

## **A Parameterized Extension of the Binding Number**

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We define an extension of the standard binding number of a graph which introduces parameters into the computation. This extension is motivated by a number of theorems that use bounds on the order of neighbor sets of vertices to determine the existence of cycles or factors within the graph. We demonstrate how this extended binding number can be integrated into such theorems. Additionally, we provide a theorem that indicates sufficient conditions on the degree sequence of a graph which guarantees a prescribed lower bound on this extended binding number. Finally, we show how these conditions can be combined with known theorems to produce sufficient conditions on the degree sequence which guarantees certain cycles or factors within the graph.

Keywords: binding number, cycles, factors, degree sequence