

Old but NU: Finding Large Monoidal Intervals

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Let A be a finite set and M a transformation monoid on A . For $n \geq 1$, let $\mathcal{O}_A^{(n)}$ denote the set of all n -ary operations on A . The set

$$\{f \in \mathcal{O}_A^{(n)} : f(\mu_1(x), \dots, \mu_n(x)) \in M \text{ for all } \mu_1, \dots, \mu_n \in M\}$$

is called the stabilizer of M . The lattice of all clones on a A is naturally partitioned into finitely many intervals, each having as its least element the clone generated by a transformation monoid and as its greatest element the corresponding stabilizer. The problem of classifying transformation monoids according to the cardinalities of the corresponding monoidal intervals was posed by Á. Szendrei in [1].

Combining the results of Krokhnin [2] with computer-assisted computations, we show that near-unanimity relations give rise to monoidal intervals of cardinality $|\mathcal{P}(\mathbb{N})|$.

References

- [1] Á. SZENDREI, *Clones in universal algebra*, Séminaire de mathématiques supérieures, Vol. 99, Les presses de l'Université de Montréal, Montréal, 1986.
- [2] Krokhnin, A. A.: Monoidal intervals in lattices of clones, *Algebra and Logic*, **34**, 155–168 (1995)