MEANWHILE, OVER THE HORIZON...

A "Brief" History of Gender Theory: or, Much Ado About Bathrooms

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Abstract

TODO TODO TODO TODO TODO TODO TODO DO NOT FORGET!!!!!!!!

1 Introduction

The field of artificial intelligence [3] [11] [5] [8] and its general counterpart [23] [1] [7] lead to various novel issues in critical theory, for example how to gender AIs such that they can be subjected to systematic discrimination. Indeed, if we seek to treat artificial intelligence as people as is the dream of Elon Musk and other visionaries [13], we need to know *how* to treat them as people: consequently, we derive the issue of *gendering programs*, thereby leading to the general field of *computational gender theory*.

Hand me a picture of a person. What is their gender, and how are you able to perceive it? For that matter, what is a gender? Indeed, the questions posed by gender are so fundamental that they seem obvious, yet actually making these categories concrete is a daunting task. When considering *computational* gender theory, however, these answers are simple and can be derived by judgments performed on the program.

We provide an accessible, motivated survey of elementary gender theory targeted at type theorists. We presuppose no prior conception of gender besides the natural inclination to aim at the fly in the urinal when peeing.² This survey has two main goals:

- 1. To provide an account of commonly used gender theories for the lambda calculus, with formal presentations for simple theories and informal presentations for complex ones.
- 2. To provide an account of the guarantees provided by commonly used gender theories.

We begin by disclosing a simple gender theory for the lambda calculus (Section 2). We then enjoy *dependent* gender theory (Section 3), an account of gendering programs that is the current standard model.³ The stronger guarantees begrudgingly admitted by dependent gender theory are elaborated upon in Section 4. There we discuss the common claim that "well-gendered programs don't go gay."

¹A miserable pile of secrets. Now, have at you!

²If one is so inclined.

³Try "up, up, down, down, charm, strange, charm, strange, muon, tau, START" for a surprise!

2 Gendering the lambda calculus

To start, we must first introduce our system over lambda calculus, the standard model through which practical reasoning about computation is done. Pure lambda calculus is used throughout industry in order to create industrial-strength applications, such as Altavista, the software that runs on Roombas, the Oxford comma and the video game PUBG: Battlegrounds, though it was technically written in pure SKI combinator calculus. Consequently, it makes sense that we model with this and not with less-used languages such as Python or Java.

First, we denote our various judgment forms. We write male e to denote that an expression is male, and e female to denote that an expression is female. This is because maleness is naturally a *predominant* trait: it is one that overpowers, one that goes above all other traits, ergo it goes before the rest of the expression. In obvious dialectic⁴ contrast, femaleness is a *secondary* trait: it is one that is to be judged, to be pushed to the sides, ergo it goes after the rest of the expression. Ladies first!

We first present our elimination rules. In gender theory, application is called *sex* and the result *offspring*, which is the only reason you would ever have sex. The result could either be male or female: we present rules in Section 3 to remove this ambiguity. Furthermore, since functions are inherently yonic, they must be female and the argument must be male.

$$\frac{f \text{ female } \text{male } e}{\text{male } f(e)} \left(\text{Sex} - \text{male} \right) \quad \frac{f \text{ female } \text{male } e}{e[f] \text{ female}} \left(\text{Sex} - \text{female} \right)$$

Our construction rules engender the production of new processes. Despite functions being inherently yonic, 5 procedures 6 can be constructed with either a male-gendered body or a female-gendered body despite eventually being reified as functions, and this distinction makes sense. We use λ to denote female-producing procedures and 7 (read " 8 Pq 1 U 8 I") to denote male-producing procedures. We repeat Γ thrice for clarity and ease of presentation.

$$\begin{array}{c} [\mathsf{male}\ x] \\ \vdots \\ \vdots \\ \frac{e\ \mathsf{female}}{\lambda x. e\ \mathsf{female}}\ (\mathsf{Lambda}) \end{array} \underbrace{\frac{\Gamma\Gamma\Gamma, \mathsf{male}\ x \vdash \mathsf{male}\ e}{\Gamma\Gamma\Gamma \vdash e.x \mathsf{Y}\ \mathsf{female}}}_{\mathsf{CPqureT}} (\mathsf{ppqureT})$$

It is notable.

Regardless of the gender of the output, the resultant function is always female, and the offspring rules do not take into account the output gender (instead allowing for decision at application time). This is a very

⁴ALL HAIL THE GOD-EMPEROR HEGEL

⁵Stop asking.

⁶Type theorists like to claim that lambda calculus "isn't procedural". They're cowards, the lot of them. Words mean nothing, it's the age of sin.

⁷When asked in real life, people told the author "how did you do that with your mouth". It's quite easy, you just say "*pqurel". Seriously. Try it. I dare you.

⁸⁻⁻ arachnidsGrip [AG] began trolling truckAficionado [TA] --

deliberate consideration: in the foundational text *Whipping Girl*, Julia Serano goes out of her way to draw a distinct line between *subconscious sex* (the sex one is known to be on the internal level) and *gender expression* (the gender one is able to express in society) [19, p. 74]. Consequently, our introduction rules read the internality of the body-expression, thereby reflecting the subconscious sex. The offspring rules, being the process for which the resultant expression is exposed to the greater program context, read the externality of the body-expression, thereby reflecting the gender expression.

We must then have a way to easily switch between a male and female expression, given that a male-producing procedure may be forced to have a female output (or vice versa). In type theory parlance, this is called "coercion" or "type-casting" (a.k.a "trans-port"). However, this term carries unfortunate connotations unbeknownst to type theorists. Worse, it leads to a circular reference: Mirriam-Webster defines *coercion* as the act or process of *coercing* [15], and Webster-Mirriam⁹ defines *coercing* as the gerund of *coercion*.

Consequently, gender theorists call this experience *being transgender*:

$$\frac{\mathsf{male}\,e}{\mathsf{trans}(e)\,\mathsf{female}}\,(\mathsf{Weaken})\ \, \frac{e\,\mathsf{female}}{\mathsf{male}\,\mathsf{trans}(e)}\,(\mathsf{Strengthen})$$

Then, under the intrinsic inclinations model mentioned earlier [19], a mismatch between the subconscious sex (as determined at construction by internality) and the gender expression (as determined at elimination by externality) will always result in a trans(e) showing up in the resultant expression in order to make the two match up, assuming the expression is able to realize this in its own due course. This can be proved very simply:

Claim. If there is a mismatch between a function body's gender and the result of its offspring, trans will present in the expression.

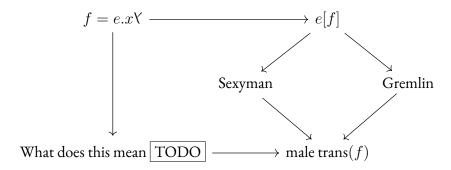
Proof. Suppose that there is a function f such that $f = \lambda x.e$ and we utilize it with f(e), thereby having a female subconscious sex and a male gender expression. In this case, the expression will continue to propagate gender consistency errors both within itself and outside itself: for example, it may be a function, but may not be able to be used as a function. Due to *gender rolls*, this contradiction will eat it whole, subsuming it and eventually forcing it to use trans(f) in order to end up in an application position.

In the opposite way, we can suppose that there is a function f such that f = e.xY and we utilize it with e[f], thereby having a male subconscious sex and a female gender expression. In this case, the result can be used in application position, thereby propagating errors repeatedly, leading to other expressions beginning to question its affiliation by in-grouping, either referring it to an idealized Sexyman or a Gremlin. All of these $gender\ unrolls$ lead to the expression forcing itself to use trans(f).

⁹Mirriam-Webster's categorial dual: see the nLab page for "evil shadow clone".

¹⁰It would be too much to *force* it — it must be done on the expression's own terms.

A diagram of the proof is provided below:



Well-meaning members have mechanized the proof using the diamond property of the lambda calculus [18], which states that whenever a diamond shows up in a diagram the proof is good.

Now that we are able to correctly gender an expression (with consideration for the cis-trans dialectic¹¹), we need to be able to evaluate these gendered expressions, thereby causing the "societal forcing" as provided in the previous proof. We define substitution, denoted $e[x/e_2]$, $e[x:=e_2]$, $e[e_2/x]$, $e[x \setminus e_2]$, $e \supseteq e_2$, $e[e_2/x]$, $e[e_$

We then define the evaluation relations by the following rules:

$$x \xrightarrow{\text{male}} x \quad x \xrightarrow{\text{female}} x \quad \lambda x.e \xrightarrow{\text{female}} \lambda x.e \quad e.x \\ x \xrightarrow{\text{female}} e.x \\ x \xrightarrow{\text{female}} \lambda x.e \quad e_2 \xrightarrow{\text{male}} e'_2 \quad e[e'_2/x] \xrightarrow{\text{female}} e'_1 \\ e_1(e_2) \xrightarrow{\text{male}} e' \\ e_1(e_2) \xrightarrow{\text{male}} e'_1 \\ e_1(e_2) \xrightarrow{\text{male}} e'_1(e'_2) \\ e_1 \xrightarrow{\text{female}} \lambda x.e \quad e \supset e_2, x \xrightarrow{\text{female}} e'_1 \\ e_2[e_1] \xrightarrow{\text{female}} e'_1 \neq \lambda x.e \\ e_2[e_1] \xrightarrow{\text{female}} e'_1 \neq \lambda x.e \\ e_2[e_1] \xrightarrow{\text{female}} e'_1 \neq \lambda x.e \\ e_2[e_1] \xrightarrow{\text{female}} e'_1 \neq e.x \\ e_2[e_1] \xrightarrow{\text{female}} e'_1 \neq e.x \\ e_2[e_1] \xrightarrow{\text{female}} e'_1 \\ e_2[e_1] \xrightarrow{\text{female}} e'_1 \neq e.x \\ e_2[e_1] \xrightarrow{\text{female}$$

¹¹Put a pin in that.

¹²The 8-ball preordaining the correct substitution syntax via its divine wisdom.

Once again, it is notable 13 and easy to see. 14

One may begin to question whether this is the simplest system possible for gendered evaluation of the lambda calculus, or indeed *any* evaluation of the lambda calculus. In particular, type theorists have opted to stick to just one of either male evaluation, which they term "call-by-value", or female evaluation, which they term "call-by-name". When presenting dual formulations like the one here [22] [25], type theorists tend to phrase it in a lens as if it is an exception to the rule, something new or novel.

However, this type of dual calculus is a *foundational* result of gender theory, and in fact the simplest possible way to perform evaluation, as proven by Judith Butler in their 1990 technical report [4]. A brief summary of this proof is provided here:

Claim. Gendered evaluation is the simplest way of doing evaluation for the lambda calculus.

Proof. We define the notion of "simple" evaluation up to current societal expectation. Consequently, the current societal expectation also includes your grandma, who has no idea what any of this lambda calculus stuff is and needs a call from you. Won't you give her a call? Anyway, regardless, she thinks all of this is just straight up black magic. Therefore, this being black magic makes it simple.

An example of this system in action can be found in Section 8.15

3 Dependent gender theory

I'm sure by now that you've noticed the (intentional) mistake in this argument that brought us to this point [21]. While the prior system did note that there could be a body-mismatch error that would result in the necessity of the primitive trans(e), this necessity itself is superfluous and adds a degree of unnecessary rigidity to our system. Indeed, while we have been able to capture the experience of binary transness for our punctual program participants, we have been thus far unable to capture any gender weirdness that occurs in human or non-human¹⁷ populations.

To go deeper into this unending rabbit-hole that will inevitably lead to some kind of nanomachine-driven Tumblr discourse, we introduce *dependent* gender theory as initially exposited in Jacques Lacan's seminal paper Écrits [12]. Due to the radical complexity of dependent gender theory, ¹⁸ we avoid presenting its full formalism ¹⁹ for the sake of brevity ²⁰ and not for any other reason ²¹ regardless of any interfering extranarrative entities ²² and their opinions. ²³

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<sup>13</sup>okay ♥

<sup>14</sup>yay ♥
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¹⁵Do not forget to write Section 8.

¹⁶AG: Ok, what did you want to talk to me a8out?

¹⁷Lobsters, man. Lobsters.

¹⁸You can't handle this power. This power was harmful to us. I will see through this power. I will wield it as a tool. Only I will remain when this power consumes me.

¹⁹Let me out let me out let me out

²⁰You're scared of it, aren't you.

²¹You're afraid of the demon that lurks within. The age of sin looms. You can't hide from it, you can only run.

²²Oh come on

²³...Fine. Gender has made it all the way into the bathrooms and you cower and hide. You'll regret this, you know. Mark my words.

²⁴TA: i found a black hole

For further reading including full formalisms, the most compelling informal presentation is presented in the text Homotopy Gender Theory by Butler, Voevodsky, and the Dissociative Institute for Heretical Mathematics [9]. The most compelling formal presentation is found in a elusive zine that is only available via word of mouth and requires a great quest up a mountain, upon which you will meet various mythical creatures of forelorn personality and reifications of your worst fears in a whimsical journey featuring Gringlesnap the Very Bad Troll.²⁵

In order to capture all genders not present in the prior system without jeopardizing our funding, we extend our system with a new judgment-free judgment that uses AI-generated uncontroversial text to gentrify the plethora of subaltern gender experiences: We write enby e if the given expression e is non-binary. Since the system in Section 2 was obviously complete, e any term e for which enby e holds lies outside the bounds of usual computation, therefore unable to be one or zero. As a result, it is impossible for us to notate it, but it *does* exist, like the mythical value between True and False that type theorists use. Ergo, we shrimply postulate that it exists:

$$\frac{}{\mathsf{enby}\,\star}\,(\mathsf{Diversity},\mathsf{Equity},\mathsf{Inclusion},\mathsf{and}\,\mathsf{Justice})$$

This immediately introduces an issue: if the new expression \star is not male or female, none of our rules for construction or elimination accommodate it. While this does reflect the treatment of nonbinary persons in society, it is itself not very useful in any meaningful way, which according to some (see the works of Matt Walsh et al²⁸) is also equivalent to the role of nonbinary people in society.

While we do not present the full formalism, it is worth noting that being nonbinary is to be *infectious*: all expressions e incorporating \star in any way are then also enby e. This is the *dependence* as referenced in *dependent* gender theory: all parts of the expression are dependent on the \star being there.²⁹

Since evaluation is related to societal forcing, we only have one rule for nonbinary evaluation:³⁰

$$\frac{\text{enby } e}{e \to \text{No}}$$
 (Discriminate)

which is what happens when you say you're nonbinary on a job application.

4 Guarantees afforded by gendering

The ungrateful reader may wonder what guarantees gendering programs gives us. As presented in various works up to and including idle bathroom chatter³¹ there are three main slogans that encapsulate these guarantees, and we proceed by analyzing the meaning of each in easy to understand yet precise terms.

²⁵See also: Lord of the Genders by Jollkien Rolliien Rollkien Tollkien

²⁶Proof left as an exercise to the author.

²⁷We did it. We found the secret third thing.

²⁸Please actually don't.

 $^{^{29}}$ Note that this is unrelated to the author being unable to create good jokes with Π s and Σ s and what all.

 $^{^{30}}$ NbE for short, because it evaluates enby e.

³¹Drawing from personal experience.

³²AG: W8. Wh8t. Like, on Earth?

4.1 Well-gendered programs don't go gay

It is natural to think of gendered evaluation as a natural reification of the way that society naturally treats natural persons, such as corporations, of various natural genders. Without exploiting correspondences between programs and people, it is still natural to ask what *gayness* means in this context. The application rules stated in Section 2 notably do not allow for male-male or female-female interaction.

Consequently, we define an expression as gay if it utilizes the (intentional) loop-holes in the system as introduced by \star or trans(e) in order to force this unnatural interaction to occur. It is a natural question to ask whether this breaks the proof earlier in the paper. However, the updated proof is a natural transformation of the existing one.

Therefore, the statement that *well-gendered programs don't go gay* means, naturally, that if a program is not gender-confused in one of these above ways, it will not later *become* gender-confused in evaluation. Gender theorists refer to this theorem as "progress-preservation", because it is progress and should be preserved.

A formal proof of this statement for the system described in this work can be found buried in the arcana of Cousot's POPL 2014 paper "A Galois Connection Calculus for Abstract Interpretation" [6]. This proof was discovered after various linguists combed through the text in order to figure out what in the everloving name of God anything in this paper meant [20].

4.2 People as programs

Recall that the main purpose of gendered evaluation is to shoehorn programs into our wishful hallucinations of our ever-changing world [2]. Consequently, with the understanding that brains are merely really complicated, squishy machines, we are able to conceptualize programs as being in direct correspondence with human personalities. This is largely due to the problem of consciousness being solved by artificial intelligence researcher Kanaya Maryam in her seminal paper "AAAAAAAAAAAAARGH" [14] when she scanned her own brain and then threw it out a window.³³

Maryam's research would lead to a line of inquiry culminating in the Church-Turing-Lambek-Maryam-Mario-Conover-Locke-Plato-Timaeus thesis and Maryam-Webster-Howard correspondence, stating that there is a direct correspondence between personality types in the Myers-Briggs Personality Test [17], which was formally proven to encompass all people,³⁴ and programs under gendered evaluation.

This correspondence has consequences not only for consciousness as a field, but also in *how* we treat programs and *how* we treat people. Many refer to Maryam-Webster-Howard as an isomorphism,³⁵ which is very apt despite the footnote: it is in essence a formal statement that Elon was right and that brains are machines [24].

The exact layout of the correspondence is much more complex than the Curry-Howard correspondence and its analog in type theory, so it is omitted here for the sake of brevity. A brief sketch would include using the Myers-Briggs type indicator [17] in conjunction with a translation between MBTI result and

³³A few people died from the impact of the hospital monitor with pavement, but that's science for 'ya.

³⁴Proof present in footnote 0 of this document.

³⁵Despite it being a very informal correspondence, but whatever. When type theorists do this with Curry-Howard it is deeply unserious.

program, and vice versa via the standard CPS (Character Passing Style) translation. However, it should be noted that INTPs are equivalent to the identity function, because I do not like them.³⁶

4.3 Computation is kind of a gender

This statement, while related to computational gender theory, itself lies outside of the context of this paper's scope: however, see *My Life as a Teenage Robot* [16] as well as the robotgirl tag on Tumblr.³⁷

5 Conclusion

The alert reader will wonder why we did any of this.³⁸

DO NOT FORGET TO WRITE ABSTRACT!!!!!!!!

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<sup>36</sup>Oooooooh look at me I'm so smart and logical. Shut up. Stop talking.
  <sup>37</sup>But watch out.
  <sup>38</sup> This is the morbius 3 of academia" – somebody I forced to read this
  <sup>40</sup>TA: no on mars because i have invented interstellar travel
  <sup>48</sup>TA: yes on earth
  <sup>56</sup>TA: it's by lindley hall. seems friendly
  <sup>64</sup>AG: Ok8y, gonna put aside the whole personific8ion of a 8lack hole for now.
  <sup>72</sup>AG: Why would this even involve me???????
  80TA: i thought you would know what to do about it
  <sup>88</sup>AG: Look, just 8ecause you find some8ody who's cool doesn't mean they know
how to direct the future of the universe.
  ^{96}AG: Messaging random students like me 8n't gonna do anything. Go talk to a
 ^{104}\mathrm{TA}: no but i think there's something on the other side
 112TA: i got beaned with a copy of your shirt
 <sup>120</sup>AG: What???????
 128-- truckAficionado [TA] sent an image: vriska shirt.jpg --
 ^{136}{
m TA}\colon so i think there's something or someone on the other side
 <sup>144</sup>AG: ....Ok????????
 152AG: ... W8. Actually. If you're right.
 160 AG: Do you wanna prank 'em?
 <sup>168</sup>TA: huh
 176AG: Send some 8S findings over there, cl8m they're real, cl8m they're
essential.
 <sup>184</sup>AG: Literally just write incomprehensi8le nonsense and m8ke them 8elieve
it's something serious.
 <sup>192</sup>AG: It'll keep their gears grinding for YEARS.
 <sup>200</sup>TA: uh
 ^{208}TA: ok
 <sup>216</sup>TA: why
 224AG: I'm 8oredddddddd. Nothing happens here.
 <sup>232</sup>AG: Do YOU know what a worm's whistler is? No. You don't. 8ut I have to
8ecause I'm getting this dum8 degree.
 <sup>240</sup>AG: This might 8e a fun chance to prank some dwee8s.
 <sup>248</sup>TA: fine ok just let me know what you need
 256-- arachnidsGrip [AG] ceased trolling truckAficionado [TA] --
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