Abolish Math: 6 Lists on *Math* and Power

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Associating *Math*[1] with Power might not intuitively make sense.[2] The six lists you will encounter here engage with *why* there could be this instinctive reluctance to relate the two, why there might be an interwovenness after all and how to react to that. The lists invite you as a reader to engage with them in whatever way suits you: feel free to browse the titles of the lists or the individual statements and see what irritates you, interests you, confuses you. The lists can be read chronologically but they don't have to be. So, feel free to skim, jump, engage the way you want to. The paragraph of the singular statements in the lists are explanations regarding the statement centered.

These lists reflect my own personal journey with *Math*: from being intimidated and fascinated to becoming aware of how *Math* relates to my sense of self and intellectuality. I then became critical about what I had been taught about *Math* in general as well as what I had been taught about my relation as a woman to *Math*. Now, I am proud to announce that, in alliance with those struggling to abolish the family or to abolish the police, I am struggling to abolish *Mathematics*. These calls to *abolish* are calls to deconstruct the concepts in question so radically that they no longer exist as we have come to know them. Hence, underlying this term of abolishment is a deep sense that the concept in question should not be "repaired" because it simply cannot be. This describes how some regard the police or family or marriage. It also describes

1 I use italics for terms such as *Math*, *knowledge* or *rationality* to visibilize that I regard them as concepts specific to Western and patriarchal structures of power.

2 The words *Math* and Power are both capitalized to call attention to the dimension of dominance that both concepts entail. In the case of *Math* it also functions as a reminder that I am discussing a specific *Mathematics*, that is the one oriented around gaining epistemic authority and control.

how I nowadays regard *Mathematics* (as well as all the concepts included before). This might seem radical. Because it is. You are not required to be a *Math*-Abolitionist with me. You are however very warmly invited on your own journey with *Math*. However, I have come to use radical language and non-humble statements because I believe we are ready to be provoked into considerations and thought. You are therefore warmly invited to feel exasperated or irritated. I believe this is part of the deal of confronting what we *know*, e.g., what we know about *Math* and about our own being.

This paper ends with two lists that contain questions. This is my attempt of a counter-concept to the kind of conclusions that conventionally close academic papers. These conclusions feel very known to us and maybe even feel like something we need to close our reading with satisfaction. However, this paper does not want to be read like classical academic papers for two reasons. Firstly, I don't aim at the air of certainty and closure we academics usually strive towards. I want to end with many questions because there in fact are many questions. Much more than there are answers. Ending the paper with a conclusion would be a performance. One I am confident we can do without. Secondly, academic papers often put forth an 'I' that is giving an argument. With these lists, however, I would like *you* to be the center of attention and the center of the paper. This is not about me making clever points. It is about you reading just to see if there is anything in here that you feel like taking with you, diving into, running away from or being mad or sad or excited about. Let's go!

First List: Statements commonly thought about *Math*

a) Mathematical knowledge is the pinnacle of objective, neutral knowledge.

Math is assumed to be a kind of *no-man's-perspective*: a way of knowing that is not connected to or dependent on socio-historical context.

It's a common belief that *mathematical knowledge* is the basis as well as the best example for such *context-free knowledge*. This is important in the sense that it shows the ideas of *objectivity* and *epistemic neutrality* (*neutrality regarding knowledge*) to be highly interwoven with the idea of *Math*: one points to another and argues the legitimization of the other.

b) *Mathematical knowledge* is forceful: it's *the* knowledge you cannot (sensibly) argue with.

This second claim is highly connected to the first one: the idea being, that such *context-free knowledge* is the knowledge on which there *must* be agreement.[3] *Math*, and the knowledge it creates are often framed to be the things that one cannot possibly argue against – or at least not if this person wishes to be regarded as someone to be listened to.[4] This assumption makes the idea of *mathematical knowledge* a creator of *what it means to think* – or to do so in ways others can connect to: if *Math* is the knowledge, you cannot sensibly argue with, then it builds the boundaries of what it means to argue and *think sensibly*.

c) *Mathematical knowledge* is the pinnacle of the *human intellect*: it shows the best *human rationality* can achieve.

Math is oftentimes understood to show what *human intellect* can do: *Math* is thought to have the capacity to create *objective knowledge*.[5] This idea of *objectivity* is also built into the idea of *human rationality*: *Rationality* being understood as a way to create knowledge that does not stem from a specific standpoint.[6] The capacity for *rationality* and for *intellect* is usually understood to be specifically *human*. *Math* is a discipline and way of knowing that is often pointed to as a glamorous example of these qualities of *human thinking*. This assumption connects *Math* to ideas of *Rationality* and of what it means to *be human*: if *Math* is the pinnacle of *human rationality* then it is a kind of ideal that signals what it means to *think* and to be *human*.

d) *Mathematical knowledge* is independent of societal or historical context: it is *universal knowledge* that is the same for every culture and historical period.

This assumption is highly connected to common associations and expectations regarding *objectivity*, *neutrality* and *rationality*.[7] They all have a little bit of universalism

3 See e.g., Shulman, Bonnie: What If We Change Our Axioms? A Feminist Inquiry into the Foundations of Mathematics, in: Littlefield, Melissa (ed.): Configurations, Baltimore/Marykand 1996, 435.

4 See e.g., Shulman: What If, 435; Hottinger, Sara N.: Inventing the Mathematician, New York 2017, 7.

5 See e.g., Hottinger: Inventing the Mathematician, 7.

6 See e.g., Harding, Sandra: Stronger Objectivity for Sciences, in: Em Construção: Arquivos de Epistemologia Histórica e Estudos de Ciência 5 (1995), 427.

7 I regard these notions to differ from one another but to be deeply interwoven, specifically in partaking in the ideal of a form of *universalism*. This interwovenness is discussed in e.g. Shulman: What If, 435; da Silva, Denise Ferreira: 1 (life) ÷ 0 (blackness) = ∞ – ∞ or ∞ / ∞. On Matter Beyond the Equation of Value, in: Hui, Yuk/Blackburn Walling, Marry and others (ed.): E-Flux Journal 2017, 6.

sprinkled into them in the sense that they all aim for something *context-free*.[8] This idea of *context-free knowledge* is connected to the suggestion that the knowledge in questions is fitting no matter what the context is. *Mathematical knowledge* is often claimed as the best and most obvious example for such *universality*: *Math* as a concept therefore legitimizes the notion of *universal knowledge* because it is narrated as a *proof* that this kind of knowledge does exist.[9]

Second List: Clues that this notion of *Math* might be a Western institution

a) Universalism is connected to colonialism and patriarchy.

Universalism describes the idea of knowledge applying to any context because the knowledge in question is assumed to be *independent* of any such context.[10] The idea of universalism and the idea of its' specific authority were created from specifically Western and patriarchal standpoints[11]. To put it bluntly, what is considered universal and free of context actually established a Western, White and male perspective as "the universal one."[12] The idea of universalism itself was created to be associated with Western countries in order to conceptualize them as superior to colonized communities and countries.[13]

b) The idea of *objectivity* and *neutrality* are claims to authority. And therefore, they are political.

Objectivity and *neutrality* are concepts used to argue the authority of a specific knowledge/way of knowing. Both of these ideas are conceptualized as epistemic ideals. To

8 See e.g., Harding, Sandra: After Mr. Nowhere. What Kind of Proper Self for a Scientist?, in: Fehr, Carla/Fulfer, Katy (eds.): Feminist Philosophy Quarterly, Libaries 2015, 2; Shulman: What If, 435; da Silva, Infinity, 6.

9 See e.g., da Silva: Infinity, 6; Shulman: What If, 442; Mangraviti, Franci: The liberation argument, in: Standefer, Shawn/French, Rohan/Macaulay Ferguson, Thomas (eds.): Special Issue on Valerie Plumwood's Contributions to Logic, Wellington 2023.

10 Harding, Sandra: Geschlechtsidentität und Rationalitätskonzeptionen, in: List, Elisabeth/Studer, Herlinde (eds.): Denkverhältnisse. Feminismus und Kritik, Frankfurt 1989, 427.

11 Hottinger: Inventing the Mathematician, 13.

12 See. e.g. ibid.; Harding: Stronger Objectivity for Sciences, 188.

13 Mbembe, Achille: Kritik der Schwarzen Vernunft, Berlin 2017, 30; Alexander, Jeffrey C.: The Dark Side of Modernity, Cambridge 2013, 114; Wynter, Sylvia: Proudflesh Interview, in: Russell, Darlene (ed.): Proud Flesh: New Afrikan Journal of Culture, Politics & Consciousness 4 (2006), 5.

claim knowledge as *objective* or as *neutral* means ascribing to them a superiority towards forms of knowledge not described with these words. This built-in claim to authority is political in the sense that claims to epistemic authority are claims to a specific form of exercising power: claims to epistemic authority are claims to the sovereignty of interpretation, to the sovereignty of narrative and to the sovereignty of naming and not-naming. These forms of sovereignty are important parts of upholding and disguising sexual violence, to name one example.[14]

c) There is exclusion of many other mathematical practices and ways of understanding mathematics.

This becomes clear when contrasting different notions of what it means to mathematically *prove* something: the Western, universalist notion of a *proof* means to provide *epistemic necessity* – to be able to force someone to admit something.[15] Upapatti, the Indian version of proof, is oriented around providing a plausible argument – to communicate a certain idea or chain of ideas.[16] The traditional Chinese proof in turn is oriented around providing a viable information – to provide something useful for a specific way of living.[17]

The Western notion of *proof* universalizes itself and claims epistemic dominance whereas the other two situate themselves in a specific context: they are about a form of *workability* rather than being about *truth*, thus epistemic authority.

d) This idea of *Mathematics* is rooted in Western binarisms.

Binarism describes ideas that are conceptualized through the notion of two opposites. For example, the *emotionality-rationality binarism* conceptualizes both *emotionality* and *rationality* in mutual exclusion. These kinds of binary conceptions establish the idea of systems with two options that are opposed to one another.[18] Looking at the socio-historical context it then tends to be the case that one of those two options is conceptualized as superior to the other – the binary is a hierarchical one. These binarisms are Western and patriarchal in the sense that they have been created to establish Western and male supremacy: Women* as well as people of color, Black

14 Manne, Kate: Down Girl. The Logic of Misogyny, Oxford 2017, 4.

15 Shulman: What If, 434 f.; Hottinger: Inventing the Mathematician, 13, 125 f.; da Silva: Infnity, 6.

16 Shulman: What If, 435.

17 Ibid., 436–437.

18 Plumwood, Val: The Politics of Reason, in: Standefer, Shawn/French, Rohan/Macaulay Ferguson, Thomas (eds.): Australasian Journal of Philosophy 71 (1993) 4, 438.

people and colonized communities have been and still are continuously conceptualized within the allegedly inferior binary category, e.g. within *emotionality* and not *rationality*, within *passivity* and not *activity*, within *nature* and not *culture*.[19] This conceptualization is ever so present in Western frameworks that shape our knowledge and our understanding of ourselves and others.

e) This idea of *Math* is connected to Western concepts of *rationality* and *being-human*.

Rationality is considered to be a capability that is specifically *human*.[20] The ideas of *being-rational* and *being-human* are therefore highly interwoven. In this arrangement the idea of *rationality* acts as a gatekeeper for *being-human* in the sense that you need to think and perform in ways considered *rational* for you to be considered *human*. Within these concepts of *rationality* and *being-human* therefore lie specific ideas on how to think and how to be. Those implications have been shown to be specifically Western and patriarchal notions, put in place to have the concept of *human* be exclusionary of marginalized groups of people.[21]

Math is interwoven with both of those ideas: it's considered the pinnacle of *human intellect*. Establishing *Math* as the best *rationality* has to offer makes *rationality* be conceptualized in reference to *Math*.[22] And claiming *Math* to establish the knowledge that *all humans* share[23] makes *Math* part of the concept of *being-human*.

Third List: Reasons to Abolish *Math*

a) *Math* helps legitimize colonial and patriarchal concepts of what is *rational* and what is *human*.

Both, the idea of *being-rational* and the idea of *being-human* are conceptualized in a manner that makes it more difficult for women*, Black people, People of Color and

19 Ibid.; Bronfen, Elisabeth: Over her dead body. Death, Femininity and the Aesthetic, Manchester 1993, 66; Harding, Geschlechtsidentität und Rationalitätskonzeptionen, 427.

20 Fanon, Frantz: Black Skin, White Masks, Philcox, Richard (transl.), London 2021, 20; Mbembe: Kritik der Schwarzen Vernunft, 102; Wynter, Proudflesh Interview, 1 f.

21 Mbembe: Kritik der Schwarzen Vernunft, 13; Fanon: Black Skin, White Masks, 111; da Silva: Infinity, 11.

22 Hottinger: Inventing the Mathematician, 9; da Silva: Infinity, 11.

23 Like e.g. done here Ellenberg, Jordan: How Not to be Wrong. The Power of Mathematical Thinking, New York 2015, 10 f.; Brooks, Michael: The Art of More. How Mathematics Created Civilization, London 2021, 3.

other marginalized groups to fit these categories.[24] The concept of *Math*, *rationality* and *being-human* all share the universalization of a specific mode of thinking or being that has been conceptualized to fit patriarchal and colonial structures. The narrative of *Math* as the pinnacle of *universal knowledge* and therefore the pinnacle of *human rationality* makes *Math* a framework for the idea of *rationality* and the idea of being-human.[25] *Rationality* and *being-human* on the other hand are legitimized via referencing *Math* as the knowledge supposedly *all humans must* agree on.[26]

b) *Math* helps to reinforce ways of thinking that favor binarism.

There is mathematical knowledge production out there that isn't construed to a binary system ("either true or false"). But *Math* is not one of those. Rather *Math* helps to legitimize and reinforce binarisms: the axiomatic method, which *Math* is based on, aims to establish *necessary truth*.[27] The search for epistemic dominance, that characterizes *Math*, is interwoven with binary thinking: if one wants to be epistemically dominant one has to a) establish that there is a *wrong/false* and a *right/true* and b) establish themselves as defender of the latter.

Binarisms are of colonial and patriarchal dimensions in the sense that they tend to create binary, hierarchical concepts that help conceptualized dominant groups as superior within this binarisms.[28]

c) *Math* normalizes *universalism* and *objectivity* without reflecting on their colonial history.

The ideas of o*bjectivity* and of *universalism* have been used to invisiblize and lower the knowledges and general worth of women* and colonized groups. Dominant groups have had access to conceptualizing the ideas of *universalism* and *objectivity*. Therefore, those ideas reflect specific interests and favor the groups, that were most involved in creating them[29]: this makes it easier for white and male people to be recognized as *objective* or *universal* or generally meaningful in their knowledge or work and even general being. On the other hand, marginalized groups tend to be met with a certain

24 Mbembe: Kritik der Schwarzen Vernunft, 102; Wynter: Proudflesh Interview, 1 f.; Harding: Geschlechtsidentität und Rationalitätskonzeptionen, 427.

25 See da Silva: Infinity, 11; Hottinger: Inventing the Mathematician, 9.

26 Ellenberg: How Not to be Wrong, 10 f.; da Silva: Infinity, 1; Shulman: What If, 436 f.

27 Shulman: What If, 434 f.

28 Plumwood: The Politics of Reason, 438; Bronfen: Over her dead body, 66; Mbembe, Kritik der Schwarzen Vernunft, 13.

29 Harding: Geschlechtsidentität und Rationalitätskonzeptionen, 427; Mbembe: Kritik der Schwarzen Vernunft, 102; Wynter: Proudflesh Interview, 1 f.

suspicion when it comes to recognizing their knowledges, their work or them as beings.[30] *Math* helps legitimize and normalize these concepts by reinforcing them in its practices and claiming to establish examples for *true objectivity/true universality.*[31]

d) *Math* excludes ways of (mathematical) knowing that don't oblige Western 'rules of thinking'.

In establishing and normalizing universalism and binarism *Math* favors modes of thinking, connected to male and Western supremacy.[32] Through the narrative of *Math* as the one and only *true* mathematical knowledge non*Math*, nonbinary, non-Western modes of mathematical knowledge are excluded and prevented from being perceived as mathematical knowledge. To this day, colonized communities are being made to study *Math* and unlearn any non*Math* mathematical knowledge they might have.[33] This needs to stop. And it will not stop as long as *Math* is understood to be the only mathematical knowledge – as long as *Math* is epistemically dominant.

e) *Math* naturalizes attempts to claim (epistemic) authority and dominance.

In his introduction to *mathematical thinking* mathematician Jordan Ellenberg claims *Math* to be "the science of not being wrong about things."[34] This reflects how *Math* is conceptually connected to the idea of *being right about something*, which is framed as an inherent goal – if not *necessity of thinking*. Steven Pinker for instance writes "It´s in the very nature of argument that people stake a claim to being right." Is it though?

Pinker's statement reflects the common naturalization of attempts to epistemic dominance: the narrative that *trying to be right* is just what you do when you *think*. *Math* is part of this normalization and naturalization because it is specifically the claim of *Math* to epistemic dominance that is conceptualized to make it *universal* and *epistemically worthy.*[35]

f) *Math* invisibles the exclusion and violence it contains.

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30 See. e.g. Ndikung, Bonaventure Soh Bejeng: Every Straw Is a Straw Too Much: On the Psychological Burden of Being Racialized While Doing Art, in: Hui, Yuk et al. (eds.): E-Flux Journal 2023, 4; Taussky-Todd, Olga: In Her Own Words, in: Case, Anne Bettye/Leggett, Anne (eds.): Complexities. Women in Mathematics, Princeton 2005, 4; Bayoumi, Moustafa: How Does it Feel to be a Problem? Being Young and Arab in America, East Rutherford 2009.

31 da Silva: Infinity, 1; Shulman: What If, 436 f.; Hottinger: Inventing the Mathematician, 13.

32 da Silva: Infinity, 1; Shulman: What If, 436 f.; Plumwood: The Politics of Reason, 438.

33 See. Hottinger: Inventing the Mathematician, 134.

34 Ellenberg: How Not to be Wrong, 2.

35 da Silva: Infinity, 1; Shulman: What If, 436 f.

As demonstrated above, *Math* is a highly exclusive form of (mathematical) knowledge production, that – in a lot of ways – aligns with establishments of Western and male supremacy. At the same time the very concept of *Math* establishes the denial of the possibility of *Math* being a form of epistemic violence (of establishing power and violence in the realm of knowledge): *Math* is conceptualized around the idea of being *neutral, nonpolitical knowledge*. The persistence of this narrative renders it *nonsensical* to discuss the political implications and violent dimensions of *Math*.

Fourth List: Ideas to Abolish *Math*

a) Claim *Math*: Claim subjectivity and intellectual confidence not conceptualized to be yours!

Practice *Math* and see how it feels! Maybe try appropriating mathematical practices or studying them in different ways than how they were taught to you before: a good start could be *How to Free Your Inner Mathematician* by Susan D'Agostino. But really, it can be any kind of practice that has you getting to know your capabilities in *Math*. Try and make it something that is intellectually empowering.

This attempt is about knowing and getting to know your intellectual powers: eventually to claim concepts of *mathematical thinking* or *rationality* that were originally conceptualized to exclude you!

b) Engage with mathematics that are non*Math*!

Math is *Math* because of its claim to epistemic dominance (dominance in the sphere of knowing) – because of the idea of *forceful knowledge*. However, there are other mathematics out there – other ways of understanding what it means to *prove*. Developing a pluralistic notion of mathematics and getting to know non-forceful, non-dominant forms of knowing – mathematically and otherwise – abolishes *Math* as the absolutist epistemic institution it is right now!

c) Make *Math* look political since it already is!

Math normalizes and legitimizes Western and patriarchal norms of thinking and speaking whilst being conceptualized as the pinnacle of *nonpolitical/politically neutral knowledge*. Can we think of practices that make *Math* look and seem political (because it is)? Can *Math* be visible at demonstrations and other activist, pinnacle political, events?

d) Make *Math* art!

There are pitfalls to this idea, but I do think it can be a start. Practice *Math* or engage with *Math* in ways that lay focus on the role creativity and intuition play in *Math*-practice. Make *Math* a personal creative playground and visibilize aspects of *Math* less prominently captured.

Fifth List: Questions on your relationship with *Math*

a) What is the first thought that comes to your mind when you are in any way asked to engage with *Math*?

Try to trace your initial reactions when *Math* is mentioned. For example, in the headline of this paper or in the description of a course or exercise. What feelings and thoughts come up? What are your guesses on where they stem from?

b) Do you understand yourself or your intellect in any kind of reference (be it positive or negative) to *Math*?

This question is about exploring beliefs that you have about yourself and your ways of thinking: what kind of beliefs are present and are any of them in any way connected to *Math*? How do you feel about the kind of knowledge that is associated with *Math*?

c) Would it change something in your life if you were to radically understand and feel yourself as "mathematically capable" or "mathematically incapable"? (Try both!)

You are invited to intensively engage with both of those beliefs. Start with radically regarding yourself as "mathematically incapable." How does it feel? What does it change? How does it make you regard yourself? Does it have meaning that extends *Math* as an academic discipline? If so, what are these dimensions?

Do the same thing for the belief to be "mathematically capable"; what does that *mean* and *feel* like?

You are invited to really feel both of those beliefs out!

d) What kinds of attitudes towards *Math* or thoughts about *Math* would feel soothing?

Can you think of beliefs about or attitudes towards *Math* that make you feel at ease? That are maybe calming or relieving?

What is it about these thoughts that gives way to relief or calm?

e) What kind of attitudes towards *Math* or thoughts on *Math* would feel empowering?

Can you think of beliefs about or attitudes towards *Math* that make you feel (intellectually or otherwise) powerful? Perhaps strong or liberated?

What is it about these thoughts that gives way to empowerment?

f) If you had to regard *Math* in your political struggles and beliefs, what could that look like?

In whatever way you act out activism or political struggle: if *Math* had to be somehow regarded or made to be part of these processes, what would that look like?

What could be practices and effects stemming from this 'experiment'?

Sixth List: Questions on *Math* and Power

a) What modes of thinking do we need and want for the societal changes we desire? In what ways are they different from/similar to *Math*?

Decolonial and feminist epistemologies find structures of knowledge to be connected to structures of power. This means we have to ask: in what regards do we want to change existing power structures and what kinds of knowledge and modes of knowledge production do we need to do so? How do these resistant forms of knowledge relate to *Math*?

b) How do we behave towards universalism? When do we strategically engage with it and when do we try to subvert or dismantle it?

Universalist claims are appealing to make because of the authority they provoke. It is this authority that makes them of strategic use. Still, they remain connected to colonial and patriarchal structures of power. So, the question stands: how do we choose between strategic uses and attempts to dismantle universalism?

c) How can mathematics be taught?

As Ludwig Wittgenstein remarked (and after him feminist and decolonial theorists) to learn *Math* is interwoven with adopting an attitude towards *Math* that secures

the epistemic dominance of *Math*.[36] How can we teach mathematics in a pluralistic sense and engage with non-*Math* mathematics, considering this is where we come from?

d) How can we fight further mathematical epistemicide?

Epistemicide is the mass murder that happens to certain knowledges, specifically to certain mathematical knowledges. What needs to be done on a broader scale to interrupt this process? What can be done on an individual scale to help fight mathematical epistemicide? Let's collect ideas!

e) What attitudes towards knowledges/about *Math* do we need to not allow for *Math* to legitimize universalism and binarism?

How can we think (about) mathematical knowledge in ways that don't favor binarism and universalism?

f) What do we need to not have the desire to *be right*?

I think this is deeply personal as well as deeply political: what do we need personally to not experience a need to *be right*? When do we have this need and when do we not? What might we need collectively to *not-need-to-be-right*?

36 Wittgenstein, Ludwig: Bemerkungen über die Grundlagen der Mathematik, Frankfurt 1984; da Silva: Infinity; Shulman: What If; Hottinger: Inventing the Mathematician.