

Education/SPM955xABMofCAS/StudentPages.Spm955

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This is the Spm9550 Exam, academic year 09/10.

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OpenQuestion?

This question is worth 10/100 pts. Guideline 300 ~ 500 words.

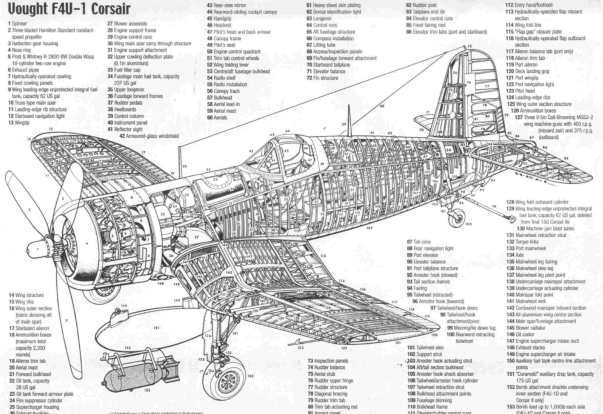

You were free to prepare the answer to this question in advance.

One of the Course Goals of SPM 9550 is a change in attitude, whereby "Students should be able to reflect on the traditional engineering systems thinking from the CAS perspective and understand the implications of changing the traditional perspective.". Discuss and give examples.

Question 1

This question is worth 15/100 pts. Guideline: 200 words.

Please compare an airplane and the air traffic network, presented below. Please identify which system is complex, which is complicated. Why ? Is it possible to make that distinction? Why? Discuss.

Airplane	Airline network
A 747 jet has approximately 6 million parts	As of 2006, there are approximately 49,000 airports in the world
	

Question 2

This question is worth 25/100 pts. Guideline: 400 words.

Consider the AIDSModel that you find in NetLogo. Using the default model, a parameter sweep experiment was performed and a number of model metrics were recorded.

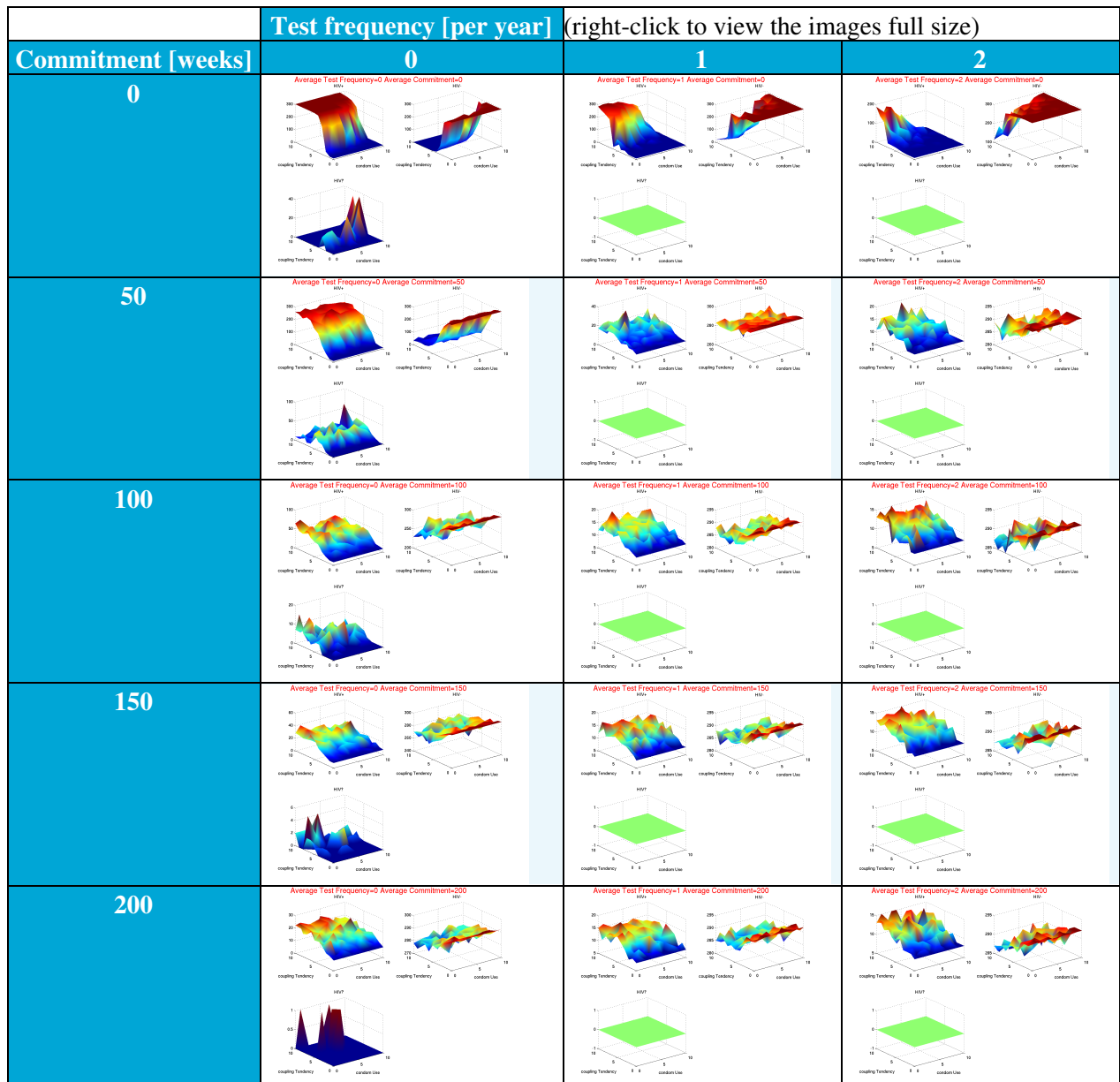
The parameter sweep consists of :

- AIDSExam16042010.nlogo: The netlogo model
- ["average-test-frequency" 0 1 2]
- ["average-condom-use" [0 1 10]]
- ["average-coupling-tendency" [0 1 10]]
- ["average-commitment" 0 50 100 150 200]

- 1000 time steps
- Only the final value is saved.

Please elaborate on :

- What do the results tell us ?
- Which type(s) of complex system behavior do you observe and what are the mechanisms causing them?
- Comment on the main elements that are missing from this analysis?
- What would you advise as the best way to reduce AIDS infection rates based on this model?



Question 3

This question is worth 15/100 pts. Guideline: 200 words.

Explain how path dependency and chaos relate to the phenomena of Nuclear arms race and Mutual assured destruction Discuss:

- What are path dependency and chaos ?
- Why are they relevant to the nuclear Arms race ?

Question 4

This question is worth 20/100 pts. Guideline: 400 words.

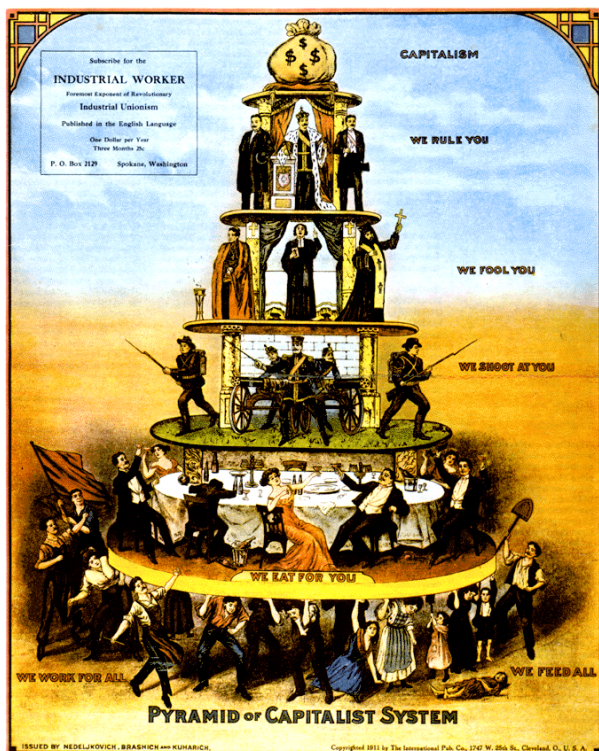
Football hooliganism is a very disruptive behavior that even though only small part of football fans take part in, can lead to large problems. Please describe a generative experiment that would have the ability to grow the pattern of football hooliganism. If you do not know a lot about football, feel free to make assumptions. Discuss:

- What are the agents, their states and rules?
- What kind of experiments could you perform?
- How would you validate such a model?

Question 5

This question is worth 15/100 pts. Guideline: 200 words.


Below is an example of anti-capitalism propaganda from 1911, as documented by Wikipedia. Being propaganda material, it is clearly biased. At the same time, it conveys a vision deemed correct or at least justified by the authors. Discuss the message of the poster, its role in the society of 1911 and its relation to the current globalized and networked society from the complexity perspective. Please introduce as many relevant theoretical concepts as you can and explain how they fit in.



Pyramid of Capitalist System, issued by Nedeljkovich, Brashich, and Kuharich in 1911. Published by The International Pub. Co. , Cleveland OH

This topic: Education/SPM955xABMofCAS/StudentPages > Spm9550Exam0910

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