

## Voice of Numbers

The trap worked perfectly. As soon as I set off the strategically placed explosives around the fortress, a sizable portion of the loyalist army would be trapped under a pile of rubble while almost all of our own would be safe within the inner wall. But it looked like the ideal time to set them off would still be several minutes from now, once the invading force was deeper into the trap and the last pockets of our defending rebel soldiers had gotten back to safety. Our expected casualties would actually be slightly lower the earlier I set it off because of the shorter amount of time we would spend in serious combat, but I had run the numbers earlier, and found that the morale penalty for self-inflicted casualties was sufficient to make the optimal time to blow the outer wall be after nearly all our troops were within the inner one, assuming the battle went roughly as I had expected it to. And shockingly, so far, the course of the battle had been quite similar to the assumptions I had made when doing that calculation.

Ada's hawk landed on me with a note tied to its foot. It was a plea for help; she was trapped in a turret on the outer wall. I searched with my binoculars for the position she described, and quickly found it. She was with three other people in an easily defendable but inescapable position, right on top of one of the explosives. *~How in the world did that loyalist squad get there?~* Answering that question wasn't terribly important for the purposes of figuring out what to do about it, so I didn't bother.

They were not in immediate danger; their position was fairly secure, and the loyalist forces had no compelling reason to need to get rid of them, so if I simply did not set off the explosives, we would still most likely win the battle in the end, and Ada would probably live through the end of it. Of course, even though we would most likely still hold the city at the end of the day, our casualties would inevitably be brutal, and it could not end up the decisive victory we were hoping for. Another alternative would be to counterattack to reach Ada's position so she could get away, but no, we didn't have the resources to be able to do that less destructively than just waiting out the assault. I started brainstorming alternatives, ... and came up blank.

*~Which leaves us with no choice; we'll have to keep fighting and never use the explosives.~*

*^That wasn't what we agreed we would do if a small group of soldiers got trapped.^*

*\*Cost of abandoning explosives:  $3 \cdot 10^7$  utils (recycling prior estimate, since battle has gone roughly as expected)\**

*~Stop it! Killing Ada cannot possibly be the answer!~*

*^Then what are you so afraid of?^*

*\*Cost of blowing up Ada: coefficient of caring (Ada) \* value of statistical life\**

*\*Coefficient of caring for Ada: 0.1\**

*\*Value of statistical life:  $10^7$  utils\**

*\*Cost of blowing up Ada:  $10^6$  utils\**

*~I care about Ada more than that. 0.1 is too low.~*

*^You do seem to have grown yet fonder of her recently. Let's bump it to 0.3. We agreed earlier it was impossible for anyone other than you to go higher than that.^*

*\*Cost of blowing up Ada:  $3 \cdot 10^6$  utils\**

*~And my life is worth more than  $10^7$  utils.~*

*^Remember how last time you made a risk calculation, you noted that setting value of statistical life above  $2 \cdot 10^7$  would make your life absurdly unwieldy? But fine, we can increase it up to that.^*

*\*Cost of blowing up Ada:  $5 \cdot 10^6$  utils\**

*~That's 6!~*

*^It's just rounding.^*

*~Without Ada, I'll be broken and devastated and sad and useless!~*

*^Trauma heals. And we factored in your future happiness when determining coefficients of caring in the first place. But fine: have it your way. We'll bump coefficient of caring (Ada) up to 0.4.^*

*\*Cost of blowing up Ada:  $10^7$  utils.\**

*~I might commit suicide! We need to include risks to my future life.~*

*^Liar.^*

*~We calculated the cost of abandoning explosives using a coefficient of caring (general) of  $3 \cdot 10^{-6}$ . I'm not that altruistic.~*

*^That's cheating. Your true objection only relates to Ada. You can't go messing with the other side of the equation. Besides, you've always been happy with a coefficient of caring (general) of  $3 \cdot 10^{-6}$  except when it made you feel like a selfish jerk. And you'll feel the same way later. But fine, setting it to  $10^{-6}$  would only be slightly ridiculous.^*

*\*Cost of abandoning explosives:  $10^7$  utils.\**

*~It's a tie!~*

*\*Tie. Greater precision required.\**

*\*Cost of blowing up Ada:  $8 \cdot 10^6$  utils.\**

*\*Cost of abandoning explosives:  $1.1 \cdot 10^7$  utils. (recycling earlier estimate with revised coefficient of caring (general))\**

*\*Note: this level of precision unjustifiable. Effectively still a tie.\**

*~But it's close! It could really be either way!~*

*^No it couldn't be. It's only close because you faked it.^*

*~But since the battle went so predictably, that means we're more likely to win anyway, so the expected influence of this decision of the outcome of the war should be less.~*

*^Now you're just making stuff up.^*

Almost the entire outer wall had been taken, and there was a substantial amount of combat going on around the inner wall. The perfect window in which to set off the explosives had passed. As I had predicted, the loyalists had given up on trying to get rid of Ada and her cohorts, and she was still alive, and still trapped.

*\*Decrease in effectiveness of trap due to bad timing so far: hm, hard to tell. We expected to trap about 3/4 of them, and it looks like it will be more like 2/3. So naively, effectiveness would decrease to roughly 90% of anticipated. It's probably not that bad, since they'd surrender immediately afterward anyway. Our casualties are more relevant than theirs, but even harder to estimate. Let's just call it 95%.\**

*\*Stalling cost: decrease in effectiveness so far \* cost of abandoning explosives / time since ideal moment\**

*\*Time since ideal moment: probably about 5 minutes.\**

*\*Stalling cost:  $5\% \cdot 10^7$  utils / 5 minutes =  $10^5$  utils per minute.\**

*~If I stall for 25 more minutes, I won't have to set off the explosives at all.~*

*\*Extrapolation that far out not justified.\**

*~If I stall long enough, I won't have to set off the explosives at all.~*

*^You know what to do.^*

*~Setting off the explosives 5 minutes ago is strictly better than setting them off now, so better just to abandon them completely.~*

*^That's retarded. Every second of stalling is costing lives and resources.^*

*~But...~*

*^You're out of excuses. Go ahead.^*

*~...~*

I slowly put my finger on top of the button, and looked up towards where Ada was, although I couldn't see her, since I was not looking through my binoculars.

*^Now push it.^*

*~I'll never forgive you for this, \*.~*

*^Yes you will. Besides, \* just makes estimations for you. I'm the one keeping you honest.^*

I pushed the button. The outer wall collapsed with a deafening boom, and the loyalist forces

broke into chaos. I tried to track where Ada's body would be, but the portion of the wall she had been trapped on had flown in so many different directions at once that I really had no idea. It didn't help that I had glanced down at the button just as I pressed it rather than keeping my eyes on the turret.

I stared blankly at the battlefield as the battle concluded. I couldn't really tell what was going on without picking up my binoculars or trying to solicit information from someone on the field by hawk messenger. But I didn't need to know what was going on; it's not like my input would do the commanders on the field much good anyway.

*^Interestingly, that excuse is actually valid.^*

My attention was diverted from the battlefield to my immediate surroundings as a stranger walked through my peripheral vision. Seeing my head turn towards him, he mumbled some polite, disinterested greeting. I punched him. He grunted and cursed.

*^What are you doing?! Chill the fuck out!^*

*~Shut up.~*

*\*Expected value of chilling the fuck out: ... Do I really have to spell this out? 'Cuz I'd rather not; I'm tired.\**

*~I hate you.~*

*\*That's it; I'm done.\**

I kept punching him, and he blocked most, with the remainder seeming to have little effect. My confused guards approached slowly, probably feeling a bit unsure what to do.

*^You're lucky he's not retaliating. This guy could probably cripple you before your guards could intervene if he felt like it.^*

The man said something. I really wasn't paying attention to the words, but I'm pretty sure he was asking me what was going on, or something like that.

"I... hate... Math," I growled.

"What? I hate math too, man! I hate math too!" he said.

*^Poor guy must be so confused.^*

"How about you go beat up that tree?" the stranger suggested. I ran over to the tree he pointed to and tried to rip off a branch. It was way too thick to rip off with my bare hands, but I kept yanking it back and forth aggressively, until, to my surprise, it cracked. I ripped it off and broke it against the trunk several times. I dropped it and paused for breath. My hands were bleeding from scraping the branch. It felt like I was throwing fire out of my palms. I clenched my fists and felt the fire pulsing through my arms into my body. My fingers stuck together uncomfortably from the sap that had oozed onto my hand.

I turned around. My guards were gathered in a rough semicircle, staring at me, and the stranger was nowhere to be seen. The fire disappeared.

"Ada was... on that wall," I croaked. Their faces all simultaneously collapsed from confusion into awkward understanding. One of them tried to put a comforting arm around me. I pushed him away and ran until I was lost. I threw myself to the ground and tried to cry, but no tears came until a couple hours later, long after I had given up on them.

I started trying to find my way back. My tears had dried by the time I got there. I wandered across the peaceful wreck of a battlefield and checked in at the fortress. People I passed by appeared to be in complete ignorance of my condition. I must have looked normal.

*~Feel my pain.~* I shouted at someone walking by.

*^He can't hear you if you don't say anything out loud.^*

*~I could punch him. Then he'd hear me.~*

*^Oh no you don't.^*

Someone handed me a note addressed to me that they had found on Ada's body. I opened it. It said:

*You did the right thing. I love you too. Yours always, -Ada*

So she had known what I would do before I even accepted it myself.

It might be a good idea for me to get my act together and try to return my mental state to normal, but I won't. Not now, anyway. Someday I will look back and be satisfied that I made the right decision. Someday I will not be angry at myself for it. Someday I will be happy. Today is not that day.