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Beck et al.

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(45) **Date of Patent:** **Jun. 15, 2010**

(54) **CONSOLIDATION OF PRODUCT DATA MODELS**

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(21) Appl. No.: **10/827,078**

(22) Filed: **Apr. 19, 2004**

(51) **Int. Cl.**
  G06F 7/60 (2006.01)
  G06F 19/00 (2006.01)
  G06F 9/44 (2006.01)
  G06N 5/02 (2006.01)
(52) **U.S. Cl.** **703/2**; 700/95; 700/97; 705/7; 706/47
(58) **Field of Classification Search** 703/1–2; 700/95, 97; 705/7; 706/47
  See application file for complete search history.

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(57) **ABSTRACT**

A model consolidation process combines multiple configuration models into a single unified configuration model that contains the union of the allowable combinations (i.e. combinations that are buildable) from each of the original models. An aspect of at least one embodiment of the model consolidation process is that it allows models to be combined in such a way that any incompatibilities or contradictions between models are detected and automatically resolved where possible. If an incompatibility is detected that cannot be automatically resolved, then the configuration models should not be combined. Instead if this incompatibility case occurs, at least one embodiment of the model consolidation process produces a description of the problem encountered and report the problem along with the necessary information required for a human to resolve it.

22 Claims, 13 Drawing Sheets

Directed Acyclic Graph (DAG)

200

Family A

Family B

Family C
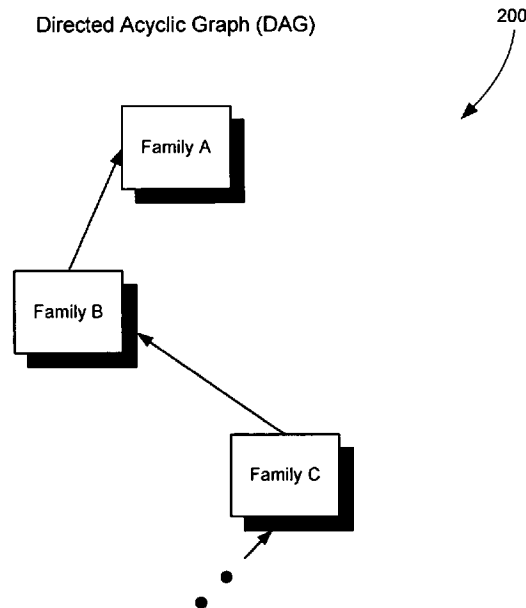
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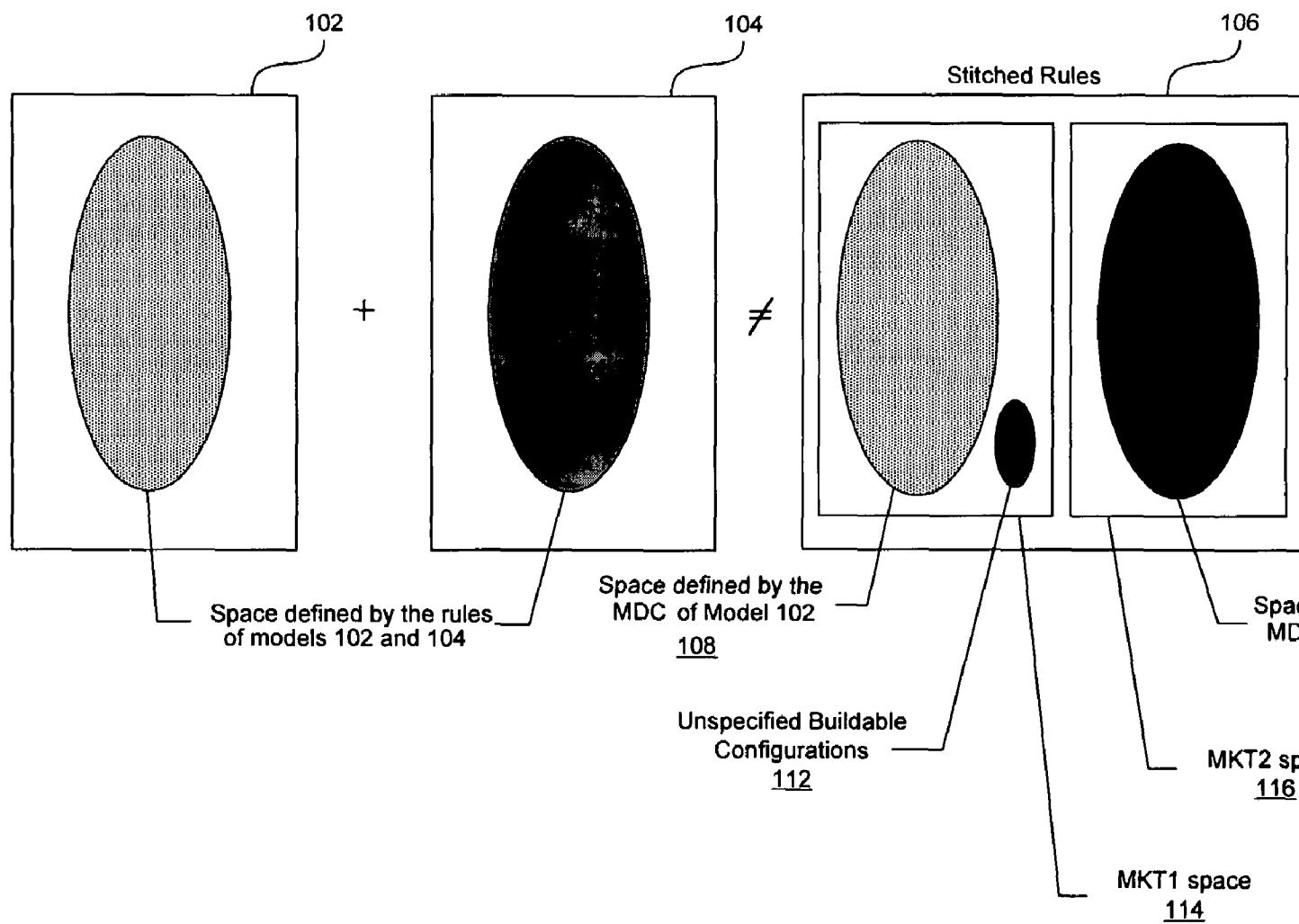
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102

104

106

Stitched Rules

+

≠

Space defined by the rules
of models 102 and 104

Space defined by the
MDC of Model 102
108

Spac
MD

Unspecified Buildable
Configurations
112

MKT2 sp
116

MKT1 space
114

Figure 1 (prior art)

Directed Acyclic Graph (DAG)

200

Family A

Family B

Family C
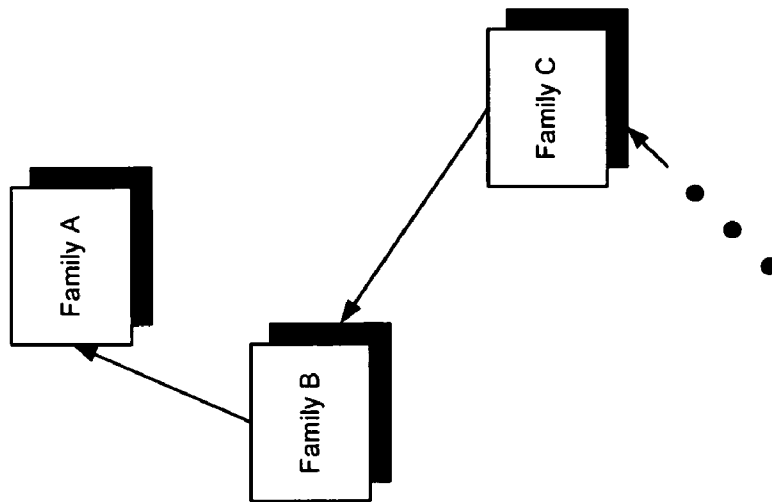
Figure 2

DAG for model 622

Market

SER

ENG
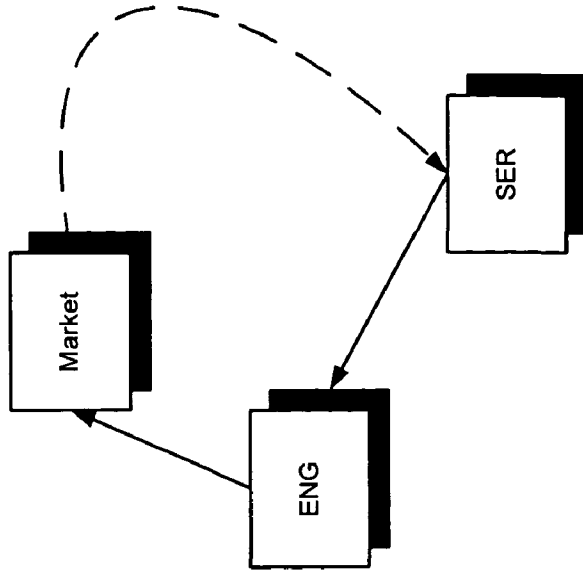
Figure 4 (prior art)
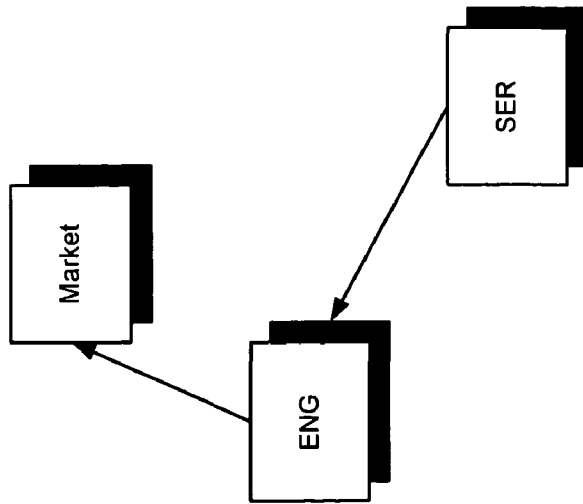
DAG for models 602 and 612

Market

SER

ENG

Figure 3 (prior art)

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