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Leslie Hogben* (hogben@iastate.edu), **Jephian C.-H. Lin** and **Michael Young**. *Multi-part Nordhaus-Gaddum type problems for tree-width, Colin de Verdière type parameters, and Hadwiger number.*

A traditional Nordhaus-Gaddum problem for a graph parameter β is to find a (tight) upper or lower bound on the sum or product of $\beta(G)$ and $\beta(\overline{G})$ (where \overline{G} denotes the complement of G). An r -decomposition G_1, \dots, G_r of the complete graph K_n is a partition of the edges of K_n among r spanning subgraphs G_1, \dots, G_r . A traditional Nordhaus-Gaddum problem can be viewed as the special case for $r = 2$ of a more general r -part sum or product Nordhaus-Gaddum type problem. We establish results for the r -part sum and product Nordhaus-Gaddum type problems for the parameters tree-width and its variants largeur d'arborescence, path-width, and proper path-width; the Colin de Verdière number μ that is used to characterize planarity, and its variants ν and ξ ; and the Hadwiger number. (Received August 05, 2016)