

## Ethics Assignment #2: Space Shuttle Challenger Disaster

**Due: Thursday, 9.22.22, by 1:00 pm**

### Background

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The lecture on Thursday is the second of two lectures on the use of ethical theories to reason over and guide decision making in engineering scenarios. The Space Shuttle Challenger disaster, which is a classic case study in engineering ethics, is the case study we'll explore.

### Learning Goals

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By the end of the lecture, you should be able to:

- apply rule utilitarianism to engineering scenarios
- apply rule deontology to engineering scenarios
- apply act deontology to engineering scenarios
- apply virtue ethics to engineering scenarios
- identify the pros and cons of the different ethical theories

### Assignment

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1. Watch "Challenger: A Rush to Launch," which is **a 58-minute documentary** on the Space Shuttle Challenger disaster: [www.youtube.com/watch?v=EA3mLCmUD\\_4](https://www.youtube.com/watch?v=EA3mLCmUD_4)
2. Read the transcript at [www.npr.org/sections/thetwo-way/2016/01/28/464744781/30-years-after-disaster-challenger-engineer-still-blames-himself](https://www.npr.org/sections/thetwo-way/2016/01/28/464744781/30-years-after-disaster-challenger-engineer-still-blames-himself) (or listen to the 3-minute audio recording). In the transcript, there's a link to a 2006 article with short audio recordings made in 1986 (scroll down to Zwerdling Report and Berkes Report). Feel free to listen to these if you're interested, but you're not required to do so.
3. Write short answers to the following questions. Each answer should be no more than two short paragraphs (but there's no minimum length).
  - a. Apply act utilitarianism (covered in first lecture on ethics; refer to slides in Canvas for an example) to determine whether the space shuttle should have been launched by filling out a stakeholder table (provided as a Word document; **add rows as needed**). The table should assume the launch occurred (which, sadly, it did). Include the key stakeholders impacted by the launch on Jan. 28, 1986. The obvious stakeholders were the astronauts, NASA, and Morton Thiokol, but who or what were some of the other stakeholders? Be sure to perform the calculation. Do your best to come up with values for weights and net utility, but note that there's no single solution to this problem. Even your choice of the key stakeholders is likely to differ from those of your classmates.
  - b. What are the results of your act utilitarianism analysis (negative value means launch should not have occurred)? Do you agree with these results?
  - c. The Morton Thiokol engineer, Bob Ebeling, is quoted as saying, "I could have done more. I should have done more." Do you agree? What more could he have done? What pressures did he feel?
  - d. Noting that hindsight is 20-20, what would you have done if you were Bob Ebeling? In situations such as the Space Shuttle Challenger disaster, what can help you to resist pressures, such as those experienced by the Morton Thiokol engineers, to do what you believe is the right thing to do?

Create a pdf file of your stakeholder table and the answers to the questions. Submit your pdf via Canvas by 1:00 pm on Thursday, 9.22.22.