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# Graph-Based Generation of Referring Expressions

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### Abstract Authors

This article describes a new approach to the generation of referring expressions. We propose to formalize a scene (consisting of a set of objects with various properties and relations) as a labeled directed graph and describe content selection (which properties to include in a referring expression) as a subgraph construction problem. Cost functions are used to guide the search process and to give preference to some

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four main advantages: (1) Graph structures have been studied extensively, and by moving to a graph perspective we get direct access to the many theories and algorithms for dealing with graphs; (2) many existing generation algorithms can be reformulated in terms of graphs, and this enhances comparison and integration of the various approaches; (3) the graph perspective allows us to solve a number of problems that have plagued earlier algorithms for the generation of referring expressions; and (4) the combined use of graphs and cost functions paves the way for an integration of rule-based generation techniques with more recent stochastic approaches.

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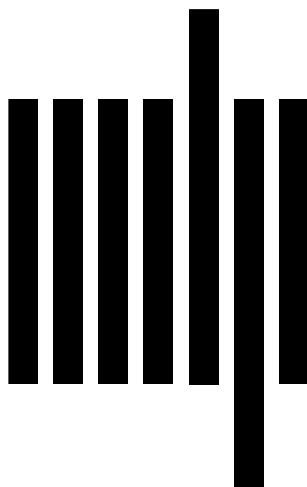
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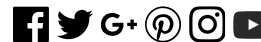
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