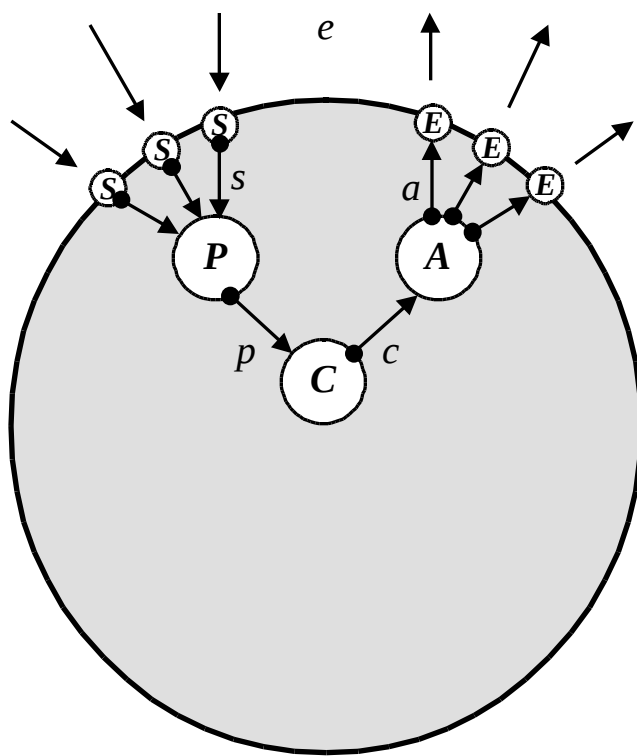


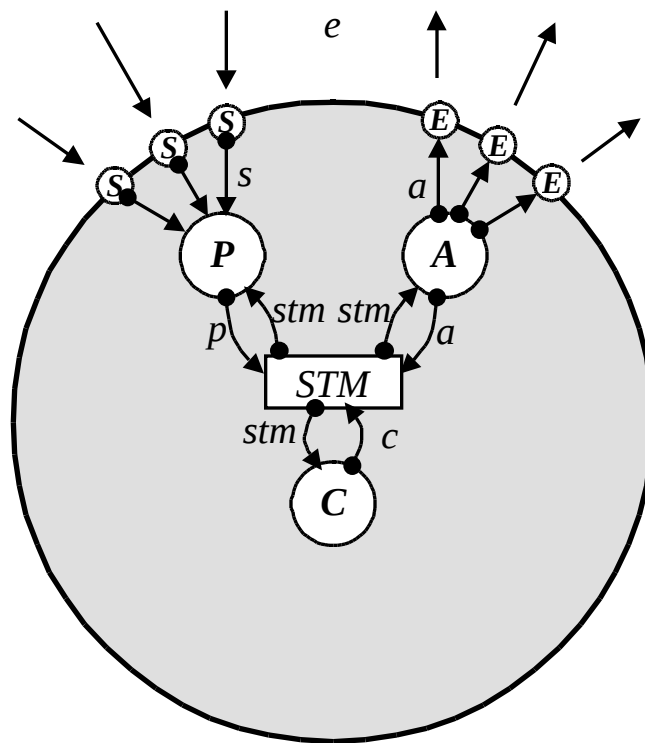
SITUATED CREATIVITY AS A BASIS FOR SOCIAL CREATIVITY

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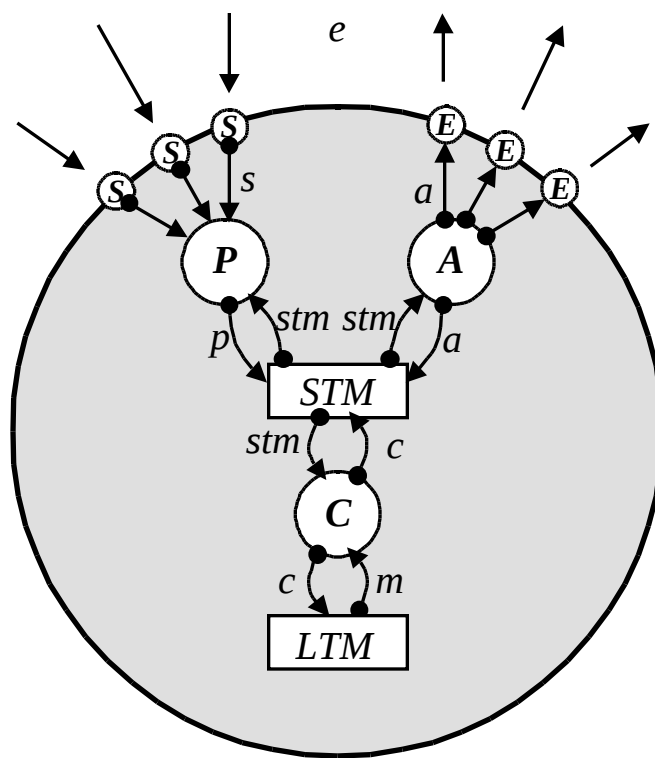
A simple agent architecture



Agent with STM



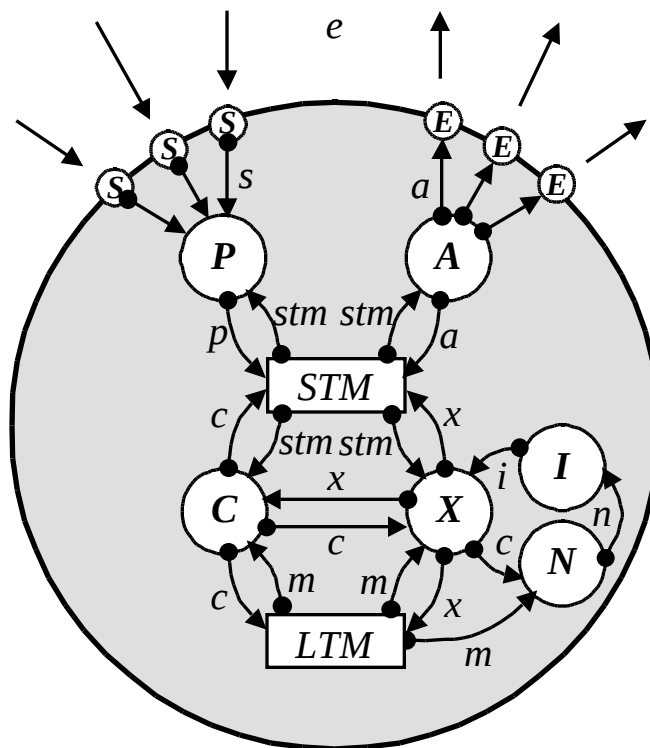
Learning agent with STM and LTM



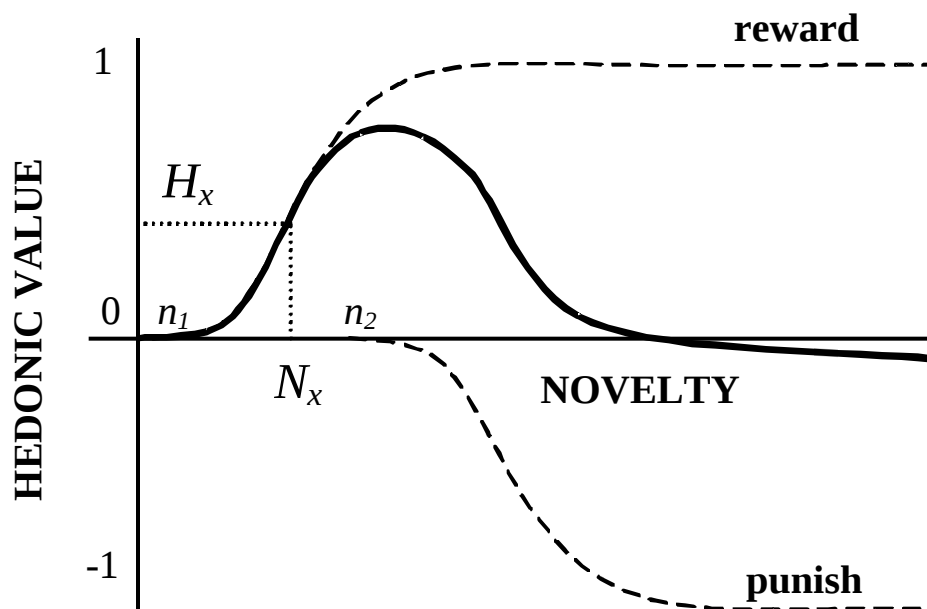
Novelty detection

- Construct a categorisation of the current situation.
- Determine the probability of the categorisation.
- Compute novelty as the inverse of the probability.

Curious agent



Wundt's hedonic function



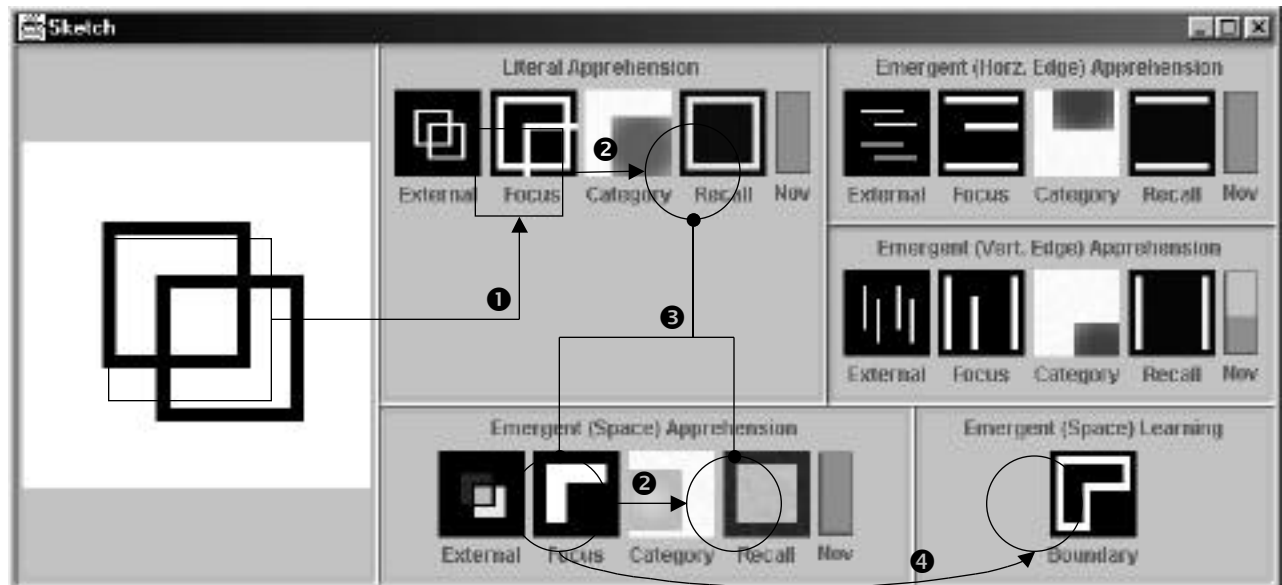
Modeling interest

$$i_t = \mathbf{R}(n_t) - \mathbf{P}(n_t)$$

$$\mathbf{R}(n_t) = \frac{R_{\max}}{1 + e^{-\rho(n_t - R_{\min})}}$$

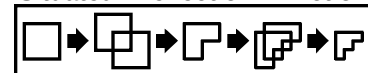
$$\mathbf{P}(n_t) = \frac{P_{\max}}{1 + e^{-\pi(n_t - P_{\min})}}$$

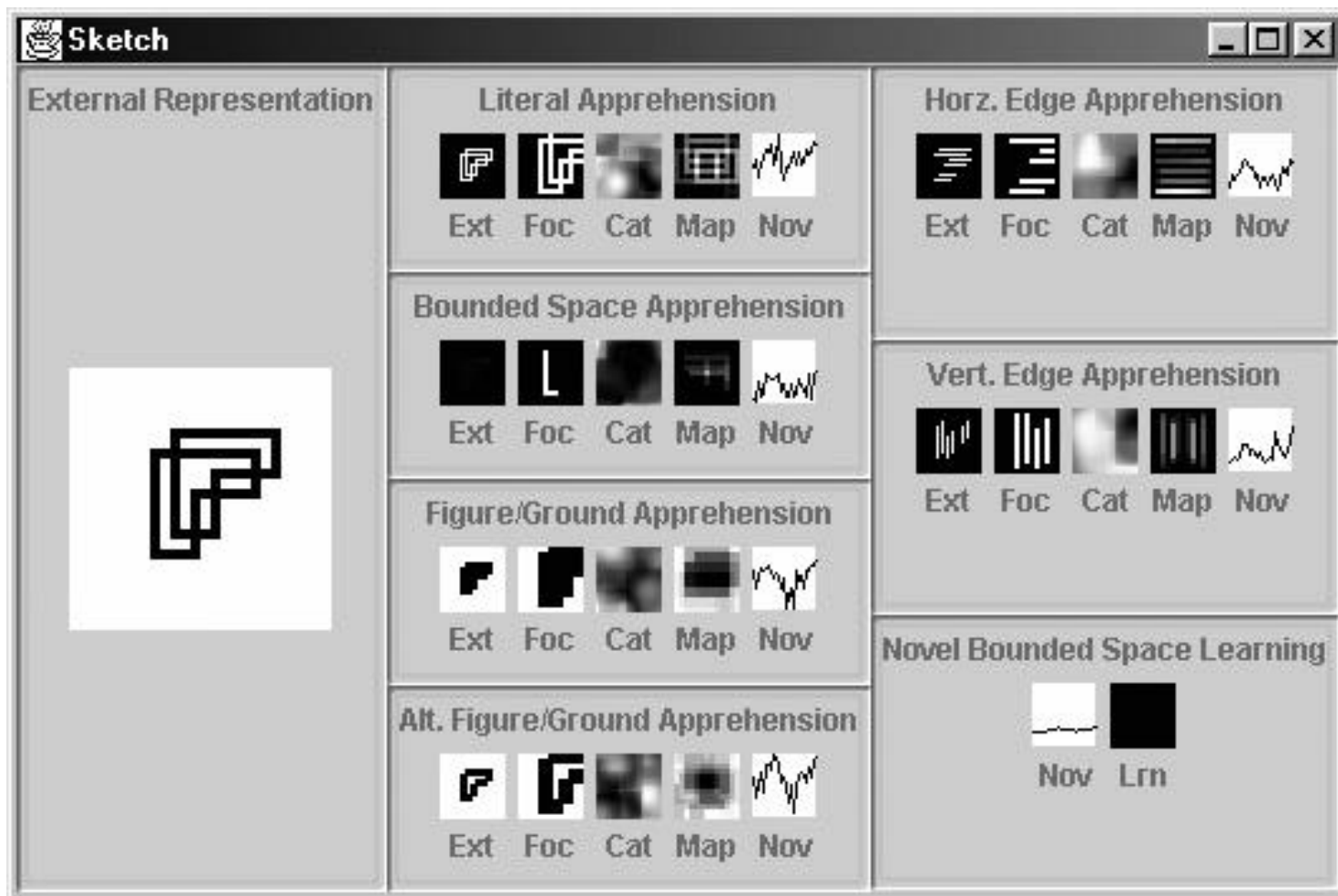
Situated Sketching



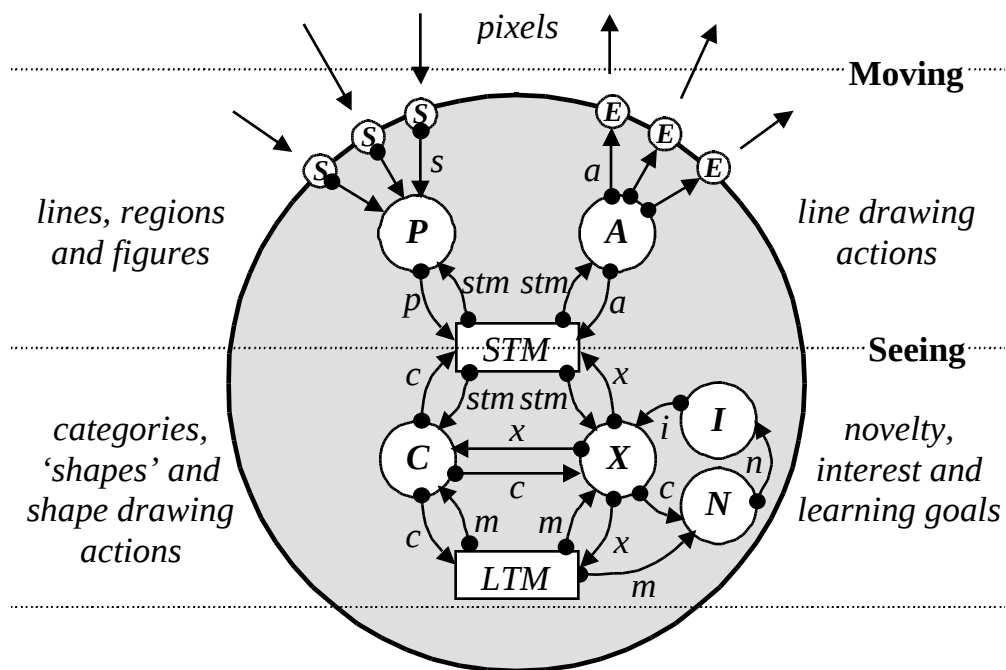
- ❶ An area of interest is focused on.
- ❷ Memory constructed from previous, recalled experiences.
- ❸ Situations are constructed/recalled.
- ❹ "Interesting" new shapes are learned.

Situated "Reflection-in-Action"





Situated sketching



SITUATED ANALYSIS

- **Designing doors**

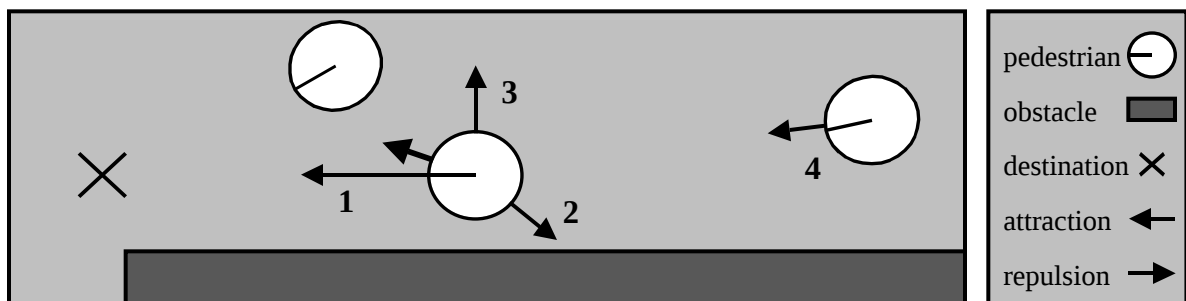
Description of situated social force

Pedestrians try to move as efficiently as possible to a destination.

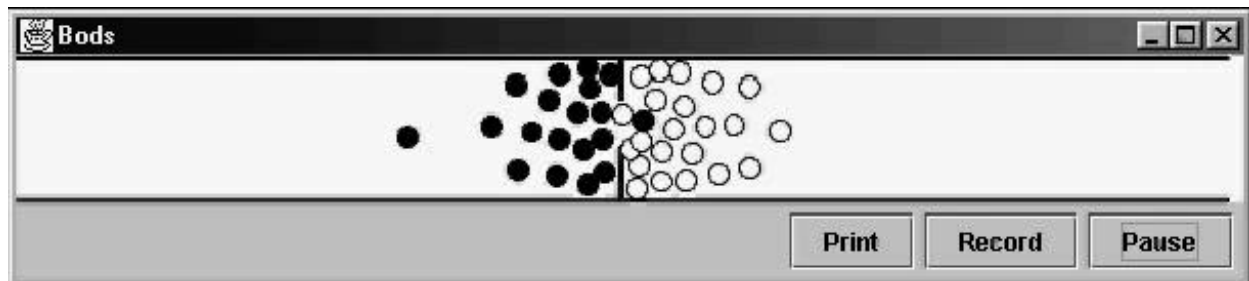
Pedestrians try to maintain a comfortable distance from other pedestrians.

Pedestrians try to maintain a comfortable distance from obstacles like walls.

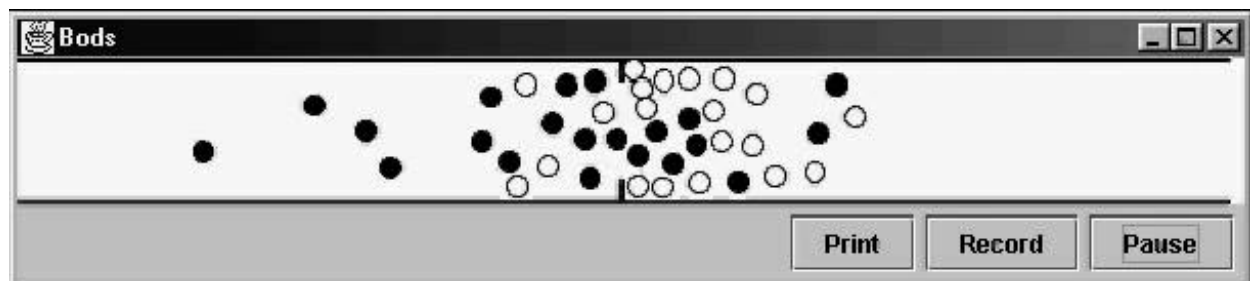
Pedestrians may be attracted to other pedestrians or objects.



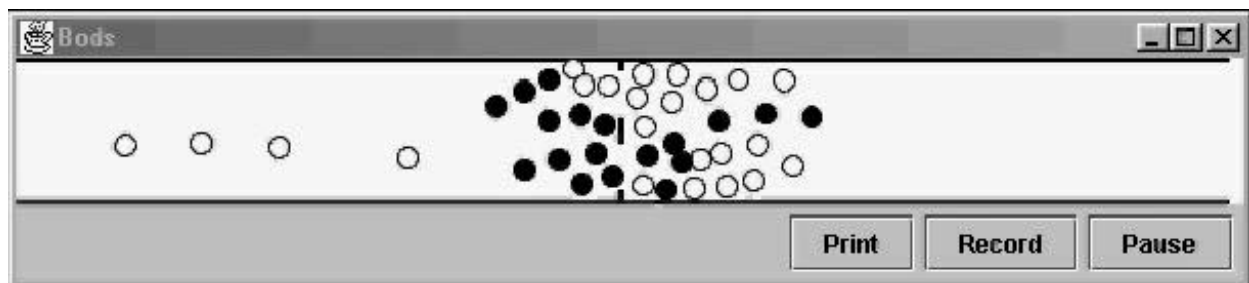
Narrow door



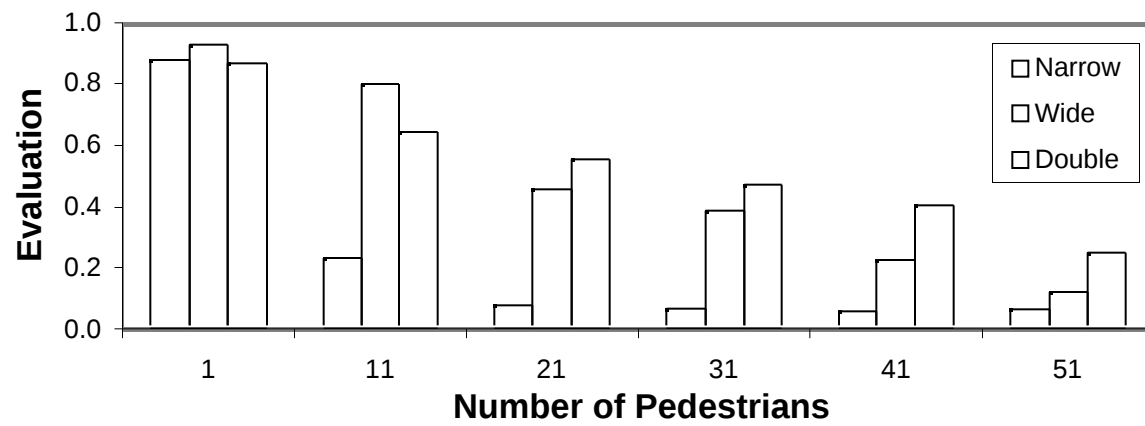
Wide door



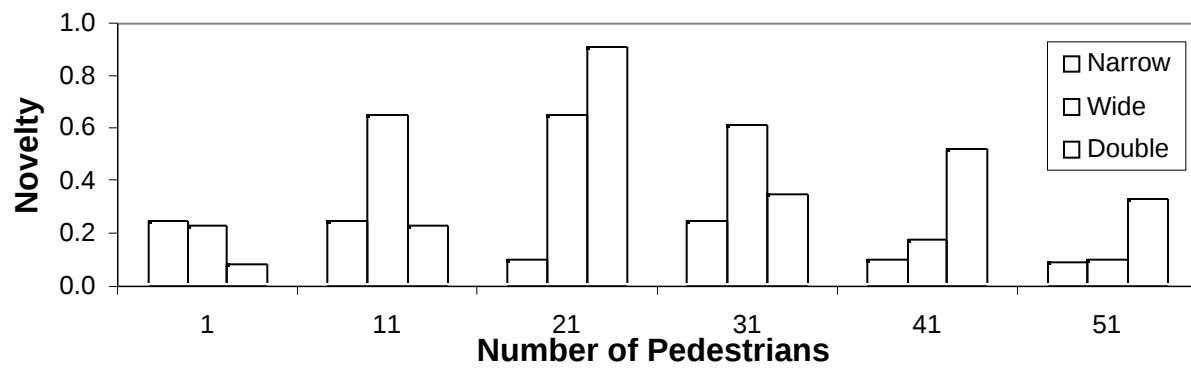
Two doors

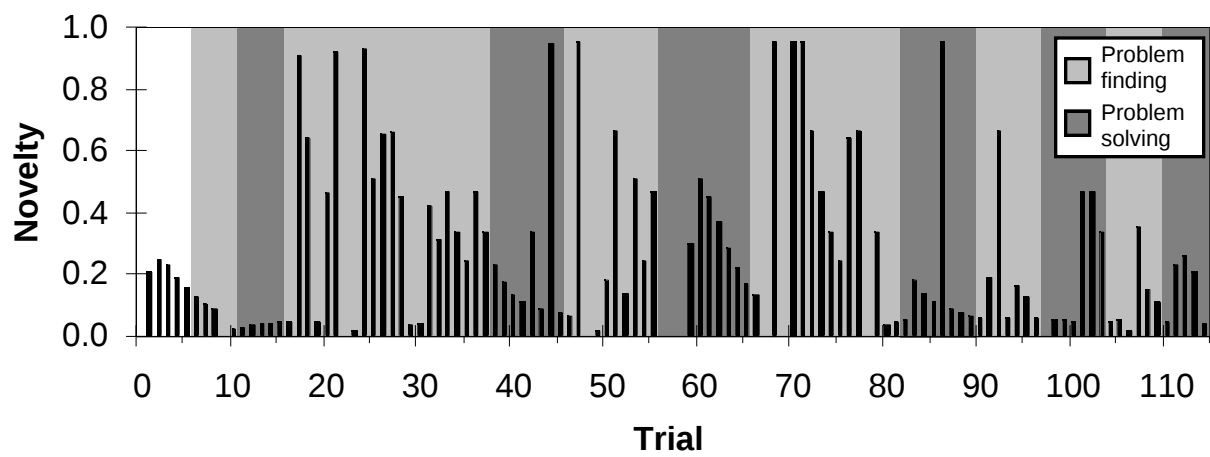


Designing for performance

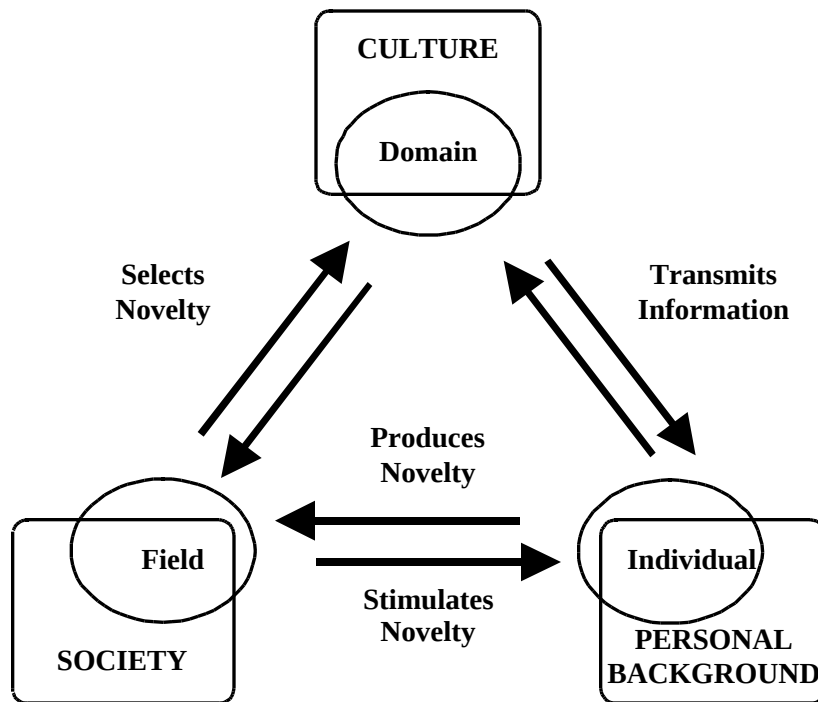


Designing for novelty

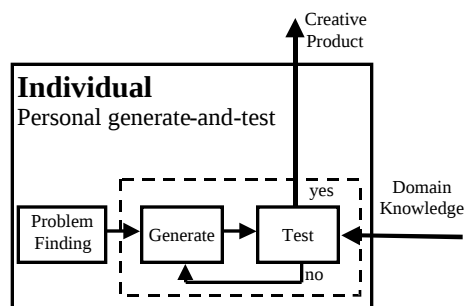




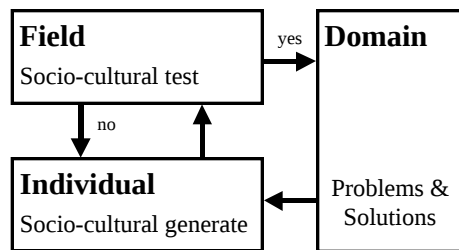
Csikszentmihalyi's model



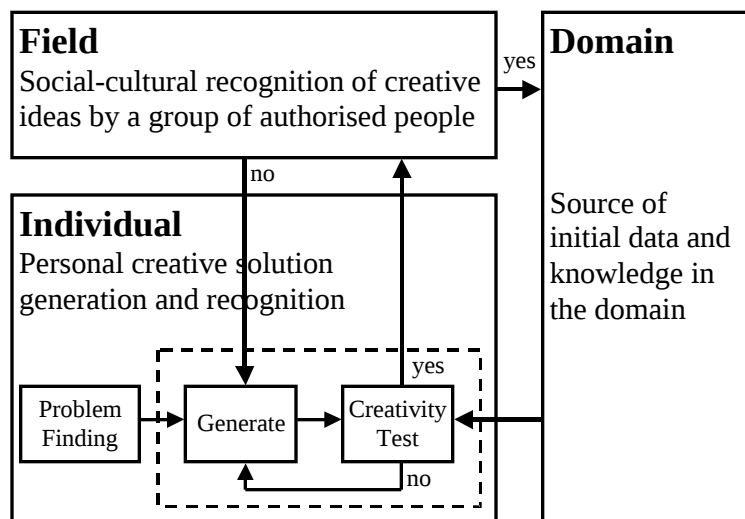
Dual model



(a)

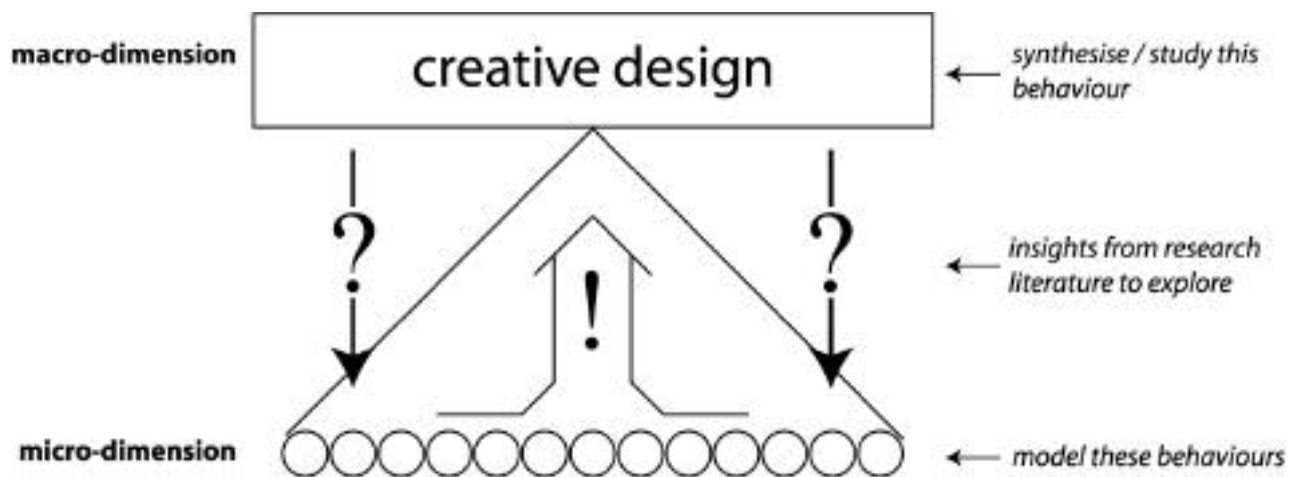


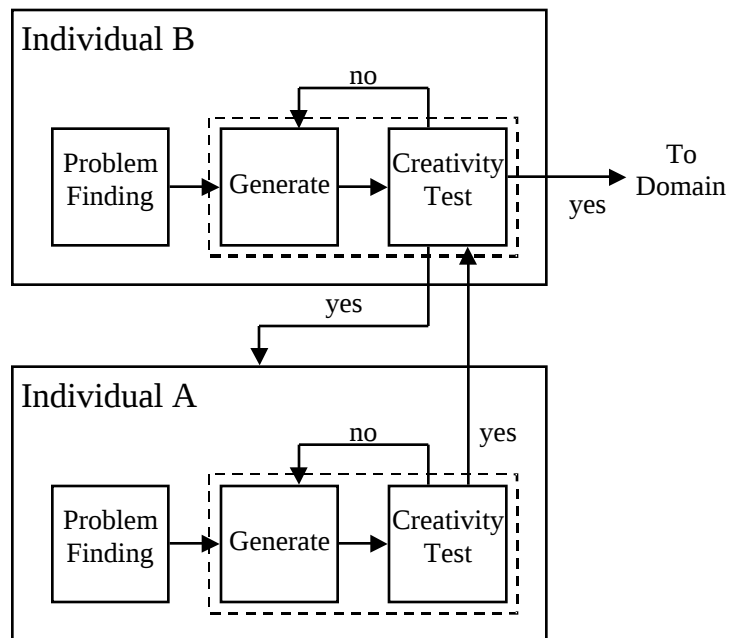
(b)



(c)

Behavior-based creativity





(interactive Genetic Art III)



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Curious art evolver

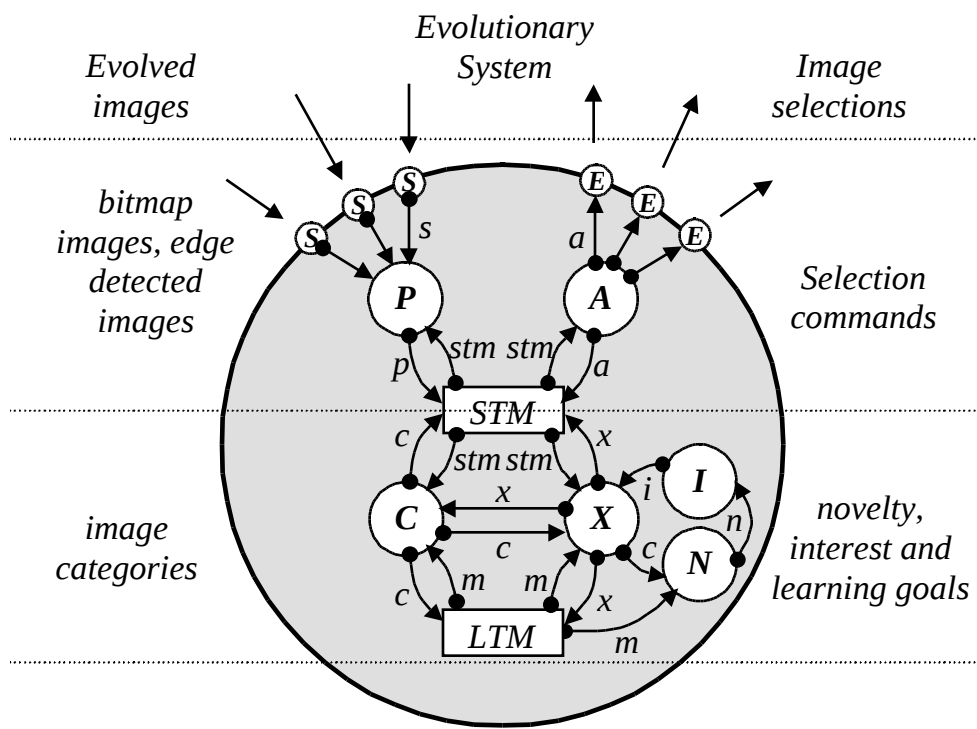
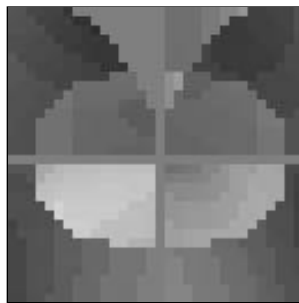


Image detection

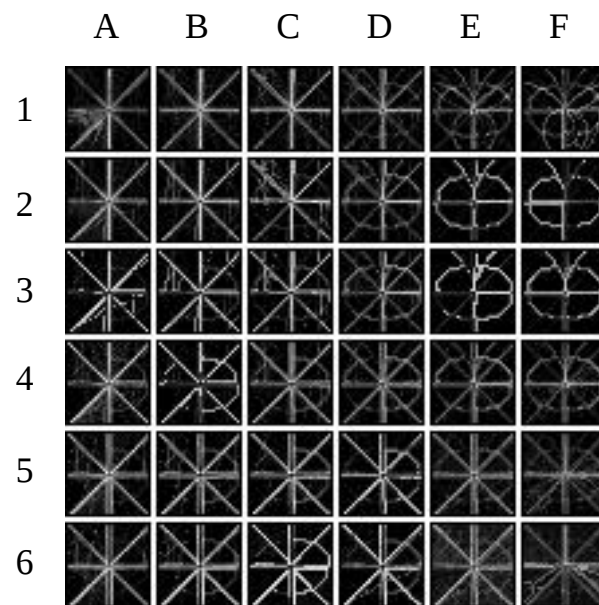


(a)

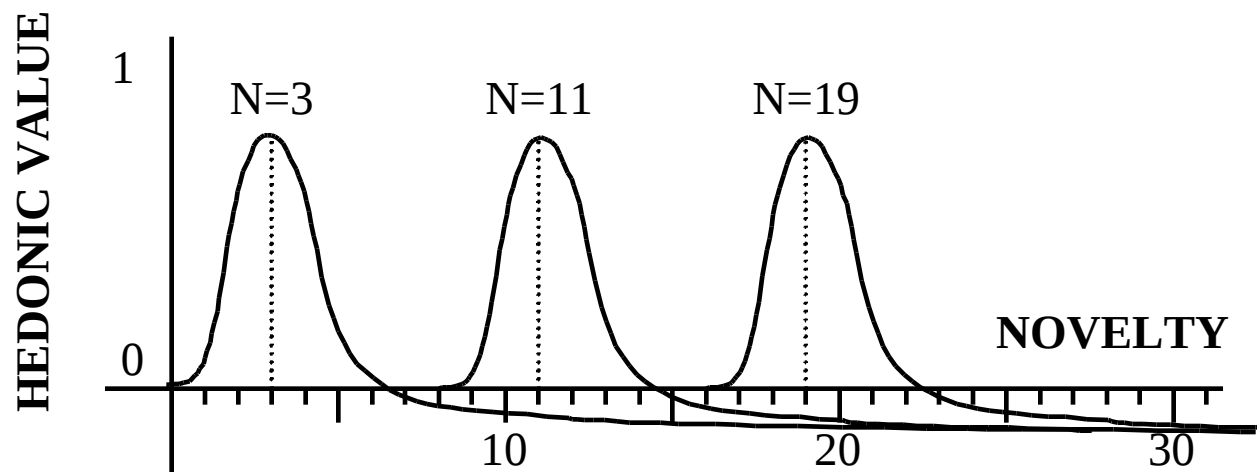


(b)

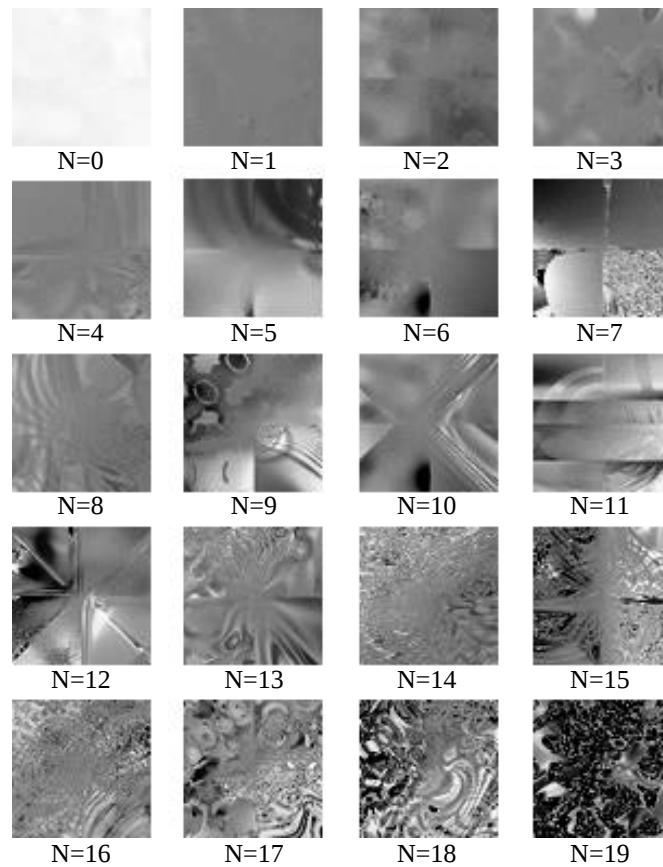
SOM (self organizing map) neural network



Different novelty functions



Different novelty preferences

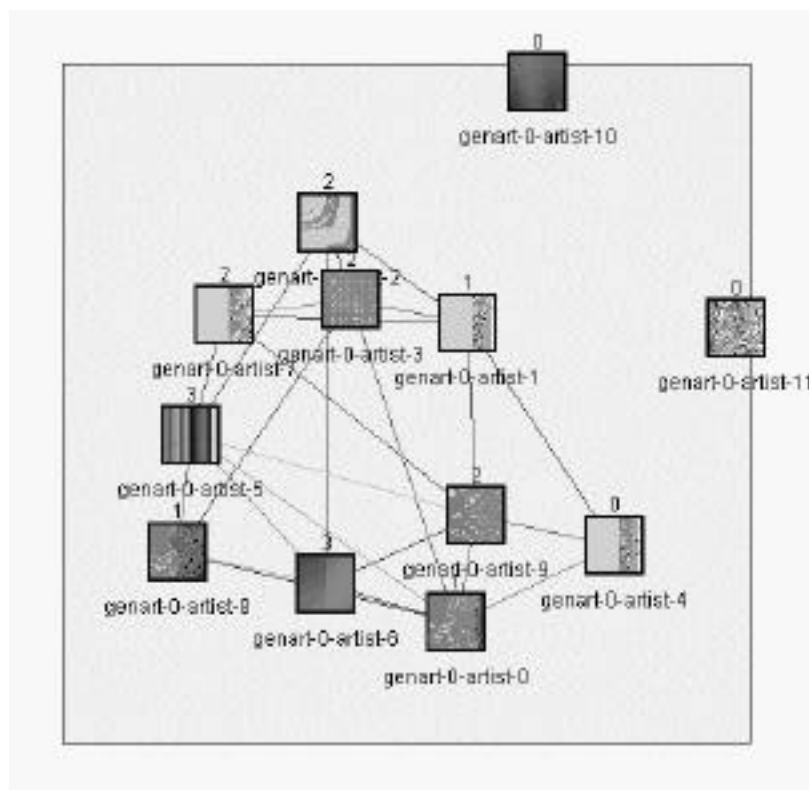


Social agents

<i>Agent ID</i>	<i>Preferred Novelty</i>	<i>Attributed Creativity</i>
----------------------------	-------------------------------------	---

0	N=11	5.43
1	N=11	4.49
2	N=11	4.50
3	N=11	3.60
4	N=11	4.48
5	N=11	1.82
6	N=11	6.32
7	N=11	8.93
8	N=11	10.72
9	N=11	5.39
10	N=3	0.0
11	N=19	0.0

Law of novelty

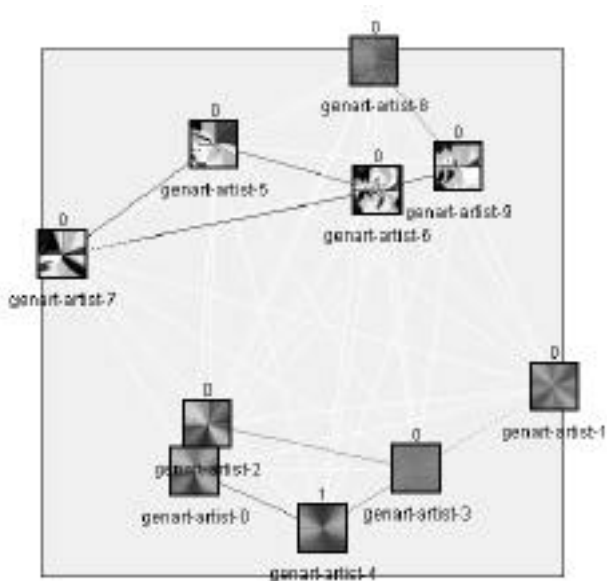


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Novelty cliques

	Sender									
	0	1	2	3	4	5	6	7	8	9
0		2	8	1	2					
1										
2	2	1		1	3					
3	4	5	2		5					
4	2	3	3	2						
5					1		6	1	3	5
6						3		4	5	1
7						3	5		1	4
8						4	3	2		4
9						1	4	4	4	

(a)



(b)

