

Disambiguation of Policy Documents for Improved Access Control Decision Making

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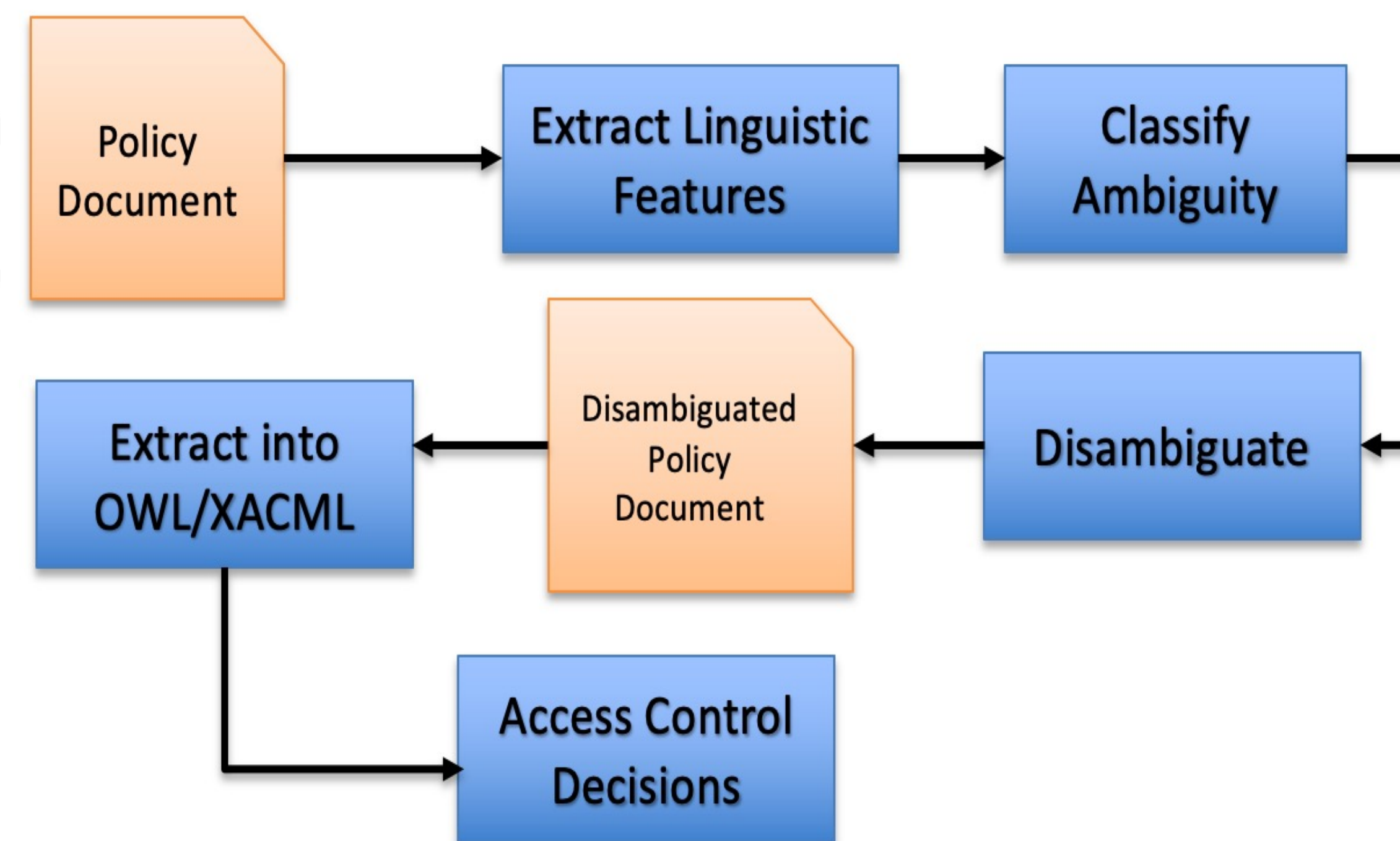
Introduction: There is a rich tradition of work in the access control community designed to extract knowledge from policy documents into semantically rich frameworks such as XACML and OWL.

However, knowledge extraction from policy documents is affected by ambiguity in policy language.

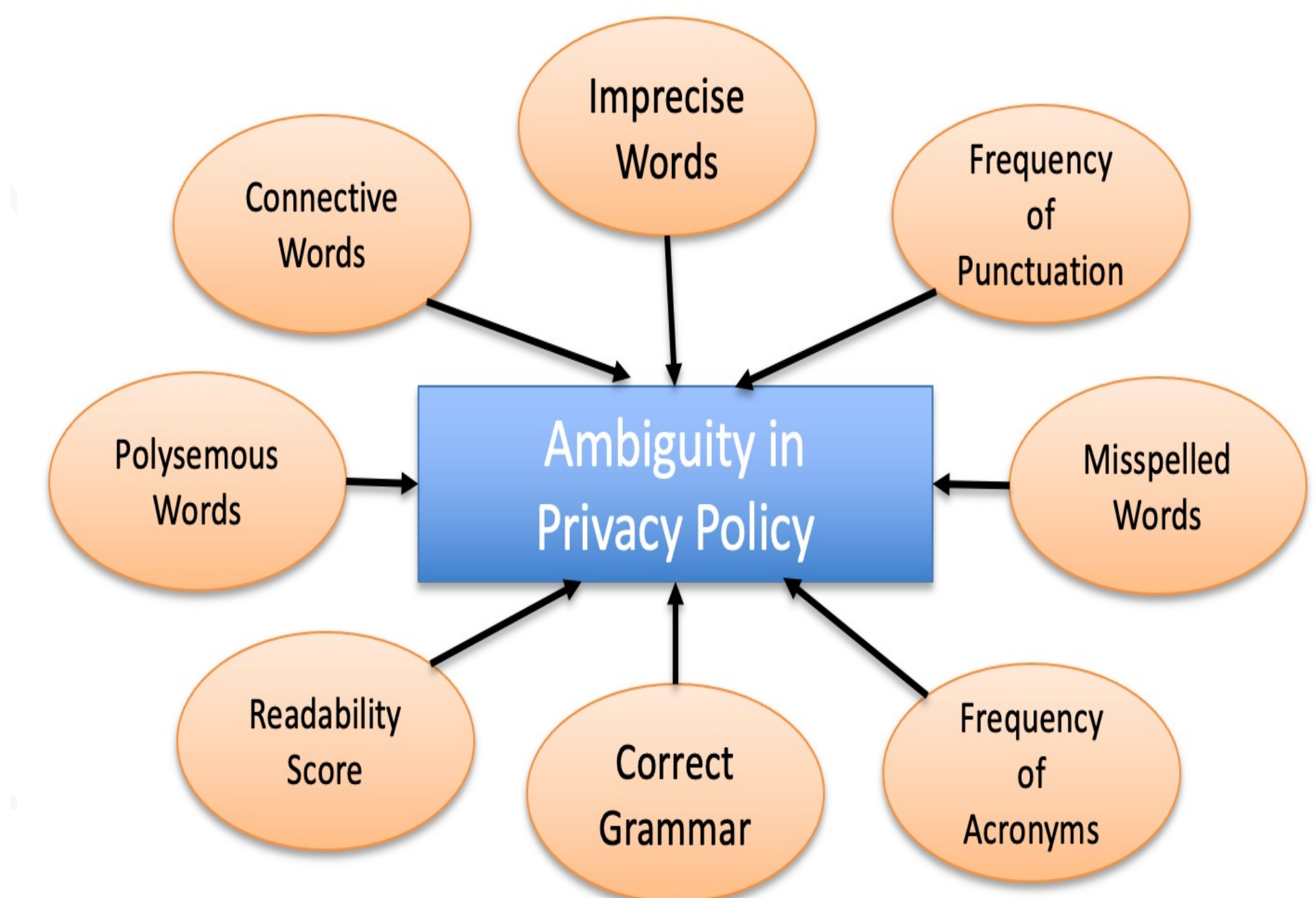
In our current work, we developed a method to objectively identify ambiguity in policy document. We also showed that NLP based approaches commonly used in the access control community fail when the text policies are ambiguous.

We propose a model that uses knowledge from our work to disambiguate policy text for improved access control decision making.

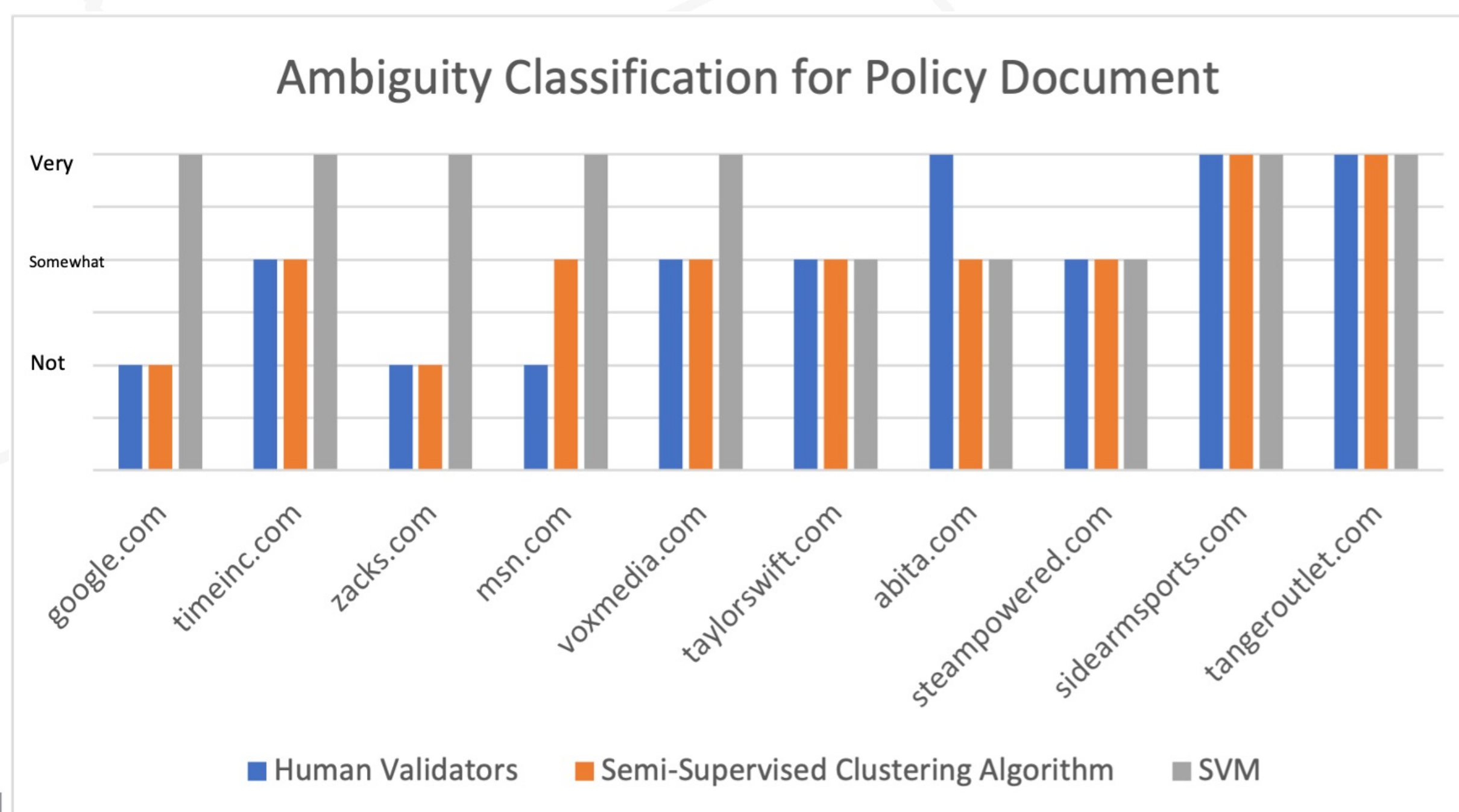
Proposed Pipeline for Improved Access Control Decision Making:



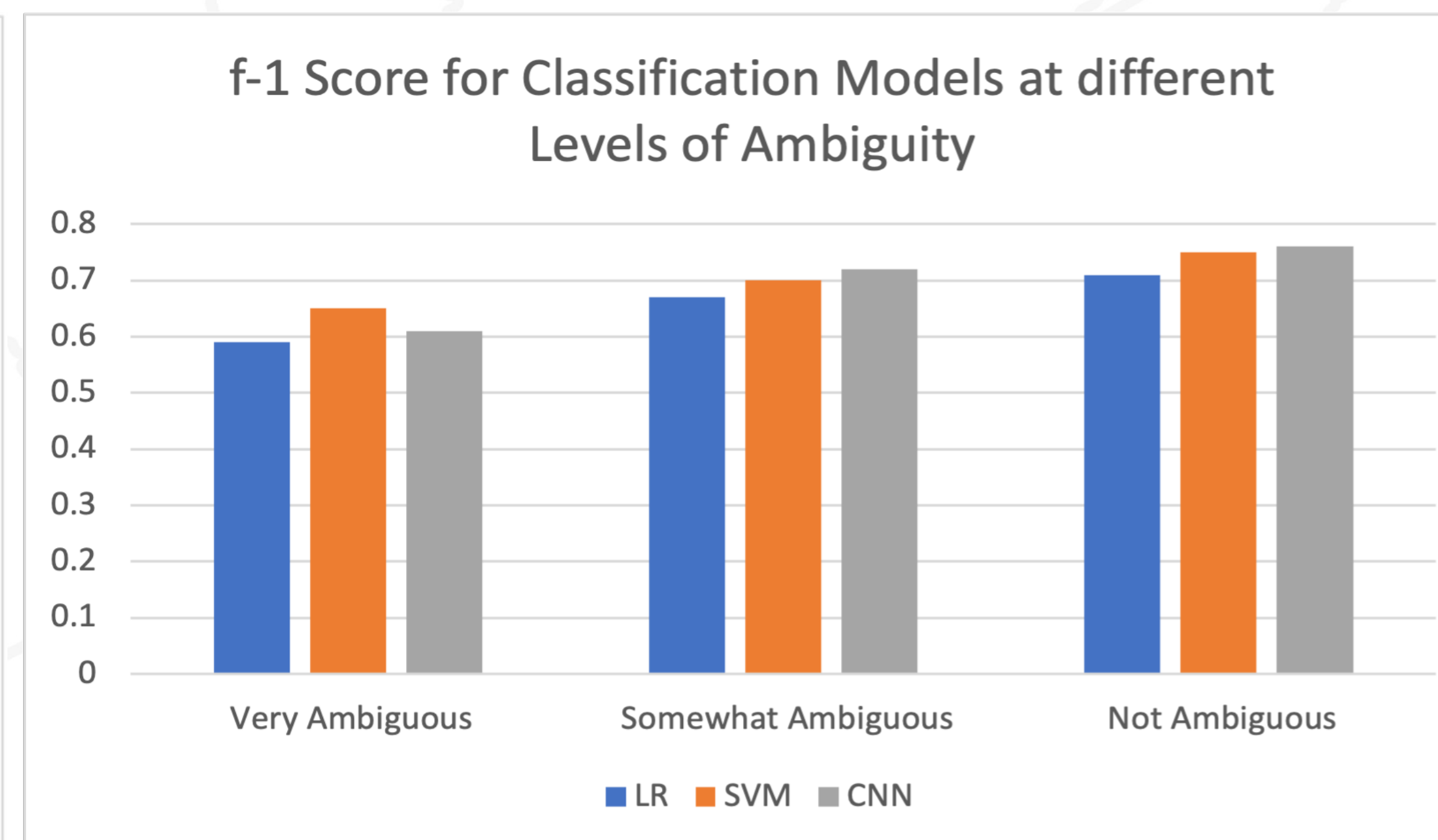
Defining Ambiguity:



Classifying Ambiguity in a Policy Document using Measured Features :



Effect of Policy Ambiguity on Access Control:



Disambiguated Policy Document:

We hope to use the ambiguity detection method to identify and then disambiguate policy documents to generate a policy texts that allow improved knowledge extraction. The knowledge extracted for the disambiguated policy documents can be used for better reasoning using policy document and thus improve access control decision making.



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