Newell 1972

Main summary:

Current methods in psychology provide a bounty of exploratory questions and conceptualizations, however there is little work towards an integration across these questions into a coherent theory of human information processing. What is needed are more complete models of processing, both across and within the various psychological phenomena.

Setup:

-Newell was asked to review and sumarize the various studies in the Visual Information Processing conference, instead he choose to discuss his thoughts on the field of psychology as a whole. -He characterized the field at that time (or the whole of science) as 'playing twenty questions with nature', i.e. approaching investigations through a series of binary questions that should inevitably lead to an ultimate resolution

-He suggests, however, that if one were to project the current course of psychology(perhaps uniquely among the sciences) thirty years into the future we would not be culminating to an ultimately larger understanding of the field

-He then lists some cursory evaluations of the current conference papers, and proposes that these are examples of excellent work that add up to nothing

Diagnosis:

-Psychological experimentation has two major injunctions:

-Know/control the method in which subjects perform your task of study

-Never average behavioral responses from different methods employed by those subjects -Newell suggests these principles lead to the unique nature of psychology in the scientific method, i.e. there is continual debate as to how subjects actually performed the task, and if that has compromised the analysis through the averaging of differing methods/strategies

-seems highly related to Hofstadler's idea of sub-cognitive processes defining the 'true' structure of intelligence(i.e. how a given individual actually arrives at their behavior)

-this debate prevents psychology as a whole from moving forward as there is no attempt to explain/model the control structure of the mechanisms involved in the tasks

-a problem of integration also is prevalent within psychology

-studies are not designed to target these 'control structures'

-investigators behaving in a 'theoretically irresponsible' way, i.e. shooting holes in theories without providing anything substantive in its stead

Prognosis:

-Three proposed solutions

-Complete processing models

-exemplified by 'complete' simulations of the task at hand(namely, his work) -flow charts insufficient

-Target a single complex task and generate a theory for that task in particular

-don't let yourself become phenomena driven, build task(not phenomena) based theory -build successive experiments that 'add up' to a total picture

-Construct a single system to perform multiple tasks

-comprehensive model that performs all aspects of cognition

-interpret instructions and perform task