POWER REPRESENTATION OF MODALS

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In a natural way we can "lift" any operation defined on a set $A$ to an operation on the set $\wp(A)$ of all (non-empty) subsets of $A$ and obtain from an algebra $(A, F)$ its power algebra $(\wp(A), F)$ of subsets.

The set $\wp(A)$ carries also the join semilattice structure under the set-theoretical union $\cup$. By adding $\cup$ to the set of basic operations we obtain the extended power algebra $(\wp(A), F, \cup)$.

On the other hand, a modal is an algebra $(M, \Omega, +)$ such that $(M, \Omega)$ is a mode (i.e. algebra which is idempotent in the sense that each singleton is a subalgebra, and entropic, i.e. any two of its operation commute), $(M, +)$ is a (join) semilattice and the operations $\omega \in \Omega$ distribute over $+$. In this talk we show that each modal may be represented as a subalgebra of a quotient of some extended power algebra.

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