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Recommended Citation

Piper Harron, "On Contradiction," *Journal of Humanistic Mathematics*, Volume 8 Issue 2 (July 2018), pages 199-207. DOI: 10.5642/jhumath.201802.22. Available at: <https://scholarship.claremont.edu/jhm/vol8/iss2/22>

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On Contradiction

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Synopsis

Parenting, across species, is a clumsy, all-consuming, and often exasperating endeavor. Yet in many parts of the human world, we somehow expect to contain and control this part of ourselves. We idealize the separation of work and family. This seems to be especially true in mathematics where many of us hold space in our minds for the Devoted Genius Mathematician who has no other responsibilities but to their own passions, and no obstacles beyond the difficulties of their own pursuits. The unavoidable fact is that life with children is full of absurdities and contradictions. Unless we're willing to embrace that, we will continue to put mothers and other marginalized parents in impossible situations. Instead of viewing contradiction as the end of the proof/story, we need to see it as the beginning.

There are few things I find more relatable than watching videos of parenting in the animal world: the orangutan whose child will absolutely not do as told, the elephant baby that will not wake up, the lion that is not in the mood to play with the cubs right now. Parenting, across species, is a clumsy, all-consuming, and often exasperating endeavor. Yet in many parts of the human world, we somehow expect to contain and control this part of ourselves. Our society runs on the expendable parent model, which says that those who work in the world are completely independent of whatever offspring they may have. This is especially true in mathematics where many of us hold space in our minds for the Devoted Genius Mathematician who has no other responsibilities but to their own passions, and no obstacles beyond the difficulties of their own pursuits. Of course, both the expendable parent model and the genius mathematician myth are based in lies and oppression.

For marginalized parents, trying to make space for ourselves in mathematics often feels like navigating a never-ending proof by contradiction.

It goes like this: first, suppose for the sake of oppression, that a marginalized parent's needs are less important than the comfort and convenience of those in the dominant group; then, carry on with life until you break or until you become evidence that your needs are in fact less important.

As with any proof by contradiction, our oppressive framework imposes on us a string of false assumptions. The most insidious, in my mind, is the nature of mathematics itself.

Mathematics $\Rightarrow\Leftarrow$

Mathematicians are, of course, no worse than any other group of people, except that we kind of think we're better, and we kind of think we can prove it. I'm hopefully joking, but not as much as I'd like to be. What I mean is that (pure) mathematics is all about abstraction. We look for patterns and structures; we look for facts that remain true as we throw out more and more context. Put another way, we study things that only become true once we throw out context. This matters. Throwing out context is how we get away with murder. It's not just the abstraction in mathematics (and we can hardly do anything in life without some basic abstractions), but it's the way we value abstraction as being more intellectual, more worthwhile; the way we assume an inherent worth in distilling situations or information to isolated components (of our own choosing) that we can study or discuss without the distraction of that which we deem to be "noise." Often that noise contains the needs of actual human beings, and we should be constantly vigilant against discarding humanity.

In the name of scientific inquiry, the investigator determines the question and the noise. In the name of mathematical rigor, we relegate all discussion of our personal struggles to separate journals, special issues, and dedicated panels. And when this framework of "objectivity" fails, almost hilariously, to produce results that live up to our ideals, it is an uphill battle to convince the comfortable that their cherished worldview is in fact toxic. The way we do math is neither necessary nor inevitable, and I think it is no coincidence that the way we do math produces "brilliant" thinkers who can't wrap their heads around racism and sexism, let alone homophobia, transphobia, ableism etc.

To be honest, I've struggled with this essay because the entire theme annoys me. How many people even want to read about mathematics and motherhood outside of mothers in mathematics? I by no means think that this issue shouldn't happen, but I dislike the way we try to separate out our different lives, as if that is a thing we can do. As if the issues faced by mothers in mathematics are only relevant to those in mathematics, to those who are mothers. As if the struggles faced by mothers in mathematics are only experienced by those who identify as mothers.

Parenthood $\Rightarrow\Leftarrow$

I don't want to talk about "motherhood" because I don't support the gender binary, and because being gently genderqueer myself, I don't love the classification. The only thing gendered about my experience as a parent is the way I'm treated. I would rather think in terms of marginalized parenthood. I'm thinking about parents, of any gender, who have to take care of their children while also fighting to survive in an oppressive world. I'm especially thinking of those marginalized parents who feel fully (not necessarily solely) responsible for their children, particularly those who will be punished for having such responsibilities. These parents have a huge emotional burden that they carry with them wherever they go.

Parenthood has, perhaps, nothing to do with mathematics, but it can have everything to do with a mathematician's ability to succeed in a competitive environment. Parenting takes time. It takes so much time. All the time. Children's needs don't adhere to business hours or work schedules, yet our working world constantly supposes (for the sake of keeping us down) that it does.

This isn't merely a matter of "work-life balance;" we need to challenge the idea that work and life are two separate opposing forces that must be balanced. There is no work versus life; there is only life. Anyone who is against oppression, who does not believe in putting extra burdens on people for arbitrary reasons like gender, needs to work on incorporating the needs of children and parents into grown-up spaces. Anyone who is against oppression, anyone serious about furthering human knowledge, needs to stop using those with the fewest burdens as the standard-bearers by which the rest of us are judged.

When you stop trying to separate life from work, when you stop thinking being a parent, or being marginalized, has nothing to do with mathematics, when you start viewing mathematicians as entire humans, it becomes easier to see the unfair advantages amassed by those who advertise themselves as mathematicians only.

I have been fortunate in that I entered a department that was already accustomed to accommodating parents (mothers and fathers both). Also, because my spouse is in the same department, nobody is really asking either of us why the other can't just take care of something. Still, I have lost plenty of time and energy to personal struggles, including parenting struggles. This lost time and energy shows up on my CV and in my funding applications in the guise of "not enough publications."

For the past year, though, it hasn't been parenting that has taken up my time, but my own mental health. Another problem I have with the Mathematics and Motherhood topic is that it almost supposes that if you are a mother in mathematics, motherhood is the sole topic that needs discussing. I don't think we should throw away the other issues that anyone, including mothers, can face. For instance, having children turns the difficult task of recovering from or coping with mental illness to a (nearly?) impossible and torturous task. Personally, I think we should always be talking about everything that happens when you are stuck supposing your needs don't exist.

Everything $\Rightarrow \Leftarrow$

Snapshot: It's Tuesday mid-morning and I'm crying in my bathroom because the potential nanny canceled at the last minute saying she didn't think we were a good fit. I'm crying because I just lost my whole day. I'm crying because this may never end. I'm crying because it's all my fault. I was the one who wanted to start working even though everyone else was perfectly happy with me being a stay-at-home parent. I was the one who decided that I shouldn't be resigned to a situation that was becoming increasingly miserable, that I should actually consider my own needs even if it meant small sacrifices for the family. I also was the one who drove our first nanny away by pointing out that her attempts at behavior modification were backfiring on my then five-year-old. I was the reason we couldn't just hire any old casually racist, gender-binary enforcing, disciplinarian nanny.

All the energy and care I had put into my children and how I wanted them raised had led to this moment of utter despair when I realized that I would have to sacrifice what I wanted for them in order to pursue a career.

Of course, it wasn't my fault, and ultimately we found someone we are very happy with, but it took months. I had been a stay-at-home parent for five years before I started my postdoc, and being the primary parent meant feeling responsible for everything. Even though my spouse agreed with my choices, I felt like if I had argued strongly for different choices, he would have agreed with those, too. We had hired what we thought was the perfect nanny in the first week of August, just in time to get into the swing of things for this new chapter of our lives. After only five days, she put in her two-week notice. Those two weeks were spent trying to understand whether this was final, whether it was negotiable, whether there was a misunderstanding. Then she was gone. For the first two and a half months of my job I had to research and interview nannies when I should have been researching my own math. Every day I felt like I was failing, and every day I knew that the system I worked within agreed.

Being the primary parent for five years meant that it felt natural and logical for me to take on the bulk of the work of finding a nanny. Being a marginalized person means I'm used to society's logic that says I should sacrifice my own well-being and sense of self to maintain order and a (false sense of) harmony. Being a non-white, non-straight, non-man means when you decide to do what you need to do to be happy, it feels like a gross indulgence, and any negative repercussions or setbacks feel like the world saying they told you so. Being a marginalized parent in mathematics, particularly a woman or femme, means that everything is in tension, but you're supposed to act like it isn't, and if you can't miraculously give off the impression of being just like the single cis het white man your department is likely comfortable with, it will be held against you in the court of hiring and promoting.

Collage:

- I say approximately, "I am putting together this grant application and I have to make a choice, and it's basically an arbitrary choice, but it's also a personal choice, but at any rate, I can't make it; can you please make this choice for me, using any method you like, it doesn't matter." The reply is advice on doing what I want.

- I say approximately, “I can’t write my syllabus because my standard syllabus is light-hearted, but my life has crashed and I don’t feel light-hearted, but when I go to rewrite it I feel guilty and like I’ve lost and like my students are losing. At any rate, can you tell me when to schedule exams? Maybe starting there will help.” The reply is laughter and a lot of words about exam philosophy.
- I say approximately, “Can anyone help me deal with the papers on my desk in my office? It’s getting out of hand, and I can’t do anything about it.” I say whatever I say, and people are nice, and there is an offer of help, but I can’t follow up on it. What I don’t do is cry. What I don’t do is have a breakdown in the middle of the math department because it is very much not that my papers are “getting out of hand,” it’s that my papers are going to swallow me whole. It’s that I walk into my office and I feel sick, and every sheet of paper is a thousand decisions I can’t touch, and it’s been steadily accumulating and I’ve been watching it. I’ve been building it with my own hands. Imagine building your own demise with your own hands of your own accord, every day little by little, knowing how it will end. What I don’t do is explain that I’m not okay and my office is both a manifestation of this and an obstacle to recovery. What I can’t do is get partial credit for doing the most when it looks like the least. What I can’t do is turn therapy sessions into theorems, turn breakdowns into breakthroughs, turn personal progress into “objective” proof that I belong.

My actual desk.

Complaining is counter-productive, I'm told, despite how far it's gotten me. I don't want to complain though; I want to be heard. I want us to start considering mathematicians as whole people, and mathematics (even in its purest form) as a thing that exists and affects real life. We need to understand that we can't do math research without doing math culture, because they are not separate things. The stories of Mathematics and Motherhood are the stories of Mathematics. If you can't relate to a story, it is because you were part of the silence, or the absence, or the problem.

The truth is, life is inherently contradictory; ask any parent who has eaten the sweet they told their child they couldn't have. When people in power choose to ignore these natural contradictions, they end up forcing unnatural and impossible contradictions onto others. All of my calls to fight oppression are about recognizing and reaffirming the humanity of marginalized people. In this case, I am suggesting that one way to achieve this is by embracing contradiction, and allowing this to lead us to a new way of doing and viewing math itself.

Mathematics $\Rightarrow\Leftarrow$

I am a mathematician and very often I am (evidently) not doing math. Sometimes this is because tiny versions of me need guidance or sustenance or supervision or medical attention. Sometimes it's because my brain sees monsters where there are none and readies me for battle and all I can do is wait. I am a mathematician, but only if you let me be, only if you stretch your imagination beyond what you have been told must be.

Snapshot: your toddler is investigating something they found in a public restroom stall, despite your very explicit instructions that they are to touch absolutely nothing. You can't suppose it away, you can't disprove it, you can't quit, you can't say it's not your problem. Parenthood (if you're listening) teaches you that everything you knew was wrong.

Snapshot: my sensitive, strong-willed toddler yells that he's finished on the potty, disturbing the infant I'd just gotten to nap. Toddler needs his bottom wiped, infant will fully wake if I don't nurse him back to sleep; neither can wait. Less than a minute later, I have my foot on the Squatty Potty, cradling a nursing toddler propped up on my knee, which I'm trying to bounce because toddler, head between knees waiting for a clean bottom, will not stop talking and infant has already opened his eyes.

A reenactment a few years after the event.

I want to be gentle and loving but I'm so desperate and angry, and as I struggle to get toilet paper with one hand and sing to infant and respond to toddler, I know in my heart, in my soul, in every one of my bones, I know that I was promised (somewhere around the time when I got my first perfect math SAT score) that this would never be my life. When children enter your life, they expose the lies we were promised about order, and control, and choice. If you don't adapt, you risk creating an unsupportive environment in which families don't thrive.

The evolution of what we today consider mathematics promised to some a sense of order, and control, and choice. To them, the perceived chaos and disorder of "diversity" is at best irrelevant, at worst a violation. Their failure to adapt has created an unsupportive environment in which our community cannot and does not thrive.

They must adapt, though, not just for the human interest angle, but because they have got it wrong. The promise of order, control, and choice, was a lie, and an unsustainable one at that. Math is not just the epsilon greater than zero; it is the choice to let epsilon be greater than zero; and it is also the man you remember choosing to let epsilon be greater than zero.

Math is not just the patterns and structures studied by those allowed to be called mathematicians; it is also those patterns and structures used and contemplated by those not allowed to be called mathematicians; it is also the imperfections we exclude from our patterns; it is also the tension of being open to more than one possible framework. Rethinking, reshaping, and rehumanizing mathematics has to be what we do now, and we must do it with the same fearlessness parents are regularly forced to adopt as their children set off to destroy, I mean explore, patterns and structures of their own.

References ⇔

My views are a work in progress, and my most recent progress towards a new understanding of mathematics is due in (extremely) large part to discussions with and the writings of Rochelle Gutiérrez, Michael Barany, and Brian Katz.

In honor of not discarding the seemingly academically irrelevant, I will add that any instance of me existing as a mathematician and parent is with reference to Lillian Pierce whose perspective on this very serious and very silly business of parenting in academia has been life-sustaining.