

Asserting the Algorithm

I cautiously lift my trembling, ink coated hands and stare at the sheet below me. My vision clouds with tears of gratification. The journal, nothing more than your traditional mathematical paper, comes to life with the navy text scribbled in its margins. My handwriting is atrocious, the parchment is stained with excessive blots, and the notes are so cramped that I must squint to read them. Yet somehow the paper looks nothing less than perfect in my eyes. Collapsing into the beige chesterfield beside me, I lift my worn hand to brush back strands of my unkempt hair and feel the cool, wet ink stain my forehead. A combination of various alcohols have fused and coated the air to form a noxious odor that leaves me lightheaded. Emptied ink bottles and crumpled parchment are scattered across my study. Astounded, I look at the mess I have made over the recent weeks. Mother had continuously cherished my excellence in mathematics and put it before anything else; however, I sense she would be rolling in her tomb if she saw my current state. Charles will be arriving soon, and he'll be horrified by this mess as well. Scrambling around the study, I toss my empty champagne bottles behind my drapes, recalling how spilled champagne had brought us together over half a decade ago.

The air smelt of smoke and liquor, and as I stumbled around the grand but crowded halls of an antique manor whose owner I couldn't remember, I tried to focus. I was drunk, but not noticeably, and as I navigated conversations with the duchesses around me, I could feel boredom start to sink in. My freshly-filled champagne quivered in my hand, and when I turned a narrow curve, I felt it slip from my fingers. It shattered instantly on the tiled floor, and whilst I scrambled away not wanting to be responsible for its mess, I overheard a booming voice call out.

"It's not a heap of copper, you esteemed but idiotic Duke, it's an engine! An analytical engine!" I rounded the corner and glimpsed a surly man surrounded by drunk aristocrats next to a pile of papers, illustrating a monstrosity of a machine that resembled nothing that I had seen before. All the men looked exasperated except for the one presenting the diagrams. Making my way over, I saw him glance and smile at me. "You, miss, seem as if you'd comprehend basic logic. Tell me, have you ever heard of an Analytical engine?" he inquired.

"I can't say I have sir, but I am quite intrigued," I responded.

"Well, it's a machine that would perform any calculation, automatically, given its input and output-" he started before a voice cut him off.

"You can't seriously be trying to explain this to a woman!" a man in the crowd jeered. "Much less Ada Lovelace! The only thing she understands is gambling your money away. The concept is beyond her."

I glared at him and countered in what I thought was a level voice, "The machine does the math you can't do, for you. You'd want it to complete a series of algorithms depending on what equation it's given. You would give it an itinerary, or program of sorts to complete before printing the output. If you think that's complex, then you should stumble back over to your drunk compatriots, because your probability of understanding the math behind such a machine is less than you earning a million pounds after picking the worst mare at the next race." I heard a defeated huff as the stranger strode away and redirected my attention toward the presenter who now wore a surprised smirk.

"You seem to understand it better than I do, and are far, far better at explaining it." He grinned before adding, "Since you obviously can't attend my lectures at the university, would you like to meet again to continue our conversation?"

"Before I accept any offer, I'd like to know whom I work with." I questioned.

“My apologies; my name is Charles Babbage, and I presume yours is Ada.”

“Pleased to make your acquaintance, Mr. Babbage.” I responded, taking his outstretched hand. “I’m already eager for what I think will be the start of our long and enlightening pursuit in the near future.”

The incessant ticking of the clock in the foyer snaps me back to the present. As I hastily put away the duster in my hand, I glance back at the notes that have taken me so long. They were supposed to be nothing more than a translation of Count Menabrea’s French essay on the engine, yet I had found myself adding to his explanations and creating my own ideas on how the principles behind such an engine would work. Babbage and I have discussed the subject extensively over the years, but somehow putting my thoughts into writing and performing the calculations I had theorized seemed to solidify the work. I didn’t know what to do with it; keeping it to myself felt wrong. Others have published these sorts of things to English journals, but the notion seemed ridiculous for me. My peers barely believed I knew addition, and Babbage’s colleagues refused to skim through my work. I remember how the first time I attended one of Babbage’s mathematic seminars, the others acted like I was a fraud, as if I was nothing more than an illiterate orphan.

I grew enamored with the Analytical engine over the 2 years I had studied it. It seemed that not even Babbage could pinpoint what would cause it to automate, and he had turned to me for assistance.

“Listen, Ada,” he begged, his hair disheveled, and his eyes hazy with exhaustion. “None of us can make sense of this. You’ve been studying my work diligently, and at this point you know it better than I do. You ought to share your thoughts so that we can progress. Exchange your concepts with my colleagues. If you work with them, we can finally get somewhere.” A knot of dread started to form in my stomach at the idea of sharing my work.

“I...I can’t Mr. Babbage,” I mumbled, unable to look him in the eye. I wasn’t confident in my understanding of his work, much less ready to start my own theories. Besides, when I had tried to explain my ideas to his peers, my voice was always spoken over, or the conversation was redirected toward things such as gambling. Babbage seemed to sense my misgivings and slumped in his chair, as if my hesitation had formed a bullet and pierced his heart. Incapable of bearing his disappointment, I sighed and agreed to the task. He instantly sat up and smirked, as if he was acting this entire time. I scowled, wondering what I’ve gotten myself into.

A few days later, I attended a conference at Babbage’s manor to discuss the future of the engine. Stepping into the meeting, I glanced around and immediately felt bile rise in my throat as looks of distaste directed my way. Even the man next to me, half my age, shifted over a seat, not wanting to be associated with me. Babbage was nowhere to be found, and as I scowled in defiance, waiting for the gathering to begin, a nasally voice cried out. A slick-haired skeletal man peeked in my direction and called out derisively, “While I’m all for having competent minds work on this radical device, I don’t see why Babbage is inviting some drunk countess to partake when it’s clear that she barely knows her order of operations.” He sniggered, and the group began to chuckle. I refused to shift my gaze and remained silent, not wanting to make a scene. They’ve almost moved on with their conversation when a voice spoke up.

“It’s simply incorrect when you state that Ms. Lovelace can’t do mathematics.” I turned to stare at the stranger who has come to my defense and felt a bit of hope rise in my heart. If one of them will listen to me, maybe the rest will! I opened my mouth to thank him when he continued the rest of his point. “Ms. Lovelace is certainly good enough at math to help cheat the system. Why, just last month I heard her calculations on the statistical probability of a horserace helped a duke earn over 1000 pounds! She may be useless when trying to aid us in this venture, but we mustn’t call her stupid, lest she stop providing her services for us.” He sneered at me, and my eyes started to burn. I wanted nothing more

than to defend myself, but what was the point. The rest of the meeting passed in a blur with me barely speaking. Once the torturous night was over, I promised myself to never again presume that anyone would ever listen to what I have to offer.

Looking at my work now, I recall that promise. While I'm certain that my notes on the analytical machine could be key to making progress on it, these men...my peers would never accept it. I'm about to lock away the papers when I hear the chime of the bell outside and hastily sit down at my desk as footsteps approach. Babbage strides in, hair messy as usual, and glances around at my still unkempt room before sitting across from me.

"I take it you've finished your transcription, Ada?" he questions, and I nod, handing him the crumpled essay. His eyes scan the pages, a thoughtful expression on his face. "Ada, this is... quite simply, wonderful! We should publish it immediately; this could be-" he starts excitedly.

"I'm not publishing them" I cut him off, dejectedly staring at the floor. "The work will never be accepted; it's humiliating to even submit it in the first place." Babbage stares at me for a moment in consideration.

"Ada, I know you've faced numerous challenges in this field merely because you're a woman. You've battled over and over again for acceptance that has never come. Even if most reject your work out of hand, though, are you willing to give up finding even one person who sees what you're worth?"

"No one will read it. I've been trying for years to have someone, anyone but you pay attention to my theories, but it's never happened. My voice is forever overruled because I'm known as a drunk countess who can't achieve anything!" I scream, my voice cracking. Babbage goes silent, and for a minute I believe I've finally got through to him.

"While I know you've been shut down for your entire career, and you've tried time and time again to share your brilliant concepts, I don't think my senseless associates are the only reason you've silenced yourself. Your work is never going to amount to anything, never going to be shown to the world, if *you* never believe in it, Ada," he sighs, resigning himself to my decision.

We sit there for what seems like hours. I can't bring myself to answer. It feels as if my voice perpetually is suffocated by my reputation because no one is willing to listen. Facing those judgmental faces and managing all the barbed comments doesn't feel worth the non-existent recognition given to me. Yet I'll be the only one to blame if I refuse to submit it. Even though the only reason I'm not doing it is because of their prejudice, it's still me who's making the final decision. Babbage is right. I can't limit myself forever because the imbeciles of my era shun me. I advocated for myself when I began my work on this engine. Why would I silence myself now that I've achieved something? As I push the transcript over the table, Babbage grins at me, and for the first time in months, I feel like I'm worthy of being heard.