

Extra Credit

Due by **9:30 a.m. on Thursday, April 20th**. We **will not** accept any late extra credit submissions, unless you supply documentation of an illness or family emergency.

Please either write neatly in dark ink (not pencil) or type.

If you type:

- You will get an exciting stamp of thanks. (It won't say "Thanks". It will be much more exciting.)
- You are welcome to submit your work via e-mail as a PDF.

You may not discuss these questions with anyone else. The work you submit must be your own.

If there is the slightest doubt as to whether the work you submit is your own, Zach and I may revoke this extra credit assignment for everyone.

This extra credit assignment is optional but strongly recommended, especially if you scored under a C on the first exam or either problem set. The questions on this assignment will be graded out of 55 points. For each point you earn, your exam grade will be raised by taking the amount of points you missed on the exam and multiplying that amount against the amount of points you get on this assignment (treating, however, the points from this assignment as a percentage of the possible points you can earn back). In other words, you can earn (up to) 55% of the points you missed on the exam / problem set.

Examples:

Old Exam / PS Grade	Points Lost	Earned points on this assignment (out of 55 points)	Points Added	New Exam Grade
75	$100 - 75 = 25$	25	$25 \times 0.25 = 6.25$	$75 + 6.25 = 81.25$
75	$100 - 75 = 25$	55	$25 \times .55 = 13.75$	$75 + 13.75 = 88.75$
63	$100 - 60 = 40$	25	$40 \times .25 = 10$	$63 + 10 = 73$
63	$100 - 60 = 40$	55	$40 \times .55 = 22$	$63 + 22 = 85$

Translations:

Translate the following arguments into symbolic form using the suggested letters to represent simple statements. Write them in premise/conclusion form. (5 pts each)

- a. Either I don't do these logic problems or I don't read *Moby Dick*. I can get an A in English if and only if I read *Moby Dick*, and I'll be miserable unless I get an A in English. I can't read *Moby Dick* if I don't do these logic problems. Therefore, I'm going to be miserable. (use the following letters for the corresponding sentences: L, R, A, M)
- b. If the professor's book is published, she will either be promoted or she will be given sabbatical leave. She will neither be promoted nor given sabbatical leave unless she is given tenure. Therefore, she will not be given tenure and she will not be given sabbatical leave. (use the following letters for the corresponding sentences: B, P, S, T)
- c. Both Syria and Jordan will recognize Israel's right to exist if and only if both Algeria and Iraq do not object. Therefore, Syria and Jordan do not both recognize Israel's right to exist if Algeria objects. (use the following letters for the corresponding sentences: S, J, A, I)

Proofs:

Use the 18 rules of inference to derive the conclusion of the following premises (i.e. do **not** use direct or indirect proof). (10 pts each)

e.

1. $((R \cdot S) \vee (R \cdot \sim E))$
2. $((O \cdot Y) \supset (E \cdot \sim S))$
3. $((O \supset \sim Y) \supset L)$ / L

f.

1. $(T \supset R)$
2. $(R \supset S)$
3. $(\sim R \equiv S)$ / $(\sim T \cdot S)$

Proofs:

For the following argument do **two** proofs. For the first proof, use only the 18 rules to derive the conclusion of the following premises (i.e. do **not** use direct or indirect proof). (15 pts) For the second proof, you must use the 18 rules **and** the conditional proof method (but not the indirect method). (5 pts)

g.

1. $(T \supset (H \cdot J))$
2. $(H \vee N) \supset T$ $/ T \equiv H$