

A graph-theoretic method to define any Boolean operation on partitions

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Received 4 August 2018, accepted 23 August 2018, published online 10 June 2019

Abstract

The lattice operations of join and meet were defined for set partitions in the nineteenth century, but no new logical operations on partitions were defined and studied during the twentieth century. Yet there is a simple and natural graph-theoretic method presented here to define any n -ary Boolean operation on partitions. An equivalent closure-theoretic method is also defined. In closing, the question is addressed of why it took so long for all Boolean operations to be defined for partitions.

Keywords: Set partitions, Boolean operations, graph-theoretic methods, closure-theoretic methods.

Math. Subj. Class.: 05A18, 03G10

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Metoda teorije grafov za definiranje poljubne Booleove operacije na particijah

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Prejeto 4. avgusta 2018, sprejeto 23. avgusta 2018, objavljeno na spletu 10. junija 2019

Povzetek

Mrežni operaciji unija in presek sta bili definirani za particije množic v devetnajstem stoletju, a v dvajsetem stoletju niso bile definirane in raziskovane nobene nove logične operacije na particijah. Vendar obstaja preprosta in naravna metoda teorije grafov za definiranje poljubne Booleove operacije na n -tericah particij in ta metoda je predstavljena v tem članku. Definiramo tudi ekvivalentno metodo teorije zaprtij. Nazadnje obravnavamo vprašanje, zakaj je trajalo tako dolgo, da so bile vse Booleove operacije definirane na particijah.

Ključne besede: Particije množice, Booleove operacije, metode teorije grafov, metode teorije zaprtij.
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