

This is 2.1, a Netrunner Reboot Project Podcast, episode 49, Catch 22.

Hey, this is Remy. The title card for this week's episode is Tollbooth, which of course is the big code gate from the core set. The flavor text on Tollbooth, hopefully you don't need me to tell you what the ability is.

The flavor text is a conversation between two people. The first one says, ever heard of a Catch-22? And the other one says, remind me to forget it.

Now, Catch-22, just for some, just a little bit of history on what that term means. It comes from a book from the 60s called Catch-22. And the idea was, it was about the military fighter pilots.

So the point was that to be a fighter pilot, you have to be crazy. And army regulations say that if you're insane, then you can't fly. So if a pilot asks to avoid flight duty because he's insane, of course, it'll be granted.

Except, of course, if you ask to avoid flight duty, that means you are sane because you know that it's insane to be a fighter pilot, and so you have to keep flying. And thus, that term entered the English language. And I think it applies maybe broadly to toll booth, because with toll booth, you have to pay money when you encounter it, or you have to can't pay the money, you end the run, but if you want to keep going, you have to pay the money.

And I think that concept goes really nicely with what most of this episode is about. What most of this episode is about is an article from quite a bit into the future, from where we are in the 2.1 card pool. But it's about ice.

And basically, I'm just going to more or less read this article. But before I do that, I want to remind you that as we are here in the month of July 2024 at the time of this being posted, this is when spoiler season is supposed to start for the next fourth booster for the reboot card pool. Maybe it was started already.

I'm recording this a couple of days before I post it. But if it hasn't started already, it will start soon. And I would like to do an anonymous tip.

Anonymous Tip, How Not to Play Netrunner. So several weeks back, I was asking for some advice on how to play better. And one of the suggestions that was given me by Goblin Mode was to just record myself, and then people could watch the game and then comment on it.

So I did that, and I posted it. I can provide a link to the original video. But then Goblin Mode got on and he did a commentary on my game, and he had a lot of great things to say.

It's like a 35-minute video, so I'm not going to comment on it too much, except to say that I made some plain mistakes. I mean, I did some things I thought were mistakes, and he said we're actually fine. And then the big boy came in and also had some comments to make.

And then we got on to a Discord chat and talked for like an hour about mostly about this game, maybe about a few other things. And I'd intended to record it and provide it as an episode, and my

recording did not happen. But I have a summary that I've provided, and I'm not sure I meant to check this, whether Goblin Mode included that in his comment, in his YouTube video.

It's definitely there in the Discord, and I can provide a link to that in the show notes. So this is kind of related to the account siphon article that I quoted last time in the anonymous tip. And it's just some nice ways of thinking about things to improve your game.

Maybe this should have been a research station rather than an anonymous tip, but here we.

Are. Archived Memories. Allow Me to Break the Ice, A Guide to Analyzing Ice in Netrunner.

This is posted by user Simon Moon, whose real name I believe is Kenny Deakins, in January of 2018. So, I found this article pretty early on as I was researching the podcast, and saw that it was largely unusable because he talks about so many cards that we didn't have. And that's still true, but I'm going to use it anyway.

And I'll just, for the cards that aren't currently in the 2.1 card pool, I will go ahead and briefly explain what they are. So, it comes from January of 2018. That's about four years, not quite four years, ahead of where we currently are.

But it's an interesting spot in Netrunner's history because it happened just a few months after Fantasy Flight started rotation, where early cycles were no longer part of the card pool. So, in this case, here Genesis and Spin, you know, the cycles we just finished, have been rotated out, and the original core set has been replaced with a revised core set. That happened in late 2017.

And that revised core set has a different mix of cards. They grabbed a few cards from Genesis and Spin. They got rid of some of the cards they considered problematic from the core set.

Many of the strong cards that at this point, you know, some of the strongest cards in the game, that Reboot has done, what they have done is they've just fixed the cards. Well, Fantasy Flight just got rid of the cards and printed things that were similar. It's also just, I don't know, end of January, so we're talking like four months or so, maybe five, before the announcement of the end of Fantasy Flight support for Netrunner was made and just eight or nine months before the final worlds for Netrunner in late 2018, after which, of course, what was then called Nisei, Project Nisei, started up the fan project that's now Null Signal Games, and then they took, picked it up and ran with it.

So this is very near the end of the fantasy flight pool. So that's why sometimes he refers to cards in the past tense. So I'm just going to jump right into it.

While the game we play may be called Netrunner and not Ice Runner or Neticer, Ice is perhaps the most memorable and defining card type in the game. It is also one of the trickiest card types to evaluate. I'm going to break down how to evaluate Ice and ideally try to draw some larger lessons about Netrunner.

Oddly enough, I'd like to start this article about Ice by talking about an operation. That operation is called O2 shortage and is a very good example of a Punisher card. O2 shortage is an HB operation that was originally from the late part of the seventh cycle.

There were eight total cycles by Fantasy Flight. It has also been imported into Reboot for the second booster, Mind and Mayhem. The cost originally was three, and Reboot it is zero.

It's two influence. The runner may trash one card from his or her grip at random. If not, the corp gains two clicks.

Punisher card is a term that comes from Magic the Gathering and has the general format demonstrated in O2 shortage. You play it, and your opponent gets to pick one of two things that happen. These cards, justifiably, have a reputation for looking at first glance very strong, but in practice, not very good.

I'm going to do a quick breakdown of how to evaluate O2 shortage to get an idea of how to understand the Punisher card as a mechanic and discuss briefly why they're considered weak in general and also when they can be strong. O2 shortage presents the runner with two options, equivalent to, one, a free biotic labor for the corp, two, a neural EMP that doesn't require a run. While both of these are effects on cards that people play, O2 shortage is not a card that sees any serious play.

The reason for this is that giving your opponent a choice makes the card worse, as they will choose the option that is better for them and worse for you. So in order to make O2 shortage good, you need to play it in a situation where both of these effects are useful. Even then, your opponent will pick the one that is less good for you.

It is only ever as good as the worst option on the card. And to be good, both effects need to be powerful and relevant in the same board state. All this being said, Punisher cards are not inherently badly designed.

Being of low power level does not make a card of bad design, and in fact can be very interesting. In my opinion, the core of what makes a game a game are the choices you make during it, and the core of what makes a multiplayer game a multiplayer game are how your choices affect your opponent's choices. Punisher cards, then, are good for multiplayer games, as they directly give your opponent a choice based on your own decisions, which forces you to interact with your opponent.

They are also not necessarily even bad cards. I want to mention... I'm going to make some noise here.

Lower my microphone just a touch. I want to mention that Cleric has mentioned this article a couple different times and referred to this way of evaluating cards, and so this one's for you, Cleric. Now, what does all of this have to do with ICE?

Well, ICE is a card type that has the Punisher mechanic built in. Let's take an example of an unknown ICE. The corp installs it on R&D.

Here are the options which the runner has available, none of which involve actually installing a card.

1. Never run R&D and win off other servers.
- 2.

Run R&D forcing a res, never run again, win off other servers, and take advantage of the spent resources. 3. Run R&D repeatedly and let the subroutines on the ICE fire.

Already, without installing a breaker or other card, the runner has three options for how to handle the ICE. That is more options than the O2 shortage had. What if we additionally consider the options which a runner might have available to actually interact with the ICE?

4. Install the corresponding breaker, run through it repeatedly for single accesses. 5.

Install the corresponding breaker and make a small number of high-value runs with the maker's eye or indexing. 6. Install or use a powerful single-use card to remove the ICE from the board or negate its effect, like Parasite, Femme Fatale, or Emergency Shutdown.

7. Install cards to prevent it from being rezzed, like Blackmail. 8.

Use a bypass effect to avoid interacting with the ICE, like Inside Job. Now, some of these categories are a little ill-defined. Should Femme, Parasite, and Emergency Shutdown all be in the same category?

And, in a way, every single different card that can break or bypass or destroy a piece of ICE is in its own category. However, the main point here is that there are a lot of ways to deal with ICE. As your opponent is generally intelligent, when you give them all of these options, they are sure to pick the best one, which means an ICE is only as strong as the best way which the runner has available to deal with it.

With so many options, one might wonder why anyone ever plays ICE at all. One must remember, however, that, while often punisher cards are bad, not all of them are, and punisher cards simply need to be evaluated on their own terms. They are only as good as the best option for dealing with them.

However, overall, this tends to come around to doing one of the following two things. One, find a solution for the ICE. Two, ignore the ICE.

How hard or easy it is to find a solution depends on the deck construction which the runner has chosen, as well as the nature of the ICE. What happens if the runner ignores the ICE is even more interesting, as it is under the corporation's control. They get to decide what cards to install and protect with ICE, and they are in control of how bad it is for the runner to ignore a piece of ICE.

Vanilla, in this scenario. This might mean scoring an agenda, building a giant Estelle Moon, or gaining credits for Madonna's campaign. Estelle Moon was from Terminal Directive, the campaign expansion that was released early during the seventh cycle of the game, an HB asset with a res cost of 2 and a trash cost of 3.

Whenever you install a card in a server, place one power counter, and then you trash Estelle Moon to draw a card and gain two credits for each power counter. How bad it is to just ignore a remote depends on the corporation's deck and board state. And to make a good decision, the runner needs to make a decision which takes all this into account.

The runner must evaluate the cost of finding a solution, clicking to draw for cards, spending money, using self-modifying code or special order, versus the cost of letting the remote server go uncontested. Points scored, money gained, cards drawn, etc. Evaluating what the best option to take for dealing with an ICE is a complicated decision that is highly dependent on the board state of both sides, cards installed, deck compositions, money totals score.

Now, to get a better idea of how to evaluate some ICE, I'll break some different ICE down that I think bring important lessons. But always keeping in mind the idea that the strength of the ICE is tied to the best option the runner has for dealing with it. Vanilla.

This came in the fifth cycle, a neutral barrier with a res cost of zero and a strength of zero, one subroutine, and the run. And some of the best flavor text in the game, a brand new invention. It's vanilla ice, you see.

Ice ice, baby. One of the most played barriers in the game, vanilla is very useful for demonstrating an important principle in ICE strength. Choice reduction.

At zero cost, with an end the run subroutine, all of the options, one, two, and three listed above, are the same thing. If you run into it and let the subroutine fire, it's the same thing as not running into it. Just minus a click for the runner, since you haven't cost the court anything.

The runner's only options are to install cards to deal with it, or ignore it. While there are many good solutions to vanilla, broken by one for basically every relevant barrier breaker, each of these solutions needs to be found, which can be very costly. You need to spend X clicks drawing to find the card or a tutor, and then a click to install the card, and paying the install cost.

Breaking a vanilla once has a fairly high cost relative to the very low cost to the corp. The first time the runner breaks a vanilla, they have probably spent 5 plus clicks on draws, a click for the install, and 4 plus credits for the relevant breaker. All End the Run ICE have this same property, that the first time it is broken carries a very high cost, as there is no way to get around it without finding a card that is a solution.

However, breaking the vanilla a second time, or breaking a second vanilla, has a very low cost, usually 1 credit. The longer the game goes on, the less valuable vanilla is, relative to a more taxing barrier, as actual break cost of the ICE becomes more relevant, particularly for the creation of scoring windows. This means vanilla is best in tempo decks, where you want to defend something early, that will give you a lot of value, at very little cost to yourself.

You can, for example, install an ICE over HQ, install vanilla over a remote, install Adonis, then res Adonis your next turn, whereas with a wall of static, this would not be possible. Despite its strength, vanilla does have some weaknesses. Specifically, it is bad against Omokua relative to other end-the-run barriers, because vanilla can be broken by Omokua in the absence of a virus counter.

So Omokua is from the seventh cycle. It is, the picture is a turtle, so often it's just called turtle. It's a criminal virus AI breaker that installs a cost of 3 and a strength of 0.

It gains a strength for each virus counter. It gains virus counters by exposing or accessing a card but not stealing or trashing it. And then you, for one credit, you can break a subroutine.

What's more, while the first vanilla is extremely good, a second vanilla is not at all good, usually not worth installing if they can break it. Vanilla is best in decks where you do not have a lot of barriers, as each copy gets worse, and in decks where you want to protect early, powerful resources that cost money. It is weak in decks with a lot of barriers, or decks for which the plan against turtle is to ice every server and then purge.

Pop-up window. Pop-up window is comparable to vanilla in that it also costs zero to res, but its effect operates very differently. Unlike vanilla, which requires cards to break it, pop-up window can be run through without installing any cards.

What's more, there are no cards that break pop-up window better than using no cards. Parasite and Yawg were the big exceptions. What pop-up window gives you is a reasonably taxing ice, a two-credit swing, for zero credits.

Just as with vanilla, there is no ability to force a res of pop-up window and take advantage elsewhere. As a runner, your options against pop-up window are 1. Ignore the pop-up window server.

2. Run through it a lot. Run through it a couple of times with high-impact runs.

Notably, as pop-up window is zero credits to res and a two-credit swing, if the runner chooses options 1 or 2, the corp is getting a great value. If the runner runs through pop-up window six times over the course of the game, pop-up window has been a zero-cost card that gains six credits and costs the runner six credits, which is very strong. However, option number 3 is where pop-up window tends to have weaknesses.

If the runner only runs through pop-up window twice on a single indexing run, your zero-cost ice has only gained you two credits and cost the runner two, which is not a very good value. Because of the weakness of pop-up window in this scenario, whether or not pop-up window is a good ice is highly dependent on what runner strategies you expect to see. It is strong versus run-based economy like desperado, and weak versus sit-back economy and value runs.

Unlike vanilla, whose end-the-run subroutine meant it was strong independent of runner strategy and whose value was largely dependent on your own strategy, pop-up window's value is largely dependent on the runner's strategy. This makes it less universally strong, but it still certainly does have a place, as there is really only one good solution to it that requires a certain kind of deck construction.

Eli 1.0 Eli 1.0, while it has rotated and is no longer with us, RIP, is a very important ice to talk about. When it was released, it was immediately the best ice in the game, and for a large period of time was far and away the best ice, up until at least Lady and probably Knifed came out. Cerberus Lady H1 comes in the third cycle, the fifth pack.

It's a Shaper Fractor with an install cost of 4, a strength of 3. When you install it, you put four power counters on it, and a power counter can break up to two barrier subroutines. It's also just one credit for one strength.

Knifed comes in the third Deluxe Box, an Anarch run event with a cost of 1. You make a run, and the first time you fully break a barrier, you trash it. Notably, like all Bioroid ice, it actually gives the runner more options to deal with it by clicking through.

So why was it so good? Well, Eli 1.0 had a low res cost, 3, which meant it was hard to abuse the tempo loss associated with resing it by running somewhere else. On top of that, the beginning of Netrunner, Corotor was the main barrier breaker and cost 4 credits to break it.

Even just breaking Eli twice was a tax of 8 credits, which is a great trade for only 3 credits to res. The additional option, paying 2 clicks, is typically considered about as expensive as 4 credits. Even some of the other options, such as Otman at 4 strength, a 7 credit install, only allowed you to break it for 2 credits.

Parasite took 4 turns to kill it, or cost data sucker counters, as well as the cost of a card, and 3 credit trade, in Reboot, for a card and 3 credits. Fundamentally, Eli 1.0 was very good because none of the options for dealing with it were good options. There was no way to efficiently break it either once or repeatedly, and it was cheap enough, but there was little downside of rezzing it.

Later, as new options were introduced, Lady, breaking for 1 counter and 1 credit. Knifed, allowing you to click through it once without installing a breaker. Paperclip, breaking for 3, with a discount from Data Sucker or Ice Carver.

A paperclip came in the 6th cycle, Anarch Fractor, with an install cost of 4, a strength of 1. Whenever you encounter a barrier, you may install Paperclip from the heap. For X credits, you can boost it by X strength and break up to X barrier subroutines, which seems, quite frankly, ridiculous.

It also got supplanted a little by the fact that other good barriers were finally printed. Additionally, its drawback of being able to get broken without a breaker became more relevant as protecting Estelle Moon became so important in the meta immediately pre-rotation. Eli 1.0 is a strong lesson for the evaluation of ice by thinking about all the ways to deal with it.

And when you come up with no good ways, you end up with a very strong piece of ice. Chiyoshi came in the sixth cycle, a Jinteki barrier with a res cost of 12 and a strength of 8. Whenever the runner breaks a subroutine on Chiyoshi, while an AI is installed, trash the top two cards of the stack, and then the subroutines are due to net damage, due to net damage, and end the run.

Chiyoshi is the third and final barrier, which I'm going to talk about in depth. As I alluded to in the section on Eli 1.0, historically, barriers have been the weakest ice type, as their subtype pie restriction means they do not have a facecheck penalty. This means that by default for a big expensive barrier like Hadrian's Wall or Curtain Wall, the runner is able to deal with them in one of the core ways described earlier.

Run it, take advantage of the resource cost, to run elsewhere. Essentially, the cost of facechecking these ice is a click. These big fat barriers have basically always been bad, primarily because of this huge weakness.

Blue Sun is somewhat able to skirt this by being able to get back the credits expended on rezzing the ice and having a combo with oversight AI. Blue Sun, powering the future, is a Wayland ID that comes in the third cycle, the fourth pack, it's 4515. When your turn begins, you may add one rezzed card to HQ and gain credits equal to its rezz cost.

Chiyoshi brings a 4 net damage face check penalty, which helps balance out its hefty rezz cost. Still, most runners will happily take a click and 4 net damage to force the corp to spend 12 credits. Or it's more as it only taxes paperclip 7 credits or lady 4 credits and 2 counters.

There are reasonable ways to break it a couple of times when you need to, as well as the fact that David plus Knifed exists as a very good solution to Chiyoshi. David, or D4V1D, is in the third cycle, the second pack, so not too far away for us. An Anarch program with an install cost of 3, you place 3 power counters when you install it, and a power counter will break a subroutine on a piece of ice with a strength of 5 or more.

Chiyoshi has one saving grace, which is that you can play it out of AgInfusion and force the runner to run into your 12 credit investment multiple times, effectively turning off the ignore and run elsewhere option. AgInfusion, New Miracles for a New World, is a Jinteki ID from the seventh cycle, a 4517 ID. Once per turn, instead of resing an approached piece of ice, you may trash it to choose another server.

The runner is now running on that server and encountering the outermost piece of ice. A quick digression on the design of barriers. A lot of times I see people talk about how paperclip limits the number of playable barriers.

I don't really think that is true. Rather, I think that barriers are just mostly not actually very good. This is primarily because subtype pie restrictions mean barriers with the facecheck penalty required to balance a res cost of more than four credits don't exist.

Tythonium and Chiyoshi do see play in some deck archetypes. Tythonium came in the seventh cycle, a Wayland barrier with a res cost of nine and forfeiting an agenda or forfeiting agenda. Anyway, it's a strength of five.

It could not host cards, so no parasiting it. Had three subroutines, trash a program, trash a program, and then trash a resource and end the run. You could heavily restrict barrier-breaking options or drastically inflate the numbers so that a 10-cost barrier is unbreakable, but I don't think that is very good gameplay.

I don't think this lack of high-strength barriers is a problem so much, as I think there is still huge room for a variety of mid-range barriers. Harry names several that we will never see in Reboot and don't matter, but he does name one that we will see, which is Resistor, which comes in the fourth deluxe box, an NBN barrier. The rest cost of, it used to be zero, now one, strength of zero.

It has an extra strength per tag the runner has, and the subroutine is trace four to end the run. But if you want to print large barriers that are usable outside of ag infusion, you need some face check penalties. Just please, no more firewalls or hailstorms.

Firewall comes in the third deluxe. It's a Wayland advanceable barrier. The rest cost of, used to be five, now four, a strength of five, and an extra strength for each advancement token on it.

So it's like Ice Wall, basically, but bigger. And the one subroutine is End the Run. Meanwhile, hailstorm came in terminal directive.

It is also a Wayland barrier. The rest cost of six and a strength of five. Add two subroutines, one remove a card in the heap from the game, and the other to End the Run.

Fairchild 3.0 and Tollbooth. Fairchild 3 came in the sixth cycle, an HB Bioroid code gate. The rest cost of six and a strength of five.

The runner could spend three clicks to break three subs, and the three subs are runner must pay three credits or trash an installed card, another runner must pay three credits or trash an installed card, and then the third subroutine take a brain damage or end the run. Fairchild 3.0 is the only ICE which is currently restricted, and is also the restricted card in the world's winning corp deck. Despite being a Bioroid, like Eli 1.0, and costing six credits to res, the runner has relatively few good ways to deal with Fairchild 3.0.

Face-checking it either costs three clicks at about two credits a click equals six, or firing subs that cost six credits. Crucially, it has an end-the-run subroutine, so you have no ability to let the subs fire and run through. Breaking it costs six credits with Gordian Blade, and even CyberCypher only breaks for four.

While Yawg used to exist, even it struggled to break Fairchild 3.0 effectively, requiring other support cards, like IceCarver or Datasucker, and costing five credits to install on top of the support cards. There is simply no way to get through Fairchild 3.0 for a small resource investment. And it provides a face-check penalty that costs the runner close to what it takes to res it.

Compared to the current suite of big taxing barriers, this is what an effective large taxing ice looks like. Tollbooth is another large code gate, and it's probably the biggest piece of ice that has been consistently included in tournament-winning decks throughout Netrunner. Notably, with a res cost of eight credits and a tax of three credits on encounter, it is way more vulnerable to tax and run elsewhere strategies.

However, due to the nature of the encounter ability, there is almost no way to get around paying a decent chunk of money every time you run through it. Gordian Blade breaks for seven credits, and Cyber Cipher for five credits. Even the methods of destroying Tollbooth Parasite plus Data Sucker, David plus Spooned, and Spooned is just like Knifed.

It comes in the third deluxe, an Anarch run event that costs two. You make a run. The first time you fully break a code gate, you trash it.

Usually require a large investment of resources by the runner who has to encounter Tollbooth twice. Once to force the res, and the second time to destroy it with either Spooned or Parasite. Even FEM, which allows you to bypass the Tollbooth for one credit, is a nine-cost runner card that represents a large investment.

The biggest weakness of Tollbooth is that eight credits is a huge resource investment, and the runner only has to pay three credits when it is res'd. However, Tollbooth has consistently been the go-to ice for decks that want the ability to create a server into which it is extremely taxing to get. A lot of this has to do with the encounter ability having much more limited options for dealing with it, meaning the best ways to deal with it generally still involve paying at least three credits a couple of times.

And in addition to Femme Fatale, he mentions Hunting Grounds, which comes in the fourth deluxe box. It is an apex resource. You install cost of two once per turn, prevent a when encountered ability on a piece of ice, and then you could trash it to install the top three cards of your stack face down.

And just don't worry about that right now. Okay, thanks. And then Security Nexus, which also comes in the fourth deluxe box, a sunny console with an install cost of eight, gives you a memory unit and a link.

And once per turn, when you encounter a piece of ice, you may force the corp to trace five, which if successful, gives the runner a tag and an end the run, but if unsuccessful, lets you bypass it.

Cortex Lock. This comes in the fourth cycle. It is a Jinteki Sentry, with a res cost of two and a strength of four, and the subroutine does one net damage per unused MU.

Cortex Lock is the final piece of ice I'd like to talk about, and is one of the few Jinteki ice I think is truly good. DNA Tracker, Kukugo, Koma-Inu being the other three. He just mentions those in passing, so I won't expand on them, although we do get Koma-Inu out of those three.

It comes in the second deluxe box very, very, very soon. At a res cost of two credits, and with no runner cards installed, it deals four net damage when run through. This is both very hard to run through repeatedly and is a great trade for the court player that limits the ability of the runner to attack elsewhere, as they need the cards to prevent dying to snares or hostile infrastructures.

Hostile infrastructure comes in the third cycle in the fifth pack, the same pack that Lady is in, a jinteki asset with a res cost of five and a trash cost of five. And whenever the runner trashes a corp card, you do one net damage. What's more, due to being a four-strength sentry, there are not really any good ways to break this ice.

Mimic needs a data sucker counter, and then he mentions two other breakers that aren't in the card pool. However, there are two big downsides. One, the runner can install programs until their memory is full, at which point they can run through cortex lock with no consequences.

Two, without other damage sources, even four net damage is not the worst thing in the world for the runner to take. What this means is that cortex lock is best in decks where there are not many

useful programs to install against it. This largely means low ice count decks, as the runner does not want to install expensive breakers and ice solutions just to blank cortex lock.

You also need to be decks where running low on cards is dangerous, as this means after hitting a cortex lock, the runner is then forced to spend the rest of their turn drawing up to avoid dying. This typically means putting it in an IG deck with a low ice count that has high value early targets to protect, like Estelle Moon, Jackson Howard, or Archives. Industrial genomics, growing solutions, is the last pack in the third cycle.

Agenteki ID, that is 45.15, and the ability is that the trash cost of each card is plus one per face-down card in Archives. On top of that, Cortex Lock brings something to the table that a lot of the ice we've talked about don't have. Not only does it trade evenly with the runner on face check, the way other ice do, Vanilla, Fairchild 3, the runner is hurt way more than the res cost of the corp.

This means it has a broader effect in that if the runner knows you have them, it makes them less likely to run other ice as well. All face-down ice can potentially be Cortex Lock, which means the solution to other ice is taken away. For example, if the runner has a paper clip in the bin, they still might not run a face-down vanilla, because even though they have a good solution to the vanilla, they do not have a good solution to the Cortex Lock.

It could be a holistic understanding of ice strength and composition. As I started out with, ice are cards that have a punisher mechanic baked in. And so to evaluate them, you need to understand what is going to be the best option for the runner to deal with them.

However, what this will be will also depend on both the rest of your deck composition, economy, what you're protecting with the ice, etc., as well as what options the runner has in their deck to deal with them, ice breakers, and other tools. There are relatively few ice, Eli 1, Fairchild 3, that are so universally strong against every way of dealing with them that they fit in every deck, in every meta.

This is a good thing. And I think to a certain extent they were both mistakes, though Eli 1 eventually had sufficient counters designed into the game that it was no longer universally the strongest ice. And the game is more interesting when you need to consider both your own strategy and your opponent's strategy in deciding what ice you will use.

To give a concrete example of how a deck might select its ice, I'll break down the ice selection for the world's Comrade CTM deck. NBN, Controlling the Message. That's the CTM part.

Came in the sixth cycle. It's clearly an NBN ID, 4512. The first time the runner trashes an installed corp card each turn, trace four to give the runner a tag.

Now, when I googled Netrunner World's Comrades CTM, the first result was the Big Boys deck from 2017 Worlds, where it says that he went first in Swiss and seventh overall. Nice performance. And I'll provide the link to that if you'd like to see it.

But here specifically is the 11 ice suite in the Big Boys deck. There are five barriers, three resistor, and two IP block, just three code gates, one enigma, and two toll booth, and three sentries, one architect, and two data raven. Now, Simon Moon, Kenny, talks about all of these ice.

Resistor is the first ice to talk about as it contains a huge drawback relative to the vanilla in that the runner can always pay for to get through the trace. This is an extra option that is often relevant. The runner can pay for to stop an agenda score without needing a breaker or trash a high-value asset.

However, this weakness is mitigated by the fact CTM does not typically want to rush out agendas, and its assets are usually sufficiently protected by the native ID ability of CTM. On top of that, when the runner takes tags, suddenly the option to break resistor for less than four credits gets taken away. So resistor's weaknesses are largely mitigated by the plan of CTM.

And its strength is very important, as I'll get to when I talk about the next dice. Data Raven is in many ways the opposite of resistor. It is extremely taxing to get through when you do not have tags.

A click and true credits plus a trace or breaking it. But if you start floating tags, one can run through it for free. In isolation, this is a major weakness, since if running through a Data Raven is a good option for the runner, then it is a very weak ice.

The deck has to slot tag punishment cards, quantum predictive model, cycle graphics, exchange of information, IP block, in order to make just float tags a bad option. In these circumstances, Data Raven is a very strong and taxing piece of ice, but it requires all of these other cards to support it. So those three cards just mentioned, exchange of information, it came in the fifth cycle, but is also in the first booster.

It's an NBN operation whose cost is, it used to be 1, is now 0. The other way around, it used to be 0, is now 1. Anyway, you only play it if the runner is tagged, and then you swap an agenda in your score area with an agenda in the runner's score area.

Quantum predictive model comes in the fourth deluxe box. It's an NBN agenda, 3-1 agenda. If the runner is tagged when it is accessed, you add it to your score area.

And then IP block came in the sixth cycle, an NBN barrier, with a res cost of 2 and a strength of 4. When the runner encounters it, if they have an installed AI, they gain a tag. Then there are two subroutines, a trace 3, to give the runner a tag, and an end-the-run subroutine, if the runner is tagged.

IP block is another card that, like resistor, has strong numbers, but with downsides. The runner can always pay 3 credits to get through, unless the corp has sufficient credits to boost the trace. Like resistor, it makes data raven stronger, by making the consequence of floating tags worse, as the runner can no longer just pay 3 credits without an icebreaker.

On top of that, it is an important component versus certain runner strategies we expected to see. It is the best ice in the deck against Omokua, and the fact it taxes a tag or 3 credits on facecheck means that it discourages repeated runs on centrals with the turning wheel installed. The turning wheel came in the fifth cycle, a neutral resource with an install cost of 2.

Place a power counter on it after a run on HQ or R&D where no agendas were accessed, and then you can spend 2 power counters to access an additional card from HQ or R&D. There are 2 code

gates, Enigma and Tollbooth. For a while, we were running 2 Enigma because it was important to force a decoder install.

As I discussed in the vanilla section, the first end-the-run ice of a type installed is extremely strong. But what we found is that the second Enigma was always bad to draw. Tollbooth, on the other hand, was often too expensive to res in games where the runner was trashing our econ, but it was the most important ice for games where the runner just let our econ go, as we could easily res it and force the runner to run through it again and again, taxing out even the most extreme runner econ.

Even though it was useless in low-econ games, in these other games, in those games, rather, the rest of our deck was strong enough that we could deal with having two blank ice. The toll booth helped us against the strategies that let us have lots of money, which we were weaker against. And this is an important principle that you want to alter your ice to patch up the runner's strongest strategy against you.

Finally, Architect. This is again number 23 on the Big Boy's Top 50 Countdown. Comes in the third cycle, the fourth pack, an HB Sentry.

The rest cost of 4 and a strength of 3. It cannot be trashed. And the first subroutine is the Corp looks at the top five cards of R&D and then may install one at no cost.

And the second, that the Corp may install a card from Archives or HQ. Architect provided us with a bunch of things. First off, it is extremely bad to not break Architect against a deck with as many strong assets as CTM has.

So it forced a Sentry Breaker for the runner. This was important since Data Raven's subroutine is generally circumvented for three credits by paying the trace. Secondly, it was taxing against the Sentry Breakers we expected to see the most of, which in this case did not include Mimic.

Finally, as with IP Block, it provided an important tool to turn off the turning wheel. And so, again, if there's a tag, turning wheel can easily be trashed because it's a resource. Overall, all the ice slots in this deck required us to think about how the best way to deal with them could be alleviated by other ice or cards.

Resistor helped make running through Data Raven worse. An architect was a good complement to Data Raven. The deck needs to have a plan if the runner aggressively trashes Econ, but also have a plan if they don't in Tollbooth.

Testing to figure out what the weakest points were, and then altering ice selection and other deck slots to fix them, was a tricky process. Overall, this deck only has three hard-end-the-run ice. Good job, Damon!

Which leads to the runner having more interesting decisions on how to deal with them. Sometimes it is right to go tag me. Sometimes it is right to risk an architect fire.

Sometimes it is right to just pay through the resistor trace. A fun task might be to examine the different ice in Chris Dyer's World's CTM from 2016, and think about how the deck and meta-composition led to different ice selection choices.

Diversity of runner solutions, or Simon Moon yet again harping on why Parasite was good. For as long as I have played Netrunner, people have complained that Ice X is bad because Parasite kills it. While it was true that Parasite was the best solution to some ice, that does not make Parasite bad design, or even the ice it was good against, bad.

As there is always going to be a best solution to any given ice. If you get rid of all solutions to ice that are not ice breakers, you reduce the pool of playable ice in the game. Parasite might be the best solution against Komainu, while Lady is the best against Eli, and Emergency Shutdown against Chiyoshi.

When you have all these different runner solutions which the Corp needs to consider, the Corp will select a more diverse pool of ice, as they need to have good ice against all the different solutions they expect to run into. When all you have are standard boost and break ice breakers, ice gets flattened into a smaller number of characteristics, break cost, hard end the run, face check, res cost. This means that the same ice are more universally good.

Cards like turtle mean you actually have a reason to run wall of static over vanilla, if your plan involves shutting off centrals. While against purely standard breakers, vanilla is just miles better. Diversity of solutions leads to diversity of ice selection and diversity of game play.

Assets I spent this whole article talking about ice, and why ice is a strong and interesting mechanic, which I think is a generally popular sentiment. But I think it is important to talk about the other types of cards. Assets tend to have a negative connotation, but I think assets are crucial to Netrunner being a fun game.

Take even the simple pad campaign. The runner has four choices. One, try to find it before it's rezzed and trash it.

Two, trash it immediately after being rezzed. Three, trash it in the future. Four, never trash it.

For a card like pad campaign, this choice is hard because the options are generally fairly close in value and depend on the exact board state. And this is a good thing because it means whether or not to trash the pad campaign is an interesting decision. From the runner's perspective, a card like pad campaign is way more interesting than hedge fund, which leaves little room for decision making.

Econ like sundew and adonis campaign that lead to higher payouts but also can be protected by ice are also especially interesting, as this in turn leads us back to all the interesting decisions that ice gameplay has. Assets tend to reduce runner options when the effect is so powerful that trashing immediately or preemptively are the only good options in any scenario. But for the most part, current assets are not really that strong, with the exception of the restricted Estelle Moon.

The political assets, the bioethics association, clone suffrage movement, Sensei Actors Union, commercial bankers group, are another group of high-powered assets that tended to lead towards

option one being the only good option. That's the find it before it's rezzed and trash it. At this point, lots of people are probably putting together the fact that they are high-powered and cannot be protected by ICE and that this in turn subverts the interesting ICE-based decisions we have in the game.

This is true-ish, but I still think a lot of these lead to good, high-quality gameplay. Now, the political assets are a set of cards in the fifth cycle that all cost 2 to trash and gave the corp a benefit at the start of their turn, but only if there was no ICE protecting them. So HB had a clone suffrage movement to add an operation from archives to HQ.

Ginteki had Bioethics Association to do a net damage. NBN had Sensei Actors Union to draw three cards, then add one to the bottom of R&D. And Weyland had Commercial Bankers Group to gain three credits.

And that's the only one that's currently in the reboot pool. It was added in with the first booster. As they only cost 2 to trash across the board, relative to pad campaign, trashing one is low cost to the runner.

So without ice, the corp needs to defend them in other ways. The corp can hide them in a mine field of traps. Psychic field.

Shock. A psychic field comes in the second deluxe box, a Jinteki asset, with a res cost of 0 and a trash cost of 2. If it's exposed or accessed while it's installed, you do a side game, which if the corp wins, does one net damage per card in the runner's grip.

Wipes out their hand. The corp can protect them, that is the political assets, with different assets that are in turn protected by ice, hostile infrastructure, encryption protocol. The corp can protect them with ID abilities, like CTM or industrial genomics, that in turn need unique deck building and play restrictions to work, tag punishment slots, or icing archives.

All of these involve decisions that are non-trivial and board state dependent. Against CTM, you might need to evaluate how bad a sensei-actors union fire is, versus the risk of floating a tag and getting closed accounts, versus the risk of it being a virtual tour. That's a big upgrade that forces the runner to trash it, versus how good your own options are, like liberated account and daily casts.

This was a real decision, a hard decision, and a decision that was highly dependent on a lot of factors. What cards are in hand, credit counts, what cards you've seen, the score, etc. The more fun versions of IG, 49, Moons, had even more interesting decisions about when to check unknown remotes, when to run archives, when to try and score points, which utility asset to trash, and when.

I would not want Netrunner to be only this style of deck, but I think there is certainly room for Netrunner to have decks of this style, and they add good gameplay, and printing assets that could not be iced let their power level be good enough to encourage the runner to find them before they get razzed. Conclusion This has been an article batting around my head for a long time, and I'm glad I've finally been able to write it all down. Like most ideas, it was not the result of my thinking alone, but was the result of lots of lengthy discussions, arguments, over a long period in StimHack Slack.

Hopefully there are some lessons that can be gleaned from this. From a personal play perspective, understanding how to evaluate ice based on the best solution for the runner will help you include top-notch ice, as well as design your deck around mitigating and removing the weaknesses of your ice. From a design perspective, hopefully we can stop printing stupid giant useless barriers and reprint an exact copy of Parasite.

Or maybe the lesson is to simply marvel about how Netrunner is such a wonderful game with so much choice baked into its mechanics. At its core, it is a game where your decisions matter tremendously for your opponent and continuously present them with tough decisions of their own. But seriously, no more stupid Wayland walls.

Well, normally I would say many of the cards discussed in this week's episode are linked in the show notes, but I don't really see much point in doing that since I read out all the ones that you shouldn't already know. However, the links to this article and the videos I mentioned earlier will be in the show notes. Music is from AlexiAction, the website, which redirects to the Reboot Project homepage is netrunner2.1.com.

Please come join the Reboot Discord server. A lot of people have after the big boy's blog post that he wrote up a couple of weeks ago advertising how good Reboot is. And so we're always looking for more.

That'd be great. You can play online at reteche.fun. The Astroscript pilot program this time around will be a little bit short, a little bit on the short side as we continue into part four about the network.

Thanks for listening. See you next time.

Bye A Deep Black Sea. Contrary to corporate propaganda, the network is only one of many tributaries that empty into the virtual sea of cyberspace. No one is certain exactly how many of these networks exist, but estimates range from dozens to hundreds or even thousands.

The one that the vast majority of Earth's and Luna's populations connect to, the net, is the only one that everyone can see, so long as they possess a service contract in good standing. These other networks exist as virtual realms unto themselves. They are undetectable to most hardware or software applications, or they are gated behind exclusive paywalls.

A great many of these networks are corp-controlled and isolated, while others are created by private individuals for both legal and illegal purposes. One such illicit network is the shadow net, although its existence is invisible to most of the world's population. The rumors surrounding the shadow net are so incoherent that most NETSEC authorities agree that shadow net is a broad term for a disparate variety of illicit networks existing in parallel to the legal and public network provided by SYNC.

It can also refer to the web of zombie devices compromised by the criminal element and used to perform illegal operations on the network, often completely under the nose of the device's owner. Some of the shadow net modules are hosted on otherwise legit servers hidden in secret partitions,

but accessible via normal network channels by those who know how. Others are on boxes illegally tapped into the network's hardware, accessible only by those who know the non-standard address.

And portions of the shadow net exist as peer-to-peer wireless protocols running across major cities, or even sneaker net, meat space exchanges of physical memory that don't touch existing network architecture at all. Not all hidden networks are illegal or even immoral. Many corps and universities maintain internal networks, where their users can share data and ideas free from the fear of government or rival-corp surveillance.

Such intranets can increase morale and productivity if properly groomed. Governments and military organizations worldwide have compelling reasons to run their own segregated networks, of course, and the overwhelming majority of them are harmless and even boring. Some runners speculate that specific networks are spawned or created by rogue AIs, while another camp of crackpots swears that aliens from another galaxy or dimension have established a network of their own right under Sink's nose.

The fact that no one can prove these things don't exist only cements the conspiracy theories in their minds, and many flame wars have erupted on the Net's chat spaces over such hypothetical and metaphysical topics.