Cog356

Cognitive Models
Formal Systems
Generative Processes

Critical Thinking Assignment

Please consider this assignment to be of sbstantial significance both for your grade in the course and for 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 the assignment.*

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1   The Big Picture

Critical Thinking, Two Essays, and Cognitive Scaffording

Critical Thinking

Two dimensions of critical thinking are featured in this assignment. 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, along with rubrics for evaluationg 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, along with some friends 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 skill 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 consituent 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 is really more semantic than it is episodic. That said, one can imagine that numerous instances of engaging with episodic cognitive scaffolding will lead to a more authentic manifestation of cognitive scaffolding. In this assignment, you will get a taste of, and may actually benefit from, a bit of episodic cognitive scaffolding.

2 Task 1: Argument Identification, Analysis, and Evaluation

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 the following short texts:

   (a) Jerry Fodor's article "The Modularity of Mind" (http://www.ucd.ie/artspgs/langmind/Fodor1983.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 hyptothesis.

   (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.

6. Save your document in PDF form.

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?
6. Save your document in PDF form.

Task 1C: The Rubric

Grade yourself! That is, fill in the rubric provided to you in Appendix A 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 Submission

Please ...

1. Hand in a hard copy of the following three documents during class on Wednesday, May 8th:

    (a) The black and white essay.

    (b) The colored essay.

    (c) Your evaluation of the essay. That is, the filled in rubric (given in Appendix A), along with the final numeric grade.

2. Post to your work site, prior to class on May 8th, a pdf file for:

    (a) The black and white essay.

    (b) The colored essay.

    (c) Your evaluation of the essay. That is, the filled in rubric (given in Appendix A), along with the final numeric grade. (Perhaps take a picture of the Appendix A rubric after you fill it in with X-es and record the numeric grade, and post the picture.)

3 Task 2: Developing a Well-reasoned Argument

Computing Machines Can Create Original Artifacts

Task 1A: 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 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, 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. 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?

5. Cite your sources appropriately.

6. Save your document in PDF form.

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 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?
5. Save your document in PDF form.

Task 1C: The Rubric for Devloping 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 1D: The Submission

Please ...

1. Hand in a hard copy of the following three documents during class on Wednesday, May 8th:
   (a) The black and white essay.
   (b) The colored essay.
   (c) Your evaluation of the essay. That is, the filled in rubric (see Appendix B), along with the final numeric grade.
2. Post to your work site, prior to class on May 8th, a pdf file for:
   (a) The black and white essay.
   (b) The colored essay.

(c) Your evaluation of the essay. That is, the filled in rubric (see Appendix B), along with the final numeric grade. (Perhaps take a picture of the Appendix B rubric after you fill it in with X-es and record the numeric grade, and post the picture.)

A Rubric: 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 Section 2, compute the grade that you earn for the essay by adding up the weights found in the cells corresponding to the X-es.

NAME →

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 =

B   Rubric: Computers and Creativity

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 Section 3, compute the grade that you earn for the essay by adding up the weights found in the cells corresponding to the X-es.

NAME →

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 =