# Walden Pond

Temporary mounting of an achromatic refracting telescope: the property of E.J. Cooper, Esq. M.P.

Lithograph 1831. Wellcome Images

"Previously we mentioned that Haskell has a static type system. The type of every expression is known at compile time, which leads to safer code. If you write a program where you try to divide a boolean type with some number, it won't even compile."

# SOME THINGS YOU MIGHT LIKE TO KNOW

If you've intentionally gone offline, you might want to know a few things without having to reach for Google.

## Short Link Codes

You'll see that there are words that have numbers next to them, like this[1]. If you look at the end of this article you'll see that these numbers correspond to some footnotes. Often these will have a 4 character code, like this: `LUXe` next to them. Links in articles on the web are invisible, and when you look at them, often they'll look like this:

```
https://ben-evans.us6.list-
manage.com/track
/click?u=b98e2de85f03865f1d38de7
4f&id=38bdf575f2&e=583c97593d
```

Which looks pretty nasty if you need to type it into your browser to visit the site.

Fear not! There is a solution. On the Walden Pond website, there is a green blob in the top left. If you click on it, you can type in your code and press go. It'll take you to that site.
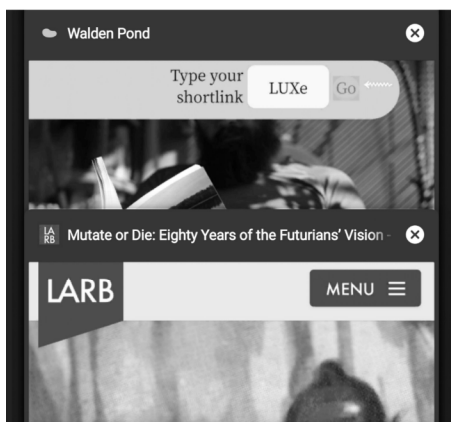
I find that if I'm reading offline, that if I highlight the links I'm interested in, I can go back to them as a batch.

## Why Walden Pond?

Henry Thoreau[2] was an American transcendentalist philosopher, naturalist, essayist and poet. He wrote a pretty famous book called Walden[3] while shacked up in a cabin by Walden Pond (which is a lake in Massachusetts).

He was making a show of being far from the madding crowd. But was only 2 miles away from town, and would get his mum to do his laundry. This isn't taking a swipe at Thoreau for being disingenuous, I think it was smart. He was managing his attention, not living in a state of nature, and not living in a state of perpetual hyperstimulation.

I named Walden Pond—the zine— after the technique, not the place.

(See the essay by Venkatesh Rao[4]: Against Waldenponding[5].) It talks about how you can unplug strategically to manage your attention, without going full unabomber.

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1. youtu.be/IO9XlQrEt2Y

2. en.wikipedia.org/wiki/Henry_David_Thoreau

3. en.wikipedia.org/wiki/Walden

4. ribbonfarm.com/author/admin

5. mailchi.mp/ribbonfarm/against-waldenponding

# PLAYING THE BULLSHIT GAME: HOW EMPTY AND MISLEADING COMMUNICATION TAKES OVE

✿ notionparallax.co.uk✿ 33 minute read✿

Figure 1 . A Theory of Bullshitting[1]
The practice of bullshitting doesn't come out of nowhere. It tends to be nurtured within particular speech communities. According to Gumperz (1968[1], p. 66) a speech community is 'any human aggregate characterized by regular and frequent interaction by means of a shared body of verbal signs and set off from similar aggregates by significant differences in language usage'. Speech communities are built around shared linguistic repertoires, common linguistics norms, as well as shared linguistics competencies (Morgan, 2004[1]). Speech communities can be geographically bounded groups such as residents of the Lower East Side in New York City (Labov, 1966[1]), Philadelphia (Labov, 2001[1]) or Belfast (Milroy Milroy, &1992[1]). Speech communities can also be national or even transnational such as speakers of specialist occupational languages (Bechky, 2003[1]; Lave Wenger, &1991[1]) or administrative languages (Gumperz, 1968[1]). Often these speech communities can be porous, with

people moving in and out of them or engaging in 'code switching' so they can participate in a number of speech communities at once (Morgan, 2004[1]). Often linguistic communities serve as ways of marking out group membership. Becoming part of that group means learning new ways of speaking. Gumperz pointed out that

elaborate linguistic etiquette and stylistic conventions that surround them, (mean) classical, liturgical, and administrative languages function somewhat like secret languages. Mastery of the conventions may be more important in gaining social success than substantive knowledge of the information dispensed through these languages. (Gumperz, 1968[1], p. 70)

In the contexts of organizations, becoming part of the speech community of middle management means learning a set of 'elaborate linguistic etiquette and stylistic conventions'. Often that means learning how to bullshit.

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Within a particular speech community, there are three core components which are likely to make bullshit more prevalent: *conceptual entrepreneurs, noisy ignorance* and *permissive uncertainty*.

The first characteristic of the speech community which is conducive to bullshitting is a large number of potential suppliers of bullshit. One important source of supply are *conceptual entrepreneurs*. These are actors with a stock of pre-packaged concepts they try to market to others. Many conceptual entrepreneurs operate in the management ideas industry. This is a sector made up of consultants, gurus, thought leaders, publishers and some academics (Sturdy, Heusinkveld, Reay, Strang, &2018[1]). The quality of actors operating in this industry tends to be extremely variable. A consequence is that some of the conceptual entrepreneurs seeking to peddle their wares in the management ideas industry are bullshit merchants. There are some sub-sectors of the management ideas industry where bullshit merchants are particularly concentrated. One is the 'leadership industries' (Pfeffer, 2015[1]). This sub-sector includes many consultants, speakers, experts and advisors who create and distribute pseudo-scientific ideas about leadership (Alvesson Spicer, & 2013[1]). A second sub-sector with a significant concentration of bullshit merchants is the 'entrepreneurship industry' (Hunt Kiefer, &2017[1]). This is the cluster of mentors, (pseudo-)entrepreneurs and thought leaders who push poorly evidenced, misleading and seductive ideas about entrepreneurship. Often their target is so-called 'wantrepreneurs' (Verbruggen de & Vos, 2019[1]). In some cases, these ideas have been found to encourage vulnerable young people to adopt what are seductive but empty and misleading ideas about entrepreneurial success (Hartmann, Dahl Krabbe, Spicer, & 2019[1]). For instance, Chen and Goldstein (forthcoming)[1] followed a cohort of students at a mid-ranked North American university as they joined a campus-based business accelerator. Many put their lives on hold to launch start-ups. When these eventually failed, they often found themselves struggling to re-enter the mainstream labour market. They also tried to grapple with the ultimately meaningless and misleading advice about entrepreneurship they were exposed to during their time in the accelerator.

A second aspect of a speech community which can foster bullshitting is *noisy ignorance*. This is when actors lack knowledge about an issue yet still feel compelled to talk about it. It is not just the result of a lack of cognitive ability (however, it could be; Littrell et al . , 2020[1]). Rather, noisy ignorance is mainly due to a lack of understanding or experience concerning the issues being

discussed. Often that ignorance has been strategically cultivated (McGoey, 2012[1]). In some other cases, actors deliberately avoid gathering information or knowledge about an issue. In other cases, noisy ignorance is created by knowledge asymmetries where one party knows much more about a particular issue than another. When an actor is relatively ignorant about an issue, they do not have the wider background knowledge in order to compare new claims. Nor do they have an understanding of the right questions they might ask. This means they rely on relatively crude understandings of an issue yet tend to be much more certain than an expert would be (Raab, Fernbach, Sloman, &2019[1]).

When ignorance is *noisy*, uninformed actors do not simply stay silent about what they don't know. Rather, they are compelled to speak about an issue of which they have little knowledge or understanding. A recent experimental study found that this compulsion to speak (coupled with a lack of accountability created by a 'social pass') was an important factor in explaining bullshitting (Petrocelli, 2018[1]). Similar dynamics have been found in field studies. For instance, middle managers are often relatively ignorant about the work their subordinates are engaged with, but are under pressure to act as the leader by doing or say something (Alvesson Spicer, &2016[1]). They fall back upon

generic management speak rather than engage with the people they manage in language they find meaningful. A second example is British government ministers who find themselves with a new policy portfolio (King Crewe, &2014[1]). Often these politicians have little or no knowledge of the new policy area, but they are under pressure to say and do something. To address this tricky situation, politicians rely on empty and often misleading language.

There also needs to be an opportunity in a speech community to use bullshit. Such an opportunity typically appears when a speech community is infused with *permissive uncertainty*. This is a situation where actors do not know what will happen and are willing to consider almost any knowledge that might plug this epistemic gap. They face high levels of uncertainty, yet have permissive epistemic norms which guide the problem of sorting out what to do. This creates a curious situation where almost any knowledge claim goes. When faced with a wicked problem such as a significant and unexpected environmental change, some organizations experience high levels of uncertainty but also find that different kinds of experts claim ownership over the problem (Rittel Webber, &1973[1]). This can create experimentation, participation and dialogue (Ferraro, Pfeffer, Sutton, & 2005[1]). But equally, it can create multiple failures, conflict and drift.

Under these circumstances, a greater sense of confusion can well up and an 'anything goes' approach takes hold.

The most obvious aspect involved in this kind of situation is a state of uncertainty (Fuller, 2006[1]; Wakeham, 2017[1]). This entails epistemic uncertainty which comes from having imperfect knowledge about the world. Epistemic uncertainty can also be generated by competing and overlapping knowledge claims which create a dense patchwork of contradictory truths, making it difficult for an actor to make a judgement about what they think is correct. In addition, people face ontological uncertainty. This comes from the fact that social reality is 'inherently risky and always under construction' (Fuller, 2006[1], p. 274). Even if an actor acquires knowledge about social reality, that social reality can shift and change. Such changeability makes it very difficult to be certain of one's judgements.

What makes uncertainty even more difficult to deal with is permissiveness. This is created by relaxed 'epistemic vigilance' (Sperber et al ., 2010[1]). In some settings, relaxing one's epistemic vigilance is a way of investing epistemic trust in another person or, at the very minimum, as a way of keeping conversation and interaction going (Sperber et al ., 2010[1]). This sets up what we might call 'epistemic indulgency patterns'.

These are similar to the industrial indulgency patterns which entail routine social interactions where an authority figure like a manager allows their subordinates to get away with otherwise banned behaviour (such as stealing materials from a factory) in exchange for compliance (Gouldner, 1954[1]). A similar process happens with epistemic claims. This is when people are willing to indulge weak claims from others in return for indulgence of their own weak claims. When this happens, people begin to allow weak or empty claims to pass without too much scrutiny. If they were to engage in greater epistemological due diligence, then social interaction would become too costly, time-consuming and conflict inducing. These epistemic indulgency patterns allow bullshit to pass without more serious assessment.

When such epistemological indulgency patterns are paired with endemic uncertainty, it can create a confusing, yet liberating situation: no-one knows what's happening and which bodies of knowledge they should draw on to sort things out. For instance, the process of rapid social change in the United States during the late 19th century created a great sense of uncertainty in many people's lives. It led to the confusing multiplication of forms of knowledge and authority. This uncertainty coupled with a pluralism created an ideal setting where sham commercial ventures

and questionable experts peddled their wares. In the medical field, 'quacks' (unlicensed doctors) outnumbered licensed doctors by three to one in many parts of the country (Janik Jensen, &2011[1]). Quacks offered miracle cures which had no basis in science. The market for their 'bullshit' cures flourished until the early 20th century when legislation reduced the permissiveness associated with medical knowledge claims. Arguably a similar process has occurred in recent years with the rise of new technologies such as artificial intelligence. These new technologies have created a great deal of uncertainty, but they have also enabled some degree of permissiveness around who is able to claim expertise in the technology. This has opened up significant space for bullshitters who talk about artificial intelligence but have little understanding of the underlying technology. This makes it not terribly surprising that a recent analysis of 2,830 'artificial intelligence' start-ups in Europe found that about 40 percent of them did not use AI technology at all (MMC Ventures, 2019[1]).

The presence of *conceptual entrepreneurs, noisy ignorance* and *permissive uncertainty* creates a speech community which is conducive to bullshitting in organizations. But bullshitting is an active process which has a game-like quality to it. This is best seen as a *language game*. I borrow the concept from Ludwig Wittgenstein (1958[1], p. 11) who used it to capture how 'speaking a language is part of an activity, a form of life'. These language games are 'rule-governed practice, integrating communication and action' (Mantere, 2013[1], p. 6). They have characteristic moves, players, strategies and stakes. Learning how to participate in a language game enables one to make statements which are meaningful in a particular context. The example Wittgenstein gave of a language game is a group of builders communicating with one another. He explains how 'language is meant to serve for communication between a builder A and an assistant B. A is building with building-stones: there are blocks, pillars, slabs and beams. B has to pass the stones, in the order in which A needs them. For this purpose they use a language consisting of the words "block", "pillar" "slab", "beam". A. calls them out;—B brings the stone which he has learnt to bring at such-and-such a call' (Wittgenstein, 1958[1], p. 3). Wittgenstein goes on to explain how these four words (block, pillar, slab, beam) constitute an entire 'primitive language' and the builder can get things done by simply saying 'block there', 'slab here' and so on. Each of these terms ('block', 'slab' etc.) gains a meaning within the language game. Some of the other examples include forming and testing a hypothesis, making a joke, telling a story, and reporting an

event (Wittgenstein, 1958[1], pp. 11–12). Within the context of organizations, language games can include repeating the ideas of management gurus (Astley Zammuto, &1992[1]), developing strategic plans (Jalonen, Schildt Vaara, &2018[1]; Manatre, 2013[1]), engaging in competitive wars (Rindova, Becerra, Contado, & 2004[1]), interacting in an online chat group (Fayard DeSanctis, &2010[1]), or engaging in an inquiry following a scandal (Kewell, 2006[1]). To this list, I would add bullshitting.

At the heart of the language game of bullshitting is the act of advancing *empty and misleading claims.* Recent linguistic analysis has identified the components of a statement that is bullshit (Meibauer, 2016[1], 2018[1]). These are assertions which (1) shows a loose concern for the truth, (2) are driven by misrepresentation of intent and (3) express undue certainty. To bullshit, an actor needs to make an assertion which displays a lack of concern for standards of truth or falsity. In addition, the intent of the statement should be misrepresented. It should not be clearly stated that the person is trying to mislead or not speak with regard to questions of truth or falsehood. Finally, a bullshit statement is typically presented with much more certainty than is warranted. This means that what are often loose conjectures are presented as certainties. An example of this can be found in a study of students at an elite high-

school in the United States (Gaztambide - Fernández, 2009[1], 2011[1]). When required to talk with their teachers about a particular subject, the students often had not put in the required work. To do deal with this tricky situation, students would rely on a few signals of knowledge (such as a few key names or facts). The students would hide their intentions of avoiding scrutiny by feigned fascination with the topic. But most importantly, they would present themselves in an excessively confident manner. They hoped this mixture of conspicuous signals, feigned interest and extreme confidence meant they were able to get through lessons with minimal work. And typically it worked. After leaving, many of the students realized that this ability was the main thing they had learned during their time at the school. It was a skill which stood them in good stead when they took up leadership positions throughout American society.

The language game of bullshitting also entails responding to empty assertion. In particular, it involves the *shallow processing* of empty and misleading claims. This happens when an interlocutor who hears a bullshit claim does not engage in meaningful inquiry through questioning or exploring a claim in more depth (Fallis, 2015[1]). They can avoid such inquiry in a range of different ways (McCarthy et al . , 2020[1]). One way is through acquiescence. This entails a passive

response whereby a person faced with a bullshit statement lets it pass without any serious challenge. An example of this is when a senior figure takes the floor in a meeting and makes a series of empty and misleading statements while the audience feigns attention and offers no serious public challenge (Fleming, 2019[1]). A second potential response is enthusiasm. This entails a more active and affirmative response whereby an actor faced with bullshit responds by joining in. For instance, during interactions with managers spouting the empty and misleading language of leadership, some professionals may respond by 'talking the talk' (Bresnen, Hyde, Hodgson, Bailey, Hassard, &2015[1]). They begin to use the language of leadership themselves (which they might personally regard as 'bullshit') to get the attention of their superiors. It can involve a process of one-upmanship whereby a listener responds with additional bullshit which is even more empty and more misleading than the initial offering. For instance, sailors talking in a group frequently tell increasingly tall stories about their exploits on previous voyages (Henningsen Roberts, &1965[1]). A third way people can respond is by believing the bullshit. This is when a person listening to a bullshitter mistakes what they are saying as being an approximation of the truth. In many language games of bullshitting, this is a sign that the listener is naïve and does not understand the game

being played. For instance, in his study of hitch-hikers, Mukerji (1978)[1] found that young and naïve hitch-hikers would often mistake the bullshitting of older hitch-hikers for truth statements. This unwarranted belief marked the young hitch-hikers out as neophytes who did not completely understand the culture and were not fully fledged participants in the game of bullshitting. A final response to bullshitting is negation. This is when someone 'calls bullshit' by pointing out the false or misleading nature of a statement. Calling bullshit can be an abrupt act where someone simply responds 'that's bullshit' and in doing so closes down space for inquiry and justification. This kind of response can be found in online debates about political issues. In other cases, bullshit can be called in a more careful way through exploring a claim, charting out why it might be considered bullshit and what might be done to make it less bullshit. An example of this careful calling out of bullshit is Rudolph Carnap's interrogation of Martin Heidegger's phrase 'the nothing nothings' (Egan, 2018[1]). In this important moment in the development of 20th-century philosophy, Carnap judiciously interrogated the meaning of the phrase, eventually identifying its self-referential nature.

Each of these responses is likely to have different effects on the ongoing pattern of interaction. The first two

responses (acquiescence and enthusiasm) can help maintain surface-level agreement (Goffman, 1959[1]). Through either acquiescing or enthusiastically participating, actors can keep the interaction going in a polite way. For instance, if an audience member remains relatively silent while their boss spouts bullshit, the social relationship is likely to remain intact. If an actor shows that they actually buy into bullshit and begins to mistake it for a truth claim, then it is likely they will either be sidelined from the bullshit game or given some subtle signals (either from the bullshitter or other listeners) that they should not take it so seriously. This kind of re-orienting work helps to bring the bullshitter back on track. Finally, when a listener actively calls bullshit on a speaker, it can disturb the surface-level agreement between people. The bullshitter can seek to repair this surface-level agreement through strategies such as evasive bullshitting, whereby they answer a fairly direct question with an irrelevant answer (Carson, 2010[1]). For instance, following the financial crisis of 2008, senior executives of some of Britain's largest banks were asked to testify in front of a committee of the UK Parliament. When the bankers were quizzed about their responsibility for the crisis, many responded with evasive bullshit. They expressed regret, claimed they had already apologized and shifted blame to others (Tourish Hargie, &2012[1]).

This evasion had a game-like quality. The inquisitors kept asking questions aimed at establishing the veracity of claims while the bankers continued to avoid the questions. This points to a significant challenge for people calling bullshit: the effort they need to put in to refute bullshit is often of an order of magnitude greater than what is required to produce the bullshit in the first place (Brandolini, 2014[1]). This means calling out bullshit can be an effortful and time-intensive activity that potentially harms people's relationships, which ultimately is judged to be not worth their while.

There are moments when the social practice of bullshitting runs smoothly. This happens when bullshitters are able to continue articulating empty and misleading statements, these statements are accepted (through either acquiescence or enthusiastic embrace) and a degree of surface-level agreement is maintained. This entire process is likely to involve *in situ* sense-making (Sandberg Tsoukas, &2020[1]) whereby actors adjust and make changes in response to actors involved in the bullshit game. When it continues, they are able to maintain a language game where questions of truth and falsehood are not the yardstick people use to judge statements. Instead, players mobilize different criteria to judge the relative worthiness or relevance of a particular statement. For instance,

Mukerji (1978)[1] noticed that bullshitting among hitch-hikers was judged on the basis of whether it amused people. However, there was always the potential for a bullshit game to misfire. This happened if an interlocutor called bullshit and tried to drag the discussion back to criteria of truth and falsity. If this happened, then it became much more difficult for people to continue to bullshit. It also made it much more difficult for people to positively or neutrally respond to bullshitting and maintain a sense of surface agreement around the bullshit.

Participating in a language game is a form of identity work. It is a way of creating, maintaining and in some cases undermining how others see us, and how we see ourselves (Brown, 2015[1]). When a language game is played competently, it can reinforce the image others have of a bullshitter and how bullshitters see themselves. When bullshitting misfires, it can undermine the image and identity of bullshitters.

Successful bullshitting enhances the image of bullshitters. This happens when bullshitters are able to more or less convincingly present themselves as more grandiose than they actually are (Alvesson, 2013[1]). External audiences are more likely to make positive judgements about them and be more willing to invest resources in them. The link between bullshitting, favourable

judgement and resourcing can be seen in a recent study of the evaluation of contemporary art. This study found that when abstract images were paired with randomly generated 'bullshit' titles, they were judged as being more profound than images which either had no title or a descriptive title (Turpin et al ., 2019[1]). In this context, bullshit was a low-cost strategy that encouraged evaluators to see an image as more valuable than they otherwise would. Organizations often use trendy but misleading names to attract resources (particularly from the uninformed). In recent years, firms have gained a boost in valuation by adopting a name invoking blockchain technology (Cahill, Baur, Liu, Yang, &2020[1]). In the late 1990s, firms gained a similar boost in value by adding '.com' to their name (Cooper, Dimitrov, Rau, &2001[1]). In the early 1960s, firms with the suffix 'tronics' were perceived as being more valuable (Malkiel, 1999[1]). Some of these firms did not actually use the technologies which their name invoked, but the title helped them to attract resources and higher valuations.

As well as enhancing one's image, bullshitting can also help to enhance self-identity. This is because bullshit can enable bullshitters to conjure a kind of 'self-confidence trick' (Sturdy, Brocklehurst, Winstanley, Littlejohns, &2006[1]). This happens when bullshitters mislead themselves into believing their own

bullshit. Research on self-deception in psychology has found that through various cognitive processes (such as selective information search, biased processing, selective remembering) people are able to focus on information which bolsters their sense of self and marginalizes any information which might undermine their sense of self (Schwardmann Van & Der Weele, 2019[1]; Smith, Trivers, Von & Hippel, 2017[1]; Von Hippel Trivers, &2011[1]). This has the advantage of limiting the cognitive load of the person making a misleading claim. Self-deception enables individuals to present themselves as much more self-confident than they would otherwise seem if they had to engage in cognitively taxing processes of dual processing (holding in one's mind both the deceptive statement as well as the truth). The self-confidence which comes from self-deception can aid resource acquisition. For instance, entrepreneurs are encouraged to ignore their objective chances of failure so they can appear self-confident in their search for resources to support their venture. This self-confidence can make it easier to acquire the resources an entrepreneur needs, but it can also lead to delusional and potentially destructive behaviours (; Hartmann et al . , 2019[1]; Spicer, 2017[1], pp. 123–30).

Bullshitting doesn't always work so smoothly. It can easily misfire. When this happens, it can lead to negative outcomes. It can undermine an actor's identity. When others realize that an actor frequently engages in bullshitting, they may begin to mistrust them by questioning whether they are competent, benevolent and have integrity (Mayer, Davis, Schoorman, &1995[1]). External audiences may see bullshitting as a sign that an actor does not know what he or she is doing (and is therefore incompetent), that they are immoral and do not have the best interests of others' at heart (and is therefore malevolent), and that they are unable to do what they say they will (and therefore lack integrity). If external audiences begin to distrust a bullshitter, they are likely to punish or avoid them. Their claims can be discounted, resources can be withheld and they might be ignored entirely. A study of CEO calls with market analysts following the announcement of a merger or acquisition found that when CEOs used more management speak they were punished by the stock market with a lower pricing of the firm's shares, irrespective of the longer-term value the M&A may create (Salvado Vermeulen, &2018[1]). This is because management speak led analysts to question a CEO's motives for undertaking a merger or acquisition.

When bullshitting misfires, it can undermine how bullshitters see themselves. Failures can prompt a bullshitter to reflect on the meaningfulness of the language

which they use. Reflection is likely to lead at least some players of the bullshit game to the conclusion that their chosen activity is meaningless and empty. For instance, Paulsen (2017)[1] explored how employees in a Swedish government employment agency reacted when the organization became increasingly dominated by empty management rhetoric. As this happened, many officials found themselves doing what they regarded as socially useless and existentially meaningless work. As part of their job, they were obliged to reproduce a large stock of standardized bullshit terms. Some also sought to come up with equally vacuous and misleading explanations for the importance of their own job. As a result of this process, many employees started to see their own work as 'bullshit jobs'.

Bullshitting is unlikely to have purely positive or negative outcomes. Positives and negatives are likely to be mixed. For instance, bullshitters could be seen as rogues who have a fine image but are untrustworthy. Similarly, those involved in bullshitting can start to see themselves as being confident but also engaged in something which is ultimately meaningless. It is also worth noting that the costs and benefits of bullshitting are not equally distributed. Often bullshitters try to externalize the identity and image costs of bullshitting onto others while enjoying the benefits. For instance,

one standard move of populist politicians has been to project the lack of trust others have for them outwards onto other people or institutions.

Bullshitting can create self-reinforcing or self-undermining feedback loops. This is dependent on whether bullshitting enhances or diminishes the image and identity of the bullshitter. Such outcomes shape the extent to which bullshitters are willing to continue to engage in the language game of bullshitting as well as their likelihood of continuing to invest in and support the broader speech community which encourages bullshitting.

When bullshitting enhances an actor's image and identity, they are likely to engage in more of it. One way they can do this is by extending the *scale* of their bullshitting. That means using quantitatively more empty and misleading statements when communicating about a particular issue. For instance, an organization increases the scale of bullshitting when they use more empty and misleading phrases in their advertising to consumers. A second way bullshitting might increase is through extending the *scope*. This is a qualitative shift whereby actors bullshit about a wider range of issues or in a wider range of forums. For instance, an organization would increase the scope of bullshitting if it had previously been bullshitting in their

advertising to consumers but then also began bullshitting in communication with employees. An implication of increased scale and scope is that becoming a legitimate participant in the collective conversation also means bullshitting. Otherwise veracious people get drawn into using bullshit just so they might be seen as having a legitimate voice in their organization. Positive results from bullshitting can lead an organization to invest more into the speech community which encourages bullshitting. This means they are more likely to rely upon the management ideas industry as a source of input when making decisions, more likely to reward noisy ignorance and more likely to stoke up permissive uncertainty. Ultimately, increasing the scale and scope of bullshit and the speech community around bullshitting is likely to lead to unbounded bullshitting. This is when empty and misleading statements have few boundaries and are applied in a wide range of contexts.

When bullshit simultaneously enhances and undermines an actor's identity and image, those actors are likely to only tactically accept further bullshitting. While they may not officially and explicitly support further bullshitting, they can unofficially tolerate some degree of it. This means bullshitting becomes a kind of public secret: something everyone knows about, but is rarely explicitly

acknowledged (Costas Grey, &2014[1]). Bullshitting becomes a language game which is useful and potentially embarrassing. It is allowed but not officially sanctioned. While bullshitting still takes place, the scale and scope of it is unlikely to increase. While there may be ad hoc and unrevealed backing for the speech community which supports bullshitting, there is little consistent and public support for it. This means an organization might continue to draw on the services of the management ideas industry, but not in a systematic or public way. It also may implicitly allow noisy ignorance, but it does not publicly celebrate it as a virtuous form of behaviour. Finally, permissive uncertainty may be unofficially tolerated and accepted, but it is not officially condoned. Under these circumstances, we are likely to witness the emergence of a bounded form of bullshitting. This is when empty and misleading talk is used in a limited number of instances and in relation to particular issues. Bounded bullshitting involves some degree of self-policing by participants. While engaging in some bullshitting, participants typically limit themselves, thereby ensuring they are not going too far. It also means they keep an eye on other less bullshit-intensive language games which effectively act as a form of limitation and constraint.

When bullshitting undermines an actor's image and identity, it is likely

to be actively punished. Actors typically notice when bullshitting has a detrimental effect on how other groups see them. They also are likely to notice when bullshitting starts to undermine how they see themselves. When this happens, they are likely to rein in or even largely cease bullshitting. This may be difficult, particularly when bullshitting has become a routinized part of formal communication. But it is possible for people to linguistically retool. It is easier to change if there are alternative language games bullshitters can retreat into. If bullshitting is punished, actors are also likely to curtail their investment in the speech community which encourages bullshit. This means they become less reliant on the management ideas industry, they stop rewarding and tolerating noisy ignorance, and they tamper down permissive uncertainty through stricter epistemic standards.

From: https://notionparallax.co.uk/diary
        -entries/2020-06-10-Playing‗the
        ‗Bullshit‗Game

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1. notionparallax.co.uk ⬭ 3FQ5

# What if Friendship, Not Marriage, Was at the Center of Life?

♣ theatlantic.com♣ Tuesday 20 October 2020♣ Rhaina Cohen[1] ♣ 29 minute read♣

"Our boyfriends, our significant others, and our husbands are supposed to be No. 1. Our worlds are backward."



*Kirn Vintage Stock / Getty / Arsh Raziuddin / The Atlantic*

Kami West had been dating her current boyfriend for a few weeks when she told him that he was outranked by her best friend. West knew her boyfriend had caught snatches of her daily calls with Kate Tillotson, which she often placed on speaker mode. But she figured that he, like the men she'd dated before, didn't quite grasp the nature of their friendship. West explained to him, "I need you to know that she's not going anywhere. She is my No. 1." Tillotson was there before him, and, West told him, "she will be there after you. And if you think at any point that this isn't going to be my No. 1, you're wrong."

If West's comments sound blunt, it's because she was determined not to repeat a distressing experience from her mid-20s. Her boyfriend at that time had sensed that he wasn't her top priority. In what West saw as an attempt to keep her away from her friend, he disparaged Tillotson, calling her a slut and a bad influence. After the relationship ended, West, 31, vowed to never let another man strain her friendship. She decided that any future romantic partners would have to adapt to her friendship with Tillotson, rather than the other way around.

West and Tillotson know what convention dictates. "Our boyfriends, our significant others, and our husbands are supposed to be No. 1," West told me. "Our worlds are backward."

In the past few decades, Americans have broadened their image of what constitutes a legitimate romantic relationship: Courthouses now issue marriage licenses to same-sex couples, Americans are getting married later[2] in life than ever before, and more and more young adults are opting to share a home rather than a marriage license with a partner[3]. Despite these transformations, what hasn't shifted

much is the expectation that a monogamous romantic relationship is the planet around which all other relationships should orbit.

Read: The Friendship Files: Friendly conversations with friends about friendship[4]

By placing a friendship at the center of their lives, people such as West and Tillotson unsettle this norm. Friends of their kind sweep into territory typically reserved for romantic partners: They live in houses they purchased together, raise each other's children, use joint credit cards, and hold medical and legal powers of attorney for each other. These friendships have many of the trappings of romantic relationships, minus the sex.

Despite these friendships' intense devotion, there's no clear category for them. The seemingly obvious one, "best friend," strikes many of these committed pairs as a diminishment. Adrift in this conceptual gulf, people reach for analogies. Some liken themselves to siblings, others to romantic partners, "in the soul-inspiring way that someone being thoughtful about loving you and showing up for you is romantic," as the Rutgers University professor Brittney Cooper describes some of her friendships in her book *Eloquent Rage.*

Some alternate between the two comparisons. From the night Joe

Rivera and John Carroll met at a gay bar in Austin, Texas—Rivera was the emcee for a strip competition, and Carroll won the $250 cash prize—they felt like brothers. "Brothers that really want to hang out and be around each other," Carroll clarified. Yet when Carroll considered their shared domestic life, he told me that "we have a little married-couple thing going on even though we're not married." These mixed analogies suggest that neither wedlock nor siblinghood adequately captures what these friendships feel like.

Intimate friendships don't come with shared social scripts that lay out what they should look like or how they should progress. These partnerships are custom-designed by their members. Mia Pulido, a 20-year-old student at Drew University, says that she and her "soul mate," Sylvia Sochacki, 20, have cobbled together role models in what has felt like a "Frankenstein" process: Through reading about intimate female friendships from centuries ago, the pair discovered a framework for a relationship that doesn't neatly fit the contemporary labels of romantic or platonic. They found their complementary personalities reflected in the characters Sherlock and Watson, and they embraced the casual affection (and the terms of endearment "Bubble" and "Spoo") that they came across in a note between a wife and husband; it was tucked into a used book they found

at a garage sale. Pulido has found it freeing to build a relationship around the needs and desires of Sochacki and herself, rather than "having to work through this mire of what society has told you this relationship consists of."

Many of those who place a friendship at the center of their life find that their most significant relationship is incomprehensible to others. But these friendships can be models for how we as a society might expand our conceptions of intimacy and care.

When Tillotson and West met as 18-year-olds, they didn't set out to transgress relationship norms. They were on a mission to conform, *aye ma'am*-ing their way through Marine Corps boot camp in South Carolina, and referring to each other by their last name preceded by the title "Recruit." Most evenings, Recruit Tillotson and Recruit West spent their hour of free time chatting in front of their shared bunk bed.

During these conversations, they discovered that West's mom had just moved to a city that was a 20-minute ride away from Tillotson's hometown of Tulsa, Oklahoma. West and Tillotson spent boot camp's month-long break together, winding through the Tulsa suburbs in West's mother's black sedan, late-aughts rap pulsing through the rolled-down windows. For most of the next four years, they were

stationed thousands of miles apart, including when Tillotson eventually deployed to Iraq. From afar, they coached each other through injuries, work woes, and relationship problems. Their friendship really blossomed once they both ended up in the Tulsa area for college, and they started to spend nearly every day together. By then, Tillotson was waiting for her divorce paperwork to be notarized, and West was a single mother caring for her 3-year-old, Kody.

Read: How friendships change in adulthood[5]

When West got a job at a bar, Tillotson watched Kody during the day so her friend could sleep. Tillotson frequently joined West at preschool pickup. When the two women would walk down the hallway, past the miniature lockers, West said, "it was like the seas parted." Tillotson could feel the parents' eyes on her. Periodically, a teacher would sidle up to the two women, direct her gaze toward Tillotson, and ask, "Who is this?" "People would always ask us how we know each other, or, 'Are you sisters?' A lot of times people think we're dating," Tillotson, 31, said. It would take too long for West and Tillotson to explain the complexity and depth of their friendship to every curious questioner.

With no lexicon to default to, people with friendships like West and Tillotson's have assembled a collage

of relationship language. They use terms such as *best soul friend*, platonic life partner[6], my person[7], *ride or die*, queerplatonic partner[8], Big Friendship[9]. For some, these names serve a similar purpose as matching friendship necklaces— they're tokens mainly meant for the two people within the friendship. Others, such as West and Tillotson, search for language that can make their relationship lucid to outsiders. West and Tillotson realized that people understand boot camp to be an intense setting, the kind of environment that could breed an equally intense friendship. When the friends began to refer to each other as "boot-camp besties," people's confusion finally faded.

For more than a decade, Nicole Sonderman didn't mind if the only people who understood her friendship with Rachel Hebner were the two women who were part of it. Sonderman sums up their relationship as "having a life partner, and you just don't want to kiss them."

In the years when they both lived in Fairbanks, Alaska, the friends were fluent in the language of each other's moods and physical changes. Before Hebner suspected that she might be pregnant, Sonderman made her buy a pregnancy test, steered her into the bathroom, and sat in the adjacent stall as Hebner took it. Four years later, the roles reversed: Hebner had the same accurate premonition

about Sonderman. "We paid more attention to each other than we did to ourselves," Sonderman, 37, told me.

Read: What you lose when you gain a spouse[10]

They occasionally navigated around other people's confusion about or combativeness toward their friendship. Their preferred term of endearment for each other, *wife*, wasn't a problem for Sonderman's then-husband. But once Hebner divorced her husband and started dating, her romantic partners got jealous, especially the women she dated. Sonderman grudgingly placated them by calling Hebner "wiffles" instead of wife.

After those years in Alaska, the pair spent a few years several time zones apart, as Sonderman and her then-husband moved around for his work. Eventually Sonderman moved back to Alaska, but Hebner had relocated to Indiana. Phone calls and occasional visits became their friendship's support beams. Sonderman said that Hebner reached out less and less as she grappled with a cascade of difficulties: She was in an abusive romantic relationship and she lost her job because she had no one else to take care of her daughter while she worked. She was depressed. In October 2018, Hebner died by suicide.

For Sonderman, Hebner's death was

devastating. The women had envisioned one day living near each other in Alaska, where the two of them had met, and where Hebner longed to return. Now Sonderman had none of that to look forward to. For six months after Hebner's death, she kept earphones in when she went to the grocery store. She couldn't bear small talk.

Sonderman found it hard to translate her grief to others. "Most people don't understand. They'll just be like, 'Oh yeah, I had a friend from high school who died' or something and try to relate. But it doesn't really resonate with me." In other cases, people would impose a salacious and inaccurate story line onto their relationship to try to make sense of it. Because Hebner was bisexual, Sonderman said, some people believed that they were secretly lovers, and that Sonderman was closeted.

To Elizabeth Brake, a philosophy professor at Rice University whose research focuses on marriage, love, and sex, Sonderman's experience is not just tragic but unjust. Because friendship is outside the realm of legal protection, the law perpetuates the norm that friendships are less valuable than romantic relationships. This norm, in turn, undermines any argument that committed friendships deserve legal recognition. But if, for example, the law extended bereavement or family leave to friends, Brake believes we'd have

different social expectations around mourning. People might have understood that, for Sonderman, losing Hebner was tantamount to losing a spouse.

With no legal benefits or social norms working in her favor, Sonderman has felt most understood by other people who've had an intimate friendship. Sonderman described one such friend who was an especially attentive listener. For two hours, he and Sonderman sat in a car, engine off, in a grocery-store parking lot. She talked with him about Hebner, cried about Hebner. Her friend said, "It sounds like she broke your heart." Sonderman told me, "That was the first time that anybody really got it."

Intimate friendships have not always generated confusion and judgment. The period spanning the 18th to early 20th centuries was the heyday of passionate, devoted same-sex friendships, called "romantic friendships." Without self-consciousness, American and European women addressed effusive letters to "my love" or "my queen." Women circulated friendship albums and filled their pages with affectionate verse. In Amy Matilda Cassey's friendship album, the abolitionist Margaretta Forten inscribed an excerpt of a poem that concludes with the lines "Fair friendship binds the whole celestial frame / For love in Heaven and Friendship are the same."

Authors devised literary plot lines around the adventures and trials of romantic friends. In the 1897 novel *Diana Victrix*, the character Enid rejects a man's proposal because her female friend already occupies the space in her life that her suitor covets. In words prefiguring Kami West's, Enid tells the man that if they married, "you would have to come first. And you could not, for she is first."

Two well-known women who put each other, rather than a husband, first were the social reformer Jane Addams and the philanthropist Mary Rozet Smith. In Addams's bedroom, now an exhibit at the Jane Addams Hull-House Museum, in Chicago, an enormous portrait of Smith hangs above the mantle. After meeting in 1890 at the pioneering settlement house that Addams co-founded, the women spent the next 40 years entwined, trudging through moments they spent apart. During one separation, Addams wrote to Smith, "You must know, dear, how I long for you all the time, and especially during the last three weeks. There is reason in the habit of married folks keeping together." When Addams traveled without Smith, she would sometimes haul the painting with her. When the two women journeyed together, Addams wired ahead to request a double bed. No scandal erupted in the newspaper. These women weren't pressed, directly or implicitly, about their sex lives, nor did they feel compelled to invent a label to make

sense of their relationship to onlookers, as West and Tillotson would about a century later. Same-sex intimacy like theirs was condoned.

These friendships weren't the exclusive province of women. Daniel Webster, who would go on to become secretary of state in the mid-1800s, described his closest friend as "the friend of my heart, the partner of my joys, griefs, and affections, the only participator of my most secret thoughts." When the two men left Dartmouth College to practice law in different towns, Webster had trouble adjusting to the distance. He wrote that he felt like "the dove that has lost its mate." Frederick Douglass, the eminent abolitionist and intellectual, details his deep love for his friends in his autobiography. Douglass writes that when he contemplated his escape from slavery, "the thought of leaving my friends was decidedly the most painful thought with which I had to contend. The love of them was my tender point, and shook my decision more than all things else."

One question these friendships raise for people today is: Did they have sex? Writings from this time, even those about romantic relationships, typically lack descriptions of sexual encounters. Perhaps some people used romantic friendship as a cover for an erotic bond. Some scholars in fact suspect that certain pairs had sex, but in most cases, historians—whose research on the topic is

largely confined to white, middle-class friends—can't make definitive claims about what transpired in these friends' bedrooms. Though we will never know the exact nature of every relationship, it's clear that this period's considerably different norms around intimacy allowed for possibilities in friendship that are unusual today.

A blend of social and economic conditions made these committed same-sex friendships acceptable. Men and women of the 19th century operated in distinct social spheres, so it's hardly shocking that people would form deep attachments to friends of their own gender. In fact, women contemplating marriage often fretted about forging a life with a member of what many deemed the "grosser sex."

Beliefs about sexual behavior also played a role. The historian Richard Godbeer notes that Americans at the time did not assume—as they do now—that "people who are in love with one another must want to have sex." Many scholars argue that the now-familiar categories of heterosexuality and homosexuality, which consider sexual attraction to be part of a person's identity, didn't exist before the turn of the 20th century. While sexual acts between people of the same gender were condemned, passion and affection between people of the same gender were not. The author E. Anthony Rotundo argues that, in some ways, attitudes about love and sex, left

men "freer to express their feelings than they would have been in the 20th century." Men's liberty to be physically demonstrative surfaces in photos[11]of friends[12] and in their writings. Describing one apparently ordinary night with his dear friend, the young engineer James Blake wrote, "We retired early and in each others arms," and fell "peacefully to sleep."

Physical intimacy among women also didn't tend to be read as erotic. Even men wrote approvingly of women's affectionate relationships, in part because they believed that these friendships served as training grounds for wifehood. In his 1849 novel, *Kavanagh*, Henry Wadsworth Longfellow casts a friendship between two female characters as "a rehearsal in girlhood of the great drama of a woman's life"—the great drama, naturally, being marriage to a man.

Men could feel unthreatened by these friendships because few women were in the financial position to eschew the economic support of a husband in favor of a female companion. By the late 1800s, exceptions to this rule started to sprout. Colleges and professions were opening up to middle-class (and, almost exclusively, white) women, enabling these graduates to support themselves, no husband required. At this point, the historian Lillian Faderman told me, women's intimate friendships "no longer had to be a rehearsal in girlhood."

Educated women could instead live together in what were called Boston marriages. These committed relationships allowed women to pursue careers and evade heterosexual marriage.

From the late 1800s to the 1920s, each one of these components—gender-segregated society, women's economic dependency, the distinction between sexual behavior and identity—was pulled like a Jenga brick from the tower of romantic friendship. Men and women's divergent social spheres began to look more like a Venn diagram, enabling emotional intimacy between the genders. With far more women in the workforce and potentially independent, men weren't so enchanted by women's intimate relationships. Sexologists declared same-sex desire—not merely same-sex sexual acts—perverse. Americans came to fear that kissing or sharing a bed with a friend of the same gender was a mark of "sexual inversion." Romantic friendships had lost their innocence.

A few decades after the erosion of romantic friendship began, Americans' conception of marriage shifted. The Northwestern University psychologist Eli Finkel identifies three distinct eras in American marriages. The first, running from the colonial period until about 1850, had a pragmatic focus on fulfilling spouses' economic and survival needs; the second, lasting until about 1965, emphasized love. Finkel makes the case that starting around 1965, the "self-expressive marriage" became the ideal; spouses expected their partnership to be the site of self-discovery and personal growth. (Excluded from these structures for most of the nation's existence were the tremendous number of Americans who were denied access to legal marriage, namely enslaved Black Americans, interracial couples, and same-sex couples.) Throughout this evolution, Americans started relying more and more on their spouses for social and emotional support, with friendships consigned to a secondary role.

John Carroll, who met his platonic partner, Joe Rivera, at a gay bar, describes this type of romantic relationship as "one-stop shopping." People expect to pile emotional support, sexual satisfaction, shared hobbies, intellectual stimulation, and harmonious co-parenting all into the same cart. Carroll, 52, thinks this is an impossible ask; experts share his concern. "When we channel all our intimate needs into one person," the psychotherapist Esther Perel writes, "we actually stand to make the relationship more vulnerable." Such totalizing expectations for romantic relationships leave us with no shock absorber if a partner falls short in even one area. These expectations also stifle our imagination for how other people might fill essential roles such as cohabitant, caregiver,

or confidant.

Carroll and Rivera, 59, escaped this confined thinking. They built their lives around their friendship—at times deliberately, at times improvising in the face of unanticipated events. In 2007, Carroll discovered that the house next door to his was up for sale. He called Rivera with an entreaty: "Bitch, buy that house, and you can just walk home from dinner!" Rivera would no longer have to drive across Austin several times a week to have dinner at Carroll's house. Carroll, who's a real-estate agent, had already filled out the contract for the house for his friend. Rivera just needed to sign.

After buying the house, Rivera did in fact log fewer miles in traffic, but that was a trivial benefit compared with the life-altering ones that came later. When Rivera became concerned that Carroll's drug and alcohol use had gotten out of hand, he took photos of partiers entering and leaving Carroll's house at 3 or 4 a.m. Rivera staged an intervention with Carroll's other friends, and Carroll agreed to get help before Rivera could even begin reading aloud the two-page letter he'd written. The next day, Rivera drove Carroll to a recovery center, and cried as he filled out the paperwork. Rivera asked the man who ran the center, "What if [Carroll] goes through recovery and when he comes out, he hates me for doing this to him?"

Their friendship did change after Carroll finished the program, but not as Rivera had feared. While Carroll was in recovery, he and his friends came up with a plan to turn his house into a sober home for gay men—a solution to Carroll's shaky finances that also served a meaningful purpose. Once Carroll finished his own stint in a sober home, Rivera suggested that Carroll move in with him. By the time Carroll unloaded his bags, Rivera was already months into his own sobriety, a commitment he made even though he never had an alcohol problem. Rivera said, "I didn't want to be drinking a glass of wine in front of John when he couldn't have one." "Who *does* that?" Carroll asked, his voice blending incredulity and gratitude. They've both been sober for a decade.

A friendship like theirs, which has spanned nearly their entire adulthood and functioned as the nucleus of their support system, raises a fundamental question about how we recognize relationships: On what basis do we decide that a partnership is "real"? It's a question the journalist Rebecca Traister poses in her book *All the Single Ladies*, when she examines the central role that friends often play in single women's lives. "Do two people have to have regular sexual contact and be driven by physical desire in order to rate as a couple? Must they bring each other regular mutual sexual satisfaction? Are they faithful to each other?" she writes.

"By those measures, many heterosexual marriages wouldn't qualify." At the same time, people who have intimate friendships are eager to declare their devotion. The social theorist bell hooks writes[13] that women who have such close friendships "want these bonds to be honored cherished commitments, to bind us as deeply as marriage vows." Companionate romantic relationships and committed friendships appear to be varieties of the same crop, rather than altogether different species.

Brake, the philosopher, takes issue not just with cultural norms that elevate romantic relationships above platonic ones, but also with the special status that governments confer on romantic relationships. Whereas access to marriage currently hinges on (assumed) sexual activity, Brake argues that caregiving, which she says is "absolutely crucial to our survival," is a more sensible basis for legal recognition. She proposes that states limit the rights of marriage to only the benefits that support caregiving, such as special immigration eligibility and hospital visitation rights. Because sexual attraction is irrelevant to Brake's marriage model, friends would be eligible.

In LGBTQ circles, placing a high value on friendship has long been common. Carroll, Rivera, and several other people I interviewed for this story, absorbed the idea of

"chosen family"—that those besides blood can decide to become kin— from this community. Though he and Rivera never considered dating, Carroll had already learned to be at ease with nonsexual intimate relationships with men. In other words, he had come to appreciate something that was once widely understood—as Godbeer, the historian, puts it, that "we can love without lusting."

In many ways, Americans are already redefining what loving and living can look like. Just in the past several months, experts[14] and public intellectuals[15] from disparate ideological persuasions have encouraged heterosexual couples to look to the queer and immigrant communities for healthy models of marriage and family. The coronavirus pandemic, by underscoring human vulnerability and interdependence, has inspired people[16] to imagine networks of care beyond the nuclear family. Polyamory and asexuality, both of which push back against the notion that a monogamous sexual relationship is the key to a fulfilling adult life, are rapidly gaining visibility. Expanding the possible roles that friends can play in one another's lives could be the next frontier.

Other changes in American households may be opening up space for alternative forms of committed relationships. Fewer and fewer Americans can count on

having a spouse as a lifelong co-star. By the time they've gotten married—if they've done so at all—most Americans have spent a considerable part of their adulthood single. The tally of Americans' unpartnered years grows once you tabulate the marriages that end because of divorce or a spouse's death (about one-third of older women are widowed). According to a 2017 Pew Research Center report[17], 42 percent of American adults don't live with a spouse or partner.

We're also in the midst of what former Surgeon General Vivek Murthy has called a growing public-health crisis in the United States: loneliness. In a 2018 survey, one-fifth of Americans reported always or often feeling lonely. Being alone does not portend loneliness—nor does being partnered necessarily prevent loneliness—but these data suggest that plenty of people would appreciate a confidant and a regular dose of physical affection, needs only amplified by the pandemic. Americans, who've long been encouraged to put all their eggs in the marriage basket, may come to rely upon a wider array of social relationships out of necessity.

A platonic partnership may not feel right for everyone, and as is true with dating, even those who want a mate might not be able to find a suitable one. But these relationships have spillover benefits for those in close proximity to them. Tillotson told me that she thinks all her

relationships have been brightened by her closeness with West. Their romantic partners appreciate that the friendship lessens their emotional load; their mutual friends treat Tillotson and West as a reliable unit to turn to when they're in need; their veteran community has been strengthened by the volunteering they've done together. Their platonic partnership fits Godbeer's description of how Americans viewed friendship centuries ago, that it "not only conferred personal happiness but also nurtured qualities that would radiate outward and transform society as a whole." Though Tillotson and West's relationship serves these broader purposes, they choose to be bound to each other primarily for the joy and support they personally receive. Tillotson thinks of her romantic partner as "the cherry on the cake." She and West, she explained, "we're the cake."

From: https://www.theatlantic.com
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# THE SOLE FUNCTION OF THE CLITORIS IS FEMALE ORGASM. IS THAT WHY IT'S IGNORED BY MEDICAL SCIENCE?

Urological surgeon Helen O'Connell was the first person to completely map the full anatomy and nerve pathways of the clitoris. Photograph: Alana Holmberg/Oculi for the Guardian

Professor Caroline de Costa is awaiting feedback. Several months ago the editor of the Australian and New Zealand Journal of Obstetrics and Gynaecology requested an editorial from a world-renowned Melbourne[1] urologist to address what she saw as a lack of research and, more concerningly, a persistent lack of knowledge about an essential part of the female reproductive system.

The urologist, Professor Helen O'Connell, agreed. But a week after the editorial was published, De Costa's inbox remains suspiciously silent. She suspects her colleagues, used though they are to dispassionate discussion of female genitalia, may be too embarrassed to write in.

The editorial was about the clitoris, an organ whose sole function is the female orgasm. And an alarming number of medical professionals remain uncomfortable discussing it.

"It is not discussed," says De Costa, who is also a professor of obstetrics and gynaecology at James Cook University. "I go to conferences, I go to workshops, I edit the journal, I read other journals. I read papers all the time, and never do I find mention of the clitoris."

The first comprehensive anatomical study of the clitoris was led by O'Connell and published in 1998[2]. A subsequent study in 2005[3] examined it under MRI. It was not, O'Connell discovered, just a small nub of erectile tissue, described in some texts as the "poor homologue" of the penis. Instead it was an otherworldly shape, with the nerve-

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rich glans merely the external protrusion of an organ that extended beneath the pubic bone and wrapped around the vaginal opening, with bulbs that become engorged when aroused. It looked like an orchid. It was beautiful.

In the 20 years since that groundbreaking study was released, clitoral anatomy remains largely absent from the medical curriculum and from medical research. A literature review conducted by O'Connell's team for her editorial in the Australian and New Zealand Journal of Obstetrics and Gynaecology found just 11 articles on anatomical dissection of the clitoris had been published worldwide since 1947. Hundreds more mentioned clitoral anatomy only as it related to procedures to restore sensation following a cliteradectomy, orfemale genital mutilation. Despite that work, O'Connell wrote, "we see literature doubting the importance of female orgasm, entertaining the argument that from an evolutionary standpoint, female orgasm could merely be a byproduct of selection on male orgasm".

Speaking to Guardian Australia from her consulting rooms in East Melbourne, O'Connell says the view that the clitoris was at best unimportant and at worst shameful remained pervasive. She recalls a conversation at an awards night, in which one of her students won a prize for a study of the suspensory ligaments that hold the clitoris in place.

"The very senior figure directly across from me thought that her work was—and I was her supervisor, I don't think he knew that—he thought it was voyeurism," she says.

"She's doing scientific research about anatomy, and that, in his world … "

She pauses. "What happened to him, that he sees a young woman doing a project like that and thinks of it with a sexual innuendo? That is just, to me, unfathomably unrelated to the way my brain works."

## A rebellious doctorate

When O'Connell was a medical student in the 1980s she was infuriated by her anatomy textbooks, which contained extensive anatomical drawings of the penis and registered the clitoris as a footnote.

"There's the norm that's the male, and then we've got kind of this subset over here who are not male," she says. "And their unique characteristics are differences … there was a feeling that they were not whole people in the way that these other people are whole people and deserving of having their body parts having a full description."

When she specialised in urology,

she noticed that while attention was paid in prostate removal surgery to not harming the nerves that connected to penile erectile tissue, based on studies that were first conducted in the 1970s, there had been no similar work tracking clitoral nerves. She undertook a study on 12 cadavers following the nerves from the spinal column. "It was pretty clear that what we were looking at was kind of a shadow of an organ rather than the organ itself," she says.

O'Connell then enrolled in a doctorate to study clitoral anatomy.

"I think the chances of a male realising there was a deficit when most of my female colleagues didn't see it would have to be incredibly unlikely," she says. "I think I was raised a little bit rebelliously."

She is now able to describe the shape of the clitoris with the help of a 3D printed model that was designed in conjunction with Dr Ea Mulligan, a doctor from Adelaide[4] who has made the manufacture and distribution of thousands of anatomically correct clitorises a retirement hobby. Mulligan distributes them at conferences and public health seminars, and is planning to set up a stall distributing free clitorises at Feast, Adelaide's queer arts and culture festival, in November.

When I speak to her on the phone at her home in Adelaide, she offers to send me one of the three boxes, with 200 clitorises apiece, that is currently sitting on her back porch. A box has been sent to O'Connell, a box to De Costa, and a box to the professor of anatomy at a medical school in Dunedin, New Zealand, who was previously working with a pathology sample of a clitoris that "looks like a shred off of last week's roast".

"A lot of medical students and doctors I have handed them to have said 'Oh I didn't know it was as big as that', because it's been diminished in the medical literature," Mulligan says. "It's just a beautiful case study on the invisibility of women's concerns in science, in medicine."

When Mulligan studied medicine in the 1970s, she was working from an anatomy textbook that had one page on vulvar anatomy and "five pages of penises from every possible angle".

It is only marginally better now. James Cook university, where de Costa teaches, holds a one-hour lecture in fifth year about the role of clitoris in sexual function. The curriculum to be a fellow of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists covers sexual function and related disorders, but not specifically the function of the clitoris. The college said it encourages "self-directed learning" and "acknowledges a long history of

poor understanding of female anatomy and female sexuality".

"RANZCOG supports all efforts to improve knowledge of genitourinary anatomy, physiology, and pathophysiology, with the aim of best practice in women's health," the college said in a statement.



A 3D model of a clitoris. Photograph: Marie Docher and Odile Fillod

## The cliterati

Back in her consulting rooms, O'Connell appears remarkably fresh for someone who was in a mortuary until 1am the night before. She was conducting a dissection to map the anatomy of the urethra as part of a global effort to combat female urethral cancer, she tells Guardian Australia.

With her neat glasses and dry, technical language, O'Connell does not appear the rebel. But then she talks, quite calmly, about subjects that would make many of her peers blush, and the rebel slips out.

Take orgasms. In 2016, O'Connell co - authored a paper[5]that found[5], based on a series of macroscopic anatomical dissections, that there

was no evidence of erectile tissue in the vaginal wall—in other words, that the G-spot did not exist. (O'Connell has stressed there was more work to be done on the subject, including mapping the urethra.) To date, the only known erectile tissue in the area is the clitoris, leading to the working theory that the G-spot is just the engorged bulbs of an aroused clitoris felt through the vaginal wall.

Importantly, that meant that the clitoris would have to be stimulated for that sensation to be felt. This is not a new fact to people with vaginas, but distributing it is an important part of ensuring they have healthy, satisfying sex lives.

That the majority of women and people with vaginas require clitoral stimulation to orgasm is "just a statement of fact", O'Connell says. "Ignoring the clitoris and acting like that's not the focus for orgasm is just not going to happen."

She speculates—after specifying that she is not speaking as a urologist—that centuries of sexism, fed by unrealistic depictions of sex in Hollywood, have helped build the G-spot myth and minimise the role of the clitoris. And that encourages people to "go about things in a way that is likely to be counterproductive".

"People want kind of a magical thing, where he gets off through penetration of the vagina and

exactly what causes his joy causes her joy," she says. "Almost everyone is going to fall short on the goal because the organs just don't seem to be designed in this magical way that would fit with the kind of thrusting behaviour causing an orgasm."

Outside of medical circles, O'Connell's research has been enthusiastically embraced. US-based artist Sophia Wallace created a campaign on "cliteracy", informing women about their own anatomy.

Wallace's art brings an organ with a dark history into the light, O'Connell says, adding: "It's cool, isn't it?" She is unabashedly delighted by unintentionally sparking a feminist art movement. "It's fantastic!" she says. "Who would ever have imagined something like that happening?"

Artists, says De Costa, have "undeniably" done a better job at incorporating clitorial anatomy into their work than the Royal Australian and New Zealand College of Obstetricians and Gynaecologists.



Sydney artist Alli Sebastian Wolf holds up her Glitoris, a giant, gold clitoris. Photograph: Alli Sebastian Wolf

Alli Sebastian Wolf, a Sydney based artist, created 100–1 scale anatomically correct gold clitoris, called the Glitoris, in 2017.

"I was in my mid-20s when I saw what a clitoris actually looked like and was kind of, first of all amazed by how wonderful it is, and second of all: how the fuck have we not been shown this or taught this? When I knew well before puberty what a fallopian tube and uterus shape was. Which, you know, far less important to my daily life," she says.

The Glitoris can be hung in a gallery but achieved viral fame when Sebastian Wolf took it to the Women's March, Mardi Gras and other public events, accompanied by the Cliterati—Sebastian Wolf and friends in gold unitards and blue wigs.

"A lot of people just thought it was a golden-y squid creature, a lot of people thought it was lungs, or a dragonfly, or testicles," she says. "I met a couple of OB-GYNs who

hadn't known about it until the sculpture, which is horrifying."

Sebastian Wolf says it can be easier for some people to talk about sex and sexual organs at a festival to a woman covered in glitter, than to their doctor. She is currently working on a one-storey high inflatable gold clitoris, but says she hopes knowledge of the clitoris will soon become so uncontroversial that making art about them would be as passé as making art about penises.

"It will hopefully get to the point where my art is totally irrelevant," she says. "It would be great if the most interesting thing about it is if people were like 'Oh, how did you get all those sequins on?' Not, 'What's this and why don't we know about it?'"

O'Connell's aim is similarly modest: that female anatomy be considered equally alongside male anatomy. And that necessarily means

overcoming an institutional and societal prejudice against women enjoying their own sexuality. It means studying the clitoris.



Melbourne urologist Helen O'Connell holds an anatomically correct clitoris. Her research into the first comprehensive anatomical study of the clitoris was published in 1998. Photograph: Alana Holmberg/The Guardian

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# 'IT'S BULLSHIT': INSIDE THE WEIRD, GET-RICH-QUICK WORLD OF DROPSHIPPING

❧ wired.co.uk❧ Friday 1 May 2020❧ Sirin Kale[1] ❧ 24 minute read❧



Khoo Guo Jie

Canggu is a place where people go to feel rich. The clicking of keyboards in the Balinese town's co-working spaces is drowned out only by the roar of mopeds. Over smoothie bowls and lattes, western immigrants—expats, as they prefer to be known—talk about themselves, loudly. A local woman will massage your body, silently, for the equivalent of a few pounds. Everyone is very good-looking. Everything is very cheap.

The town, once a stop-off for backpackers en route to Ubud's yoga studios and hippy scene, has in recent years become a hub for self-described "digital nomads". In Canggu's cafés, barefoot westerners run fledgling companies from MacBook Pros. When not talking Facebook ads or cost-per-click, they socialise exclusively with each other. "The thing is, not many Indonesians are on a level with *bule* [an Indonesian term for foreigners]," explains one digital nomad over the fart of hot tub jets in Amo, a luxury spa. Around us, statue-like men wander in and out of steam rooms (CrossFit is big here), talking about e-commerce and intermittent fasting.

Inside the city's co-working spaces (Dojo is the oldest in Canggu, Outpost the new challenger), people are building business empires selling products they've never handled, from countries they've never visited, to consumers they've never met. Welcome to the world of dropshipping.

Dropshipping is a "fulfilment" method. At one end of the supply chain, an entrepreneur identifies a product—usually through Chinese e-commerce platform AliExpress—which they think they can sell to European or American consumers. They create a website using Shopify, and identify and target buyers, typically using Facebook ads, although you will find dropshippers

on other platforms, including Instagram, or selling through marketplaces such as online homeware store Wayfair.

When an order is received, the dropshipper purchases the item through AliExpress, and has it shipped directly to the buyer, pocketing their mark-up minus marketing spend. At no point does a dropshipper hold stock: they are simply the middleman in a globalised supply chain.

Successful dropshippers often solve so-called "pain points". Perhaps you like to go running with your dog, but find holding the lead a chore. A dropshipper finds a hands-free running leash on AliExpress, and targets it via Facebook to dog-loving runners. They'll create a video showcasing its benefits (videos outperform imagery), and then haunt you with that video until you give in and purchase the item. At this point, you'll wait up to a month for delivery—lengthy order processing times are a dropshipping tell—because the item is being shipped from China.

Although there is a strong dropshipping scene in other places, notably the mountainous city of Chiang Mai in northern Thailand, Canggu has become an increasingly popular destination, with its affordable cost of living, vibrant café culture and great surf. Agung Suryawan Wiranatha, director of the Centre of Excellence in Tourism at

Udayana University in Denpasar, the Balinese capital, says that so-called digital nomads started moving to Canggu about four years ago. Michael Craig, founder of co-working space Dojo, identifies the moment that well-known dropshipper Johnny FD moved to the area, in March 2017, as a turning point—where the popular blogger and YouTuber went, others followed. The following year, Outpost was built in the space of a few months, to meet the community's growing demand for workspaces.

Israeli-born Yakir Starosta and Americans Rob Whitaker and Phil Louden are partners in a dropshipping business based out of a glass-walled office in Outpost. In another era, these ambitious young men might have been Wall Street traders or budding industrialists. But the internet has made it possible for anyone with a high-speed internet connection and some seed money to make serious money, without the 9-to-5 or suit-and-tie.

"Most of my life, I've never had strong ambitions to have a lot of money," says Whitaker. "But I really think if you're poor or middle-class, you're going to get fucked in the next 20 years. It's going to get, like, really bad." Dropshipping offers these men a way to accrue wealth outside of the stultifying confines of corporate culture, and without formal qualifications—many of the dropshippers I meet are college

dropouts.

Louden talks me through their strategy in a nearby coffee shop. The best dropshippers will run "funnels": repeatedly targeting the same consumers over a period of time in order to coax them through the various stages of purchase—add to cart, enter card details, check out. "We run funnels to let the Facebook algorithm figure everything out," he says. "We may burn through a few thousand dollars before we start doing consistent sales." Louden and his partners have five Shopify stores, selling clothing, gadgets, and household products. They also have a remote team of five in the Philippines who handle customer service, as well as a project manager in India.

Louden, who is 28, has the affable, languid demeanor of the well-mannered Virginia boy he is. He washed up in Asia three years ago, after working in Australia as a farmhand. In Chiang Mai, he met a dropshipper who introduced him to remote working. Louden worked for free for other dropshippers to learn the ropes. He paired up with Starosta in 2018, before bringing in Whitaker as a junior partner in early 2019. "I had this target that I wanted to make $1 million in profit in a year," he says over smoothies and matcha cookies. "I didn't do it. I beat myself down really well, I had to book into a ten-day meditation retreat."

This year, his Shopify records show he'll clear about $90,000 (£69,000) in personal profit. He describes dropshipping as a "real-life video game", albeit one he doesn't seem to enjoy an awful lot. "When you do dropshipping and Facebook ads, it's like going to the casino and pressing the slot machine, and based off what happens, that's how your emotions are going to be," he says.

Plenty of people never make it. You need money to start an online store and invest in marketing, and it's easy to burn through cash while trying to figure out what sells.

At a restaurant near Canggu's Echo Beach, former dropshipper "Ellie" (who requested anonymity so she could speak candidly about her experience) explains how her dropshipping business selling eco-friendly, plastic-free homeware almost ended in disaster. But hang on—isn't dropshipping about the least eco-friendly way of buying and selling? "Obviously to the outside world" – Ellie, who is in her late 20s, lowers her voice – "I was interested in it, I wanted to make a difference. But to be honest, we did it because we spotted a trend."

Her instinct was correct: in the run-up to Christmas 2018, Ellie and her partners were shifting $10,000 of plastic-free homeware a day – only their Chinese supplier couldn't cope, and stopped shipping the orders. Their inbox filled up with furious emails from customers,

accusing them of running a scam; when the products did arrive, they were poor quality, and wrapped in plastic packaging. One customer was so enraged, she emailed them a photograph of their products in the bin.

They started issuing refunds but weren't able to pay back all their customers, because they'd spent the money on more Facebook ads. "I didn't eat for two weeks," Ellie says. "I was so stressed." Eventually, her co-partner loaned the business more than $10,000 – enough to process the refunds, ship the remaining stock, and get them out of the mess.

Ellie still runs an e-commerce business selling plastic-free products, but now holds her own stock in a warehouse. She says she can't imagine ever going back to work for a company, but she wouldn't do dropshipping again. "The customer gets a shit experience."

Behind a blue door in the heart of Canggu, 25-year-old Filipino-American Mike Vestil is teaching his dog Cinta [Indonesian for "love"] to roll in the garden of his luxury villa. "Cinta! Cinta!" extorts Vestil, who is dressed in flowing white trousers and a peach t-shirt with a complicated neckline. Cinta rolls towards Vestil, and he rewards her with chicken from the outdoor kitchen facing the swimming pool. After an uncomfortable interlude in

which Vestil berates his Balinese cleaner for leaving the villa door open, we make our way into his plant-filled office. A wooden bench is covered with recording equipment. A lettered lightbox spells out the WiFi network (SIT ON MY FACE) and the password (YOLOYOLOYOLO). Vestil catches me looking. "Um, someone is literally coming around to change that later today."

A self-described "entrepreneur, author and YouTuber", Vestil has 230k YouTube followers and 56k Instagram followers. In brash videos with titles like "How To Make $1000 PER DAY From ANYWHERE In The World!!" Vestil encourages his followers, whom he calls "freedom fighters", to live their best lives by becoming fabulously rich. He is often topless in these videos.

In real life, Vestil is less obnoxious, albeit grandiose and prone to speaking in a mixture of pop psychology, corporate jargon and quasi-Buddhist philosophy. At one point, he starts talking about seminal 1937 self-help book *Think and Grow Rich*, by Napoleon Hill. "There's this thing called sexual transmutation," he says, explaining Chapter 11 of Hill's book. "Instead of spilling your seed, you transmute it into creativity, into passion, into liveliness, into charisma." My eyes flick once more to the lightbox.

Before Vestil became a barefoot muscle man rattling around an

oversized villa in Canggu, he was the child of hard-working immigrants—his mother is a nurse, his father an engineer—whose parents wanted him to go to dentist school. The Chicago native describes the experience of watching his parents scrimp to put him through private school as traumatic. "I didn't want the 250k in debt that would have happened if I'd continued with dentistry. My parents were so stressed. I literally saw them get older, right before my eyes, with the stress. I felt like this guilt, all the trauma, like I was to blame. My sister almost went to community college because we spent all the money on me."

According to Vestil, he achieved $1.5 million of sales on Shopify in just 12 months, selling grill mats and T-shirts in the halcyon days of dropshipping: 2015, the year Facebook Ads Manager was launched but before dropshipping got big. "In 2015 you could literally throw anything up and make money... it was a golden period," Vestil says. As the business took off – he initially sourced stock through eBay, before finding a local supplier – he started a travel vlog. He shows me a video of himself backflipping off a boat at a full moon party.

Vestil, who moved to Canggu in 2018, claims to have made "around 400k, I guess" in his dropshipping career. (When asked to provide evidence, he told me that he didn't keep records.) After a stint selling

courses to people wanting to learn how to get into dropshipping, he is now focusing on podcasting, and has vague plans to launch a collective of high-net-worth individuals and influencers. "If something crazy happened, for example a tsunami in the Philippines... We would literally go over there, and make the most epic videos, and share exactly what's going on, and get more attention to the world to the things that actually matter," he says. "To find a way to solve these problems with epic people, and be like, damn, like, fuck! We did something epic with our lives, you know. Almost like the Avengers."

Vestil no longer sells courses, and is evasive when I ask him about it. "The thing that I didn't like about dealing with this specific audience, and why I don't sell any courses, and why I'd work with existing entrepreneurs, is that it's coming from a frame of scarcity, and they want to succeed but they don't want to grow into the person that would deserve it... They wanted immediate results, and I didn't resonate with that," he says. He ends the interview shortly afterwards. Later, he texts asking if I know how he can get verified on Instagram.

They claim to be making money," says Michael Craig. He's roiling against the so-called "dropshipping gurus" who promise to share their secrets to anyone willing to pay. Around us, would-be entrepreneurs

drink juice and work on laptops, moped helmets by their side. "You cannot prove how much money they're making. That's the thing. It's all bullshit.'"

A gruff, profane Australian who speaks his mind, Craig, 41, has banned anyone from selling dropshipping courses in Dojo. "My main gripe is that you're selling a course for $6,000 to a person from middle America who's put all their funds into this, and you're teaching them to sell avocado slicers online with 40 other people who are also selling avocado slicers," he says.

His comments remind me of something Starosta had said back in Outpost, as an army of freelancers tapped away on gleaming keyboards beneath us. "The thing is with these gurus is that they make money and then start selling courses, and they're posing in front of a Lambo [Lamborghini]. So people are like, shit, how did he afford the Lambo? But they just rent the Lambo out for the day. That's the problem." E-commerce guru Tai Lopez has received more than 69 million views on his YouTube video bragging about the Lamborghini he keeps in his garage, with the comments an equal measure of derision and admiration.

Craig is also scathing about the broader digital-nomad community, despite the fact that many are Dojo customers. "There's an immaturity about it," he says. "It's two times

removed. Digital means you're connected to this digital thing that is removed from yourself, and nomad means you're not really connected to the place you're at." He'll throw digital nomads out of Dojo if he feels they are acting entitled or rude to staff. "I kick them out. Because that MacBook is two years salary for the guy at the front desk. You don't think that guy wants his MacBook?"



Thomas Despin, a former dropshipper *Khoo Guo Jie*

There is a sense among many in the Canggu scene that the glory days of dropshipping may be coming to an end. There's a stigma around dropshipping, as if the banknotes you earn are unusually smeared with grubby fingermarks. The most important decision a dropshipper can make, perhaps, is knowing when to get out.

I am bone-tired when I arrive at Bukabuka island, in Central Sulawesi. The journey was long: three flights, over the course of one night, through airports that grow progressively smaller. At Palu airport, where I am the only *bule*, smiling immigration officers

question me more out of curiosity than suspicion. I then board the prop plane to the administrative centre of Ampana, before embarking on the final bit of the journey: a white motorboat that skims across water that is clear, turquoise and warm. Thirty minutes later, we're pulling up at Bukabuka. On a wooden pier that juts out from a white sand beach, a white hammock swings in the breeze.

When you're done with dropshipping, where do you go? In Thomas Despin's case, you leave it all behind, and start afresh in a place that's so remote it's basically inaccessible (a week after I leave, the daily flight from Palu to Ampana is axed due to lack of demand). After closing his dropshipping store in September 2017, Despin purchased 1.38 hectares of Bukabuka island, and moved there in October 2018. He plans to open a sustainable retreat called Reconnect here in 2020. The resort is only half-built when I arrive.

The 28-year-old Frenchman lives alone in a hut that serves as the island's official base. On the porch are jerry cans full of water, a gas hob, cooking equipment, and sacks of rice. Inside, a bed, a fridge, a plastic table and chairs, and an electrical converter. Outside his hut is the island's only bathroom: a cold-water bucket shower and toilet you manually flush with sea water.

Despin takes me on a tour, past wooden homes that house extended families: grandparents, parents and children living in one-room structures without running water or electricity. Before Despin arrived, the 20 people living on Bukabuka scratched a living selling dried coconut meat, copra, which they cured on open pyres in the jungle. But the market for copra is saturated, and prices are low. Almost everyone on Bukabuka is now in his employ. He stops to chat in Indonesian with one worker, who is building a fence to protect Despin's allotment from the island's marauding goats.

Despin has the air of a man determined to reinvent himself whenever the mood takes him. A failed medical student, he studied for a degree in psychology while working as a student party promoter. After university, he criss-crossed Europe and the US by bicycle, earning money doing freelance web design. By the time he arrived in Bali in May 2016, he was broke. He heard about dropshipping, and partnered with a friend back home in France, who gave him €3,000 (£2,540) initial capital to get started.

A microwave cleaner, an example of the kind of goods that can be dropshipped

In darkness (the electricity is out), Despin reminisces about those early days. "I think we were the dumbest dropshippers ever," he snorts. "We literally tried everything and we were terrible. I mean it! We were really, really bad." Outside, his housekeeper Tya is shredding vegetables on the porch. The thud of the blade is the only sound we can hear. "Our first strategy—it wasn't a strategy—our first waste of money was to sell as many products as possible in as many countries as possible. And our extraordinarily dumb theory behind it was, well, look at Amazon."

Eventually, Despin hit upon a winning idea: selling shapewear to French women. He shows me the video he and his partner used to advertise the product, which they stole from another online store. "The video is awful," he says, shaking his head. But it worked: $750,000 of sales, and around $100,000 of profit for Despin, in just 11 months. To this day, he has never seen or touched the product.

Despin is something of a legend in the dropshipping scene, having gained attention with a Medium essay he wrote announcing the closing of his business, headlined "11 months & $750,000 later, I decided to close my drop shipping business. Here's why". "I'm the opposite of what dropshippers like to say, because they like to see themselves as good entrepreneurs because they made money," he says. "I'm completely fine with saying that I made a lot of money, six figures, and still I think I was dumb. I didn't know what I was doing."

Despin shuttered his dropshipping store while it was still profitable— effectively reaching into the belly of an ATM that was belching notes, and switching it off. Why? Firstly, he hated his clients. "French people like to complain a lot," he says. "Fuck! So we were basically targeting older, fat Frenchwomen— you're talking to people who complain the most, ever." Then Despin's partner quit, and it stopped being fun. "I don't regret it," he says. "I'm very happy that I did it. I'm also very happy that I stopped doing it. A lot of people don't understand that. They think that if you're doing something and it works, you should keep doing it. Which is nonsense."

After quitting dropshipping, Despin wanted to see what it felt like to be rich. He flew first class and stayed in fancy hotels. It was a good experience, but he realised he didn't care about making money as much

as he used to. "I see money as a tool, and making more money is like putting more tools in a big garage, and you don't even use the tools to create anything. It's just meaningless."

Despite his efforts to leave dropshipping behind, people keep trying to pull Despin back in. They wangle his number somehow and text him, or send him pleading emails. He reads one out to me: "I want to do dropshipping, but I do not know where to start. How to create your own online store? What goods should I fill it with so that it does not burn out? I will be very grateful for your advice—I'm your fan." Despin refuses all these requests; he has no desire to be a dropshipping guru.

All of the dropshippers I spoke with for this story feel that they are living on borrowed time. They tell me that Facebook is becoming hostile to dropshippers, and ad spend is going up. "So many scammy people have come through, and Facebook wants people to stay online and trust the advertisements," Louden says. (Facebook would not comment specifically on dropshipping, saying only that products sold on the platform must comply with its policies.)

Francisco J Sánchez-Vellvé, a lecturer at CES Cardenal Cisneros in Madrid, says that dropshipping is full of drawbacks: it's typically hard to get good SEO positioning on

Google if your main marketing channel is through Facebook, margins are too narrow for comfort, and high rates of product returns make it tough to make money. As dropshipping is seen to be less profitable, the knives come out: watch out for the other dropshippers who'll steal your product, copy your video, or clone your store.

Some dropshippers are shuttering their stores, and shipping out. Louden is one of them. Despite the fact that he's earning executive-level pay while wearing boardshorts, he wants to leave dropshipping behind. He's aware that even the most successful dropshipping store will eventually run out of steam: when the cost of Facebook advertising increases beyond your marketing spend, you're done. "At the end of this year, we're probably done with dropshipping," he says. "I want to build brands—actual ones—that provide value to people."

I'm reminded of a comment one of the statue-men made amid the ice baths and steam rooms of Amo Spa. I'd asked him if he was a dropshipper, and he'd laughed and said that he wasn't any more: "I'm doing something ethical."

Meanwhile, kids keep washing up in Canggu with baggage tags on their backpacks and dollar signs in their eyes, dreaming of making it big. They're prospecting for gold amongst the melon ballers and

avocado slicers of AliExpress— throwing junk at the internet and hoping some of it sticks.

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# THE ECONOMICS OF SHIT SPEECH

✤ publicaddress.net ✤ Wednesday 10 April 2019 ✤ Joshua Drummond ✤ 22 minute read ✤

It's time we fixed the New Zealand news media's problem with shit speech.

First, let's put together a working definition. Shit speech is the stuff that might not necessarily be described as hate speech, but it occupies much of the same spectrum. It's speech that presses the buttons of prejudice, bigotry and outrage, but isn't necessarily hateful per se; that isn't (always) lies, but is most often inaccurate, skewed, or otherwise misleading. It's the floating turd in gutter journalism.

To paraphrase the Broadcasting Standards Authority decision on Heather du Plessis-Allan's foul commentary about Pasifika nations, it's speech that is "inflammatory and . [has] . the . potential to cause widespread harm[1]." It's the foundation the Pyramid of Hate[2] is built on.

I've been thinking and reading about hateful internet content and social cohesion for something I'm writing. This garbage—factually hopeless, devoid of empathy and encouraging contempt of ordinary people—is socially corrosive, the more so when it's made the front page lead. pic . twitter . com /kDUIuCnM5v[3]

—Russell Brown (@publicaddress)

In New Zealand, common topics that shit speech explores include, but are not limited to, immigrants and refugees, the "entitlement" of Maori, LGBTQI issues, the "Treaty grievance industry," and the full spectrum of climate change denial. (Anti-Islam rhetoric usually features prominently, but for some reason, it hasn't much lately. I wonder why.)

Notably, shit speech is often almost completely devoid of style, substance, wit, or even basic legibility. Mike Hosking's blithe strawmen frequently contain so little substance that they barely qualify as brain-farts. Leighton Smith is a frequent climate change denier[4] whose only saving grace is writing so inane it's indistinguishable from the output of an AI trained to generate meaningless text[5].

So who's talking shit? As well as the names already checked, and an array of occasional op-ed contributors, it's Duncan Garner with racist takes on immigrants[6]. It's Sean Plunket with misogynist references to "feminazis[7]."

Those are just the ones that come immediately to my mind, but there are plenty more, and not all of them are on the right of politics. I'd also count Chris Trotter and Bomber Bradbury among our stable of shit-talkers, as well as other voices on the Left who seem to glory in stoking conflict. If I'm being honest, I should sometimes include myself among those, from back when I had a regular-ish column.

But the voices on the left don't tend to have the platform the others do. Not at all coincidentally, many of these personalities overlap with the talk radio and TV broadcasting stable. They are powerful media personalities, with their own shows, who occupy very special safe spaces in New Zealand's news infrastructure.

This is because these personalities are engineered to generate attention through outrage. Which is ironic, seeing as they're often accusing others of being outraged snowflakes or virtue-signallers (and I think it's telling how quickly and enthusiastically some people adopted the creepy, hateful language of Gamergate and the alt-right) People who love this

behaviour signal-boost. So do people who hate it. The behaviour exists because we enable it - and the media personalities' bosses love them for the attention that we all give out. The feedback loop looks like this:

1. Get people to talk shit

2. Shit gets engagement

3. Profit! (Sort of, as we'll see.)

4. Go to 1

NZME has just implemented a paywall, where they'll hide their premium content—presumably the excellent work done by the likes of David Fisher, Keith Ng, Kirsty Johnston, Matt Nippert and many more - behind a $5 a week subscription. When this was first announced, the words "Mike Hosking" started trending on Twitter – spurred mostly by people begging the Herald to install him behind the paywall, so they didn't have to hear from him any more.

This won't happen. I'll bet any amount of money that while quality investigative journalism will tend to disappear behind the paywall, shit speech will continue to dominate the free pages. The many people who can't afford five bucks a week on news will continue to get Mike Hosking & Friends for free, along with all the Daily Mail re-skins they can stomach. So it's more important than ever that their audience makes

it clear that this isn't actually acceptable.

I'll get to how this might be done in a bit, but first, some context.

**Why shit speech is so compelling to publishers**

For news media, it all went comprehensively to shit when advertising became quantifiable. Before online marketing, you couldn't say for sure if things like TV commercials and newspaper advertising - what we'd now think of as "traditional" advertising - actually worked. The old approach is the equivalent of carpet bombing. A business would spend a great deal of money at an agency, who would produce creative, that would then get placed at further enormous cost as a billboard or full-page ad in the New Zealand Herald or in the ad breaks for One News with John Hawkesby.

I hope you heard that last bit in the announcer's voice, and if you did, it means you are as old or older than I am. Sorry. Ideally, following the media placement, sales would ensue. But you couldn't always directly attribute the sales to the campaign.

Then Google AdWords and others came along and it became clear quite quickly that, for the most part, the traditional approach was (and mostly still is) total balls. Businesses, large and small, flocked

to advertising media that could give them a tangible return on investment, and the vehicles of traditional advertising started their long, slow crash.

Which brings us to the present day. Now that big-ticket ad spend and the even more reliable income stream of classified ads is mostly gone—and for all the wailing about Google and Facebook, this is how newspapers used to make most of their money, and that lunch got cut first by eBay and TradeMe—one of the last things that online news media has left to sell to advertisers is a flimsy, flawed measure of attention called "engagement."

In online attention economics, you have a few key metrics that add up to a broader definition of "engagement." Clicked on a link for the first time? Congrats, you are now a Unique Visitor, and that fact has been recorded somewhere in analytics software. Hung around on the page reading? That'll clock up your on-page time. Scrolled past a certain point on a page? Clicked a "continue reading" button? That's measured too. Read the comments? Left a comment? That definitely counts as engagement, and that's why many news sites cling to comment sections despite overwhelming evidence that, without extensive moderation, they are toxic cesspits comprehensively dominated by cranks and extremists, who drive out moderate voices. It's also a reason news sites

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have autoplaying videos, despite the fact that audiences hate them. You scrolling past a video as it starts to play and continues to babble away on mute still counts as engagement.

The other thing that can be easily tracked and counts towards engagement scores is social media interactions, which, in a sad irony, tend to take place on the same platforms that have so comprehensively bankrupted the news media.

Where that leaves us: Beat journalists are ridiculously overworked, and the meagre funds that publishers set aside to do investigative or otherwise valuable, society-enriching work—like Stuff Circuit, or the Herald's investigative team—are constantly under threat. But that's not all; there's another, even more insidiously perverse incentive at work, and it's called the conflict narrative.

The conflict narrative is something that gets hammered into you at journalism school. It goes something like this:

— Good stories have conflict.

— Good stories get read.

— Therefore, stories should have conflict.

On the surface it seems fairly harmless, but once you dig into the concept a bit you discover a midden of toxic bullshit. This simplistic formula is an excuse for all manner of media evils, the main one of which is false objectivity, or Telling Both Sides Of The Story. And it gets worse, because while the impulse to tell good stories or to provide balance comes from a place of good intentions, it's very easily hacked by bad actors who take advantage of dwindling journalist resources to do their jobs for them.

This is why we so often see the Taxpayer's Union, which is a laughably obvious front for industry and corporate interests, one that exists solely for the purpose of anti-democratic malfeasance, quoted to provide "balance" to a hard news story about, say, cigarettes or cycleways.

It's why it's deemed acceptable to print commentary featuring Both Sides of an issue like climate change, even when one "side" is demonstrably wrong and, very often, intentionally lying.

It's why, in politics reporting, we get opposing sound-bites instead of policy discussion. It's why Duncan Garner hounds Chloe Swarbrick for a scalp instead of having a proper discussion about the nuances of cannabis law reform.

It's why we have the press gallery offering sage reckons about some political happening or other being a "bad look", offering Machiavellian commentary as if politics was

nothing more than an episode of *Game of Thrones*, instead of the vital mechanism through which government delivers for the people it represents.

The conflict narrative is also a big part of the reason why it's deemed acceptable for talking heads to intentionally stoke conflict in their op-eds and on the air.

I want to make the point that narrative conflict is not always bad. In many ways, it's inevitable. Any unpopular truth-telling will incite some conflict, no matter how well-intentioned or carefully put. So will satire and other hard-hitting commentary, punching up to the powerful. All these things are essential.

But there's a difference between conflict caused from telling the truth, and allowing (or encouraging) your staff to lie, prevaricate, promulgate bigotry, and otherwise stir shit on vital topics in the name of audience engagement. Racist commentary serves no good purpose. Misogynist commentary serves no good purpose. Ignorant takes and lying about climate change serves no good purpose.

**Making news, instead of reporting it**

There's another feedback loop in the shit-speech ecosystem: the news media having their cake and eating it too. Or, rather, making the news and reporting it too. Here's a

working example: Mike Hosking hates bikes. He hates cyclists. He hates cycleways, and he's not shy about expressing it in many, many radio rants and (loosely transcribed from radio) columns in the Herald. But the Herald has other columnists and writers, like the excellent Simon Wilson, who use the garbage Hosking produces as fuel for far more considered pieces that politely present the hard evidence for why bikes are actually a bloody good thing in cities.

Now, Simon Wilson's sort of writing is a good thing, and we need more of it. But it'd be better if he didn't need to use Mike's shit, in the same publication, as the launchpad. (Another, more recent example of this cynical content factory in action: Sean Plunket, speaking on Mediaworks' Magic Talk, on how "woke feminazis" are going to ban rugby[7]. His words are repeated verbatim, with no counter-speech, as clickbait news on Mediaworks' Newshub website. This then is counterproductively signal boosted[8] – often by people who oppose or seek to mock this sort of misogynistic, paranoid bullshit but just end up smearing it around. When I saw it, it was because some leftie had angrily retweeted it.)

In the Hosking example above, I've used cycling as an example, but it if you substitute "cycling" for "climate change" it all gets a bit more fraught. Much of the news media is constantly trying to have it both

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ways on this, and other important topics; keeping the deniers and cranks onside, but also presenting the science.

The result is not any kind of balance; it's a net loss for audiences. The NZME ecosystem is particularly awful for this. The could easily create an editorial line on climate change, as Stuff has laudably done, but instead they allow at least two of their headline columnists to deny and cast doubt on this vitally important matter at every opportunity.

The biggest of all these problems is that shit speech is cheap and it sells. As a product, it's a no-brainer. For the people trained in producing shit speech, it comes as naturally as pooing. Why spend money on expensive investigative journalism when you could get 10 times the engagement and attention by just throwing a few fresh turds on Facebook?

**How we can get rid of shit speech**

Many of the views espoused by the shit-talkers shouldn't be on the air. They shouldn't be in our nationally-syndicated newspaper columns. They are poisoning the well of our discourse, and our society is about ready to die of dysentery. This isn't a bug; it's a feature. To cause conflict is what shit speech is for. It's a disgrace. And it's not even the shit-talkers' fault.

This isn't so much about media personalities or even their politics as much it is about perverse incentives. Most of the people I've mentioned are gifted communicators who could do so much better if they tried, or if the incentives supported them to.

The blame for shit speech sits entirely with the people who publish it.

I'll say it as plainly as I can: if media publishers and editors gave the merest fuck about ethics, we'd wouldn't have this issue. But we do, and audiences are dealing with it in the wrong way. Every time some new, horrible reckon arrives, instead of ignoring it, we draw attention to it. Well, that's exactly what publishers want us to do. We won't rein in Mike Hosking et al's claim to the shit-speech throne by furiously tweeting their columns everytime they say something offensively stupid. Instead, shit speech needs to be deplatformed and ignored. Here's how that can be done.

1. Lay complaints with regulators

2. Note your concerns with advertisers and sponsors

3. Hold the editors and publishers accountable

1. Instead of angry-tweeting or rage-posting on Reddit about the latest debacle (including, of course, a link

to the offending screed), use your energy to complain to the relevant authorities. First, complain to the editor or producer of the shit-speech in question. If the response is insufficient, then take it to the Broadcasting Standards Authority[9] (for radio and TV) or the New Zealand Media Council[10] (for print and websites.) While a rebuke from either authority still holds some weight in the media, it doesn't always count for much, which is why I recommend also doing step 2:

2. More effective still is to express your displeasure to the people who sponsor or advertise on the content in question. This is publishing's Achilles heel. Sure, complain to the harried marketing coordinators running corporate Twitter accounts if you feel like it, but it's always best to vote with your wallet. You know how many departing customers it would take to make BNZ's sponsorship of the Mike Hosking Breakfast profoundly unprofitable? Not bloody many.

So if, like me, you are furious at NZME encouraging Mike Hosking and Leighton Smith's endless prevarication on climate change, you might want to take it up with the sponsors, and make sure that people who feel the same way are ready to do the same thing. If their scant margins are threatened, publishers will drop shit-stirring broadcasters like hot turds. We've seen this happen many times before, not least with John Tamihere

during the Roastbusters scandal. (Of course, he's running for Auckland Mayor now, which to me is just another example of the shit-speech Ouroboros in action.) In fact, that's actually a neat summary of the issue: the personalities themselves are not really the problem. The platforms are. If Mike Hosking was drummed out of his media tomorrow, another shit-stirrer would pop up to take his place, because that's how the incentives are set up. So, to me, step 3 is the most important:

3. Hold publishers and editors accountable. Don't ever complain to the news personalities who generate the awful opinions you hate so much, because that's what they're paid to do. Ignore them. Go straight to the publishers. Complain to the editor. Tweet at the publishers. Make sure you're letting them know that you know what they're up to, and that it's not good enough. Inform them that you're talking to their sponsors, that you're calling advertisers. For some reason, a lot of people who set themselves up as free speech defenders for foreign fascists hate this sort of behaviour, but sadly for them, this is free speech and freedom of choice in action, and you should wield this powerful weapon as best you can. Oh, and if you absolutely must link to examples of shit speech to make a point, don't reward the sites hosting it with a direct link. Take a screenshot, or use a service like Pastebin[11] instead.

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And here's my final suggestion for defeating shit speech: pay for news. If you can afford it, sign up for the Herald's new paywall. Donate to the Guardian. Click the Press Patron button on The Spinoff and Public Address.

"Wait," I can imagine you thinking, "you've just shelled out around 2000 overwrought words telling us what a shitshow the news media is through the powerful medium of poo metaphors. Now you want me to literally give them money?"

Yes, and here's why.

For all the gross excesses of conflict-milking and shit speech promotion by media companies, going after "engagement" is a losing game. News publishers are fighting over the scraps left by megatech companies, and unless they can figure out a way to monetise effectively, they are quite properly fucked. Like democracy in *The Simpsons* (and, increasingly, real life), the economics of ad-supported publishing Simply Don't Work, and the news media extinction vortex is spinning ever-faster around the plughole of doom.

Proper journalism doesn't have much of a place in this economy. Of course, it never really did. Excepting the extremely weird and endangered animal of state-owned media in liberal democracies, a lot of the news only ever really existed as a reason for customers to purchase reams of classified ads. Clickbait and shit speech has always been with us. The incentives were perverse from the start, and now they're just more so.

However, if you pay for your news with real money rather than nebulous "engagement", you become an actual customer, a true stakeholder. This is important. For all the pitfalls of the news media, and despite the best efforts of unethical publishers, journalism - real journalism - is more important than ever before.

We need people who will find important things out and tell us the truth about what is happening in the world. In my opinion, while I think it's far better for society for real news to be available for free, paying directly for good journalism is what might secure its future. It removes some of the pressure to create cheap engagement through outrage. Instead, you can show that you value real news, and a diversity of well-framed opinion that doesn't cause conflict simply for the sake of engagement. And if you don't like what your paid news source is up to, well, opting to withdraw your custom speaks much louder than an angry retweet.

This whole long thing has been an exhortation to stop signal-boosting shit speech, but I'd like to end it with a call to promote well-considered, positive speech from new, diverse voices that might

otherwise get drowned out by all the shouting.

If we, the audience, can show news publishers that shit speech isn't what we want, it increases the odds that they'll start serving up some proper good shit instead.

From: https://publicaddress.net/speaker /the-economics-of-shit-speech/

1. radionz.co.nz o4Pr
2. adl.org/sites/default/files/documents /pyramid-of-hate.pdf
3. t.co/kDUIuCnM5v
4. pastebin.com/v9vM9PFL
5. joshuadrummond.com dei3
6. stuff.co.nz xwBM
7. pastebin.com/1p58WTCT
8. twitter.com/LewSOS/status /1122750637337219075
9. bsa.govt.nz
10. mediacouncil.org.nz
11. pastebin.com

# THE BULLSHIT WEB

My home computer in 1998 had a 56K modem connected to our telephone line; we were allowed a maximum of thirty minutes of computer usage a day, because my parents—quite reasonably—did not want to have their telephone shut off for an evening at a time. I remember webpages loading slowly: ten to twenty seconds for a basic news article.

At the time, a few of my friends were getting cable internet. It was remarkable seeing the same pages load in just a few seconds, and I remember thinking about the kinds of the possibilities that would open up as the web kept getting faster.

And faster it got, of course. When I moved into my own apartment several years ago, I got to pick my plan and chose a massive fifty megabit per second broadband connection, which I have since upgraded.

So, with an internet connection faster than I could have thought possible in the late 1990s, what's the score now? A story at the *Hill* took over nine seconds[1] to load; at *Politico*, seventeen seconds[2]; at CNN, over thirty seconds[3]. This is the bullshit web.

But first, a short parenthetical: I've been writing posts in both long- and short-form about this stuff for a while, but I wanted to bring many threads together into a single document that may pretentiously be described as a *theory of* or, more practically, a *guide to* the bullshit web.

A second parenthetical: when I use the word "bullshit" in this article, it isn't in a profane sense. It is much closer to Harry Frankfurt's definition in "On Bullshit":

> It is just this lack of connection to a concern with truth—this indifference to how things really are—that I regard as of the essence of bullshit.

I also intend it to be used in much the same sense as the way it is used in David Graeber's "On the Phenomenon of Bullshit Jobs"[4]:

> In the year 1930, John Maynard Keynes predicted that, by century's end, technology would have advanced sufficiently that countries like Great Britain or the United States

would have achieved a 15-hour work week. There's every reason to believe he was right. In technological terms, we are quite capable of this. And yet it didn't happen. Instead, technology has been marshaled, if anything, to figure out ways to make us all work more. In order to achieve this, jobs have had to be created that are, effectively, pointless. Huge swathes of people, in Europe and North America in particular, spend their entire working lives performing tasks they secretly believe do not really need to be performed. The moral and spiritual damage that comes from this situation is profound. It is a scar across our collective soul. Yet virtually no one talks about it.

[…]

These are what I propose to call 'bullshit jobs'.

What is the equivalent on the web, then?

# 1

The average internet connection in the United States is about six times as fast[5] as it was just ten years ago, but instead of making it faster to browse the same types of websites, we're simply occupying that extra bandwidth with more *stuff*. Some of this *stuff* is amazing: in 2006, Apple added movies to the iTunes Store[6] that were 640 × 480 pixels, but you can now stream movies in HD resolution and (pretend) 4K[7]. These much higher speeds also allow us to see more detailed photos[8], and that's very nice.

But a lot of the *stuff* we're seeing is a pile-up of garbage on seemingly every major website that does nothing to make visitors happier—if anything, much of this stuff is deeply irritating and morally indefensible.

Take that CNN article[9], for example. Here's what it contained when I loaded it:

— Eleven web fonts, totalling 414 KB

— Four stylesheets, totalling 315 KB

— Twenty frames

— Twenty-nine XML HTTP requests, totalling about 500 KB

— Approximately one hundred scripts, totalling several megabytes—though it's hard to pin down the number and actual size because some of the scripts are "beacons" that load after the page is technically finished downloading.

The vast majority of these resources are not directly related to the information on the page, and I'm including advertising. Many of the scripts that were loaded are purely for surveillance purposes: self-hosted analytics, of which there are several examples; various third-party analytics firms like Salesforce, Chartbeat, and Optimizely; and

social network sharing widgets. They churn through CPU cycles and cause my six-year-old computer to cry out in pain and fury. I'm not asking much of it; I have opened a text-based document on the web.

In addition, pretty much any CNN article page includes an autoplaying video, a tactic which has allowed them to brag about having the highest number of video starts[10] in their category. I have no access to ComScore's Media Metrix statistics, so I don't know exactly how many of those millions of video starts were stopped instantly by either the visitor frantically pressing every button in the player until it goes away or just closing the tab in desperation, but I suspect it's approximately every single one of them. People really hate[11] autoplaying video.

Also, have you noticed just how many websites desperately want you to sign up for their newsletter? While this is prevalent on so many news and blog websites, I've dragged them enough in this piece so far, so I'll mix it up a bit: this is also *super* popular with retailers. From Barnes Noble[12] to Aritzia[13], Fluevog[14] to Linus Bicycles[15], these things are seemingly everywhere. *Get a nominal coupon in exchange for being sent an email you won't read every day until forever*—I don't think so.

Finally, there are a bunch of elements that have become

something of a standard with modern website design that, while not offensively intrusive, are often unnecessary. I appreciate great typography, but web fonts still load pretty slowly and cause the text to reflow midway through reading the first paragraph. And then there are those gigantic full - width header images[16] that dominate the top of every page, as though every two-hundred-word article on a news site was the equivalent of a magazine feature.

So that's the tip of the bullshit web. You know how building wider roads doesn't improve commute times[17], as it simply encourages people to drive more? It's that, but with bytes and bandwidth instead of cars and lanes.

## 2

As Graeber observed in his essay[4] and book, bullshit jobs tend to spawn other bullshit jobs for which the sole function is a dependence on the existence of more senior bullshit jobs:

And these numbers do not even reflect on all those people whose job is to provide administrative, technical, or security support for these industries, or for that matter the whole host of ancillary industries (dog-washers, all-night pizza delivery) that only exist because everyone else is spending so much of their time working in all the other ones.

So, too, is the case with the bullshit web. The combination of huge images that serve little additional purpose than decoration, several scripts that track how far you scroll on a page, and dozens of scripts that are advertising related means that text-based webpages are now obese and torpid and excreting a casual contempt for visitors.

Given the assumption that any additional bandwidth offered to web developers will immediately be consumed, there seems to be just one possible solution, which is to reduce the amount of bytes that are transmitted. For some bizarre reason, this hasn't happened on the *main* web, because it somehow makes more sense to create an exact copy of every page on their site that is expressly designed for speed. Welcome back, WAP[18]—except, for some reason, this mobile-centric copy is entirely dependent on yet more bytes. This is the dumbfoundingly dumb premise of AMP.

Launched in February 2016, AMP is a collection of standard HTML elements and AMP-specific elements on a special ostensibly-lightweight page that needs an 80 kilobyte JavaScript file to load correctly. Let me explain: HTML5 allows custom elements like AMP's `<amp-img>`, but will render them as `<span>` elements without any additional direction—provided, in AMP's case, by its mandatory JavaScript file. This large script is

also required by the AMP spec[19] to be hotlinked from `cdn.amp-project.org`, which is a Google-owned domain. That makes an AMP website dependent on Google to display its basic markup, which is super weird for a platform as open as the web.

That belies the reason AMP has taken off. It isn't necessarily because AMP pages are better for users, though that's absolutely a consideration, but because Google *wants* it to be popular. When you search Google for anything remotely related to current events, you'll see only AMP pages in the news carousel that sits above typical search results. You'll also see AMP links crowding the first results page, too. Google has openly admitted that they promote AMP pages in their results and that the carousel is restricted to only AMP links on their mobile results page. They insist that this is because AMP pages are faster and, therefore, better for users, but that's not a complete explanation for three reasons: AMP pages aren't inherently faster than non-AMP pages, high-performing non-AMP pages are not mixed with AMP versions, and Google has a conflict of interest in promoting the format.

It seems ridiculous to argue that AMP pages aren't actually faster than their plain HTML counterparts because it's so easy to see these pages are actually very fast. And there's a good reason for that. It isn't that there's some sort of special

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sauce that is being done with the AMP format, or some brilliant piece of programmatic rearchitecting. No, it's just because AMP restricts the kinds of elements that can be used on a page and severely limits the scripts that can be used. That means that webpages can't be littered with arbitrary and numerous tracking and advertiser scripts, and that, of course, leads to a dramatically faster page. A series of experiments by Tim Kadlec[20] showed the effect of these limitations:

AMP's biggest advantage isn't the library—you can beat that on your own. It isn't the AMP cache—you can get many of those optimizations through a good build script, and all of them through a decent CDN provider. That's not to say there aren't some really smart things happening in the AMP JS library or the cache—there are. It's just not what makes the biggest difference from a performance perspective.

AMP's biggest advantage is the restrictions it draws on how much *stuff* you can cram into a single page.

[…]

AMP's restrictions mean less stuff. It's a concession publishers are willing to make in exchange for the enhanced distribution Google provides, but that they hesitate to make for their canonical versions.

So: if you have a reasonably fast host and don't litter your page with scripts, you, too, can have AMP-like results without creating a copy of your site dependent on Google and their slow crawl to gain control over the infrastructure of the web. But you can't get into Google's special promoted slots for AMP websites for reasons that are almost certainly driven by self-interest.

## 3

There is a cumulative effect of bullshit; its depth *and* breadth is especially profound. In isolation, the few seconds that it takes to load some extra piece of surveillance JavaScript isn't much. Neither is the time it takes for a user to hide an email subscription box, or pause an autoplaying video. But these actions compound on a single webpage, and then again across multiple websites, and those seemingly-small time increments become a swirling miasma of frustration and pain.

It's key to recognize, though, that this is a choice, a responsibility, and —ultimately—a matter of respect. Let us return to Graeber's explanation of bullshit jobs, and his observation that we often experience fifteen-hour work weeks while at the office for forty. Much of the same is true on the web: there is the capability for pages to load in a second or two, but it has instead been used to spy on users' browsing habits, make them miserable, and inundate them on other websites and in their inbox.

As for Frankfurt's definition—that the essence of bullshit is an indifference to the way things really are—that's manifested in the hand-wavey treatment of the actual problems of the web in favour of dishonest pseudo-solutions like AMP.

An actual solution recognizes that this bullshit is inexcusable. It is making the web a cumulatively awful place to be. Behind closed doors, those in the advertising and marketing industry can be pretty lucid about how much they also hate surveillance scripts and how awful they find these methods, while simultaneously encouraging their use. Meanwhile, users are increasingly taking matters into their own hands—the use of ad blockers is rising[21] across the board[22], many of which also block tracking scripts and other disrespectful behaviours. Users are making that choice.

They shouldn't have to. Better choices should be made by web developers to not ship this bullshit in the first place. We wouldn't tolerate such intrusive behaviour more generally; why are we expected to find it acceptable on the web?

An honest web is one in which the overwhelming majority of the code and assets downloaded to a user's computer are used in a page's visual presentation, with nearly all the remainder used to define the semantic structure and associated metadata on the page. Bullshit—in the form of CPU-sucking surveillance, unnecessarily-interruptive elements, and behaviours that nobody responsible for a website would themselves find appealing as a visitor—is unwelcome and intolerable.

Death to the bullshit web.

From: https://pxlnv.com/blog/bullshit-web/

1. d.pr/HElAyq
2. d.pr/PXrBhY
3. d.pr/5R0EBL
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5. statista.com 3zJY
6. apple.com qKBn
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8. theatlantic.com EPy4
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# OPEN FUTURE BULLSHIT JOBS AND THE YOKE OF MANAGERIAL FEUDALISM

✤ economist.com ✤ Friday 29 June 2018 ✤ N.B. ✤ 13 minute read ✤

*Not since Dilbert has truth been spoken to power in soulless work settings. But the cartoon character's successor may be David Graeber. In 2013 he achieved viral fame with cubicle zombies everywhere after he published a short essay on the prevalence of work that had no social or economic reason to exist, which he called "bullshit jobs". The wide attention seemed to confirm his thesis.*

*Mr Graeber, an anthropologist at the London School of Economics, has expanded on the ideas in a recent* [book](#)[1]. *He responded to five questions from* The Economist's *Open Future initiative. He rails against "feudal retinues of basically useless flunkies." As he puts it: "People want to feel they are transforming the world around them in a way that makes some kind a positive difference."*

✤ ✤ ✤

*The Economist: What is a "bullshit job" and can you give a few examples?*

David Graeber: A bullshit job is one that even the person doing it secretly believes need not, or should not, exist. That if the job, or even the whole industry, were to vanish, either it would make no difference to anyone, or the world might even be a slightly better place.

Something like 37–40% of workers according to surveys say their jobs make no difference. Insofar as there's anything really radical about the book, it's not to observe that many people feel that way, but simply to say we should proceed on the assumption that for the most part, people's self-assessments are largely correct. Their jobs really are just as pointless as they think they are.

If anything, just taking people's word for it might understate the problem, since if you think that what you're doing is pointless, but there's some non-obvious larger big-picture way that you're really contributing to the greater good, at least the greater good of the organisation, then what's the chance no one is going to tell you that?

Marijan Murat

A bullshit job is one that even the person doing it secretly believes need not, or should not, exist.

On the other hand, if you think you're doing something that seems like there's a good reason to be doing it, but in the larger big-picture you're not (say, the whole operation that you're working for is actually some kind of scam, or no one is really reading your reports, etc), well, that's precisely the situation where they're least likely to tell you what's really going on.

If my own research is anything to go by, bullshit jobs concentrate not so much in services as in clerical, administrative, managerial, and supervisory roles. A lot of workers in middle management, PR, human resources, a lot of brand managers, creative vice presidents, financial consultants, compliance workers, feel their jobs are pointless, but also a lot of people in fields like corporate law or telemarketing.

*The Economist: What does it say about the modern workplace that these purposeless jobs exist?*

Mr Graeber: One thing it shows is that the whole "lean and mean" ideal is applied much more to productive workers than to office cubicles. It's not at all uncommon for the same executives who pride themselves on downsizing and speed-ups on the shop floor, or in delivery and so forth, to use the money saved at least in part to fill their offices with feudal retinues of basically useless flunkies.

They have whole teams of people who are just there, for instance, to design the graphics for their reports, write accolades for in-house magazines no one reads, or in many cases, who aren't really doing anything at all, just making cat memes all day or playing computer games. But they are kept on because the prestige and even sometimes the salary of any given manager is measured by how many people he has working under him.

*Executives who pride themselves on downsizing use the money saved to fill their offices with feudal retinues of useless flunkies*

The more a company's profits are derived from finance rather than from actually making and selling anything, the more this tends to be true. I call it "managerial feudalism." But it's not just the FIRE [financial, insurance and real estate] sector: you have a similar infestation of intermediary ranks in the creative industries as well. They keep adding new managerial

positions in between the people producing stuff and the guys ultimately paying for it, often whose only role is to sit around all day trying to sell things to each other.

Health and education are equally hard hit: managers now feel they need to each have their little squadron of assistants, who often have nothing to do, so they end up making up new exotic forms of paperwork for the teachers, doctors, nurses... who thus have ever less time to actually teach or treat or care for anyone.

*The Economist: You note that a lot of interesting jobs that entail creativity and status are concentrated in affluent cities. Do you think bullshit jobs have contributed to populism and polarisation?*

Mr Graeber: I do. I think a lot of the —often quite legitimate—rancor directed at the "liberal elite" is based on resentment of those working-class people see as having effectively grabbed all the jobs where you'll actually get paid well to do something that's both fun and creative, but also, obviously benefits society. If you can't afford to send your kid to a top college and then support them for 2-3 years doing unpaid internships in some place like New York or San Francisco, forget it, you're locked out.

*There is an almost perfect inverse relation between how much your*

*work directly benefits others and remuneration*

For everybody else, unless you get very lucky, your choices are largely limited to two options. You can get a basically bullshit job, which will pay the rent but leave you wracked with the guilty feeling that you are being forced, against your will, to be a fraud and a parasite. Or, you can get a helpful, useful job taking care of people, making or moving or maintaining things that people want or need - but then, likely you will be paid so little you won't be able to take care of your own family.

There is an almost perfect inverse relation between how much your work directly benefits others, and remuneration. The result is a toxic political culture of resentment.

Those in the largely pointless jobs secretly resent teachers or even auto workers, who actually get to do something useful, and feel it's outrageous when they demand nice salaries and health care and paid vacations too. Working class people who get to do mostly useful things, resent the liberal elite who grabbed all the useful or beneficial work which actually does pay well and treats you with dignity and respect.

Everyone hates the political class who they see (in my opinion, quite rightly) as basically a bunch of crooks. But all the other resentments make it very difficult for anyone to get together to do

anything about it. To a large extent, our societies have come to be held together by envy and resentment: not envy of the rich, but in many cases, envy of those who are seen as in some ways morally superior, or resentment of those who claim moral superiority but who are seen as hypocritical.

*The Economist: People tend to emotionally adjust to their circumstances, so is there any reason to believe that we would be dramatically more satisfied in a world free from drudgery?*

Mr Graeber: The thing that surprised me was just how hard it was for so many people to adjust to what seemed like comparatively minor problems: basically, boredom and sense of purposelessness in life. Why couldn't they just say, "Okay, so I'm getting something for nothing. Let's just hope the boss doesn't figure it out!"

But the overwhelming majority reported themselves to be utterly miserable. They reported depression, anxiety, psychosomatic illnesses that would magically disappear the moment they were given what they considered real work; awful sadomasochistic workplace dynamics.



Getty Images
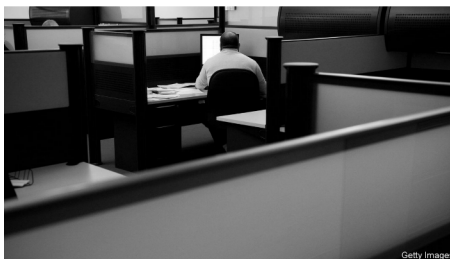
It's not that people want to work; it's that people want to feel they are transforming the world in a way that makes a positive difference

My own conclusion was that psychologically, it's not exactly that people want to work, it's more that people want to feel they are transforming the world around them in a way that makes some kind a positive difference to other people. In a way, that's what being human is all about. Take it away from them, they start to fall apart. So it's not exactly drudgery.

As Dostoevsky said somewhere: if you want to totally destroy a prisoner psychologically, just make them dig a hole and fill it in again, over and over, all day long - and in some gulags, they actually tried that out as a form of torture and he was right, it worked. It drove people completely crazy. I think people can put up with even boring work if they know there's a good reason to be doing it.

As an anthropologist, I know that leisure isn't itself a problem. There's plenty of societies where people work two-to-three hours a day maximum, and they find all sorts of interesting things to do with their time. People can be endlessly

creative if you give them time to think.

*The Economist: People in the West have more freedom to choose their careers than at any time in human history. Does liberalism deserve some credit for that and if so, are people not responsible for their own bullshit jobs?*

Mr Graeber: Well if you talk to young people fresh out of college, you don't hear a lot of them saying, "Ah, the world lies open before me … what then would I best do?"

Sure, you heard that a lot in the 1970s, 80s, even 90s: "What do I really want?" Now, not so much. Most graduates are in a panic over how they're going to pay their student loans and the real dilemma you hear is: "Can I get a job that will actually pay me enough to live on (let alone be able to have a family someday) that I wouldn't be entirely ashamed of?"

It's the same trap I described above: how can you live a life that benefits others, or at least doesn't hurt anyone in any obvious way, and still be able to take care of a family or the people that you love. And all the while there's this endless drumbeat of what I call "rights-scolding," and it comes from the left and right equally. It's a moral invective towards young people as entitled and spoiled for expecting they deserve any of the things that their parents' generation (who are usually

the ones doing the scolding) took entirely for granted.

So I wouldn't blame anyone for making the best they can of the situation. The question for me is: why isn't this situation seen as a major social problem? I mean, if you count all the people who are in real work in support of bullshit jobs, all the cleaners or receptionists or drivers who don't know that the company they're working for is basically a tax dodge or somesuch, and the bullshitisation of real work, then maybe half of the work that's being done is totally unnecessary.

*The question for me is: why isn't this situation seen as a major social problem?*

Just think what kind of culture, music, science, ideas might result if all those people were liberated to do things they actually thought were important. So if the question is one of personal responsibility, I'd say: let's just give everyone enough to live on, some sort of universal basic income, and say "okay, you're all free now to decide for yourselves what you have to contribute to the world."

Then, sure, we could say that people would be responsible for what they came up with. And sure, a lot of it would be nonsense. But it's hard to imagine a full 40–50% would be doing nonsense, and that's the situation that we have today. And if we get even one or two new Miles

Davises or Einsteins or Freuds or Shakespeares out of the deal, I'd say we'd have more than made back our investment.

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# IN SOUTH KOREA, GAMERS STAGE AN INQUISITION AGAINST FEMINISTS

♣ kotaku.com.au ❧ Friday 20 April 2018 ❧ Cecilia D'Anastasio[1] ❧ 14 minute read ❧

On March 26, a top game development studio in Korea released an unusual underline statement[2] about one of its employees: "The woman was mistaken in retweeting a tweet with the word 'hannam,'" derogatory Korean slang for "disgusting men." It continued, "In the aftermath of this incident, I promise that we will create preventative measures, including education, in a timely manner."

A swarm of gamers had unearthed and publicized the Twitter profile of an artist at IMC Games while looking for feminism-sympathizers in the South Korean games industry. The artist hadn't hurt anyone, hadn't even set her bra on fire. All she'd done was follow a few feminist groups on Twitter and retweet a post using the slang term "hannam."

In response, her employer, IMC Games founder and CEO Kim Hakkyu, who is regarded as one of South Korea's most influential game designers, launched a probe to investigate[3] her alleged "anti-social ideology," promising to remain "endlessly vigilant" so it wouldn't happen again.

The investigation, he explained, was a "sa sang gum jeung," a verification of belief - the same word South Koreans used in the Korean War to verify a citizen was not a communist.

For two years, vigilante swarms of gamers have been picking through South Korean games professionals' social media profiles, sniffing out the slightest hint of feminist ideology.

Anything from innocuous Twitter "likes" to public pleas for gender equality have provoked harassment from these hostile freelance detectives. It doesn't end at hate mail and online pile-ons; jobs have been put in jeopardy.

In 2016, the gaming company Nexon fired[4] voice actress Jayeon Kim, who worked on the massively multiplayer online game *Closers*, after discovering[5] she owned a shirt that reads, "Girls Do Not Need A Prince."

The shirt, and Kims' employers'

response to it, sparked a controversy that echoed across the world. It wasn't the women's lib lingo that spurred the whole ordeal. The shirt was sold[6] by affiliates of a controversial feminist website called "Megalia," which, two years later, is still central to the ideological inquisition that's consuming the South Korean games industry.

Since the beginning of this year, anti-feminist gamers have tracked down and outed at least six other South Korean games professionals - both men and women - for allegedly aligning themselves with the radical feminist community that formed around the now-defunct website. The Korean Game Developers Guild claims that a total of 10 women, mostly illustrators, and 10 men have been under fire for these allegations.

Megalia's logo.

Although Megalia's userbase has dispersed, its reputation for radical, man-hating feminism seems to have overshadowed other pockets of feminist thought in the country. A lot of Megal advocacy is nothing out of the ordinary - posting signs[7] reading "NO UTERUS, NO OPINION," advocating against hidden camera pornography, and raising[8] money for single mothers.

A grassroots Megalia campaign helped[9] shut down a child porn website.

That's not what gets people talking. More radical users have also advocated for women pregnant with sons to get[10] abortions and allegedly outed[11] gay men married to women.

A Megalia user's post[12] about a teacher who said she wanted to rape a kindergarten boy went viral.

These users' governing principle was to exact on men the kind of oppression they believe men have exacted upon women throughout history, so-called "mirroring." Megalia's reputation in South Korea is widely considered antisocial and radical.Uniting all affiliates is the Megalia logo[13], a hand with fingers separated by just an inch, mocking Korean mens' penis sizes.

Nonprofits and human rights organisations have long noted South Korean women's struggle for equality. The World Economic Forum's Global Gender Gap index

ranks[14]
Korea 118th on a list of 144 countries (the United States ranked 49th). Of 38 nations

surveyed[15]
by the Organisation for Economic Cooperation and Development, Korea has the largest wage gap between men and women.

Women who receive abortions[16] in Korea can be sent to prison or fined over a thousand dollars. After noting this, Human Rights Watch's

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World Report on South Korea reads[17], "Discrimination against women is widespread in South Korea.

Gender-based stereotypes concerning the role of women in the family and society are common - including widespread social stigma and discrimination against unmarried mothers - and are often unchallenged or even encouraged by the government."

"I only just learned that the hidden writing contained extreme opinions and I did not check back then before I pressed 'like.'"
In Korea's famously intense gaming sphere, which has produced top players for every big esports franchise, several instances of apparent gender discrimination in games indicate a severe, gender-based power imbalance.

Although industry tracker Newzoo reports[18] that 42% of gamers in South Korea are women, only a quarter of game developers are women, according to AFP[19].

Top Korean esports teams spanning[20] *Starcraft*, *Overwatch* and *League of Legends* have taken few steps toward including women, and when women do scale the ranks, they become targets.

When an impressive gameplay clip from a 17-year-old South Korean *Overwatch* player named Kim "Geguri" Se-yeon made the rounds

last year, two pros publicly accused her of cheating. She made a video proving she was the real deal and, now, plays on the *Overwatch* League team Shanghai Dragons.

Years earlier, South Korea's first female *Starcraft 2* pro, Kim "Eve" Shee-yoon, was brought onto a team "for her skills and looks," according[21] to her manager, and left after allegedly encountering[22] sexual harassment.

A Famerz sign advocating pro-choice politics.Photo: Famerz (Tumblr[23])

The National D . va Association[24], now known as Famerz[25], formed from female Korean gamers' desire to feel recognised and represented in a world where Korean women who play *Overwatch* are often told they're "bitches" and "whores," according to a Kotaku report[24] on South Korea's *Overwatch* culture.

In *Overwatch,* D.va is a young Korean girl named Hana Song who, according to her lore, was a hugely famous professional gamer and operates a mech suit. "We get sexually harassed in gaming situations where it becomes known that we are female in voice chat," said a representative for the Association named Anna.

"Game streamers and male gamers are continuously coming up with new misogynistic buzzwords." She cited "Song Hee Rong," a portmanteau of D.va's name "Song,"

and "Hee Rong," which, said together, sounds like Korea's term for "sexual harassment."

It also references the Overwatch strategy[26] of preventing D.va from regaining her mech suit after losing it, which, if considered abstractly, keeps her helpless.

After fans went after IMC Games' concept artist, her boss Kim Hakkyu conducted an investigation and decided not to fire her. He did, however, publish an interview[27] with her about the controversy. Hakkyu grills the artist on why she followed Megal-ish accounts like "Women's Sisterhood" on Twitter.

Kim admits she just wasn't thinking about it that hard, citing her interest in improved access to menstrual pads. "Why did you tweet the word 'hannam?' " he asks. "I didn't retweet it because of the word 'hannam,'" she responds.

When he asks why she "pressed 'like' on a post containing violent Megalia opinions," she responds, "I thought it was just that post. On the timeline, when there is a lot of writing, oftentimes they are hidden below. I only just learned that the hidden writing contained extreme opinions and I did not check back then before I pressed 'like.'"

Hakkyu concluded[27], "She was mistaken in retweeting a tweet with the word 'hannam,' being unable to tell the difference between Megalia

and feminism in its original definition." (IMC Games did not return multiple requests for comment).

Girls Frontline.Graphic: Sunborn Games[28]

A week earlier, Korean anti-feminist vigilantes shone their spotlight on another woman in the South Korean games industry. The Chinese game *Girls Frontline* had hired a Korean character artist to make anthropomorphic guns for the mobile strategy game. K7, an unreleased character, is a stern girl with long, white hair, cat ears and thigh-high socks. Two hours after K7's announcement, gamers dug through her creator's tweets and Twitter "likes."

What they found was a comic[29] parodying "hannam" she'd retweeted and another[30] retweet about how women fear hidden cameras. The studio's Korean branch immediately[31] vowed to suspend K7.

Its Chinese headquarters said they'd investigate[32] the artist's alleged "extreme tendencies," adding that "So far, there has been no evidence that any K7 illustrator belongs to a certain extreme feminist organisation." *Girls Frontline* studio Sunborn Games has not responded to multiple requests for comment.

"Megalia wild boars made this game."
Around the same time, a swarm of

anti-feminist gamers went after the male Korean game developer Somi, who made *Replica*, a left-leaning game critical of the Korean government, for liking and retweeting several tweets about sexual education in schools and offices.

Thumbs-down reviews appeared on *Replica*'s Steam page, reading, "Megalia wild boars made this game" and "A top Korean feminist made this game."

In solidarity, a friend of K7's creator, who works at a tiny Korean games studio called Kiwiwalks, tweeted out her support[33] for her disgraced industry colleague. That's when, according to Kiwiwalks' CEO, *Girls Frontline* community members proceeded to root through the friend's tweets and discover that she, too, had retweeted tweets about women's rights, specifically pertaining to abortion. That led to widespread calls for the illustrator's dismissal.

A significant portion of Korean games developers and publishers who employ women targeted by anti-feminists have complied with critics' calls to dismiss or rebuke employees. A plausible reason why shows up in the comments below games companies' posts about the controversies: These critics are vocal about who they do and don't want to be making their games. And these critics are also a large portion of their consumers.

After two freelance illustrators on the failing Korean-made online game *SoulWorkers* were accused of having Megal-like Twitter feeds, and harassed[34] as a result, *SoulWorkers* developers announced[35] on March 26 that they'd replace the illustrations.

They also said they'd begin "preliminary inspection" to make sure that these sort of "problems" didn't occur in the future. In the next few days, a flood of new users overwhelmed *SoulWorkers*' servers. It's hard to prove causality, but *SoulWorkers* did see a 175% increase[36] in players.

Overwhelmed devs working around-the-clock to keep the servers up received box upon box[37] of snacks, nutritional supplements and presents from players. (The illustrators have threatened[38] legal action[39] their harassers.)

Snacks sent to SoulWorkers' studio.Image: SoulWorker[37]

When I asked the Korean Game Developers' Guild why developers are on board with these "ideological verifications," a representative told me that, because men make up the majority of Korean games companies and most Korean games consumers are men—and because feminism and so-called anti-male Megalian feminism are conflated so often—shaming radical feminists is a lucrative business decision.

"The current market's core consumers are men in their 40s and younger, and the game companies are forced to focus on their perception in reality," the representative explained. They added that, "If you look at the response of the this subculture consumer group of men, it is assumed that they have established [the belief], 'Since feminists are trying to suppress our freedoms with their ethics, we should grind the freedom out of them with our own ethics before that' as a logical response."

"There is a growing number of men who respond very sensitively to even a simple remark about women's rights."
There has been some resistance to the anti-feminist attacks. Suyoung Jang, the CEO of Kiwiwalks, did something different from industry colleagues who buckled under consumer pressure to punish these alleged radical employees: He stated publicly[40] that he would not investigate or dismiss his employee.

In an email to *Kotaku,* he explained that "The employee did not take any action using the company's account or name. She was simply retweeting about her individual interests on her personal account." He continued, referencing Megalia, and adding:

'There is a growing number of men who respond very sensitively to even a simple remark about women's

rights. Especially among those who play games. But the content of the employee's retweet was related to abortion. Even though there were some radical expressions aimed toward men mixed into that content, the issue of 'abortion' is one that any woman can relate/empathise with.'

After Kim Hakkyu's interview with his employee, he wrote a summary of the conversation for readers and fans of his games. That way, they will know his stance on the issue of radical feminism and be assured of the preventative measures his company will take to ensure no such public ideological slip-ups will happen again.

His employee's Twitter activity, he said, "originated from ignorance or indifference to a very sensitive social issue."

**Additional reporting contributed by Kotaku social editor Seung Park.**

*Note: Several quotes in this article were originally written in Korean or Chinese but have been translated into English by speakers fluent in both languages.*

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# PROJECT LIGHTSPEED: REWRITING THE MESSENGER CODEBASE FOR A FASTER, SMALLER, AND SIMPLER MESSAGING APP

❦ engineering.fb.com❦ Monday 2 March 2020❦ Mohsen Agsen[1] ❦ 18 minute read❦

POSTED ON MAR 2, 2020 TO Android[2], Data Infrastructure[3], iOS[4] By

— We are excited to begin rolling out the new version of Messenger on iOS. To make the Messenger iOS app faster, smaller, and simpler, we rebuilt the architecture and rewrote the entire codebase, which is an incredibly rare undertaking and involved engineers from across the company.

— Compared with the previous iOS version, this new Messenger is twice as fast to start and is one-fourth the size. We reduced core Messenger code by 84 percent, from more than 1.7M lines to 360,000.

— We accomplished this by using the native OS wherever possible, reusing the UI with dynamic templates powered by SQLite, using SQLite as a universal system, and building a server broker to operate as a universal gateway between Messenger and its server features.

Messenger first became a standalone app in 2011. At that time, our goal was to build the most feature-rich experience possible for our users. Since then, we've added payments, camera effects, Stories, GIFs, and even video chat capabilities. But with more than one billion people using Messenger every month, the full-featured messaging app that looked simple on the surface was far more complex behind the scenes. The back end that was required to help us build, test, and manage all those features made the app far more complex. At its peak, the app's binary size was greater than 130 MB. That and the large amount of code made the app's cold start much slower, especially on older devices—and with nine different tabs, it was trickier for the people using it to navigate.

In 2018, we redesigned and simplified the interface with the release of Messenger 4[5]. But we wanted to do even more. We looked at how we would build a messaging app today if we were starting from scratch. What had changed since we

first began developing Messenger nearly a decade earlier? Quite a lot, it turns out. In fact, the way mobile apps are written has fundamentally changed. Which is why, <u>at F8 last year</u>[6], we announced our intention to make Messenger's iOS app faster, smaller, and simpler. We called it Project LightSpeed.

To build this new version of Messenger, we needed to rebuild the architecture from the ground up and rewrite the entire codebase. This rewrite allowed us to make use of significant advancements in the mobile app space since the original app launched in 2011. In addition, we were able to leverage state-of-the-art technology that we've developed over the intervening years. Starting today, <u>we are excited to roll out the new version of Messenger on iOS globally</u>[7] over the next few weeks. Compared with the previous iOS version, Messenger is twice as fast to start* and one-fourth the size. With this new iteration, we've reimagined how Messenger thinks about building apps and started from the ground up with a new client core and a new server framework. This work has helped us advance our own state-of-the-art technologies and the new codebase is designed to be sustainable and scalable for the next decade, laying the foundation for private messaging and interoperability across apps.

*According to internal tests using production data

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## Smaller and faster

We started with the premise that Messenger needed to be a simple, lightweight utility. Some apps are immersive (video streaming, gaming); people spend hours using them. Those apps take up a lot of storage space, battery time, etc., and the trade-off makes sense. But messages are just tiny snippets of text that take less than a second to send. Fundamentally, a messaging app should be one of the smallest, lightest-weight apps on your phone. With that principle in mind, we began looking at the right way to make our iOS app significantly smaller.

A small application downloads, installs, updates, and starts faster for the person using it, regardless of the device type or network conditions. A small app is also easier to manage, update, test, and optimize. When we started thinking about this new version, Messenger's core codebase had grown to more than 1.7 million lines of code. Editing a few sections of code wasn't going to be enough.

The simplest way to get a smaller app would have been to strip away many of the features we've added over the years, but it was important to us to keep all the most used features, like group video calling. So we stepped back and looked at how we could apply what we've learned over the past decade and what we know about the needs of the people

on our apps today. After exploring our options, we decided we needed to look past the interface and dig into the infrastructure of the app itself.

Completely rewriting a codebase is an incredibly rare undertaking. In most cases, the enormous effort required to rewrite an app would result in only minimal, if any, real gains in efficiency. But in this case, early prototyping showed that we could realize significant gains, which motivated us to attempt something that's been done only a few times before with an app of this size. It was no small undertaking. While it was started by a handful of engineers, Project LightSpeed ultimately required more than 100 engineers to complete and deliver the final product.

In the end, we reduced core Messenger code by 84 percent, from more than 1.7M lines to 360,000. We accomplished this by rebuilding our features to fit a simplified architecture and design. While we kept most of the features, we will continue to introduce more features over time. Fewer lines of code makes the app lighter and faster, and a streamlined code base means engineers can innovate more quickly.

# Simpler

One of our main goals was to minimize code complexity and eliminate redundancies. We knew a unified architecture would allow for global optimization (instead of having each feature focused on local optimizations) and allow code to be reused in smart ways. To build this unified architecture, we established four principles: Use the OS, reuse the UI, leverage the SQLite database, and push to the server.

## Use the OS

Mobile operating systems continue to evolve rapidly and dramatically. New features and innovations are constantly being added due to user demands and competitive pressures. When building a new feature, it's often tempting to build abstractions on top of the OS to plug a functionality gap, add engineering flexibility, or create cross-platform user experiences. But the existing OS often does much of what's needed. Actions like rendering, transcoding, threading, and logging can all be handled by the OS. Even when there is a custom solution that might be faster for local metrics, we use the OS to optimize for global metrics.

While UI frameworks can be powerful and increase developer productivity, they require constant upkeep and maintenance to keep up with the ever-changing mobile OS landscape. Rather than reinventing

the wheel, we used the UI framework available on the device's native OS to support a wider variety of application feature needs. This reduced not only size, by avoiding the need to cache/load large custom-built frameworks, but also complexity. The native frameworks don't have to be translated into sub-frameworks. We also used quite a few of the OS libraries, including the JSON processing library, rather than building and storing our own libraries in the codebase.

Overall, our approach was simple. If the OS did something well, we used it. We leveraged the full capability of the OS without needing to wait for any framework to expose that functionality. If the OS didn't do something, we would find or write the smallest possible library code to address the specific need—and nothing more. We also embraced platform-dependent UI and associated tooling. For any cross-platform logic, we used an operating extension built in native C code, which is highly portable, efficient, and fast. We use this extension for anything OS-like that's globally suboptimal, or anything that's not covered by the OS. For example, all the Facebook-specific networking is done in C on our extension.

## Reuse the UI

In Messenger, we had multiple versions of the same UI experience. For example, at the outset of this project, we had more than 40 different contact list screens. Each screen had slight design differences, depending on factors like phone renderings—and each of those different screens had to be enhanced to support features like landscape mode, dark mode, and accessibility, which doubled the number we were supporting. This meant a lot of views, and the views accounted for a large percentage of the size of an app like Messenger. To simplify and remove redundancies, we constrained the design to force the reuse of the same structure for different views. So we needed only a few categories of basic views, and those could be driven by different SQLite tables.

In today's Messenger, the contact list is a single dynamic template. We are able to change how the screen looks without any extra code. Every time someone loads the screen—to send a message to a group, read a new message, etc.—the app has to talk to the database to load the appropriate names, photos, etc. Instead of having the app store 40 screen designs, the database now holds instructions for how to display different building blocks depending on the various sub-features being loaded. This single contact list screen is extensible to support a large number of features,

such as contact management, group creation, user search, messaging security, stories security, sharing, story sharing, and much more. In the iOS world, this is a single view controller that has proper flexibility to support all these needs. Using this more elegant solution across all our designs helped us remove quite a bit of code.

## Use SQLite

Most mobile applications use SQLite as a storage database. However, as features grow organically, each ends up with its own unique way of storing, accessing data, and implementing associated business logic. To build our universal system, we took an idea from the desktop world. Rather than managing dozens of independent features and having each pull information and build its own cache on the app, we leveraged the SQLite database as a universal system to support all the features.

Historically, coordinating data sharing across features required the development of custom, complex in-memory data caching and transaction subsystems. Transferring this logic between the database and the UI slowed down the app. We decided to forgo that in favor of simply using SQLite and letting it handle concurrency, caching, and transactions. Now, rather than supporting one system to update which friends are active now, another to update changes in

profile pictures in your contact list, and another to retrieve the messages you receive, requests for data from the database are self-contained. All the caching, filtering, transactions, and queries are all done in SQLite. The UI merely reflects the tables in the database.

This keeps the logic simple and functional, and it limits the impact on the rest of the app. But we went even further. We developed a single integrated schema for all features. We extended SQLite with the capability of stored procedures, allowing Messenger feature developers to write portable, database-oriented business logic, and finally, we built a platform (MSYS) to orchestrate all access to the database, including queued changes, deferred or retriable tasks, and for data sync support.

MSYS is a cross-platform library built in C that operates all the primitives we need. Consolidating the code all into one library makes managing everything much easier; the it is more centralized and more focused. We try to do things in a single way—one way to send messages to the server, one way to send media, one way to log, etc. With MSYS, we have a global view. We're able to prioritize workloads. Say the task to load your message list should be a higher priority than the task to update whether somebody read a message in a thread from a few days ago; we can move the priority task up in the

queue. Having a universal system simplifies how we support the app as well. With MSYS, it's easier to track performance, spot regressions, and fix bugs across all these features at once. In addition, we made this important part of the system exceptionally robust by investing in automated tests, resulting in a (very rare in the industry) 100 percent line code coverage of MSYS logic.

## Use the server

For anything that doesn't fit into one of the categories above, we push it to the server instead. We had to build new server infrastructure to support the presence of MSYS's single integrated data and sync layer on the client. The original Messenger's client-server interactions worked like traditional apps do—for each feature, there is an explicit protocol and wire format for the client to sync data and update any changes to the server. The app then has to implement that protocol and coordinate the correct database updates to drive the UI. This means that for each feature in the app, there's a lot of (ultimately unnecessary) custom platform-specific business logic.

Coordinating logic between client and server is very complex and can be error-prone—even more so as the number of features grows. For example, receiving a text message involves updates to messages tables, updates to the associated thread snippet, updates to last-modified time/bumping the thread, deletion of any optimistic version of the message that might have been inserted (e.g., from notifications), deletion of tasks that were processing the optimistic version of the message, decryption, and many other tasks. These kinds of client-server interactions extend across all features in the app. As a result, the app ends up solving similar problems repeatedly, and the overall app runtime has non-deterministic behavior in terms of how all these events and interactions come together. Over time, our app had become a busy freeway, with cars backed up in both directions. In today's Messenger, we have a universal flexible sync system that allows the server to define and implement business and sync logic and ensures that all interactions between the client and the server are uniform. Similar to MSYS on the client, we built a server broker to support all these scenarios while the actual server back-end infrastructure supports the features. The server broker acts as a universal gateway between Messenger and all server features, whereas in the past all client features directly communicated with their server counterparts, using a variety of approaches.

# Preventing future code growth

Today's Messenger is significantly lighter—the codebase has shrunk from 1.7M+ lines to 360,000. The app's binary size is now one-fourth what it was. But before we put that new codebase into production, we had to be confident that it wouldn't just expand again as fixes and updates and features are added. To do that, we set budgets per feature and tasked our engineers with following the architectural principles above to stick to those budgets. We also built a system that allows us to understand how much binary weight each feature is bringing in. We hold engineers accountable for hitting their budgets as part of feature acceptance criteria. Completing features on time is important, but hitting quality targets (including but not limited to binary size budgets) is even more important.

Building today's Messenger has been a long journey, and many engineers across the company had some involvement in its development. And yet, for the people using the app, it won't look or feel much different. It will start faster, but it will continue to be the same great messaging experience that people have come to expect. But this is just the beginning.

The work we've put into rebuilding Messenger will allow us to continue to innovate and scale our messaging experiences as we head into the future. In addition to building an app that's sustainable for the next decade or more, this work has laid the foundation for cross-app messaging across our entire family of apps. It has also built the foundation we'll need for a privacy-centered messaging experience.

We'd like to thank everyone who contributed to Project LightSpeed for their contributions.

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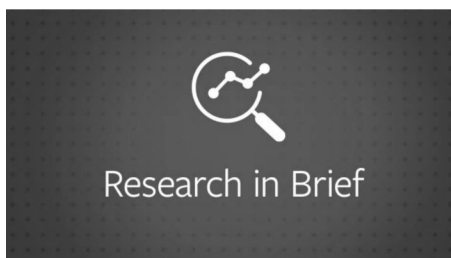
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# When Will New York City Sink?

♣ nymag.com♣ Wednesday 7 September 2016♣ Andrew Rice[1] ♣ 42 minute read♣

Klaus Jacob, a German professor affiliated with Columbia's University's Lamont-Doherty Earth Observatory, is a geophysicist by profession and a doomsayer by disposition. I've gotten to know him over the past few years, as I've sought to understand the greatest threat to life in New York as we know it. Jacob has a white beard and a ponderous accent: Imagine if Werner Herzog happened to be a renowned expert on disaster risk. Jacob believes most people live in an irrational state of "risk denial," and he takes delight in dispelling their blissful ignorance. "If you want to survive an earthquake, don't buy a brownstone," he once cautioned me, citing the catastrophic potential of a long-dormant fault line that runs under the city. When Mayor Bloomberg announced[2] nine years ago an initiative to plant a million trees, Jacob thought, *That's nice—but*

*what about tornadoes?*

For the past 15 years or so, Jacob has been primarily preoccupied with a more existential danger: the rising sea. The latest scientific findings suggest that a child born today in this island metropolis may live to see the waters around it swell by six feet, as the previously hypothetical consequences of global warming take on an escalating—and unstoppable—force. "I have made it my mission," Jacob says, "to think long term." The life span of a city is measured in centuries, and New York, which is approaching its fifth, probably doesn't have another five to go, at least in any presently recognizable form. Instead, Jacob has said, the city will become a "gradual Atlantis."

The deluge will begin slowly, and irregularly, and so it will confound human perceptions of change. Areas that never had flash floods will start to experience them, in part because global warming will also increase precipitation. High tides will spill over old bulkheads when there is a full moon. People will start carrying galoshes to work. All the commercial skyscrapers, housing, cultural institutions that currently sit near the waterline will be forced to contend with routine

inundation. And cataclysmic floods will become more common, because, to put it simply, if the baseline water level is higher, every storm surge will be that much stronger. Now, a surge of six feet has a one percent chance of happening each year—it's what climatologists call a "100 year" storm. By 2050, if sea-level rise happens as rapidly as many scientists think it will, today's hundred-year floods will become five times more likely, making mass destruction a once-a-generation occurrence. Like a stumbling boxer, the city will try to keep its guard up, but the sea will only gain strength.

No New Yorker, of course, needs to be reminded of the ocean's fearsome power—not since Hurricane Sandy[3]. But Jacob began trying to sound the alarm about the risk more than a decade ago. He sent students into the New York subways with barometers to measure their elevation, and produced a 2008 report[4] for the MTA, warning that many lines would flood with a storm surge of between seven and 13 feet. He urged policymakers to "muster the courage to think the almost unthinkable" and install flood defenses while considering whether, over the long term, climate change might necessitate radical alterations to the transit system, like moving back to elevated tracks. In 2011, while working on a government panel, Jacob produced a study that mapped how subway tunnels would be inundated in the

event of a hurricane. The next year, he was proved right. After Sandy, Jacob was hailed as a prophet.

"Nature cooperated—at first timidly, with Irene, and then a little bit more forcefully with Sandy. And God forbid what's next," Jacob told me. "One way or another, we get educated, and it's much cheaper to listen once in a while to engineers and scientists." Yet Jacob's moment of vindication was accompanied by an ironic comeuppance: He had been flooded too. A few weeks after the storm, I paid a visit to the professor's home in the village of Piermont, on the Hudson River just north of the city. The ground floor of his quaint clapboard house was a jumble of furniture, and he pointed to a pen mark two feet up the wall— the height the water had reached. Many of those who lived around him fared worse; there were huge piles of debris up and down his street. Outside, Jacob noticed a neighbor hanging up some early holiday decorations. "I like your spirit," he shouted. "Put a little light into the misery!"

Jacob's personal disaster illustrated, in microcosm, how difficult it can be for anyone, even scientists, to pay heed to science. Despite his acute awareness of risk, he had chosen to make his home on a lane that bordered a grassy marsh. Sitting in his third-floor office, with classical music playing softly in the background, Jacob recounted how he had purchased the house after

his wife, an artist, fell in love with it. "When I saw it, I said, 'Oh, God, I can't do this, this is against all my professional ethos,' " Jacob said. "There are other considerations in life that enter into these decisions. I tried to convince her as a scientist, but I'm married to her." Jacob had taken some protective steps, raising the house's foundation two feet above the FEMA flood line, and hoped for the best.

Every year, summer through fall, Jacob would closely monitor reports from the National Hurricane Center, and he followed Sandy online as it blew in from the Caribbean. "I saw the storm moving up the coast," he said. "This tide gauge, the next tide gauge." When Sandy hit New York City, as a mammoth cyclone more than a thousand miles in diameter, a wall of water rushed over Staten Island and the Rockaways and up through the Narrows. Jacob took a look at the readings from Battery Park, showing an unprecedented 14-foot storm surge, and resigned himself to the inevitable. An hour later, the surge reached his house. "My wife was sitting on the stairs, watching the water coming under the door and up through the floorboards," Jacob said. "I was sleeping, because I knew within half a foot where the water would go."

No one is very good at acting on the unthinkable. We now know, without scientific question, that the Earth is warming fast, that 2016 is on pace to be the hottest year in the books, setting a record for the third year in a row. We know that glaciers are melting. We know the water is coming. No serious thinker doubts this man-made reality any longer. Yet climate-change denial comes in subtler forms. Try as we might to contemplate how New York City might go under, our imagination fails us.

To begin to fathom what the future could hold for New York, I went to the Princeton office of a research organization called Climate Central, which has developed programs that map out sea - level projections[5]. Climate scientist Ben Strauss set me up on the most advanced version, which uses 3-D Google Earth imagery, and apprised me of the latest gloomy research. Policymakers may trumpet the Paris Agreement, signed this year, which aims to cut carbon emissions enough to hold global warming to a target of 1.5 to 2 degrees Celsius above preindustrial temperatures, but even if the accord succeeds, some change is "locked in," because we've already spewed so much carbon into the atmosphere. Strauss added that in Antarctica, enormous glaciers appear to be melting faster than previously estimated, making the current worst-case projections look more and more like probabilities. "It's kind of unimaginable," Strauss said. With his program, though, I could visualize it.

Using a special 3-D mouse, I swooped like a drone over a familiar reference point at the corner of Canal and Varick Streets: the landmarked former industrial building that houses this magazine's offices. With one foot of sea-level rise, the map didn't change that much. At three feet, though, a tide of blue covered Hudson River Park and West Street. Four feet, five feet: The blue crept east along Canal, toward the entrance to the Holland Tunnel. At six feet, my office building was almost an island. It has been standing for 86 years; six feet of sea-level rise could quite possibly occur before another 86 years pass. Looking elsewhere, the blue covered parts of La Guardia and JFK airports, the Williamsburg waterfront, Roosevelt Island, and Brooklyn Bridge Park.

Of course, the water won't stop rising in 2100. Strauss told me that even the supposedly manageable increase of 1.5 degrees Celsius envisioned by the Paris Agreement would translate to around ten feet of eventual sea-level rise. When I clicked up to ten feet, much of Battery Park City, the Lower East Side, and Brooklyn's waterfront was submerged. The Dumbo carousel stood solitary in the East River, and the barrier spits of the Rockaways and Coney Island mostly vanished. The program also has a function that allows you to see the outcomes of greater increases in temperature. At 2 degrees—equivalent, in Climate Central's estimation, to about 15

feet in sea-level rise—the water completely surrounded the pools of the 9/11 memorial. At 3 degrees—20 feet—the water overwhelmed them. I clicked up to the maximum setting of 4 degrees—30 feet—and maneuvered upward to take in the view from the top of the spire of One World Trade Center. Lower Manhattan had become an archipelago, and the rooftops of southern Brooklyn resembled boats bobbing in a marina.

How likely are these outcomes? The latest scientific data suggests that we are already nearing the 1.5-degree-Celsius threshold, and the trend line is only headed in one direction. "A lot of people are now talking about 3 or 3.5 degrees Celsius," said William Solecki, a Hunter College geography professor. "We have a challenge grappling with the implications." The Port of New York has enjoyed centuries of prosperity, but it seems its geographic luck has run out. Few places on Earth are as vulnerable to sea-level rise. (Among other reasons, this is because the northeastern coast of the United States is simultaneously sinking, owing to the natural process of subsidence.) At the Battery, tidal readings are rising at twice the global rate.

"We can't wrap our heads around the fact that the future could be different," said Solecki, who co-chairs the New York City Panel on Climate Change, a consortium of

experts that advises the city government. (Klaus Jacob works with the panel, too.) When I visited him at his office earlier this year, Solecki had been preparing to speak at a conference in the Netherlands on the subject of climate adaptation, alongside presenters from London, Lagos, and Kolkata. Coastal cities around the world have just begun to awake to the possibility that sea-level rise could force fundamental changes. "New York is not going to go away," Solecki said. "But how will it change? How will this pressure be expressed?"

Among those who spend their days considering the implications of global warming, Solecki counts as an optimist. "A lot of the climate scientists, I wouldn't say they're depressed, but it's a very complicated and challenging issue," he said. For now, most policy is focused on "mitigation," or changing energy-consumption patterns in the present day. That is already a daunting problem, so long-term adaptation gets less attention. In part, that is because it is hard to address it without sending the public a conflicting—and quite dampening—message: that ultimately, mitigation is futile.

"There's this tendency for scientists to understate the threat," says Naomi Oreskes, a Harvard professor who studies the history of science. "There are cultural pressures to be calm and not talk about the worst-case scenario." Imaginative leaps

are the stuff of disaster movies, and few are eager to be cast in the Jeff Goldblum role. But Oreskes argues that scientists shouldn't be afraid to state the implications of their research. "The facts are alarming," she says. "If you really think seriously about what this all means, it is very, very upsetting."

Two years ago, Oreskes co-authored a novel titled *The Collapse of Western Civilization: A View From the Future,* which presented itself as a report, written in 2393, analyzing our contemporary inaction. On one page there was a map of New York, largely reduced to a rump portion of Midtown and Upper Manhattan and a central-highland swathe of Brooklyn and Queens. Oreskes says she looked at the science and tried to extrapolate the absolute worst that could happen, just as a thought experiment. "The really scary thing," she adds, is that the latest scientific findings are making her fictional scenario look less and less extreme. "Guess what? Our numbers aren't as exaggerated as we thought."

In his public talks, Klaus Jacob likes to show a similar map, depicting what New York's coastline might have looked like in the mid-Pliocene epoch, 3 million years ago, the last time the amount of carbon in the atmosphere was around today's level of 400 parts per million. Sea levels were some 30 meters—or nearly 100 feet—higher. "I am a little bit of an oddball," he admits,

"because I'm saying, 'Hey, now that we have those forecasts, guys, what are we doing about it?' " In panel discussions, he takes self-evident pleasure in playing the prickly contrarian, dismissing popular measures like building dunes or cultivating oyster beds to create natural buffer zones against storms. "Oyster beds are great if you are using them in your kitchen," he said, sarcasm dripping, at a 2012 forum moderated by David Remnick of *The New Yorker.*

"In the long term, Klaus is right," said another white-bearded panelist, Malcolm Bowman, an oceanographer and a longtime proponent of building massive storm-surge barriers to protect New York. "Maybe 200, 300 years from now, the city will no longer be."

"Earlier!" Jacob interjected.

"However, in the meantime," Bowman continued, "there's a lot we can do to save the city, Klaus, before we have to run for the hills."

At another event, held at NYU, moderator Chelsea Clinton made an earnest observation about "what is working," mentioning sea gates and —once again—oysters. Jacob responded with a declaration that "our urban planning is irrelevant" and decried "shortsightedness of decision-making." As an example, he cited the Hudson Yards development, just one of many waterfront megaprojects that the

city has continued to enthusiastically promote, even after Sandy. He thinks that the government should instead rework its policies to relocate assets away from the water.

"We have this particular problem in New York," another panelist said, "because the land that we would need to retreat from happens to be worth hundreds of billions of dollars."

"Now," Jacob retorted.



Underwater Coastline: By 2100, sea levels could rise as much as six feet, covering large areas of the city
*Illustration: Jason Lee*

To behave as if the New York coastline is an immutable fact is to disregard not just science but history. Over a few centuries, humans have thoroughly remade the city's topography, leveling hills, channeling streams, draining ponds, creating new landfill out of construction debris. When workers were excavating the foundation of the redeveloped World Trade Center, they discovered, buried deep beneath the ruins, the hull of

an 18th - century shipwreck[6]—an eerie reminder that even our tallest towers sit on land claimed from the water. Our ingenuity, and our real-estate speculation, have made the city a continually expanding entity. We are not used to contemplating contraction.

After Sandy, Mayor Bloomberg pledged to direct some $20 billion in disaster aid into "climate resiliency" measures, such as floodproofing buildings by moving mechanical equipment to upper floors. In areas that were hit hard by the storm, many homeowners have taken advantage of a city program[7] called "Build It Back," reconstructing their houses high up on stilts. Beneath this defiant civic agenda is an old, blithe assumption that New York is too rich, too important, too tough, to ever give up an inch of real estate. "We still have essentially the gung ho, Wild West way of doing business in this country, where we think we are the master of nature," Jacob said. "Fighting, building barriers, instead of accommodating the ocean."

If sea-level rise reaches 2.5 feet, the floodplain for a hundred-year storm will expand to nearly a quarter of the city. The climate-change panel predicts that could happen by 2050, which still leaves some time for long-range planning. That is the kind of foresight that used to be New York's specialty: The Commissioners' Plan of 1811, for instance, established the street grid that defines Manhattan above Houston to this day. At present, however, the city appears to be unable to accept the fact that it faces an inevitable reckoning. The human tide is moving in the wrong direction, still marching toward the waterline.

Over the last generation or so, New York's grimy industrial waterfront has been a primary venue for the city's renewal, becoming much more densely populated. Seedy warehouse districts have been redeveloped as luxury housing. Rotting docks have been remade into the magnificent Hudson River and Brooklyn Bridge parks. Name an important recent development project, and it's probably within the climate-change panel's projected floodplain for 2050: the World Trade Center, Hudson Yards, the Brooklyn Navy Yard, all the new luxury-apartment towers in Williamsburg and Long Island City, Cornell University's new technology campus on Roosevelt Island, the new Whitney Museum, much of Mayor de Blasio's proposed Brooklyn - to - Queens streetcar line[8].

The most clear-eyed analysis of the risk to such developments comes from the insurance industry, which has countless billions of dollars at stake. The firm Swiss Re predicts that as a consequence of climate change, the industry's anticipated annual losses in New York will more than double by 2050, to $4.4 billion, and the cost of black-swan events

that happen on average around once every 70 years will more than quadruple, to $90 billion. Already, the MTA has found itself practically unable to purchase flood insurance for the subway system. Instead, it has had to rely on an exotic debt instrument called a catastrophe bond, paying a relatively high interest rate to investors who are essentially making a short-term wager against the possibility of a disaster. The scale of the risk, though, defies any hedging. A recent national study by the real-estate firm Zillow found that six feet of sea-level rise would inundate some 2 million homes, with a cumulative current value of $882 billion. About half of the vulnerable properties are in Florida. But even the presence of water on the streets of Miami Beach during high tides is not enough to deter development. "There is this mismatch of time horizons," says Robert Muir-Wood, the chief research officer of RMS, a firm that analyzes catastrophe risk for the insurance industry. An insurance policy typically lasts just one year; private investors think in terms of a 30-year mortgage—or less, if they can flip a building for a profit.

And so, billions in private and public money are being spent to develop more housing that will move more New Yorkers into places that may not withstand the next Sandy. The short-term incentives create situations like the one now happening around the polluted Gowanus Canal, where local bloggers recently posted pictures of high tides swelling disconcertingly close to a new 700-unit apartment complex offering two-bedroom rental units for $7,000 a month. If the buildings generate that kind of money for 30 years, maybe the owners don't care if the complex doesn't make it to 40.

There is an entity that is supposed to be invested in the fate of the city over its entire life span: the government. But in reality, it is most responsive to the immediate concerns of living voters, rather than the problems of the next century. "As New Yorkers, we cannot and will not abandon our waterfront," Mayor Bloomberg declared after Sandy. Since then, he and his successor have walked a tricky line, preaching preparedness and revising codes to ensure that new buildings are more water-resistant, but rejecting any suggestion of curtailing development. Each mayor, in his own way, has seen waterfront land as a precious political resource. Recently, for instance, de Blasio proposed creating affordable housing, his highest priority, in rapidly gentrifying Gowanus. While the mayor recognizes sea-level rise as a real threat, the problem of rising rents feels more urgent.

Even more troubling than buildings, though, is the question of the infrastructure: what to do about all the power plants, fuel terminals,

highways, subway stations, and sewage-treatment facilities that already sit in the floodplain and can't easily be relocated. Both of the city's airports are close to sea level, and La Guardia airport was deep underwater during Sandy. Muir-Wood predicts that globally, "high tide" might soon be added to the list of reasons for routine flight delays. But at least the runways are aboveground—tunnels are even harder to address. On a dry day, the MTA already pumps 13 million gallons of groundwater out of the subway system. It is trying to seal hundreds of "points of egress," busily installing floodgates on subway entrances throughout lower Manhattan.

Daniel Zarrilli, who runs the Mayor's Office of Recovery and Resiliency, told me the city is pressing a program of retrofits and building-code revisions designed with extra buffering to anticipate seas that are around two feet higher—the 2050 benchmark. He anticipates future administrations will build on that. Nonetheless, he added: "The major focus for us is reducing vulnerability now."

The government is planning or constructing seawalls and other defenses to protect numerous strategic points around the city, including La Guardia and Hunts Point Market—the hub of the city's food-distribution network, which only narrowly averted being disabled by Sandy. But New York City has 520 miles of coastline, and the government can't build a wall around it all. Sweeping infrastructural solutions, like Bowman's proposal to build a retractable storm-surge barrier across the mouth of New York Bay, have garnered little political support. "It creates the perception that there is one big thing we can do and we'll all be safe," said Zarrilli, who added that the project would cost $25 billion and have "zero impact on sea-level rise." The storm-surge barrier would remain open during normal weather, to allow the rivers to discharge into the sea, so while it might deflect another hurricane, it wouldn't save the city from the melting ice caps.

Instead of investing in that one big thing, then, the city is distributing its billions toward many more modestly scaled defenses. Most visibly, it will soon start construction on a berm system and park, primarily designed by architect Bjarke Ingels, which will shield 2.4 miles of Manhattan along the East River, including a crucial power station. Zarrilli says the middle of this century is the limit of the city's current planning horizon and is dismissive of naysayers like Jacob who argue that current policies only shift the burden to future generations.

"I've seen Klaus's maps showing what 30 meters of sea-level rise would mean for New York City," Zarrilli says. "I think that is exactly

the wrong way to provoke action. That paralyzes you. Focusing on the here and now, the natural time frame ahead of us that we can work within, that's how we're going to move the needle."

The image that should be here isn't downloading 😞

The redeveloped World Trade Center site is among the city's most at risk; here, a rendering of the flooding of Santiago Calatrava's Oculus. Photo: MDI Digital/Marcus Baker/Alamy Stock Photo *Photo: MDI Digital/Marcus Baker/Alamy Stock Photo*

For the next few decades, the time period Zarrilli is talking about, the problem should remain merely expensive. It's during the second half of the century that it will start to become unmanageable. And after 2100, the numbers get really ugly. The New York City Panel on Climate Change has not yet extended its sea-level modeling into the next century, but a similar commission in Boston recently projected a 20-to-30-foot increase by 2200 if emissions continue at a high rate. That is why Jacob says it was "almost irresponsible" for Zarrilli to describe him as alarmist. "We should go into it with open eyes and look at the possible realities," he says. "Anything less than that is pretty scary."

Jacob says he is disheartened by the government's near-term fixation, and he has been trying to take his message to more-receptive audiences, like architects. "Scientists only make the predictions; they don't do the

adaptation," he says. "These are the people that need to get in the game, because it's an urban-planning and urban-design issue."

In March, Jacob gave a speech to the New York chapter of the American Institute of Architects, seeking to warn the audience about the danger of poor development decisions. He displayed renderings of a proposed Red Hook project and showed how it could be accessible only by ferry in 2100, and ridiculed the World Trade Center redevelopment. "You can ask yourself all sorts of questions, whether or not that will make it," he said, and displayed a diagram of how a hundred-year storm would flow into Santiago Calatrava's new $4 billion transit hub. "If you look at this, where is the water going? It's not nice." He said that the protective park Ingels has designed might be effective for the rest of the century. "The problem I foresee," he warned, "is that we might start to feel very happily safe behind that." Jacob told his audience that the city should instead be planning to accommodate the water. "Make Water Street a water street," he said, "and Canal Street a canal street."

Many architects are thinking along similar lines, as they try to envision how structures built today might be designed to accommodate rising sea levels over their lifetimes. In his talk, Jacob singled out SHoP's plan[9] for the Domino Sugar Refinery project on the Brooklyn waterfront,

which he said would survive even if the East River goes 30 feet higher. Other architects are designing floating neighborhoods, or apartment buildings that are suspended from bridge structures, rather than supported by foundations. There's a lot of excitement around the idea of leaving the ground level empty, as a floodable public space. (So long to storefront retail, and those quaint nostrums about "street life.") Some of these approaches are already being tested out in European cities like Hamburg and Amsterdam.

"Maybe we can imagine New York City becoming something like a 22nd-century Venice," says Catherine Seavitt, a landscape architect. Almost a decade ago, she and her husband, structural engineer Guy Nordenson, collaborated with others on a conceptual plan to remake New York Harbor with artificial islands, wetlands, and underwater reefs made of retired subway cars. The project inspired a 2010 exhibition[10] at the Museum of Modern Art called "Rising Currents." Afterward, they began to apply their design principles in real life, working on a Rockefeller Foundation–funded project called Structures of Coastal Resilience. In New York, the initiative's primary focus is on Jamaica Bay and the Rockaway Peninsula.

"It's an interesting place for a pilot project," Seavitt said, telling me that the guiding idea was "not necessarily a retreat scenario, but much more amphibious."

To show me what she meant, Seavitt invited me to meet her one scorching summer day on Jamaica Bay's only inhabited island. In Broad Channel, a blue-collar neighborhood of around 2,400 people, many houses back onto watery slips, about as wide as a city street, where homeowners keep watercraft docked. Like the other areas of the city that are most exposed to the sea, Broad Channel was hit hard by Sandy. Whatever wave is headed for the city will crash there first. Still, the residents of Broad Channel aren't ready to give the place up. Some have used the Build It Back program to raise their houses. City paving contractors are working to elevate the streets, which are currently so close to sea level that they sometimes flood at high tide.

Don Riepe, a naturalist who lives in Broad Channel, took us out for a tour on his 22-foot motorboat. "We have to start thinking about where we can be more porous," Seavitt said as Riepe piloted the boat into recently restored marshes, which offer the bay some protection during storms while also serving as a habitat for egrets, ospreys, and other wildlife. The federal government, though, has proposed to construct more muscular protections. Riepe pointed to a spot beyond Ruffle Bar, a bird sanctuary,

where the Army Corps of Engineers is considering a plan to build a retractable storm-surge barrier.

If constructed, the barrier would be the linchpin of a $3.8 billion network of seawalls, dunes, and other infrastructure that will potentially stretch from Coney Island out to the eastern end of the Rockaways. The planned defenses wrap around Breezy Point, the Queens enclave that was pummeled by Sandy, but they aren't just meant to protect people. Riepe steered the boat toward John F. Kennedy airport, passing beneath an A train as it rumbled over the rail bridge toward the Rockaways. It was high tide, and he was able to navigate disconcertingly close to the runways.

Like Jacob, though, Seavitt was skeptical about the plans for fortification. "I think the big fix is a false narrative," she said. An irregularly used storm-surge barrier wouldn't do much to help Broad Channel survive. Riepe is already used to having water wash across the ground floor of his house. "Nuisance flooding," he said, "you just have to live with that."

Soon enough, in places like Broad Channel, the nuisance will become overwhelming. "All of those areas, they're all gone," predicts Illya Azaroff, an architect who has been a leader in public initiatives to contend with climate change. "Underwater by maybe just a foot to two feet at that point, but uninhabitable with the type of buildings we have now. And even if we did adapt the building stock, as we are doing now by just elevating, that does not address the 2100 issue." By then, the most serious problem will involve "the infrastructure that makes a building run: electricity, potable water, all the services that come to it," he says. "They aren't being addressed in any planning that we've seen."

Much of that infrastructure will probably have to be relocated eventually—somewhere, somehow. That is why Jacob argues that New York should be preparing for a "managed retreat." Right now, it's a fringe position, an option of last resort in places like the Netherlands, where a program[11] called "Room for the River" is employing eminent domain to move dikes inland, and the bayous of Louisiana, where the U.S. government is spending $48 million to relocate the population of an island. But Jacob says we will have to get used to the idea of giving in to nature. After Hurricane Katrina, he wrote a column[12] in the Washington *Post* arguing against rebuilding. ("There is no way—no way—you can save New Orleans," he told me.) He brushes off practical counterarguments about sunk costs and current property values, as well as political impossibilities, saying he operates by a "Kantian imperative."

Jacob told me that if I wanted to see what a future of managed retreat might look like, I should visit a neighborhood on the south shore of Staten Island. Oakwood Beach, a community of small wooden bungalows, experienced the city's highest levels of inundation during Sandy. Afterward, its residents formed a committee to petition the state government for buyouts. "They didn't need to see the statistics," Joe Tirone, the property owner who led the effort, said one June day as he drove around the remnants of the neighborhood[13]. "No scientists had to come and prove it to them. They were living it."

Though a few holdouts remain, most of the houses in Oakwood Beach have been demolished, leaving behind empty puddled streets and tall phragmites waving in the sea breeze. Walking around on foot, Tirone and Liz Koslov, a Ph.D. candidate at NYU who has closely studied the retreat process, struggled to mentally reconstruct which houses stood on which vacant lots. "It's weird that things are disappearing," Koslov said. "You lose your bearings." We followed a path out to a beach littered with tires and bottles, where some locals were driving a dune buggy. Sandy Hook was across the bay to the right, the Parachute Jump and Coney Island to the left, open ocean straight ahead.

"This funnel effect just kind of converged here" during Sandy, Tirone recalled. "Our wave was about 15 feet." When we returned to the street, Tirone pointed out a makeshift cross standing in one of the lots, where a father and son had drowned. "The people who died were down in their basement, trying to fix their sump pumps." Survivors rode out the storm on their roofs. After going through that, most residents were happy to take the state's offer to pay the pre-disaster value of their homes. All told, the buyout program has bought more than 450 houses in Oakwood Beach and two neighboring communities, at a cost of nearly $190 million.

The program did not turn out to provide a model for the rest of the city, though, for reasons that were both economic—land elsewhere in New York is more expensive—and anthropological. Just next door, the vast majority of residents of Midland Beach stubbornly rejected retreat, choosing to rebuild behind an $580 million seawall the Army Corps is planning. Tirone, a real-estate broker by profession, told me he recently represented some investors at a government auction of storm-damaged houses. "There is an insatiable demand for those properties," he said. "It's like it's never going to rain again."

The water will rise, though. "The question is when," says Columbia University climate scientist Vivien Gornitz, who has worked on the New York City Panel on Climate Change's projections. "How fast,

how soon? And I don't think anybody knows."

The answer is buried in the Earth's glaciers, which warehouse enough water to increase sea levels by some 230 feet. In her 2013 book _Rising Seas,_ Gornitz writes that although the glaciers have been stable for the last 6,000 or so years, they have fluctuated in the geologic past, freezing and then thawing in "pulses." The last time the climate was this hot, around 100,000 years ago, the oceans were between 13 and 30 feet higher than they are today. It's reasonable to assume, therefore, that we've already locked in that amount of sea-level rise; with a few more degrees of warming, we could be looking at truly biblical scenarios. Just as a handful of ice cubes won't disappear as soon as you drop them in a glass of tap water, the glaciers won't collapse once the temperature hits a certain threshold. But sooner or later, the cubes will melt.

In the geologic past, glacial retreats happened over the course of thousands of years, and if that is how the ice melts this time, cataclysmic sea-level rise is some other civilization's problem. There is ample reason to believe, however, that "human forcings"—the technical term for all the pressure our insatiable demand for energy puts on the environment—will make this meltdown different. A paper published earlier this year in the journal _Nature_[14] found that the

massive West Antarctic Ice Sheet could soon collapse, by itself adding three feet to sea levels by 2100, and a foot per decade after that. "Then the 22nd century," Ben Strauss says, "becomes one of constant upheaval, retreat, and adjustment." But a group led by James Hansen, a retired NASA climate scientist, published their own paper[15] this year, advancing the controversial theory that an oceanic chain reaction could cause the ice sheets to melt even sooner, causing "several meters" of sea rise, storms like no human has ever witnessed, and the loss "of all coastal cities." In a recent email, Hanson wrote me: "Will the full-fledged consequences be in 50 years, 100 years, 150 years? I can't imagine it will be greater than that range."

Somewhere between Hansen's timeline and the geologic one, you can start to conceive of the end of New York. The human capacity for adaptation has its limits, and while Jacob says the Domino complex is a model of farsighted architecture, will anyone want to live in a luxury apartment on Kent Avenue when it regularly turns into a river? We can keep building seawalls, but they will need continual reinforcement to remain effective against intensified storms, and history would suggest that we cannot count on political institutions to make such investments. (The tendency to procrastinate is one constant in the sea-level equation.) Maybe after a future hurricane, the city

government will turn all the lovely waterfront parks we've recently built into 50-foot berms. Or maybe it will decide to accept a new relationship with water—the gondola option. Probably the most likely outcome, though, is an inconsistent response, leading to a new form of elevation-based inequality. The core of Manhattan will become a walled city of privilege. Everywhere else will have to absorb the runoff.

Some of the most interesting speculation about the implications of sea-level rise is happening in the realm of science fiction. In his forthcoming *New York 2140,* science-fiction novelist Kim Stanley Robinson draws on Hansen's research and imagines a version of Manhattan after a pair of glacier pulses have raised sea levels 50 feet, breaching "Bjarke's Wall" in a great disaster that floods Manhattan up to around the Empire State Building. But in many ways, New York persists. His characters live in the Metropolitan Life tower at 23rd Street, drive boats to their office jobs, bitch about traffic on the East River, and profit off gentrification in the intertidal area of midtown, "a zone of squatters and scammers and street people out to have some fun." Robinson told me he was interested in writing a book that demonstrated that it "is not necessarily the case that a catastrophe like that would end capitalism."

To anyone who went through Sandy,

Robinson's presumption carries a ring of truth. I rode out the storm in a second-story apartment in Gowanus, right on the edge of the evacuation zone, watching warily as inky-black canal water inched over the fuel-oil depot down the street. It felt like the end of the world, but soon enough, the city dried out and went back about its business. One day soon afterward, Jacob met me in my neighborhood. We walked down 9th Street—which routinely floods already when it rains—and looked down from a drawbridge at the Gowanus Canal. Once a tidal creek, it is now a Superfund[16] site, a designation that (amazingly) hasn't scared off property investors.

"If you think about the long term, this will be phragmites and marshland," Jacob said. "What was the Gowanus marsh will sooner or later become the Gowanus marsh again." When I later looked at the Climate Central maps, I saw that ten feet of water would completely submerge the area. But nearby, I noticed a patch of leafy, undeveloped land, which stayed dry in even the most apocalyptic scenario: Green-Wood Cemetery. Jacob likes to morbidly observe that some of the highest ground in New York—and some of its most desirable future real estate, perhaps—is currently occupied by graveyards.

"I think we should switch the living and the dead," he had told an incredulous audience at a forum a

few days before. "We laugh, but I think the dead would agree with us."

You won't live to see the flood. But it still may move your bones.

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From: https://nymag.com/intelligencer
/2016/09/new-york-future
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1. nymag.com/author/andrew-rice
2. milliontreesnyc.org `CjkL`
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13. ny.curbed.com `TPPN`
14. nature.com `31od`
15. slate.com `3wr3`
16. nytimes.com `RgXx`

# TYPES AND TYPECLASSES

## Believe the type

Previously we mentioned that Haskell has a static type system. The type of every expression is known at compile time, which leads to safer code. If you write a program where you try to divide a boolean type with some number, it won't even compile. That's good because it's better to catch such errors at compile time instead of having your program crash. Everything in Haskell has a type, so the compiler can reason quite a lot about your program before compiling it.

Unlike Java or Pascal, Haskell has type inference. If we write a number, we don't have to tell Haskell it's a number. It can *infer* that on its own, so we don't have to explicitly write out the types of our functions and expressions to get things done. We covered some of the basics of Haskell with only a very superficial glance at types. However, understanding the type system is a very important part of learning Haskell.

A type is a kind of label that every expression has. It tells us in which category of things that expression fits. The expression True is a boolean, "hello" is a string, etc.

Now we'll use GHCI to examine the types of some expressions. We'll do that by using the :t command which, followed by any valid expression, tells us its type. Let's give it a whirl.

```
ghci> :t 'a'
'a' :: Char
ghci> :t True
True :: Bool
ghci> :t "HELLO!"
"HELLO!" :: [Char]
ghci> :t (True, 'a')
(True, 'a') :: (Bool, Char)
ghci> :t 4 == 5
4 == 5 :: Bool
```

Here we see that doing :t on an expression prints out the expression followed by :: and its type. :: is read as "has type of". Explicit types are

always denoted with the first letter in capital case. 'a', as it would seem, has a type of Char. It's not hard to conclude that it stands for *character*. True is of a Bool type. That makes sense. But what's this? Examining the type of "HELLO!" yields a [Char]. The square brackets denote a list. So we read that as it being *a list of characters*. Unlike lists, each tuple length has its own type. So the expression of (True, 'a') has a type of (Bool, Char), whereas an expression such as ('a','b','c') would have the type of (Char, Char, Char). 4 == 5 will always return False, so its type is Bool.

Functions also have types. When writing our own functions, we can choose to give them an explicit type declaration. This is generally considered to be good practice except when writing very short functions. From here on, we'll give all the functions that we make type declarations. Remember the list comprehension we made previously that filters a string so that only caps remain? Here's how it looks like with a type declaration.

```
removeNonUppercase :: [Char] -> [Char]
removeNonUppercase st = [ c | c <- st, c `elem` ['A'..'Z']]
```

removeNonUppercase has a type of [Char] -> [Char], meaning that it maps from a string to a string. That's because it takes one string as a parameter and returns another as a result. The [Char] type is synonymous with String so it's clearer if we write removeNonUppercase :: String -> String. We didn't have to give this function a type declaration because the compiler can infer by itself that it's a function from a string to a string but we did anyway. But how do we write out the type of a function that takes several parameters? Here's a simple function that takes three integers and adds them together:

```
addThree :: Int -> Int -> Int -> Int
addThree x y z = x + y + z
```

The parameters are separated with -> and there's no special distinction between the parameters and the return type. The return type is the last item in the declaration and the parameters are the first three. Later on we'll see why they're all just separated with -> instead of having some more explicit distinction between the return types and the parameters like Int, Int, Int -> Int or something.

If you want to give your function a type declaration but are unsure as to what it should be, you can always just write the function without it and then check it with :t. Functions are expressions too, so :t works on them without a problem.

Here's an overview of some common types.

Int stands for integer. It's used for whole numbers. 7 can be an Int but 7.2 cannot. Int is bounded, which means that it has a minimum and a maximum value. Usually on 32-bit machines the maximum possible Int is 2147483647 and the minimum is -2147483648.

Integer stands for, er … also integer. The main difference is that it's not bounded so it can be used to represent really really big numbers. I mean like really big. Int, however, is more efficient.

```
factorial :: Integer -> Integer
factorial n = product [1..n]
ghci> factorial 50
30414093201713378043612608166064768844377641568960512000000000000
```

Float is a real floating point with single precision.

```
circumference :: Float -> Float
circumference r = 2 * pi * r
ghci> circumference 4.0
25.132742
```

Double is a real floating point with double the precision!

```
circumference' :: Double -> Double
circumference' r = 2 * pi * r
ghci> circumference' 4.0
25.132741228718345
```

Bool is a boolean type. It can have only two values: True and False.

Char represents a character. It's denoted by single quotes. A list of characters is a string.

Tuples are types but they are dependent on their length as well as the types of their components, so there is theoretically an infinite number of tuple types, which is too many to cover in this tutorial. Note that the empty tuple () is also a type which can only have a single value: ()

## Type variables

What do you think is the type of the head function? Because head takes a list of any type and returns the first element, so what could it be? Let's check!

```
ghci> :t head
head :: [a] -> a
```

Hmmm! What is this a? Is it a type? Remember that we previously stated

that types are written in capital case, so it can't exactly be a type. Because it's not in capital case it's actually a *type variable*. That means that a can be of any type. This is much like generics in other languages, only in Haskell it's much more powerful because it allows us to easily write very general functions if they don't use any specific behavior of the types in them. Functions that have type variables are called *polymorphic functions*. The type declaration of head states that it takes a list of any type and returns one element of that type.

Although type variables can have names longer than one character, we usually give them names of a, b, c, d ...

Remember fst? It returns the first component of a pair. Let's examine its type.

```
ghci> :t fst
fst :: (a, b) -> a
```

We see that fst takes a tuple which contains two types and returns an element which is of the same type as the pair's first component. That's why we can use fst on a pair that contains any two types. Note that just because a and b are different type variables, they don't have to be different types. It just states that the first component's type and the return value's type are the same.

## Typeclasses 101

A typeclass is a sort of interface that defines some behavior. If a type is a part of a typeclass, that means that it supports and implements the behavior the typeclass describes. A lot of people coming from OOP get confused by typeclasses because they think they are like classes in object oriented languages. Well, they're not. You can think of them kind of as Java interfaces, only better.

What's the type signature of the == function?

```
ghci> :t (==)
(==) :: (Eq a) => a -> a -> Bool
```

*Note*: the equality operator, == is a function. So are +, *, -, / and pretty much all operators. If a function is comprised only of special characters, it's considered an infix function by default. If we want to examine its type, pass it to another function or call it as a prefix function, we have to surround it in parentheses.

Interesting. We see a new thing here, the => symbol. Everything before the

=> symbol is called a *class constraint*. We can read the previous type declaration like this: the equality function takes any two values that are of the same type and returns a Bool. The type of those two values must be a member of the Eq class (this was the class constraint).

The Eq typeclass provides an interface for testing for equality. Any type where it makes sense to test for equality between two values of that type should be a member of the Eq class. All standard Haskell types except for IO (the type for dealing with input and output) and functions are a part of the Eq typeclass.

The elem function has a type of (Eq a) => a -> [a] -> Bool because it uses == over a list to check whether some value we're looking for is in it.

Some basic typeclasses:

Eq is used for types that support equality testing. The functions its members implement are == and /=. So if there's an Eq class constraint for a type variable in a function, it uses == or /= somewhere inside its definition. All the types we mentioned previously except for functions are part of Eq, so they can be tested for equality.

```
ghci> 5 == 5
True
ghci> 5 /= 5
False
ghci> 'a' == 'a'
True
ghci> "Ho Ho" == "Ho Ho"
True
ghci> 3.432 == 3.432
True
```

Ord is for types that have an ordering.

```
ghci> :t (>)
(>) :: (Ord a) => a -> a -> Bool
```

All the types we covered so far except for functions are part of Ord. Ord covers all the standard comparing functions such as >, <, >= and <=. The compare function takes two Ord members of the same type and returns an ordering. Ordering is a type that can be GT, LT or EQ, meaning *greater than*, *lesser than* and *equal*, respectively.

To be a member of Ord, a type must first have membership in the

prestigious and exclusive Eq club.

```
ghci> "Abrakadabra" < "Zebra"
True
ghci> "Abrakadabra" `compare` "Zebra"
LT
ghci> 5 >= 2
True
ghci> 5 `compare` 3
GT
```

Members of Show can be presented as strings. All types covered so far except for functions are a part of Show. The most used function that deals with the Show typeclass is show. It takes a value whose type is a member of Show and presents it to us as a string.

```
ghci> show 3
"3"
ghci> show 5.334
"5.334"
ghci> show True
"True"
```

Read is sort of the opposite typeclass of Show. The read function takes a string and returns a type which is a member of Read.

```
ghci> read "True" || False
True
ghci> read "8.2" + 3.8
12.0
ghci> read "5" - 2
3
ghci> read "[1,2,3,4]" ++ [3]
[1,2,3,4,3]
```

So far so good. Again, all types covered so far are in this typeclass. But what happens if we try to do just read "4"?

```
ghci> read "4"
<interactive>:1:0:
    Ambiguous type variable `a' in the constraint:
      `Read a' arising from a use of `read' at <interactive>:1:0-7
    Probable fix: add a type signature that fixes these type variable(s)
```

What GHCI is telling us here is that it doesn't know what we want in return. Notice that in the previous uses of read we did something with the result afterwards. That way, GHCI could infer what kind of result we wanted out of

our read. If we used it as a boolean, it knew it had to return a Bool. But now, it knows we want some type that is part of the Read class, it just doesn't know which one. Let's take a look at the type signature of read.

```
ghci> :t read
read :: (Read a) => String -> a
```

See? It returns a type that's part of Read but if we don't try to use it in some way later, it has no way of knowing which type. That's why we can use explicit *type annotations*. Type annotations are a way of explicitly saying what the type of an expression should be. We do that by adding :: at the end of the expression and then specifying a type. Observe:

```
ghci> read "5" :: Int
5
ghci> read "5" :: Float
5.0
ghci> (read "5" :: Float) * 4
20.0
ghci> read "[1,2,3,4]" :: [Int]
[1,2,3,4]
ghci> read "(3, 'a')" :: (Int, Char)
(3, 'a')
```

Most expressions are such that the compiler can infer what their type is by itself. But sometimes, the compiler doesn't know whether to return a value of type Int or Float for an expression like read "5". To see what the type is, Haskell would have to actually evaluate read "5". But since Haskell is a statically typed language, it has to know all the types before the code is compiled (or in the case of GHCI, evaluated). So we have to tell Haskell: "Hey, this expression should have this type, in case you don't know!".

Enum members are sequentially ordered types—they can be enumerated. The main advantage of the Enum typeclass is that we can use its types in list ranges. They also have defined successors and predecesors, which you can get with the succ and pred functions. Types in this class: (), Bool, Char, Ordering, Int, Integer, Float and Double.

```
ghci> ['a'..'e']
"abcde"
ghci> [LT .. GT]
[LT,EQ,GT]
ghci> [3 .. 5]
[3,4,5]
ghci> succ 'B'
```

```
'C'
```

Bounded members have an upper and a lower bound.

```
ghci> minBound :: Int
-2147483648
ghci> maxBound :: Char
'\1114111'
ghci> maxBound :: Bool
True
ghci> minBound :: Bool
False
```

minBound and maxBound are interesting because they have a type of
(Bounded a) => a. In a sense they are polymorphic constants.

All tuples are also part of Bounded if the components are also in it.

```
ghci> maxBound :: (Bool, Int, Char)
(True,2147483647,'\1114111')
```

Num is a numeric typeclass. Its members have the property of being able to
act like numbers. Let's examine the type of a number.

```
ghci> :t 20
20 :: (Num t) => t
```

It appears that whole numbers are also polymorphic constants. They can act
like any type that's a member of the Num typeclass.

```
ghci> 20 :: Int
20
ghci> 20 :: Integer
20
ghci> 20 :: Float
20.0
ghci> 20 :: Double
20.0
```

Those are types that are in the Num typeclass. If we examine the type of *,
we'll see that it accepts all numbers.

```
ghci> :t (*)
(*) :: (Num a) => a -> a -> a
```

It takes two numbers of the same type and returns a number of that type.
That's why (5 :: Int) * (6 :: Integer) will result in a type error whereas 5 * (6 ::
Integer) will work just fine and produce an Integer because 5 can act like an
Integer or an Int.

To join Num, a type must already be friends with Show and Eq.

Integral is also a numeric typeclass. Num includes all numbers, including real numbers and integral numbers, Integral includes only integral (whole) numbers. In this typeclass are Int and Integer.

Floating includes only floating point numbers, so Float and Double.

A very useful function for dealing with numbers is fromIntegral. It has a type declaration of fromIntegral :: (Num b, Integral a) => a -> b. From its type signature we see that it takes an integral number and turns it into a more general number. That's useful when you want integral and floating point types to work together nicely. For instance, the length function has a type declaration of length :: [a] -> Int instead of having a more general type of (Num b) => length :: [a] -> b. I think that's there for historical reasons or something, although in my opinion, it's pretty stupid. Anyway, if we try to get a length of a list and then add it to 3.2, we'll get an error because we tried to add together an Int and a floating point number. So to get around this, we do fromIntegral (length [1,2,3,4]) + 3.2 and it all works out.

Notice that fromIntegral has several class constraints in its type signature. That's completely valid and as you can see, the class constraints are separated by commas inside the parentheses.

From: http://learnyouahaskell.com
      /types-and-typeclasses
      #typeclasses-101

# Colophon

Walden Pond is laid out using Paged.js, CSS and a lot of custom JavaScript. It is rendered with Firefox. The fonts are Noto Serif JP for the body text, and Raleway Dots, Raleway and Cinzel Decorative for headings.

It is made in Marrickville, New South Wales, Australia. Then printed by Lulu, somewhere near you.

Cover art by Duane Raver[1]
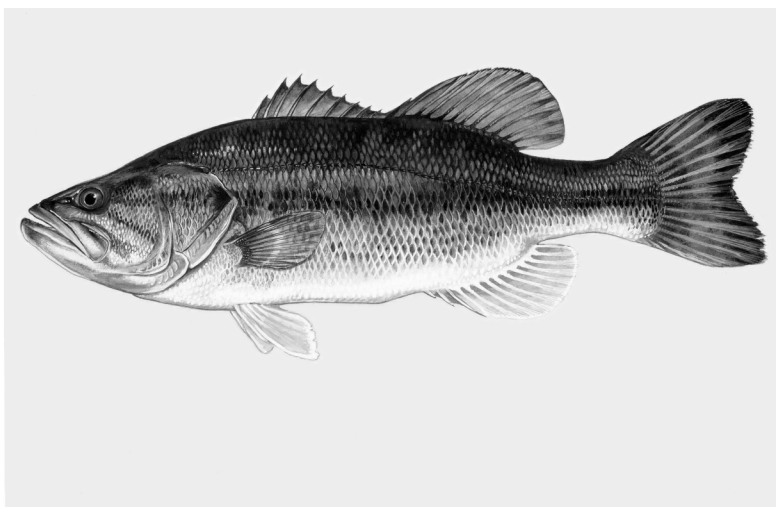


The cover is a watercolour by Duane Raver[2] of a largemouth bass, a common fish in Walden Pond, and is in the Public Domain.

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1. waltermagazine.com `YXaf`
2. digitalmedia.fws.gov `3hhs`