

APPLYING FORMAL LOGIC

For each of the following arguments, rewrite the argument in symbolic form using the suggested notation and, using the rules of replacement and/or inference, show the argument is valid. *Either/or* statements should be translated as *or* statements. For example, “Either he walked home or he took the bus” should be translated as $W \vee B$.

1. Either she did not run the race or she won the race. She ran the race. So she won the race. (r, w)
2. It is not the case that he forgot or wasn't able to finish. Therefore, he was able to finish. (r, n)
3. If a politician does not publicly repudiate campaign promises he no longer intends to keep, then he is deceiving the public. If he does repudiate them, then he will be branded a liar. He either repudiates promises he no longer intends to keep or he does not. Therefore, he either deceives the public or he will be branded a liar. (r, d, l)
4. If the distribution of wealth is just, then people will have no cause for complaint. There would be no impulse to occupy Wall Street if people had no cause for complaint. But there is an impulse to occupy Wall Street. Therefore, the distribution of wealth is not just. (d, c, i)
5. If Carla is a monarchist, then she believes in the inheritability of power. If she is not a monarchist, then she must believe in electing heads of state. If she believes in electing heads of state, then she is a republican. Therefore, she either believes in the inheritability of power or she is a republican. (m, i, e, r)
(Hint: use material implication)
6. If Natalie gets her way or Johnson is fired, then Peter will stay on. Rodney will stay on if Peter stays on or Quincey leaves. Quincey will leave or Natalie will get her way. But Quincey is not leaving. Therefore, Rodney will stay on. (n, j, p, q, r)
7. A mathematical system is either incomplete or inconsistent. If such a system lacks coherence, then it is illogical. If a mathematical system is coherent, then it must also be consistent. A mathematical system is complete. Therefore, a mathematical system is illogical. (m, n, h, l)
8. If a new species of human has been found, then anthropology texts will have to be revised. If a new species of human has been found and anthropology texts will have to be revised, then either all the old texts must be discarded or an insert must be provided. If the old texts must be discarded or an insert must be provided, then this will remedy current deficiencies in existing resources. If finding a new species of human will result in remedying the current deficiencies in existing resources, then anthropology students will be well served. Therefore, anthropology students will be well served. (n, a, d, i, r, w)
(Hint: use absorption)
9. It is not true that if Sally is in love with Larry, then she is deceiving Harry. Therefore, Sally is not deceiving Harry. (l, d)
(Hint: use material implication)
10. She is a knight of the round table only if she passed the initiation. If she passed the initiation then she is brave. She is a knight of the round table. Therefore, she is brave. (k, p, b)

