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# United States Patent [19]

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Young

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[54] **OBJECT PROPERTY LISTS**

5,787,444 7/1998 Gerken et al. .... 707/203

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[73] Assignee: **Microsoft Corporation**, Redmond, Wash.

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[21] Appl. No.: **08/657,021**

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[52] **U.S. Cl.** ..... **707/104; 345/333; 345/352**

[58] **Field of Search** ..... 345/333, 352;  
395/601, 621, 326, 700, 680, 500; 342/252;  
707/103, 203, 104

[57] **ABSTRACT**

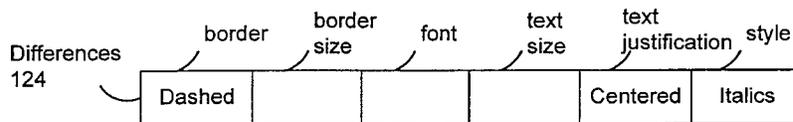
A property arithmetic system is provided that can isolate modifications made to one object and apply the modifications to another object. Such isolation and application of modifications are referred to as property arithmetic. The term "arithmetic" is used as an analogy between computations performed on properties of an object and computations performed on numbers. Using this arithmetic, a user's modifications to the properties of an object can be easily isolated by subtracting the original property values from the modified property values. Once isolated, the modifications can be applied to a different object so that the user does not have to manually recreate their modifications. In the property arithmetic system, properties of an object are stored in a property list. The property list not only contains properties, but can also contain other property lists, which provides flexibility in their use. Furthermore, the property list is stored in a contiguous block of memory. Storing the properties in this manner is advantageous when copying a property list, since the copy typically can be accomplished by a single command, whereas if the property list were stored in noncontiguous areas of memory, multiple commands would be required to copy the property list.

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**38 Claims, 17 Drawing Sheets**



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