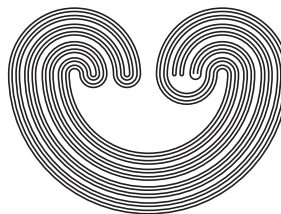


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# TOPOLOGY PROCEEDINGS



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## SUPERDUPER PROPERTIES

by

JOAN E. HART AND KENNETH KUNEN

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## SUPERDUPER PROPERTIES

JOAN E. HART AND KENNETH KUNEN\*

**ABSTRACT.** The paper “Super Properties and Net Weight” [Topology Appl. 274 (2020)] discussed the property suHG (super HG) and showed that it is consistent with  $\mathbf{MA}(\aleph_1)$  to have a suHG space of uncountable net weight. Here, we introduce the superduper properties and show that suduHG (superduper HG) is equivalent to countable net weight. As with the super varieties of the familiar HG, HS, HL, and HC properties, the suduHG, suduHS, and suduHL properties are all equivalent, while the property suduHC is strictly weaker than suduHG. We shall also discuss two-parameter and three-parameter versions of these notions.

### 1. INTRODUCTION

All topological spaces considered in this paper are  $T_3$  (Hausdorff and regular).

The papers [3], [4], and [5] discussed the four properties HS, HL, HC, and HG, along with their “strong” versions, stHS, stHL, stHC, and stHG, and introduced their “super” versions suHS, suHL, suHC, and suHG. Here, we introduce their “superduper” versions, and consider the various implications and non-implications among these sixteen properties.

To define our superduper properties, we begin by recalling our definitions from [3] and [5] of HG, suHG, and the notion of a  $\kappa$ -assignment for  $X$ :

**Definition 1.1.** Given a space  $X$ , a  $\kappa$ -assignment for  $X$  is a sequence  $\mathcal{U}_\kappa = \langle (x_\alpha, U_\alpha) : \alpha < \kappa \rangle$ , where each  $U_\alpha$  is an open subset of  $X$  and each

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*Key words and phrases.* network, net weight, hereditary properties.

\*We submitted this paper August 3, 2020. The editors boxed Ken’s name because for him this became a posthumous publication.

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