Cog356 Final Exam, Part 1 - Critical Thinking about Cognitive Phenomena

Preliminary Remarks

Please consider the essays which comprise this part of your final exam to be of substantial significance with respect to both (1) your grade in the course, and (2) the assessment of student learning with respect to the critical thinking component general education at SUNY Oswego. You should spend some real time and mental energy studying this document before commencing to engage in the **research**, **writing**, and **presentation** elements of this part of your final exam.

Also, please note that in completing this portion of your final exam, it is expected that you will craft **one** structured "solution document" that contains your work on the two main tasks (1 and 2), and three subtasks (A, B, and C) within each main task. Please start your solution document with a nice header/title, with identifying information (your name will be fine), and with a very short abstract saying something about what the document contains.

The Big Picture: Critical Thinking, Two Essays, and Cognitive Scaffolding

Critical Thinking

Two dimensions of critical thinking are featured in this work. By featured, I mean that you are afforded an opportunity to demonstrate your ability to think critically in these two respects.

Here are the two aspects of critical thinking, formulated in terms of "learning outcomes" – along with rubrics for evaluating your engagement in the modes of thinking:

- **Learning Outcome 1: Argument Identification, Analysis, and Evaluation**

  1. Identifies the target argument(s) and clearly distinguishes it from any extraneous elements such as expressions of opinion and descriptions of events.

  2. Carefully articulates the argument's conclusion, clearly distinguishes it from its premises and identifies most relevant definitions and/or hidden assumptions.

  3. Clearly and correctly assesses whether the arguments premises provide sufficient logical support for the conclusion, independently of whether the premises are true.

  4. Clearly and correctly assesses the reasonableness of the premises, including the credibility of their sources (e.g., observation, testimony, measurement, experiment, etc.), independently of whether the premises support the conclusion.

- **Learning Outcome 2: Developing a Well-reasoned Argument**

    1. Develops a clearly articulated argument, using evidence and/or systematic logical reasoning in support of a conclusion or point of view.

    2. Identifies relevant qualifications or objections or alternative points of view and prioritizes evidence and/or reasons in support of the conclusion.

    3. Describes the broader relevance, significance or context of the issue and/or applies the reasoning to a novel problem.

I, and perhaps some colleagues of mine, will employ these rubrics in evaluating your work. Furthermore, *you* will use these rubrics to self-evaluate your work.

The Essays

You are asked to write two essays in this assignment, but in a manner that is tightly constrained by the two learning outcomes associated with the cognitive skills of critical thinking that are represented in this assignment:

1. The first essay on Jerry Fodor's **modularity of mind** hypothesis affords you an opportunity to demonstrate your skill at *argument identification, analysis, and evaluation.*

2. The second essay on **the question of whether or not computing machines are capable of creating original works** affords you an opportunity to demonstrate your skill at *developing a well-reasoned argument.*

Cognitive Scaffolding

The term **cognitive scaffolding**, when used in instructional settings, refers to the idea of supporting students to achieve desired results within the realms of thinking and learning. In the instructional setting, the idea of cognitive scaffolding is sometimes decompose into three constituent notions:

1. The instructor provides, perhaps merely by way of suggestion, the scaffolding for the students.

2. The student's thinking/learning tasks should take place within their *zone of proximal development*, so that they have some chance of achieving their goals.

3. The scaffolding, the support/guidance provided by the instructor, should eventually be removed.

The notion of cognitive scaffolding can be viewed in both an episodic semantic sense and a semantic sense. For example, one can imagine that numerous instances of engaging with episodic cognitive scaffolding will manifest in a longer term semantic sort of cognitive scaffolding. In this assignment, you will get a taste of episodic cognitive scaffolding.

Task 1: Argument Identification, Analysis, and Evaluation

$\rightarrow$ **Jerry Fodor's Argument for the Modularity of Mind**

Task 1A: The Essay

Write a 2 to 3 page double-spaced type-written essay devoted to identifying, analyzing, and evaluating **Jerry Fodor's argument for the modularity of mind**. In doing so, please:

1. Title your essay.

2. Prepare to write by reading, or perhaps just scanning with the intent of gleaning the main ideas, the following:

   (a) Some of Jerry Fodor's monograph "The Modularity of Mind"
   `http://www.stevewatson.info/miscellaneous/Links/Fodor-mm.pdf`
   in which he articulates the modularity of mind hypothesis for which he is so well known.

   (b) The article on the Stanford Encyclopedia of Philosophy site titled "Modularity of Mind"
   `https://plato.stanford.edu/entries/modularity-mind/`
   which nicely discusses the hypothesis.

   (c) Any other reasonable accounts pertaining to modularity of mind that you would like to read. (A Google search will find lots of interesting articles on the task.)

3. Don't allow yourself to forget that the focus of this essay is on Fodor's argument – not some argument that you would like to propose and develop! Moreover, there is no generally acknowledged "right answer" regarding the correctness of Fodor's argument. The modularity of mind hypothesis is one of the most controversial ideas within the realm of cognitive science.

4. Bear in mind, as you prepare to write, as you write, and as you reflect upon your writing, that this essay will be evaluated on the basis of the following criteria:

   (a) Have you identified the target argument and clearly distinguished it from any extraneous elements such as expression of opinion and descriptions of events?

   (b) Have you carefully articulated the arguments conclusion, clearly distinguished it from the premises, and identified the most relevant definitions and/or hidden assumptions?

   (c) Have you clearly and correctly assessed whether the argument's premises provide sufficient logical support for the conclusion, independently of whether the premises are true?

   (d) Have you clearly and correctly assessed the reasonableness of the premises, including the credibility of their sources (e.g., observation, testimony, measurement, experiment, etc.), independently of whether the premises support the conclusion?

5. Cite your sources appropriately.

Task 1B: The Colored Essay

Once your essay is finalized:

1. Create a duplicate copy of the essay.
2. Color the bits of your essay that compellingly correspond to the following rubric element **green**: Have you identified the target argument and clearly distinguished it from any extraneous elements such as expression of opinion and descriptions of events?
3. Color the bits of your essay that compellingly correspond to the following rubric element **red**: Have you carefully articulated the arguments conclusion, clearly distinguished it from the premises, and identified the most relevant definitions and/or hidden assumptions?
4. Color the bits of your essay that compellingly correspond to the following rubric element **blue**: Have you clearly and correctly assessed whether the argument's premises provide sufficient logical support for the conclusion, independently of whether the premises are true?
5. Color the bits of your essay that compellingly correspond to the following rubric element **purple**: Have you clearly and correctly assessed the reasonableness of the premises, including the credibility of their sources (e.g., observation, testimony, measurement, experiment, etc.), independently of whether the premises support the conclusion?

Task 1C: The Rubric for your Argument Identification, Analysis, and Evaluation Essay

Grade yourself! That is, fill in the rubric provided to you in Appendix 1 for evaluating this essay by placing exactly one X in each row of the rubric table. Then, using the values in the cells of the following table, compute your grade. Be sure to write your computed grade in the appropriate place below your X-ed in rubric table.

Target	Excellent	Good	Marginal	Poor
Good title	3	2	1	0
Proper length	3	2	1	0
Intraparagraph coherence	6	4	2	0
Overall flow	8	6	4	0
Basic writing skills	8	6	4	0
Identifies the target argument(s) and clearly distinguishes it from any extraneous elements such as expressions of opinion and descriptions of events.	16	12	8	0
Carefully articulates the argument's conclusion, clearly distinguishes it from its premises and identifies most relevant definitions and/or hidden assumptions.	16	12	8	0
Clearly and correctly assesses whether the argument's premises provide sufficient logical support for the conclusion, independently of whether the premises are true.	16	12	18	0
Clearly and correctly assesses the reasonableness of the premises, including the credibility of their sources (e.g., observation, testimony, measurement, experiment, etc.), independently of whether the premises support the conclusion.	16	12	8	0
Appropriate use/referencing of sources	8	6	4	0

TOTAL SCORE = *TOTALSCORE*

Task 1D: The Incorporation of your First Task

Please incorporate the following items into your solution document for this first task of the first part of your final exam:

1. The black and white essay.

2. The colored essay.

3. Your evaluation of the essay. That is, the filled in rubric (given in Appendix 1), along with the final numeric grade. (Perhaps take a picture of the Appendix 1 rubric after you fill it in with X-es and record the numeric grade, and insert the picture into your document. Otherwise, you will need to construct a table like that which appears in Appendix 1 and fill it in.)

Task 2: Developing a Well-reasoned Argument

→ **Computing Machines Can Create Original Artifacts**

Task 2A: The Essay

Ada Lovelace once famously wrote, with respect to Charles Babbages great invention, that: "The Analytical Engine has no pretensions whatever to originate anything. It can only do whatever we know how to order it to perform. It can follow analysis; but it has no power of anticipating any analytical relations or truths. Its province is to assist us in making available what we are already acquainted with." **You are being asked to argue that this is not so with respect to modern day computational devices!**

Write a 2 to 3 page double-spaced type-written essay developing a well-reasoned argument in support of the idea that **computing machines can can create original artifacts**. In doing so, please:

1. Title your essay.

2. Be sure to establish working definitions of originality, be sure to articulate some of the more salient connotations of the concept, and be sure to cite Lady Lovelace's famous words in the beginning of your essay.

3. Prepare to write by reading/scanning, among any other texts that you may find useful (1) the relevant parts of the chapter on artificial intelligence (Chapter XVIII) in "Godel, Escher, Bach," (2) some of David Cope's writing on EMI, (3) press and magazine accounts of machine musicianship, machine artistry, and other phenomena related to computational creativity, and (4) excerpts and reviews of books and articles on models of creativity, particularly evolutionary models.

4. Don't forget the particular point of view that you are required to argue on the matter of computer creativity – regardless of whatever thoughts on the matter you might privately harbor.

5. Bear in mind, as you prepare to write, as you write, and as you reflect upon your writing, that this essay will be evaluated on the basis of the following criteria:

   (a) Have you developed a clearly articulated argument, using evidence and/or systematic logical reasoning in support of a conclusion or point of view?

   (b) Have you identified relevant qualifications or objections or alternative points of view and prioritized evidence and/or reasons in support of the conclusion?

   (c) Have you described the broader relevance, significance or context of the issue and/or applied the reasoning to a novel problem?

6. Cite your sources appropriately.

Task 2B: The Colored Essay

Once your essay is finalized:

1. Create a duplicate copy of the essay.
2. Color the bits of your essay that compellingly correspond to the following rubric element **green**: Have you developed a clearly articulated argument, using evidence and/or systematic logical reasoning in support of a conclusion or point of view?
3. Color the bits of your essay that compellingly correspond to the following rubric element **red**: Have you identified relevant qualifications or objections or alternative points of view and prioritized evidence and/or reasons in support of the conclusion?
4. Color the bits of your essay that compellingly correspond to the following rubric element **blue**: Have you described the broader relevance, significance or context of the issue and/or applied the reasoning to a novel problem?

Task 2C: The Rubric for Developing a Well-reasoned Argument

Grade yourself! That is, Fill in the rubric provided to you for evaluating this essay by placing exactly one X in each row of the rubric table. Then, using the values in the cells of the following table, compute your grade. Be sure to write your computed grade in the appropriate place below your X-ed in rubric table.

Target	Excellent	Good	Marginal	Poor
Good title	3	2	1	0
Proper length	3	2	1	0
Intraparagraph coherence	6	4	2	0
Overall flow	8	6	4	0
Basic writing skills	8	6	4	0
Develops a clearly articulated argument, using evidence and/or systematic logical reasoning in support of a conclusion or point of view.	20	15	10	0
Identifies relevant qualifications or objections or alternative points of view and prioritizes evidence and/or reasons in support of the conclusion.	24	18	12	0
Describes the broader relevance, significance or context of the issue and/or applies the reasoning to a novel problem.	20	15	10	0
Appropriate use/referencing of sources	8	6	4	0

TOTAL SCORE = *TOTALSCORE*

Task 2D: The Incorporation of your Second Task

Please incorporate the following items into your solution document for this second task of the first part of your final exam:

1. The black and white essay.

2. The colored essay.

3. Your evaluation of the essay. That is, the filled in rubric (given in Appendix 2), along with the final numeric grade. (Perhaps take a picture of the Appendix 2 rubric after you fill it in with X-es and record the numeric grade, and insert the picture into your document. Otherwise, you will need to construct a table like that which appears in Appendix 1 and fill it in.)

Appendix 1: The Rubric for your Argument Identification, Analysis, and Evaluation Essay

→ Jerry Fodor's Argument for the Modularity of Mind

Please do this:

1. Fill in your name.

2. Carefully place one X in each row of the following table in a manner that indicates the degree to which you succeeded in achieving the goal suggested in the leftmost cell of the row.

3. With reference to the table presented in Task 1C, compute the grade that you earn for the essay by adding up the weights found in the cells corresponding to the X-es.

Target	Excellent	Good	Marginal	Poor
Good title				
Proper length				
Intraparagraph coherence				
Overall flow				
Basic writing skills				
Identifies the target argument(s) and clearly distinguishes it from any extraneous elements such as expressions of opinion and descriptions of events.				
Carefully articulates the argument's conclusion, clearly distinguishes it from its premises and identifies most relevant definitions and/or hidden assumptions.				
Clearly and correctly assesses whether the argument's premises provide sufficient logical support for the conclusion, independently of whether the premises are true.				
Clearly and correctly assesses the reasonableness of the premises, including the credibility of their sources (e.g., observation, testimony, measurement, experiment, etc.), independently of whether the premises support the conclusion.				
Appropriate use/referencing of sources				

TOTAL SCORE =

Appendix 2: The Rubric for Developing a Well-reasoned Argument

→ Computing Machines Can Create Original Artifacts

Please do this:

1. Fill in your name.

2. Carefully place one X in each row of the following table in a manner that indicates the degree to which you succeeded in achieving the goal suggested in the leftmost cell of the row.

3. With reference to the table presented in Task 2C, compute the grade that you earn for the essay by adding up the weights found in the cells corresponding to the X-es.

Target	Excellent	Good	Marginal	Poor
Good title				
Proper length				
Intraparagraph coherence				
Overall flow				
Basic writing skills				
Develops a clearly articulated argument, using evidence and/or systematic logical reasoning in support of a conclusion or point of view.				
Identifies relevant qualifications or objections or alternative points of view and prioritizes evidence and/or reasons in support of the conclusion.				
Describes the broader relevance, significance or context of the issue and/or applies the reasoning to a novel problem.				
Appropriate use/referencing of sources				

TOTAL SCORE =