4.

You might not think competitive ballroom dancing is a technology, but it is one. Throughout history, ballroom dance has experienced cycles of standardization, revolution, and restandardization as a product of the knowledge of the time period. “Technology” did not begin with the transistor, nor did it begin with the invention of electricity. It is hard to pick a starting point for technology, but a torch is technology, hitting a rock on a stick is technology, human noises are a technology, and ballroom dance at its most universal is also a technology. There is a science to the way two human bodies communicate to each other and then to those who watch the performance they produce. And whatever paradigm the Science of Dance subscribes to at the current moment, the Institution of Ballroom Dancing applies this knowledge to standards and conventions that deem a ballroom dance Beautiful. Naturally, these conventions produce suffering for the users of dance.

In this case of competitive ballroom dancing, where the standardized role of leader is conventionally a man and the standardized role of follower is conventionally a woman, this suffering mostly originates from multiple memberships in gender roles, gender expressions, and the historically patriarchal (in the United States at least) nature of a leader-follower power dynamic. For example, what if a woman sees herself as the dancer who wants to lead her partner: she wants to pick the direction they dance, she wants to pick the holds and the turns during her communication with her partner. The dance standards give the man that burden, as he is the leader of the pair. Or, what if she wants to follow, gracefully and precisely, but does believe a dress expresses her style of dance. Her multiple memberships in gender expression will cause real suffering: she will lose competitions without even being considered. She will move to what Star refers to as the taken-for-granted world. Even if the conventions of gender are followed, both the man and woman have multiple memberships that are ignored by the conventions of the leader-follower relationship they are expected to exhibit to the judges that determine who wins and who loses in tournaments. Men are not inherently leaders nor women followers. And conventionally, judges judge a dance pair by the “strength of the leader,” as he is presumably orchestrating the performance himself. As if.

Take the case of this hypothetical dancer. She started very young and grew up idolizing a fiery, confident, wildly successful professional dancer whose style of dance was strong and loud and did not necessarily fall into a traditional woman dancer archetype. This dancer was taller than most girls her age, So she was picked to be the leader for other girls because there are not enough boy dancers at this age. She had strong shoulders, and her red hair was really short because she cut it all off spontaneously. She was intensely motivated to reach the highest levels of ballroom dancing, she worked hard and excelled at being a leader. In high school, she almost quit dancing until she met a boy who was not that much taller than her. He wasn’t cold or dominating and didn’t have a partner before

her. Apply Star's three steps here: First, she refuses a great man story here. There is no great man that will turn this woman into an amazing follower, nor does she need to be dominated in this way in order for these two dancers to produce Beautiful dance. Second, she refuses to discard her experience as a leader, even if that will make their dance image look more like two equal dancers than the conventional leader throwing a pretty girl around. Third, she acknowledges that leader-follower conventions are not set in stone, as she was part of another world that could not be standardized this way. So, this hypothetical dancer exists in a high tension zone: she is not labeled a leader-follower dance pair and not labeled a Bad Dance pair either (because those are opposites in dance, conventionally). Because, hypothetically, her ballroom dancing with her partner is actually beautiful and actually requires state of the art knowledge in the science of two-way communication to achieve.

3.

Claude Fischer argues that new technology at its inception maintains an *interpretive flexibility*. This is sort of like when you are watching a movie and you are shown many symbols and foreshadowing events, and you are given the opportunity to speculate on what these early scenes could mean for the plot later in the movie. In Fischer's example of the residential telephone, at its inception the telephone was primarily marketed for conducting business operations. You can imagine a man sitting in his home office phoning another man in his home office and doing manly negotiations with one another until a sale was made or a meeting was arranged. This could be argued as the motivation for creating telephone technology, as a way to speed up business and get an edge on your competitors. But more generally, what was created was a two-way, distance-erasing communication device that one could place in their home and connect to every other household whose husband also purchased a telephone for their residence. Something this general can thus be interpreted any number of ways, in particular it was women who interpreted the residential telephone as a way to perform the social labor of the United States. They used the phone to invite other families to dinner, to tea, and all to the other events you read about in novels.

What's next is to describe the closure mechanisms that stabilized the residential telephone as a technology of sociability. One closure mechanism was the positive feedback loop concerning residential telephones for rural and farm women. Fischer writes about when telephones finally made it to rural households, they were received warmly. Rural farm areas were described as lonely with little social or educational opportunities. The U.S. Department of Agriculture became aware of the benefit American farming families received from this new technology. This probably encouraged slightly more telephones to reach rural households. As a result, more women gained access to their far away friends and reaped the benefits social connection brings. This probably encouraged

more women to advocate for free telephones in every farm household, even over roads (Fischer 221). This positive feedback loop acted as a closure mechanism that solidified the residential telephone as a technology of sociability. Another closure mechanism was the negative feedback loop concerning men's weaponized incompetence of sociability over the telephone. Systemic patriarchy made women on average more socially competent than men, so making phone calls must have come slightly easier to women, systemically. Men, as a result, were incompetent. Men responded to this negative feeling by compensating for it by making the telephone a feminine thing. This means they didn't have to do it. This is an example of weaponized incompetence: men tended to retreat from social duties and let women use the telephone to perform the social labor for them. This negative feedback loop was a closure mechanism.

Take for example the copy machine, a technology of sociability in its capacity to create paper copies of flyers for all types of social events. To the managerial class, the copy machine meant redundancy in the workplace, it meant bureaucracy was more efficient. To publishing houses, it meant piracy. And to working women, it meant freedom. Women could quickly make copies of a flyer that invited other women to a place where they could discuss suffrage and equality. A non-user of a copy machine was a boss (usually a man) who decided manually copying his papers was beneath him and then delegated his duties to his workers beneath him. He also moved the copy machine far away so he couldn't hear the nose. This influenced the copy machine as a technology of sociability because women were far away from a watchful eye and free to begin a revolution!

1.

Lucy Suchman and co-authors describe technology as a "social practice" to emphasize that for a long time we understood technology as the shiny new thing we could buy, rather than contextualizing that piece of technology with all the social, political, and cultural conditions that brought us to that point. It recognizes that there actual social practices being conducted over a large socio-technical network that produced that technology. With this lens, we are free to analyze this network's nature and context, and its context shapes how technology is used and how it evolves over time. Thus, the idea of technology as a social practice recognizes the importance of understanding how technology is embedded in our social world, and how it is shaped by and shapes social practices. It emphasizes the need to view technology not as a static object, but rather as a dynamic and ever-changing social phenomenon that is continually evolving and adapting to new social and cultural contexts.

Consider a F-35 Fighter Jet in a dog fight. A dog fight refers to a situation where two enemy fighter jets find themselves in close range of one another and must perform

tactics to outplay the other and take them down. Maybe long ago where these dogfights were fought solely by the pilots in the cockpit, but now larger heterogeneous systems are in place that enhance the skill of the fighter pilot. If an engineer were assigned the task of improving an F-35 in a dogfight, it would take more than just understanding the pilot. To understand the heterogeneity of this system, one can imagine a passionate tango between the two fighter pilots. Like the waltz or the foxtrot, the tango asserts an image onto its tango dancers: passionate, quick, fierce–these images are vital to a tango performance. This is to say there exists an asserted frame of mind for each dogfight participant, one that transcends the individual. In tango, dancers are actually performing sequences of moves, chosen from a defined set of tango moves, and string them together coherently and (ideally) beautifully. This system might seem homogenous from the lens of tango, but dogfights are actually also stringing together basic fighter maneuvers (BFM) in the same way. The actual creation of BFMs belong to an entirely different technical system than dogfighting, because a dogfight is a performance–not a laboratory. From the lens of tango, an engineer could get a few ideas on how to tastefully expand the moveset while not breaking away from the asserted image one requires. The tango story also turns the heterogeneity of understanding the enemy fighter's plan into the homogeneous system of leader-follower in tango. When the leader steps with his right foot forward, the follower must step with her left foot backwards–for every call, there is a response. Not only that, the leader only has two feet and four degrees of freedom for each foot giving a determined eight possible moves the follower has to react to. This can be applied to dogfighting as well. There is also so much heterogenous technology in the cockpit of a fighter jet that would be impossible to make sense of, unless you remember the story of a tango and work backwards to understand the contextual use of everything that is needed for a successful dogfight.