FUNCTIONAL SPECIFICATION FOR THE MODEL BUILDING SYSTEM
ROUGH DRAFT

William Bricken
May 1985

Objective:
to provide tools for the incremental development of behavioral models

Tools are of two varieties:

1. ANALYST TOOLS: statistical tools to be called directly by the analyst for the purpose of obtaining statistical information about the objects in the system.

A. Interval data, such as time and location data, can be examined by correlational procedures such as

a. Correlation matrices
b. Regression
c. Time series

These techniques will be available for analysis of objects at any level of the object hierarchy.

B. Categorical data, such as count data, can be analyzed by

a. Chi-square statistics
b. Log-linear modeling

C. Display capabilities will include

a. Scatter plots
b. Distributional plots
c. Time-line plots

D. Potential extensions of these tools include:

a. Intelligent guidance of the application of the statistical tools
b. Cluster and factor analysis

2. MACHINE LEARNING: symbolic data, such as object state and behavior patterns, will be symbolically processed by the computer for the purpose of identifying stable, recurrent patterns of behavior.

Techniques will include

a. Pattern matching
b. Generalization and specialization of rules
c. Parameter adjustment
d. Incremental refinement of existing models

The viewgraph version of the above outline follows:

MODEL DEVELOPMENT MODULE

Objective:
to provide tools for the incremental development of models of behavior

ANALYST TOOLS:
to provide statistical information under analyst control

A. Correlational procedures for interval data:
a. Correlation matrices
b. Regression
c. Time series

B. Categorical procedures for frequency data:
a. Chi-square statistics
b. Log-linear modeling

C. Display capabilities:
a. Scatter plots
b. Distributional plots
c. Time-line plots

D. Potential extensions:
a. Intelligent guidance for the application of statistical tools
b. Cluster and factor analysis

MACHINE LEARNING:
to identify stable, recurrent patterns of behavior, under machine control

A. Pattern matching
B. Generalization and specialization of rules
C. Parameter adjustment
D. Incremental refinement of existing models
