

If every homomorphism from the  $n$ -th power of an algebra  $\mathbf{A}$  to  $\mathbf{A}$  depends on one variable only, then we say that  $\mathbf{A}$  is  $n$ -coconnected. For every integer  $n \geq 2$  there exists a  $n$ -coconnected algebra, which is not  $(n + 1)$ -coconnected. Examples of these algebras constructed in previous articles were large in terms of either cardinality of the algebra or the number of operations. The goal of this thesis is to improve the lower and upper estimate of the lowest possible cardinality of a  $n$ -coconnected and not  $(n + 1)$ -coconnected algebra. There is already a construction of these algebras for every possible  $n$  with cardinality  $2n$  and for  $n \geq 3$  the lower estimate of the lowest possible cardinality is currently  $n + 1$ . In this thesis we will construct examples of the smallest possible  $n$ -coconnected and not  $(n + 1)$ -coconnected algebras for every  $n \geq 2$ .