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Software supporting reasoning—exclusive use of patented technology
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Intelligence Analysts and Archeologists

...and criminal investigators and clothing manufacturers have one thing in common. They look for meaningful relationships between actions, times, people, places, materials, colors, sizes and other parameters. They are not alone—persons in many other occupations also look for meaningful associations between a large number of “things".

Often those “things" are—or could be—listed as items on a data table, with the names ofthe items in the first column followed by other columns showing the parameter values of those items. The human mind has an astounding ability to analyze the entire array of parameter values: to identify meaningful groups (even of separated data), and visualize conflicts and opportunities —and suggest changes. Those issues, produced spontaneously by dynamic thinking, last only momentarily in the user’s mind. With typical database programs, that train of thought may be lost by the time the parameter values are edited and/or columns are rearranged to reflect responses to those issues. Worse, unexpected and valuable YES BUT and WHAT IF issues may not even be generated because of the limited physical presentation of the data—a single static table, perhaps followed later (how much?) by others. How then can a data table be made dynamic—changeable at a speed approaching that of the user’s mind? How can all possible arrangements of the data be examined?

Step 1 was acknowledging that even when columns of parameter values are rearranged, the listed items remain in the same row (because computers sort from left to right). So we put the names in the last column, where they are free to move up or down according to the parameter values in the first column. Edit a value in that first column, or put a different parameter there, and the item names move again. You can then analyze groupings of item names as well as groupings of parameter values.

Step 2, given the objective of speed, was enabling the user to take the fewest possible steps to design a data table, see it, and edit it. Our patented software does that using only three screens: Item Specification (a dialog box defining an item’s parameter values), Query (determine which items will be on the data table), and the Table. As the user cycles between those 3 screens, his or her personal knowledge, goals, analytic skills, and imagination all come into play. Answers are not on a static data table, where anyone can read them. They are unique formations in the minds of the individual analysts. The abilities of individuals are employed in a new and powerful fashion.

Step 3 was our patented invention of automated permuting. A user of our software can manually view all 24 column arrangements (permutations) of a table with 4 parameters. That is barely feasible with the 120 permutations of 5 parameters, but clearly not feasible with 720 permutations of 6 parameters, etcetera. So all possible permutations can be automatically

displayed at a speed of the user's choice. Those with meaningful groups of parameter values—which define unique sets of item names—can be saved for further study. Another patent lets the user select parameters for exclusion from sorting while remaining visible.

Step 4 recognized that item names and parameter values on a data table are not the only subjects of analysis. So we added, to the dialog box used to create items, a field for additional descriptive text. And why not expand the scope of visual input further by concurrently displaying images associated with the items? With the arrangement of those images corresponding to the arrangement of the item names on the data table? That is also our patented invention, yet to be fully embodied.

A name was needed for the new analytic methodology supported by our inventions. As when modeling a lump of moist clay, users of our dynamic data tables model the data in the context of what they see, so we named the methodology contextual data modeling (CDM). To see CDM in action, download and install Reason, at execware.com/Our Products. Study the Sample dataset, then build your own with data from your work. Then run it, as your reasoning suggests, to experience CDM, a powerful new analytic methodology that more fully employs the personal abilities of each individual user.

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