

Citations

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Majority digraphs. (English summary)

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This paper poses a problem in combinatorics coming from logic. The authors solve an important conjecture in digraphs from Chloe Urbanski:

The absence of one-way cycles characterizes majority digraphs.

Majority digraphs are finite simple digraphs such that there exist finite sets A_v for the vertices v with the property that uv is an arc iff $|A_u \cap A_v| > \frac{1}{2}|A_u|$, i.e., *most of A_u is in A_v* . The characterization of sound inferences involving *most* is an interesting problem in logic.

The authors generalize the problem by changing $\frac{1}{2}$ to any real number $\alpha \in (0, 1)$ and apply the characterization result to the logic of the assertion that *most X are Y* , developing the logic language $\mathcal{L}(\text{most})$ and proving that the satisfiability problem for this language is NP-complete.

The results in this excellent paper are very nice and the reformulation of the logic problem to digraph theory is very interesting.

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References

1. Jörg Endrullis and Lawrence S. Moss, *Syllogistic Logic with “Most”*, in V. de Paiva et al (eds.) *Proceedings, Workshop on Logic, Language, Information and Computation (WoLLIC’ 15)*, 2015, 215–229. [MR3440601](#)
2. Chloe Urbanski, personal communication, 2013.

Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.