Part A:
From office hours teams should see the idea of how Alice and Bob's communication device works, it goes through the message breaks it into chunks of four letters, keeps the chunk of letters if they are somehow "entangled". The same thing is done but breaking the sentence up starting from the end. This is repeated until the sentence can not simplify any more.
From the example in office hours you can see that vowels and consonants are considered to be up and down spin states. So alic -> ↓↑ or ↓↑ which is not entangled.

from this:
We propose giving your universe ten puppies as a peace offering

~~Wepr opos egiv ingy ouru~~ nive ~~rset~~ enpu ppie ~~sasa~~ peac eoff ~~erin~~ g
n ~~ivee npup~~ piep ~~eace offg~~
~~npie~~ p

P

Part B:
Dialogue:

Student: Uh, okay, so the arc reactor problem? How do we get the power levels of the reactors?

TA: Well, so you remember the Principle of Quantum Nomenclatural Dynamics, right?

Student: Yeah, quantum reactor systems like the arc reactor vary in power depending on the names of the people operating them. Freaky.

TA: No stranger than the rest of 8.01i. Anyway. Here, why don't I give you a few examples.

Student: *nods vigorously*

*** writes "krtwipcmdxj" and "wofnehsayug" on the board, and starts filling in a 9-section arc reactor with the first string going clockwise on the outer ring (cutting off two letters), and the second string going counterclockwise on the inner ring (cutting off two letters***

TA: So in this example, you're given the configuration of the inner and outer rings of an arc reactor, and you fill in the modules like so, leaving the extra bits off in this nine by nine case, of course. And let's say, oh, that Anthony Stark and Richard P. Feynman are operating this particular reactor.

*** write "RICHARD P FEYNMAN" and "ANTHONY STARK" on the board ***

Student: Right, so you do the particle injection at the top…

TA: Do the injection at the top of the reactor as usual…

*** draw a line at the top of the reactor and trace it out clockwise to r ***

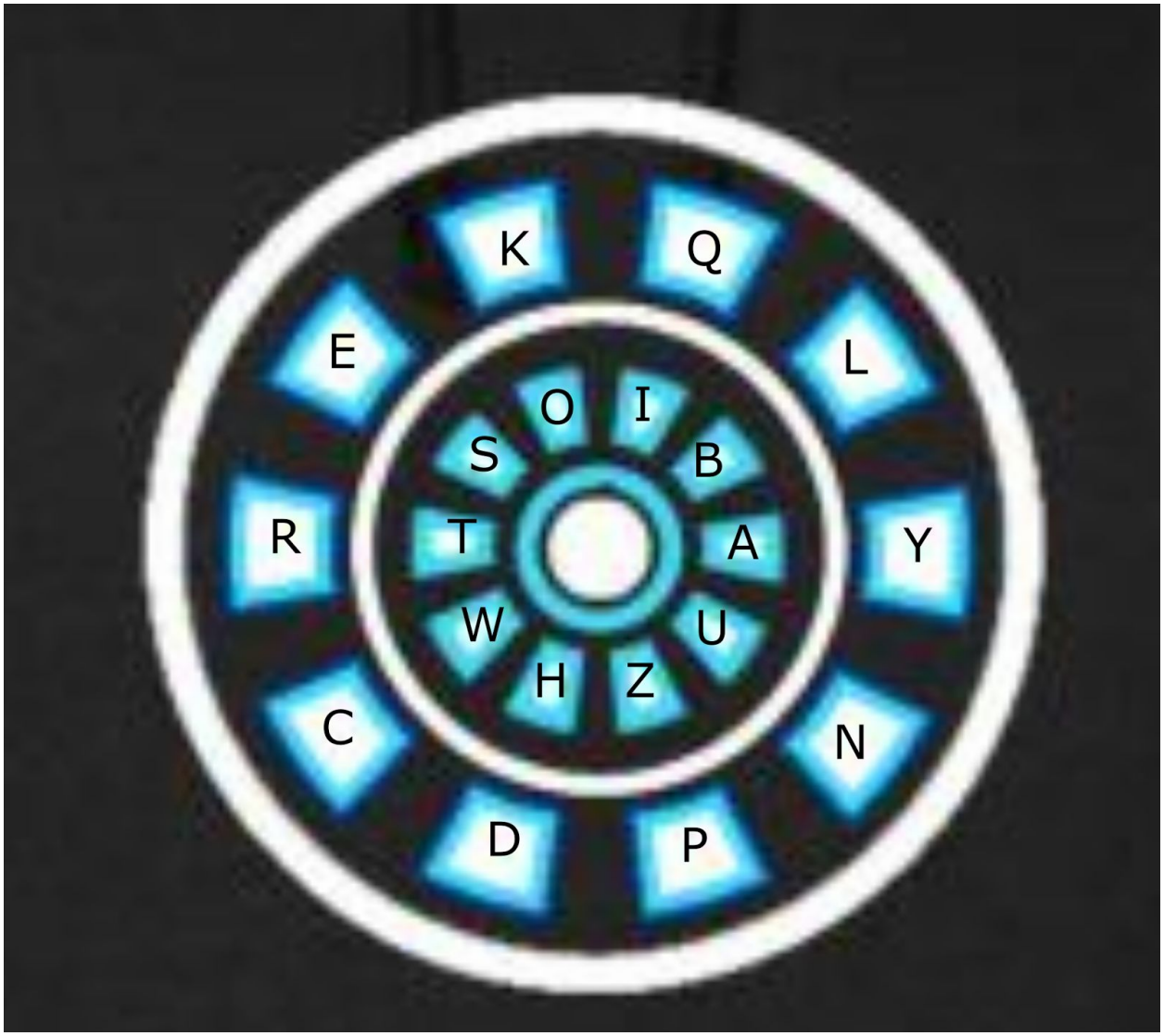
TA: And follow it around clockwise, since it'll be attracted to the module R… then inject another particle and trace it out to the I… if you hit any letters that are in the inner circle, remember that the flow is counterclockwise there… and just sum up all the flow angles. In this case, they'd get a universe diversion angle of *** scribbles something unreadable on the board *** 350 degrees. If they had used the full 11 by 11 configuration, they'd get… oh * **scribbles something else on the board *** a 334 degree deviation. In that case, all of the letter modules would have been utilized in the reactor mesh.

Student: And it doesn't matter which order they interact with the reactor, right?

TA: Nope, not at all. Nomenclatural Invariance. Never forget it. Might just save your grade one day. Also, just as a fun aside, for the reactor configuration you were given on your problem set, Albert Einstein would've gotten an angle change of exactly zero degrees.

Teams have to identify the 2017 class sweatshirt as the one containing the image of the arc reactor that they have to use for this problem. The image in question has 10 segments on the outer ring and 10 segments on the inner ring. Office hours will indicate that "particle injection"

always occurs from the top of the reactor, and that the “letter modules” are filled in clockwise on the outer modules, and counterclockwise on the inner modules, leaving out any extra letters.



The amount of angle change given by any letter of a person’s name will be the angle of the letter from the top of the reactor. For example, Q is centered at 18 degrees, while C is centered at 234 degrees. Inner ring letters are negative, as they run counterclockwise, so for example, H would be at -162 degrees. The sum of the letters ALYSSA P HACKER BEN BITDIDDLE would give 18 degrees.

The examples given in office hours serve as two checksums for teams to test against, in addition to being instructions on how to align the letters and get angles from them.

The only letters that return a sum of 36 degrees are I and Q, which is what Ben would have to add as his middle initial to get those angles. Thus, this puzzle returns IQ.

Part C:
From office hours teams learn that they have to literally superimpose the question text and take the letters that match up properly. The division location is given by the hint that “Two Theory Pig’s can’t exist in one universe that would just be chaos”

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THEORY PIG has a vaguely crazy plan to SAVe the universes,
supErposition! Pig Decided thAt if he positioned the pair of
universes into a superimposeD state, they will both survive the
collision.
THEORY PIG did not do a super good job SAVing them. Much of thE two
universes Didn’t, reAlly at all, superimpose. What remains after all
was said anD done?
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This gives “THEORY PIG SAVED AD” so take AD from part C

Whole thing:
This gives piqad all together. When the pset is turned in and graded with this as the answers the TA will prompt the student to “translate this to a vector three times the length”. Piqad is klingon for “KLINGON ALPHABET” which is also three times the length of piqad. KLINGON ALPHABET is the answer.