

ICS 464 12/04/06

Introduction to Cognitive Science

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Next

Announcements

Monday – Presentations

Greg

Kevin

Homework12 due – Cogent

Wednesday - Presentations

Cheryl

Modeling

Quiz10 – on my lectures and homework

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Next

Next week Monday

Exam04 – 150 points, everything
from after Exam03

Please email

1. Picture used for IKB
2. Your presentation to be posted for other students to review.

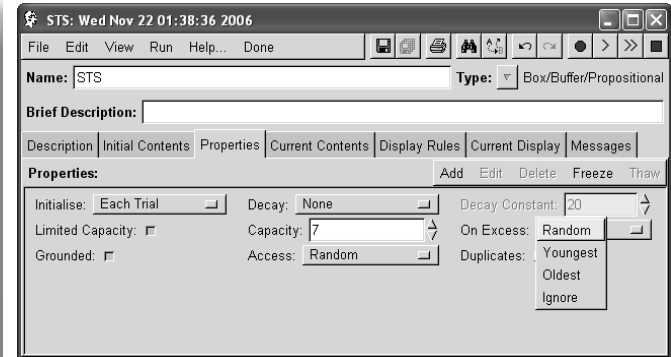
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Presentations

4

Homework12

5



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Excess
Random

Capacity	Capacity	Capacity	Capacity	Capacity
0	3	6	9	12

Access	Random	Cheryl	Christopher	Chong Hyuck	Kevin	Greg
Access	FIFO	Simon	Cheryl	Christopher	Chong Hyuck	Kevin
Access	LIFO	Erik	Simon	Cheryl	Christopher	Chong Hyuck

Excess
Youngest

Capacity	Capacity	Capacity	Capacity	Capacity
0	3	6	9	12

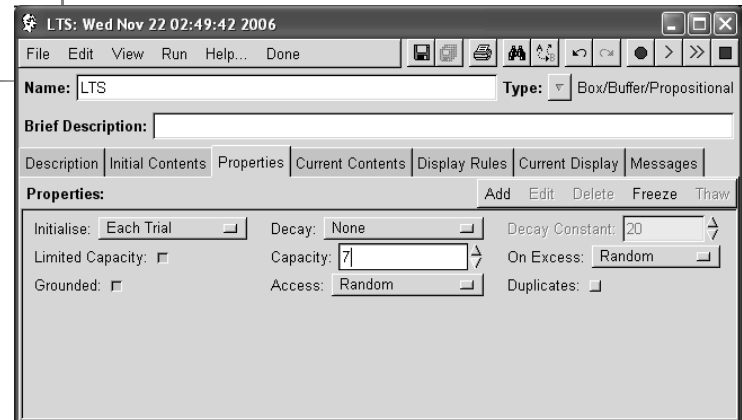
Access	Random	Erik	Christopher	Greg	Cheryl	Greg
Access	FIFO	Chong Hyuck	Erik	Christopher	Simon	Curtis
Access	LIFO	Greg	Chong Hyuck	Erik	Kevin	Simon

Excess
Oldest

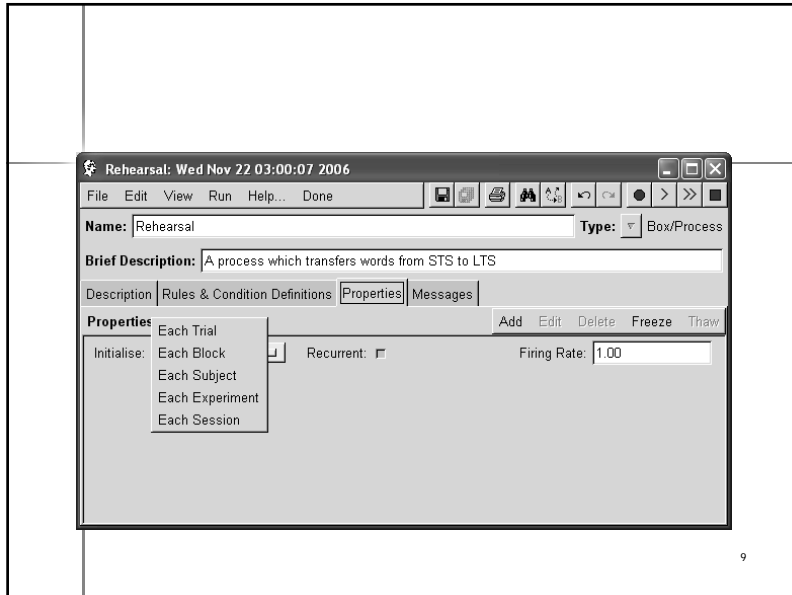
Capacity	Capacity	Capacity	Capacity	Capacity
0	3	6	9	12

Access	Random	Kevin	Greg	Chong Hyuck	Erik	Curtis
Access	FIFO	Cheryl	Kevin	Greg	Simon	Erik
Access	LIFO	Simon	Curtis	Kevin	Christopher	Cheryl

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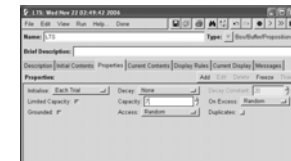


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- Homework11 makeup
- Using the completed working model
- 1. Change long term memory capacity from 1, 4, 7, 10, 13 - Change rehearsal – Trial or Block
- 2. Print 5 charts
- 3. Explanation



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Approaches to Cognitive Modeling

- Connectionist Approach
 - Critical to the way the mind works.
 - Neural tissues that implement the information processing mechanisms of the mind are models that consist of many simple interacting
 - Units functioning in parallel.
- Symbolic Approach
 - Information processing can be described in terms of the manipulation of symbolic representations
 - The neural substrate is viewed as an implementation medium that is of secondary importance

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- Hybrid (Symbolic/Connectionist) Approach
 - Systems that combine the strengths and circumvent the weaknesses of the individual approaches.
- Dynamical Approach
 - Mental processing may be described by differential equations
 - Rejects mental representation
 - Better for lower level mental processing

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	<ul style="list-style-type: none"> ■ Architectural Approach <ul style="list-style-type: none"> – Behavior on any particular task as the product of a general architecture working with task-specific knowledge. – Components may include a short-term or working memory, a long-term memory, a language subsystem, perceptual and motor subsystems, one or more learning mechanisms, and so forth.
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	<h2>Strategies for the Use of Cognitive Models</h2>
	<ul style="list-style-type: none"> ■ Fishing trip – Build a model to . . . <ul style="list-style-type: none"> – Determine what is unclear about the problem . . . missing details. – What is computationally required for completeness ■ Implement pre-existing theory <ul style="list-style-type: none"> – Test claims – Identify critical parameters
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	<h2>Strategies for the Use of Cognitive Models</h2>
	<ul style="list-style-type: none"> ■ Support the hypothetico-deductive model <ul style="list-style-type: none"> – Test the model beyond the behavior of which it was based on. – Generate predictions of behavior that are tested against experiments with real people.
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	<h2>Goal – Unifying the Theories of Intelligence and Cognition</h2>
	<ul style="list-style-type: none"> ■ Unified account of cognitive processes <ul style="list-style-type: none"> – How the processes interact – Process dependencies at the macro and micro level – A unified explanation of the influence of top-down and bottom-up processes on cognitive processes and intelligent
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