

# Heaps and trusses

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a joint work with

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## Abstract

I will present the first notions concerning heaps and trusses. Heaps were introduced for the first time by H. Prüfer [3] and R. Baer [1]. A heap is a pair  $(H, [-, -, -])$  consisting of a set  $H$  and a ternary operation  $[-, -, -]: H \times H \times H \rightarrow H$ ,  $(x, y, z) \mapsto [x, y, z]$ , such that, for all  $v, w, x, y, z \in H$ ,  $[v, w, [x, y, z]] = [[v, w, x], y, z]$ ,  $[x, x, y] = y$ , and  $[y, x, x] = y$ . Truss is a much more recent algebraic structure [2]. A truss is a heap with a further associative binary operation, denoted by juxtaposition, which distributes over  $[-, -, -]$ , that is, for all  $w, x, y, z \in T$ ,  $w[x, y, z] = [wx, wy, wz]$ ,  $[x, y, z]w = [xw, yw, zw]$ , and  $[x, y, z] = [z, y, x]$ .

## Keywords

Ternary operations, Heaps, Trusses, Commutators of congruences (in heaps), Idempotent endomorphisms of heaps, Semidirect products of heaps, Derivations in trusses.

## References

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