

The Hard Parts of Open Source

- **Speaker:** Evan Czaplicki
- **Meeting:** Strange Loop 2018 - September 2018
- **Video:** https://www.youtube.com/watch?v=o__4EX4dPppA
- **Slides:** <https://prezi.com/oowcpzsnwp-8/the-hard-parts-of-open-source>

[References to videos, books, and articles mentioned in this talk: <https://gist.github.com/evancz/b29d1ce4166a557d034742>]

[Time 0:00:00]

slide title: The Hard Parts of Open Source

Evan Czaplicki
Elm / NoRedInk

Welcome, everybody. Thanks for coming to this session.

So I am Evan Czaplicki. I am the designer of the Elm programming language.

[Time 0:00:17]

slide title:

[image of first page of the paper "Elm: Concurrent FRP for Functional GUIs", Evan Czaplicki, 30 March 2012]

And I got started on it about seven years ago with a paper called “Elm: Concurrent FRP for Functional GUIs”. And I was like, “I really think I can make this functional programming stuff easier”. And I did not nail it immediately with that title, but I had this idea of this experience with typed functional programming that was really joyful.

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slide title:

[new text added to previous slide:]

Getting set up is easy

Writing programs is fun

Community is friendly

And what I wanted to get out with Elm was like I wanted to take that part that I felt was so fun and make it accessible to other people, and share that joy that I had felt.

And so part of that is technical. You know, you have to write a compiler and all of this kind of stuff. But another part is practical stuff, like getting set up should be easy. And that was part of what was important to me, having spent a whole day just trying to learn something. Trying to see if something was interesting, and being really frustrated.

Another piece of that was: if programming was going to be fun, I wanted the community to be friendly. I did not want it to be cool club for the cool kids. Oh, we are functional programmers and you are not, because you are dumb. I did not relate to that. I just had a nice time programming, and I wanted to share that nice time, in the same way that I like sushi, and I might say, “Hey, you should try it out. It is pretty nice.” And someone might say, “No thanks”. Oh, OK. You know? That is the kind of interactions I wanted to have, because it was just about having this experience.

[Time 0:01:45]

So as I have talked to more open source developers, people who design languages, people who work on databases, people who work on machine learning or discussion platforms or environmental sensors, however much we disagree on design or what our goals are, we all have stories in common about having a friendly community is really, really difficult.

And that is one of the places in open source where, as good as you can be at the technical stuff, ultimately you cannot control what is going to happen. And if someone is going to yell, it is like “ooohhhh, I wish that did not happen.”

So I have been doing this for about seven years now, and I have started to notice some patterns of behavior that I think probably a lot of people who have worked in open source with larger projects [tbd?] will relate to.

[Time 0:02:35]

slide title: Pattern

"Why don't you just ..."

copy the JS API directly?

release 0.18.1 now instead?

derive JSON decoders?

It is more complex than it sounds.

So one is this, “Why don't you just ...”

And in Elm it is like, “Why don't you just get the JS API directly?” Or release an incremental version, instead of a bigger release? Or, hey, can we derive JSON decoders?

And the short answer in all of these cases is that it is more complex than it sounds. Like if there is something that you can think of in five minutes, or an hour, or a day, probably someone has thought about that and considered it. And there might be implications that you do not see from your perspective, but someone else in the community might have a problem with that, that is not obvious to you.

So when you are doing design, “Why don't you just ...” It is like there are all these different parties that we have to make things work for. And I can do my best on my intuition, but ultimately even after I spend like a week trying to design something that way, I need to go out and show it to people, and see what objections they bring. And then maybe do it with another design.

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So this “Why don't you just ...” is quite frustrating. And one thing that happens is there are a lot of people who are new to the project. So maybe there are ten thousand people who might be curious.

Oh, why don't you just try out this kind of thing? And the number of people who know the full context is pretty small. So maybe there are like ten, twenty people.

So if it takes five minutes to say "Why don't you just blah blah blah?", and it takes two pages of writing, and you have to write it very carefully because if you are an influential community member, people will refer back to what you said four or five years ago, and say like, "Man, they are such a jerk. Here is the evidence. They said this in 2013." And it is like, "Aaahhhh, yeah, I said that in 2013. Yeah."

So one thing that is common is like, well if it is so much work, why don't you just delegate the work? Right? So this is a comment I got in real life, and the italics are from the person talking to me.

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slide title: Pattern
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There's another way to deal with this that can improve the current situation and keep everyone (most of the people?) happy: `_delegation_`.

They said, "There is another way to deal with this. Delegation." And then they go on to describe how delegation works, and what benefits it might have. And I was like, "Oh, very interesting. Yes. I had not thought about that."

[Time 0:04:44]

slide title: Pattern
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"This `_somebody_` can also be a "reverse proxy" who's gathering feedback."

And they describe a person who can do all of this work, and they say this *somebody* – again, that is their italics – can also be a proxy who is gathering feedback, so you do not have to be in these discussions.

So I was initially very upset about this. So the unfiltered, in my own mind, version, was like [gestures as if holding a telephone up to his ear and mouth]: "Oh, hello, is this the somebody store? Yes, we would like someone to take unsolicited advice on the Internet. Oh, yeah, it is really mean. Yeah, it is going to be rough. Yeah, no one is going to say thank you. No. Yeah, it is unpaid. It is unpaid. You don't have anybody? I was told there would be *somebody* who would do this."

So this was me in my own life, walking around my room, just like [gesturing with hands in very frustrated upset manner]. And that is not a healthy place to be. That is not how I want to look to a community. That is not what I want the community I am a part of to be, either.

And when I took some time and thought about it more, I realized there is actually a pretty reasonable assumption going on here, which is: "Free rice means you can take as much as you want." The rice is free. I will take a lot of rice.

[Time 0:06:02]

And so does that imply that free labor means you can use as much as you want? Well the labor is free. But in fact, this is not how labor works. If you do not pay for labor, you get less. And so I think that is sort of the root thing. It is like: oh, well it should be unlimited. Anyone can help.

Now let us assume it is unlimited. That everybody in the world actually can help. In practice, you actually have to work together. These are highly technical projects. Are you able to work well together? Are your goals with the project aligned? How much time does it take to coordinate with that person to get stuff done? So even if you can work with anybody you want, there are still these limitations on who is going to be really effective in doing the right stuff.

[Time 0:06:47] <https://discourse.elm-lang.org/t/building-trust-what-has-worked/975>

So I wrote about that a little bit in this post. Or no, sorry, Richard wrote about that in this post here, of what actually does it take to get involved. And it is not just the somebody store.

[Time 0:07:05]

slide title: Pattern

"On whose authority?"

So some people may be thinking: Evan, you are doing a lot of telling us what is the situation. But who are you to say that? And so this is another pattern that I see a lot: On whose authority?

And this is actually the title of a post that was sent to the Clojure community. And the post started out "F*** Clojure"

"There I've said it and God it feels good."

"I say it with much admiration and respect to all the community members."

And then they go on to say some criticisms, and talk about their relationship with women. And it is quite a roller coaster of a post.

But what is interesting besides sort of like it as a journal entry is that it gets a lot of engagement, right? So 320 comments on the Reddit thread. I am sure people talked about it in other contexts as well, where there would have been more comments.

[Time 0:08:08]

And as someone who has been working on an open source project for a bunch of years now, enough people have told me that Elm is going to die next month that I am like, "I don't think they are right this time." You know, like that fear does not speak to me any more, because I have the experience.

But there are other people in the community who do not have that same experience, and this can be like a scary thing. "Man, people are not liking this thing. Are we doing something wrong?" They feel like maybe it could be better. They might get defensive.

So in one of these 320 comments the creator of Clojure says:

"I found out about this while sitting down to spend my weekend contributing to the Clojure ecosystem. Time spent in lieu of spending time with my wife, having already spent my work week on other Clojure related stuff."

And I relate to this a lot. I have definitely written like, "Hey, I get that there are different viewpoints, but we can't yell our viewpoints at each other." And that was my Saturday. And as you work over the course of the years, there can only be so many Saturdays that are like that before it starts to hurt you in larger ways.

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So Rich Hickey goes on to say:

"Every time I have to process a diatribe like this, and its aftermath, the effects on myself, my family, and my coworkers, I have to struggle back from "Why should I bother?", and every time it gets harder to justify to myself and my family that it's worth the time, energy, and emotional burden."

Now I have talked to some people about this post, and they thought different things stood out. To me, this last part is what stands out, because I think a lot of people in open source feel this way, and would never say it out loud. I was really surprised to see it that way, and it kind of gave me some confidence to talk about that kind of stuff as well.

So we have our posts like this in the Elm community, with a bunch of comments as well:

"Elm is Wrong" 346 comments

"When will Elm grow up?" 46 comments

"Is Evan Killing Elm's momentum?" 94 comments

And I see it not just as like: Oh, man, this is hard for me to process. But the people I work with have a hard time processing it. And then if you just add up all of the time. Let us say maybe ten minutes is spent on each of these comments – which I think is low, like a conservative estimate – we are talking about like fifty hours for this one that is just like dealing with someone's anger. And could that have been helping someone new, or spending time with some family members, or learning some hobby that could get you out of work and get you a more healthy attitude?

So one thing I hear a lot when I talk about this stuff is: If it makes you so mad, why don't you just not read it? Why don't you just ... not read it?

[Time 0:11:04]

slide title: Pattern

"All discussion is constructive"

So another pattern that is really common is that all discussion is constructive. You know, "I am just saying how I feel." I feel like f*** you, and I respect you a lot. And I think you are an idiot, but I really learned a lot from you. And that is a difficult personal relationship to have. I do not know if people have people like that in their life, but that is a difficult thing to deal with a lot.

So one discussion that was along these lines was "Should Elm have user-definable infix operators?" This came up recently with our recent release. And if we just focus on this question textually, someone might say, "Yeah, there are cases where it makes code shorter and more convenient." And someone else might say, "No, because it can make code harder to read, especially in a large team."

And textually, this is an interesting argument. Yeah, it can make code shorter. That is a good point. And, eh, it might hurt people in a large team. And then onlookers will sort of say, oh, which one seems to make more sense to me?

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But when you take a step back, and stop thinking of it as just a textual argument about who is right, and who is wrong, and say, "All of these people have different priorities." Some of them may value flexibility a lot. And some people might value simplicity a lot. And all of these people exist with

different priorities. So this person is like, “Yeah, we should have this”, really might value flexibility. And the person who says no, is saying, “Well, all of these benefits you are telling me about flexibility, or how code can be shorter and more convenient, that is not persuasive to me. That is not a ‘good rational argument’, because it is not important.”

And likewise, “How does it work on a large team?” Well this does not matter. It is not about that. And all of the people exist on this spectrum with different priorities as well. They are evaluating it not as “Which is the true objective argument?” but “Given my priorities, which is the one that makes the most sense to me?”

[Time 0:13:11]

So I have come to see constructive discussion is about mutual understanding, rather than mutual agreement. And a lot of discussions on line are like: We are going to get to a point where you agree with me. Rather than saying, “Huh, this person is seeing it different. Why is that? Maybe they are seeing something I don’t.”

So when I take a step back and think about these different patterns, I just think like, “Why?” Why is this happening? I don’t have problems like this in normal life. If I am at an Elm conference, or a meetup, nothing ever is so emotionally difficult as these interactions.

So I found this documentary called “All Watched Over By Machines of Loving Grace” by Adam Curtis. It is excellent, as is all of his work. And I found through that a book called “From Counterculture to Cyberculture”. So this revealed to me an intellectual history going back to the 1950s that really helps explain what is going on in open source right now.

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So it traces things from a book called “The Human Use of Human Beings”. So this came out of MIT in 1952, by a person who had created artillery that could automatically track planes and shoot them down.

And then the “Whole Earth Catalog”, which was popular in the back to the land movement. So a lot of people in communes might have bought this, but it was a much larger thing than that. And then finally the Electronic Frontier Foundation. And it sort of ties these together in a very interesting way.

So we will look at some of the things going on here. In The Human Use of Human Beings, Norbert Wiener introduces the idea of cybernetics. He defines it as “the study of messages as a means of controlling machinery and society”. So it is a little weird. OK, fine. As you start to read it, it is like this way of, “let us not look at the person, but let us look at the messages going around”. And that is how we will think about how the world works.

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And so you see things like: words such as life, purpose, and soul are grossly inadequate to precise scientific thinking. Which is like “fair enough”, but also, those things like life and purpose are pretty important to people as well, to consider.

But a person is just a special sort of machine. We can consider it as a thing that takes inputs and does stuff. Emotions are just a useless epiphenomenon. That is real. He said that.

Another thing is: we have modified our environment so radically, that we must now modify ourselves in order to exist in this new environment. So it is sort of: how can we take a person and simplify it down to a machine, or a system that we can understand well? And then once we are starting to think of people that way, well we can improve machines. We can add things to them and the machines get more capabilities. Maybe that is how we move forward as people.

And life and purpose is like, we cannot go back to that. It is too different now.

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So the connecting thread in “Whole Earth Catalog”, besides Stewart Brand, the author of this, knowing a bunch of the people in the cybernetics group, is this idea of access to tools. So our relationship with our tools is going to be how we move forward. So this catalog starts with “We are as gods and we might as well get good at it. So far, remotely done power and glory – as government, big business, formal education, church – has succeeded to the point where the gross defects obscure actual gains. In response, personal power is developing.”

So he is focused on a bunch of different topics. And so education, finding inspiration, shaping his environment, sharing the adventure. Now keep in mind, this is written in 1969. So this is before the Internet. And if you read these points as what an ideal view of the Internet should be, it works really well. Like you can find out all sorts of interesting stuff. You can be inspired by what is going on out there. You can find a place where you really fit in, even if you don’t fit in in your local community that has different values than you. And you can share that with whoever you want to. Like there is this place for self expression.

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And so he says, “tools that aid this process are sought and promoted by the Whole Earth Catalog”. So some people have argued that this is sort of like what preceded the Internet. It sort of foresaw what was going to happen there. And this publication and the creator, Stewart Brand, have been really influential.

So one of the positive quotes is “When I was young, there was an amazing publication called The Whole Earth Catalog, which was one of the bibles of my generation.” So that was Steve Jobs.

There was a project that Stewart Brand created called The Ten Thousand Year Clock, which Jeff Bezos helped fund with 42 million dollars. So what is this book that was popular on back to the land communes, became very influential because of this how tools, and a rejection of hierarchy, we are somehow in this new place where we are going to choose our own future through our connection with tools.

And finally, the Electronic Frontier Foundation. Interestingly, the founders of this met on the Whole Earth Electronic Link, one of the earliest message boards. And so one of the founders wrote “The Declaration of Independence of Cyberspace”.

“Governments of the Industrial World, you weary giants of flesh and steel. You have no sovereignty where we gather.”

“I declare the social space we are building to be naturally independent of the tyrannies you seek to impose on us.”

So again you see this distrust of hierarchy. Big business has failed. The government has failed. We are going to find a new way through this thing. So one of the early cases that the Electronic Frontier Foundation, that inspired the creation of this foundation, was there was a programmer called Lloyd Blankenship. And Bell South found that some of their 911 alert system documentation had been posted on a bulletin board. And so they got the Secret Service involved and took some computers that might have sensitive information.

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So Lloyd was arrested, and the Electronic Frontier Foundation was created around that time to help protect people in this situation. So after Lloyd was arrested, he wrote something called “The Hacker’s Manifesto”, which I think gives a rawer version of what is going on in this world.

So he says: “I’m smarter than most of the other kids, this crap they teach us bores me.”

“I’ve listened to my teacher explain for the fifteenth time how to reduce a fraction. I understand it.” No, Ms. Smith, I didn’t show my work. I did it in my head. . . “”

And he says: “I made a discovery today. I found a computer. It does what I want it to do. If I make a mistake, it’s because I screwed up. Not because it doesn’t like me, or it feels threatened by me, or it thinks I’m a smartass, or it doesn’t like teaching and shouldn’t be here.”

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So this guy is 21 when he is writing this. He is someone who is very disillusioned, not just with government, or big business, but just his classroom, the social environment he is living in.

And he goes on to say, “This is our world now. We explore, but you call us criminals. You build atomic bombs, wage wars. He is trying to make us believe it is for our own good, yet we are the criminals.”

So again you see that explicit distrust of hierarchy. And then, finally, “My crime is that of outsmarting you. Something you will never forgive me for.”

So I do not know how many people who work on open source will recognize aspects of this attitude in interactions they have, but there is sort of such a strong rejection of the social things going on. It is like, the teacher who is not teaching you well has a bunch of other students, and it is difficult to balance all of their needs. Maybe it is malicious, but maybe there is another reason. But this world view is kind of like: I outsmarted you. You don’t see it how I see it.

[Time 0:21:58]

So when I take a step back on this intellectual pathway, the things I sort of draw out from reading these books and things is, one: we are gods. Two: hierarchy has failed us. There is sort of a deep distrust of hierarchical structures. I think rightly: there are a lot of bad things that come out of hierarchy. And finally: order will emerge from the new technology.

So when we reconsider the patterns we see in open source, this stuff makes a lot of sense.

So it is like, “Why don’t you just . . . ?” It is like we can just through reason and rationality, figure out the answer. Why don’t you just do the obvious thing?

Hierarchy has failed us. So again, “On Whose Authority?” is coming out of this tradition of “hierarchical structures have not served us well”. We need to find a way that is not structured in that way. Like your authority, as the author, is not legitimate on those grounds.

And “All discussion is constructive”. It is like, “well, this is the new technology. This is what the new technology is producing, so this must be the way forward to this place that we want to go.”

[Time 0:23:10]

So I found this pathway really interesting, and it helped me understand a lot what was going on. But it is just one of a couple of different ways of looking at how we got to this level of conflict in open source. So I am calling this sort of the intellectual history of people who are primarily prioritizing freedom.

But there are other ones, such as people who are primarily prioritizing engagement.

So I want to start with a quote:

"The enormous expansion of communications ... has entirely transformed the conditions of trade and commerce. Everything is done in haste, at fever pitch. The night is used for travel, the day for business; even 'holiday trips' put strain on the nervous system."

Do people relate to that? Holiday trips being stressful? I feel that. Or I struggle with that, at least. I try to take a break, or whatever.

[Time 0:24:07]

"Great political, industrial, and financial crises carry this excitement into far wider areas of the population than ever before. Interest in political life has become universal: tempers are inflamed by political, religious and social struggles, party politics, electioneering."

Does this sound familiar to anybody? Finally:

"People are forced to engage in constant mental activity and robbed of the time they need for relaxation, sleep and rest."

So if you had to guess when this was written, it is reasonable: it could be this year. It could be 2017. Or maybe someone was really prophetic and they wrote it in like 1980. It is like: I see where this is all going.

So this is actually from something Freud wrote in 1902. The part I left out is "due to the world-wide telegraph and telephone networks" and "the immense growth of trade-unionism". So I think it makes sense that he would have seen these kinds of things. He seems like a smart dude, or at least someone who is very sensitive to human behavior.

[Time 0:25:09]

And so this is where this intellectual history starts. So we have Freud, but we are going to look at two other books. One is called Propaganda, from 1928, and one is called Nudge, much more recent, from 2008.

So Propaganda. This is written by Edward Bernays. This is actually Freud's nephew. The connections between all of these works are crazy, and as you look into any parts of these, like everybody met. Everybody worked with someone's nephew, or cousin, or Mom. It is very strange.

So this book is essentially a bunch of stories about how Edward Bernays created the idea of public relations.

So one of the stories he tells is about "Torches of Freedom". So this was an ad campaign to break the taboo against women smoking. At the time, men would smoke and it was acceptable to some degree. And women, it was very looked down upon. So the president of the American Tobacco Company said, "If we can break this taboo, it will be like a gold mine opening right in our front yard."

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So he hires Edward Bernays, and what Edward Bernays does is: he hires women who are good looking, but not too model-y – that is the quote I found: "good looking, but not too model-y" – to walk in the Easter Sunday parade, and smoke. He also hired photographers to get really good photos of these women, and then distribute those photos through newspaper connections that he had, to make sure they got published all around the world.

So this Torches of Freedom idea was saying: we see this trend about women's liberation happening, and like, this is aligned with that movement, in that this is a way of punching up against those taboos. But it is very focused on like, hey, we are going to make a bunch of money here.

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And so one of the ads that came out of this was "An Ancient Prejudice Has Been Removed". And what is interesting about this ad is that, visually, it is clearly about women smoking, but textually it is saying: toasting did it. It is because they toast the tobacco, it is less harsh on your throat, and that is what has removed the prejudice. So textually they can say: look, we are not getting into politics.

We are just saying that toasting is cool, and that is a lady who smokes. It is like: I don't see the problem. But meanwhile, you have hired Edward Bernays to actually run this campaign.

Oh yeah, I want to read a little bit from his book. This is the book. He says:

"The old fashioned propagandist, using almost exclusively the appeal to the printed word, tried to persuade the individual reader to buy a definite article immediately."

So his example of this is like: "You buy O'Leary's rubber bands now!" And he is like: "That is the old fashioned way."

[Time 0:28:10]

"The modern propagandist therefore sets to work to create the circumstances that will modify the custom."

It doesn't matter what this ad says. It is about creating circumstances such that the custom will change in whatever direction someone pays me to change it.

So another example he gives is for Mozart Pianos. So I do not know exactly the finances of Mozart Pianos, but let us say they had 30 per cent of the market share, and he gets hired to make it higher, maybe it can go up to 35 or 40. That would be huge for Mozart Pianos.

So Bernays comes in and he says: "OK, I could say to people 'Will you please buy a piano?'. But I am not going to do that. I know that pianos have this kind of elite cachet. And so what I am going to do is: I am going to make an architecture expo in New York City where we are going to showcase music parlors, and we are going to bring in famous people, influential artists, and musicians to be in the rooms. We are going to have expensive tapestries, and really lean in to this elite picture, and promote it in our connections with newspapers.

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He also invites architects from all over the country. He wants influential architects. And they will bring designs for music parlors. So what this expo does is: it creates a music parlor as an aspirational goal. And it brings in architects, who will then go back to wherever they are from, with designs for music parlors. And they will start building houses that have that, and ideally they will influence other architects, who are not as influential, to add music parlors as well.

And so instead of saying, "Hey will you please buy this piano?" people are now saying, "Hey, I have this piano shaped hole that I need to fill? Do you have something piano-shaped?"

So again, the modern propagandist sets to work to create the circumstances that will modify the custom.

So this got modernized and sort of made a bit nicer in Nudge. So here we see a nudge is any aspect of a choice architecture that will alter people's behavior in a predictable way, without forbidding any options or significantly changing their economic incentives.

[Time 0:30:17]

So this book has been really influential in tech recently. So one thing that we are probably all familiar with that is an example of this is auto play of videos. So you just finished a show. It ends on a cliffhanger because they wrote it that way. And you are like, man, that was cool. And you are like, oh, my body. Is it hungry? Does it need a walk? Did it have plans for today? Or for anything? And then the music starts again, and you are like: No. Ooohhh.

So this is a nudge, right? You are free to do some other behavior, but through the choice architecture that was created, a predictable amount of people do not make that free choice.

[Time 0:31:13]

So this ended up being popular at Google. So if anyone has visited Google cafeterias, you will probably have seen that all of the food has been marked with colors. So green means “eat any time”, yellow means “once in a while”, red means “not often, please”. And it is all marked. It is actually helpful. You can be like “Oh, I just had *one* red thing today!” It is kind of nice.

But this interest in colors changing people’s behavior was used at Google in other ways. So when you look at the history of their ad labeling, you see something similar. So when ads started, they sort of just started by playing around with colors. So maybe green is, like, fun, or maybe this lavender purple thing is the way to go.

So in a new phase of things you start to see: OK, well let’s .. can it be something more white? Well maybe a little more white, you know? Well how about something like a little more white. Instead of all of these colors, let us just put it all in one place. Take all of the saturation, put it in one place. And like, hey, it works fine. No problem.

[Time 0:32:25]

And then it is like, well, yellow is pretty ugly. We could just ... it is still labeled. It is no problem. And then it is like, I mean, who wanted it to be yellow? It was not really that important. And then, it is like, you know, the background ... I mean, people get it. They get it.

So when you search for “Italy tour”, for example, everything above the fold is an ad, and it is labeled in this very, you know, subtle and nice way.

So I found this very interesting quote from the head of text ads at Google. He says “we want to make it easier for users to digest information on the page, so we are gradually trying to reduce the number of variations of colors and patterns on the page, and bring a little bit more harmony to the page.” Like, “we just want harmony”. And that is why we reduced one of the color elements on the page. We could have reduced other color elements. It is just one color element. What is the big deal?

[Time 0:33:35]

So some of you may be thinking, “Evan, if you are so mad about this, why don’t you just change your default search?” Like you typed it into Safari, so clearly that is the default. Well, another thing I learned when I was looking into this is: Google paid one billion to Apple to keep the search bar on iPhones. Furthermore, these sums, called “traffic acquisition costs”, rose to 5.5 billion dollars, or 23 per cent of ad revenue.

So we are in a situation where a choice architecture has been created. The circumstances have been modified such that well, I don’t mind searching in this way. Or, I could scroll down below these ads, but I don’t really want to. So the circumstances have been created such that custom is modified. And if we wanted to mess with this, it is going to cost a lot of money. The fact that DuckDuckGo exists, doesn’t mean that they can compete with these kinds of numbers.

[Time 0:34:37]

So I think this whole intellectual lineage leads to something that we see in on-line communities a lot, which is: things are viral by design. So when Bernays starts an advertising campaign, all these stories he tells, he always starts with a psychological hook. So you might observe that people process emotions by sharing them with others.

So that might look like, someone is going about their day. It is fine. And someone shows up, and they are like, “That work you did last week, it was terrible. It is not going to work out. It was really not carefully considered.” And that person feels sad. And the person yelling at them goes away.

So they might mope around for a day, or however long. And hopefully they run into a friend who hears this story and says, “Aw, man. That sucks, but I don’t think that was really a fair assessment.” And through talking it through, the person can sort of deal with that and move through.

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Another interaction that might be possible is: you are going about your day, and someone says, “Did you hear about that terrible thing that is happening over there?” And you say, “Woah, that is terrible!” And then you see a friend and you say “Hey, did you hear about that?” And they are like, “Ah! That’s terrible!” And they see some of their friends. And they are like, “Man, that thing over there is really bad!” Viral!

So when we are choosing what kind of messages we want to put into society to control it, as the cyberneticists might say, this one has a very interesting pattern. So when you get something that has a viral reaction, that is something that has more engagement. And a lot of people who are running Silicon Valley companies in an idealistic way. They want to make the world better through tools, they are put in this choice architecture. Well, you have these investors, and you don’t want to disappoint them. There are all of these people who work at your company. You don’t want to lay them off. So do you want hash tag disappointing Q3? Or do you want the viral one?

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So once you have this psychological hook, you can start designing ways to make it work better. So the ones I have sort of noticed have been to mix extremes. So if we come back to our priorities graph of different people. These people do not necessarily congregate in the same place, but what we really want to happen is for the most extreme people to yell at each other as aggressively as possible. And so one way to do that might be to put all of the different programming communities in one place.

So if you look at different on line discussion forums, I think the degree to which different communities collide will predict the amount of conflict you see there. So Hacker News, I find that most difficult and most combative place. And then on r/Programming [reddit.com/r/Programming] you will see more of that, and on the subreddits for individual languages you will see less. On places that are just community places, that do not have accounts that are shared between, you will see less.

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So another approach is to decontextualize the person. So instead of two people talking, you have “tangodango” talking to “foxtrot”. And what is interesting here is like, when they saw each other’s faces they might be able to say, “Oh, this person is not trying to be malicious. They feel this way.” But when it is “tangodango”, it *could* literally be Hitler. It could. You don’t know. He is in Argentina just being like, “infix operators are stupid”. “Unclean!”

So another way to decontextualize things is to limit the amount of characters that are available to people. Another way is to limit the kind of feedback that is available. So instead of saying, “Hey, that was pretty hurtful”, you say “down!”. Like a lot of nuance is lost in that sort of thing.

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So when I take a step back on all of this, I think there is a big conflict here where there are very powerful incentives for our interactions to go really poorly. And I do not think the intellectual history of freedom is really well set up to protect against that. Like if you are living in a choice architecture that predictably alters people’s behavior, yeah, you were given a free choice, but you happened to choose a different thing 30 per cent of the time.

So this got me interested in a different pathway. So I ask a lot, “Why don’t I have any of these problems in person?” So like at work, or at conferences, or at meetups, or on the street. All of these places are *for* something. So when a place is for something, you can ask, “What is inappropriate behavior?”

If I am at work and a discussion keeps going and going, at some point we have to stop having the discussion and make a choice. We cannot be in discussion forever. It is clear because at work is for work.

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And at a conference it is against the norms to jump up on a stage and be like, “That is wrong!” The idea is that you carefully select speakers who might have something interesting to say to folks, and try to officially, and in a nice way, present that.

At a meetup, if someone is being really aggressive, there are ways to say, “aaahhh, I need to go to the bathroom”. There are ways out of those kinds of conflicts, and you are talking face to face. On the street someone is like standing outside of Starbucks and being like, “I had better coffee one time”, that is weird. That is weird behavior. “And the croissants could be done better. I don’t know how, but they could. This isn’t it.”

[Time 0:40:32]

So this idea of a place being *for* something, I think is really important. And so I had this idea for intentional communication. And so the idea is that instead of just having a blank box you write into, you first choose some intent. My intent is to learn, let us say. And I will get prompted to, say, “what is your background?” Maybe they just started using Elm, and they have been using Java for a long time. And the question is, “Why do I have to explicitly cast between Int and Float when doing math?” And then I can submit the post.

So when that shows up, this question might have been read in a combative way. Like [said in a frustrated or bitter way]: “*Why* do I have to *explicitly* cast between Int and Float when doing math?” Or [stated in kind, calm, curious tone]: “Why do I have to explicitly cast between Int and Float ...”. Both of those are valid interpretations of this text. But when you give some background, it is like, “OK, I see where this person is coming from. I can see why they would be frustrated with that.” And so it is way harder to read it in a malicious way.

So instead of just having a “reply” button, maybe you can say, “OK, I can either ask for clarification, or I can give an answer”. And so if I say I am going to give an answer, again we might have this structured way of replying. Restate the question, answer it, and then, hey we value citations. People backing up with evidence or experience, so maybe they give a citation. And they can post it.

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And so again you get the answer. And the person asking says, “Oh, that is not the question I was asking, actually.” So that can really help clarify and make this process more efficient. And so again, instead of reply, maybe you say, “ask for clarification”, or thank the person.

And so there are a couple of things you can add to this that I think would help. So one is the idea of conversation flows. So we saw someone wants to learn, you can clarify or answer. If they choose to answer, they can ask a clarifying question, or thank you. Now if they clarify, maybe you give another answer. But in the other path, “Hey, maybe you can give me an example to clarify your question”, they can restate it, and then you can answer. So the point here is just that “Yell angrily” is not one of the states in the discussion flow. It is unreachable.

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So this isn’t to say that all discussions should be this way, because there are places where you want self-expression. You say, “Hey, I had a really nice time at the park. Here is a photo of it”. And someone says, “Oh, that is great. That reminds me of last week. We were cooking something really nice.”

And so you can have these cycles. But when someone is doing self-expression, and you say, “Man, that is really like a terrible thing to say”, maybe you could have this conversation flow that says, “Hey, I

want to learn about that perspective. I don't want to tell you it is wrong, I just want to know why you feel that way."

So what might be interesting here is, the discussion flows will be different depending on the goals of the community. If it is about learning it might be one way. If it is about self-expression it might be another way. And maybe you want safety valves to jump around.

So another thing that I think is interesting is, say discussion is happening, and it is getting really out of control, and it is like, "Hey, this is nice", and by the end they are like, "Your Mom is a bad person, and she threw a bicycle on the ground". I don't know. So this is where you really don't really want things to go.

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So one thing that might be interesting is when you see someone about to reply, you say, "Hey, what would be a successful conclusion to this interaction?" Or, "Would it be easier to chat for five minutes?" Is there somewhere to take this that is going to be more constructive. What do you want to get out of this?

Another thing that might be really valuable. So we talked about up vote, down vote stuff. When someone gets down voted, they think to themselves, "These are people who just can't take it. I outsmarted them, and they can't accept that." But the people might actually be saying, "Man, that was pretty rude and uncalled for." And so that feedback is not reaching that person that may feel increasingly alienated by these kinds of reactions. Furthermore, these buttons sort of uniquely pick out, "Oh, I'm mad", or "Oh, I like that".

So what we might be able to do instead is say, "Hey, for any post, here are a couple of things you might notice about it." Is it off topic? Is it helpful? And if the goal of the place is to help professionals, maybe these are the ones you want to choose.

But if the goal is helping beginners, maybe you want to choose "Scary" vs. "Encouraging", or "Confusing" vs. "Clear". And if the place is about self-expression, maybe you want to choose "Funny" and "Downer".

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So there are a bunch of extras. I am running out of time, so I am going to skip, but there are a lot of cool things to do here.

So some people may be looking at this and thinking, "If a planned culture necessarily meant uniformity ..." Like all of this planning is going to ruin these communities. So I found this book. It says:

"If planned culture necessarily meant uniformity or regimentation, it might indeed work against further evolution. If men were very much alike, they would be less likely to hit upon or design new practices, and a culture which made people as much alike as possible might slip into a standard pattern from which there would be no escape. That would be bad design, but if we are looking for variety, we should not fall back upon accident. Many accidental cultures have been marked by uniformity and regimentation."

So this is from a book called "Beyond Freedom and Dignity" by B. F. Skinner. And I think this is one of the clearest books that is recognizing that there are these people who understand choice architectures, and that freedom does not help you escape from choice architectures. Design of other choice architectures is a way to deal with that.

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So ultimately I am not here to say that, “Here is one way that is right, or the others.” People are going to have different priorities depending upon their life and their experiences. I think the point that is important is that there are a lot of people in open source communities who are getting hurt. So it is hard emotionally to work on these kinds of projects. You see people around you getting hurt. And just saying, “Well, people are just expressing themselves” isn’t solving the question, and we have these very influential people controlling billions of dollars who have particular goals for what happens in these communities.

So I hope that is an interesting way to think about the hard parts of open source, and I have a bunch of references if you are interested in looking back on things. And I hope people will explore, through programming, like creating the communities that we talked about. Maybe exploring intentional communication. And maybe it will be beautiful. Maybe people won’t use it. Maybe people will use it and then it will just become another tool for engagement. That’s likely. We will see, but thank you very much for your attention and consideration.

[Time 0:47:09]