory is traced originally to a paper written by Leonhard Euler in 1736 (Seven Bridges of Konigsberg), applications continue to be found, for example, in network flow problems, chemistry, biology, and social networking. Statistical analyses of sample graphs are found to provide insight into patterns of traceability, or connectivity, and as a diagnostic tool for subnet analysis. An application is proposed for spectral analysis of requirements sets using graphs. Examples are presented of real requirements documents modeled using directed graphs. Practical applications are shown of typical problems in the formation of requirement traceability.