

# **IN4MATX 153: CSCW**

**Class 8:**  
**Livestreaming**

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TA Dennis Wang  
Reader Weijie Du

# Announcements

- Rate each other's memes!
  - Due 11:59pm Friday
- We've heard from a few people that their content has gone more viral since the submission deadline
  - This only matters in the context of extra credit
  - If you think you might be in contention (think >10k views/comments/etc.), you can email us an update
  - 11:59pm Friday is the final cutoff for an update

# Today's goals

**By the end of today, you should be able to...**

- Articulate how content produced and shared live differs from post-based content in response, engagement, and structure
- Understand the social dynamics between streamers, moderators, and viewers
- Identify design challenges for effective livestream platforms and content

# **Why might someone watch a livestream?**

## Why might someone watch a livestream?

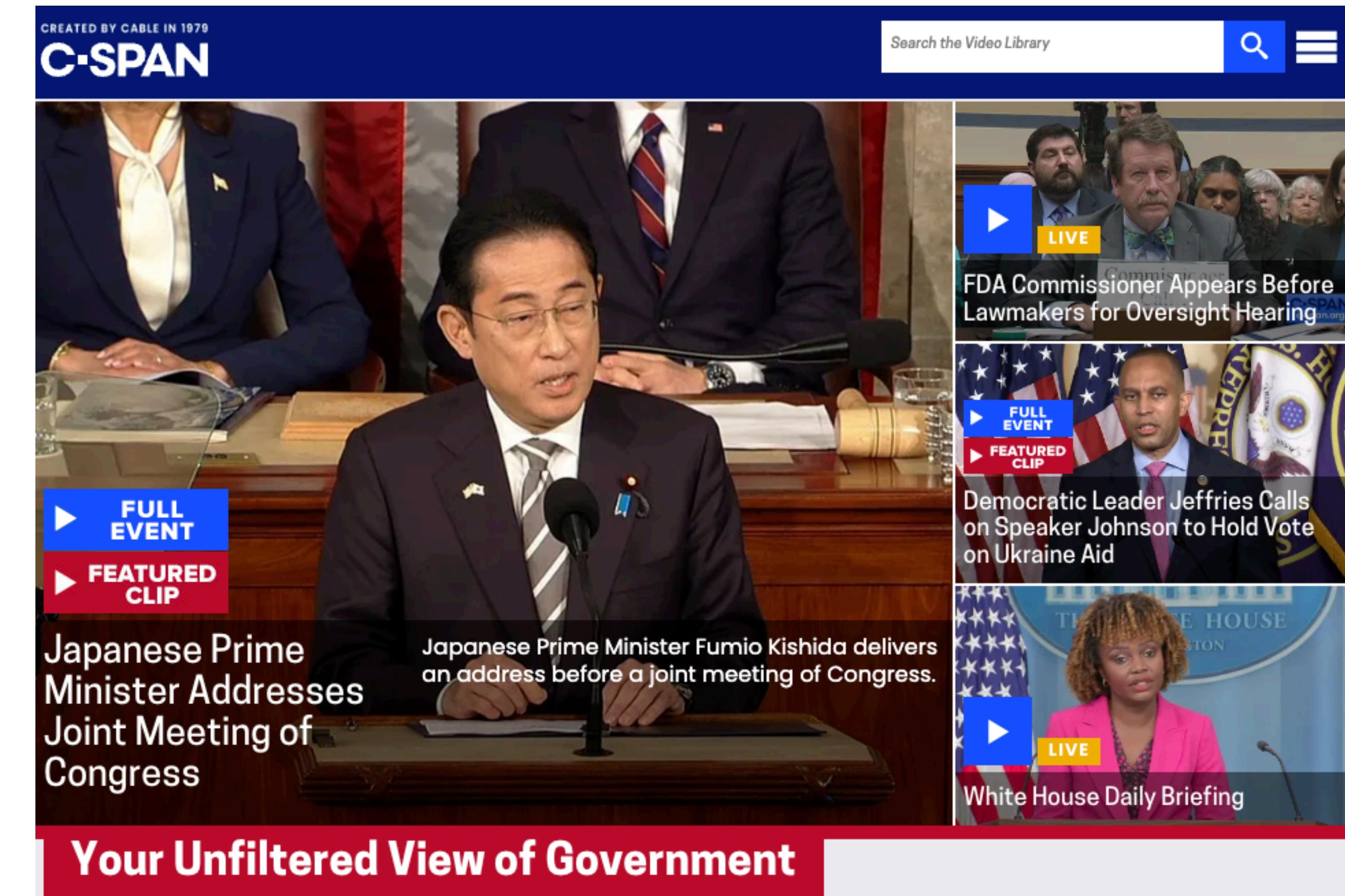
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Nobody has responded yet.

Hang tight! Responses are coming in.

# Why might someone watch a livestream?

- Bring you somewhere you want to be, but can't
  - A private event: concert
  - A faraway event: U.S. Congress
  - A classroom lecture when you overslept



# Why might someone watch a livestream?

- Engage with someone or some content you like
  - It's entertaining to watch someone do something better than you could, or that you don't have time to do
  - Some people are funny, offer thoughtful commentary, or otherwise make their content interesting to watch

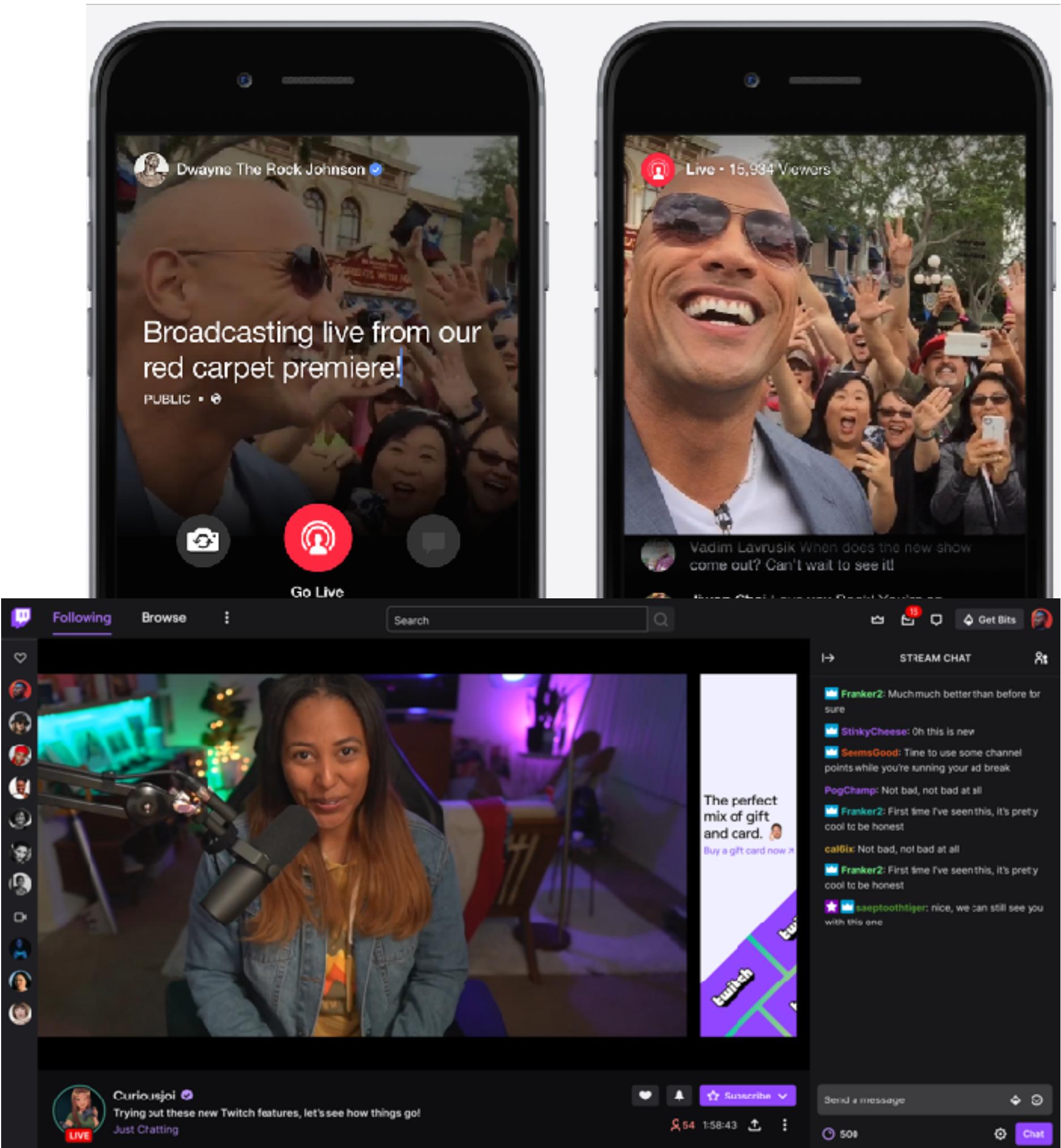


# Live versus post-based content

- Livestreams:
  - Requires sustained engagement from the content creator
  - Usually requires high attention from the recipient
- Post-based content:
  - Requires one-time engagement from the content creator
  - Usually requires low attention from the recipient

# Livestream format

- Out in the world
- Sitting at a desk
- Platforms can support a mix
  - Twitch charity events
  - Instagram lives of people in their homes



**Question: What is the average number of views that a Twitch livestream gets?**

# What's the average number of views that a Twitch livestream gets?

Under 50 views

0%

50-100 views

0%

100-1000 views

0%

More than 1000 views

0%

# 27.7 viewers!

- There are ~100k Twitch streams at any given time
- Your average Twitch stream is small
- And, this is accounting for outliers at the high end
- As you might expect, large and small streams operate very differently

This question is about [live streaming statistics](#).

## HOW MANY VIEWERS DOES THE AVERAGE TWITCH STREAMER HAVE?

By [Zippia Team](#) - Jun. 28, 2022

The average Twitch streamer only has 27.7 viewers per stream. That might seem surprisingly low, but the sheer volume of streamers on Twitch means that the vast majority do not receive many views.

For context, Twitch's largest streamer, Ninja, receives an average of 15,444 viewers. The [content creator](#) has also been watched for over 3.7 million hours. With that in mind, there is a huge divide on Twitch between popular streamers and new or less well-known ones.

# Livestreams and scale

- Livestreams do not need to be to large audiences
  - I can livestream my lecture, and a whole 100 people might care!
- Scale can be a tension: more on that later
- But, livestreaming at scale offers some interesting dynamics

# Livestreams at scale

- What makes livestreams at scale interesting?
  - Parasocial relationships
  - Interactivity
  - Moderation and community management

# **Parasocial relationships**

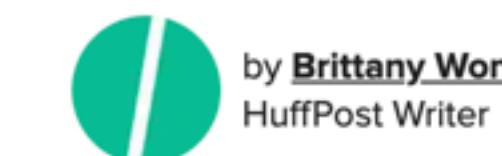
# Parasocial relationships

- A “*seeming face-to-face relationship between spectator and performer*”
- The “*seeming*” is important. We develop parasocial relationships with people and characters we have never met
  - They may not even be real people. We develop parasocial relationships with characters from TV, movies, video games, etc.

Celebrity • Posted on Jun 14, 2023

## **She's A "Genius" At Cultivating "Parasocial Relationships": Taylor Swift Isn't Your Friend, But There's A Reason Why You Feel Like She Is**

There's a reason people are deeply invested in the "Midnights" singer's personal life. But when does that interest become unhealthy?



by [Brittany Wong](#)  
HuffPost Writer

[View 44 comments](#)

🔥 Full coverage and conversation on [Taylor Swift >](#)



Horton, D., & Richard Wohl, R. (1956). Mass communication and para-social interaction: Observations on intimacy at a distance. *psychiatry*, 19(3), 215-229.  
<https://www.buzzfeed.com/brittanywong/taylor-swift-parasocial-relationships>

**Discuss: What stood out to you from  
the Twitch documentary?**

# Parasocial relationships

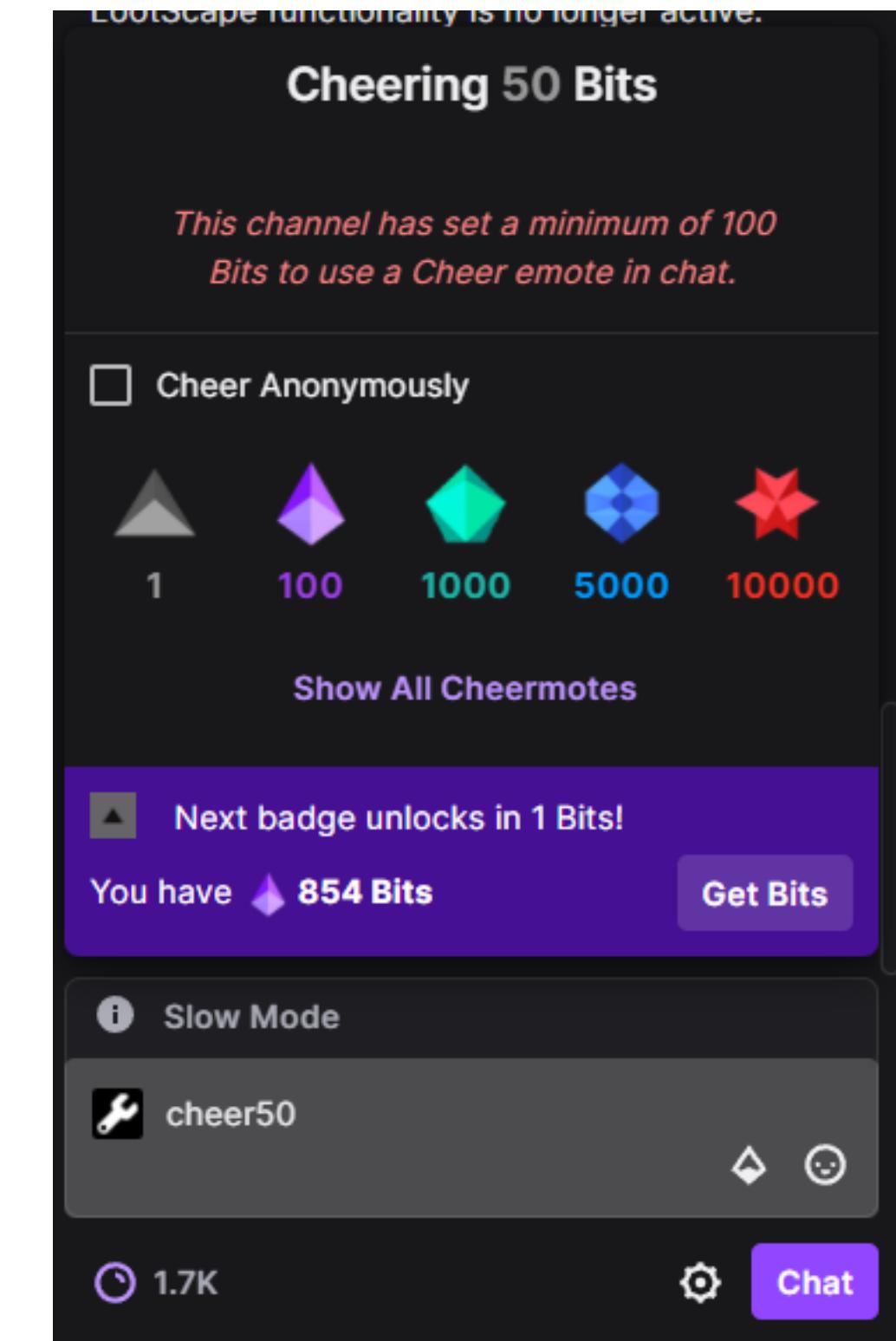
- Stream viewers often want to provide *support* to the streamer
  - Instrumental support: assistance, advice
  - Emotional support: encouragement, caring
  - Financial support: \$\$\$
- Why?

Wohn, D. Y., Freeman, G., & McLaughlin, C. (2018, April). Explaining viewers' emotional, instrumental, and financial support provision for live streamers. In Proceedings of the 2018 CHI conference on human factors in computing systems (pp. 1-13).

# Parasocial relationships

## Motivations for support

- Paying for entertainment
  - “Wanted to show my support, and **it felt right to pay for the hours of entertainment I enjoy.**”
- Helping streamer sustain and improve content
  - “**She runs a mostly beauty channel, and donating money allows her to purchase more products to review and demo**”



Wohn, D. Y., Freeman, G., & McLaughlin, C. (2018, April). Explaining viewers' emotional, instrumental, and financial support provision for live streamers. In Proceedings of the 2018 CHI conference on human factors in computing systems (pp. 1-13).

# Parasocial relationships

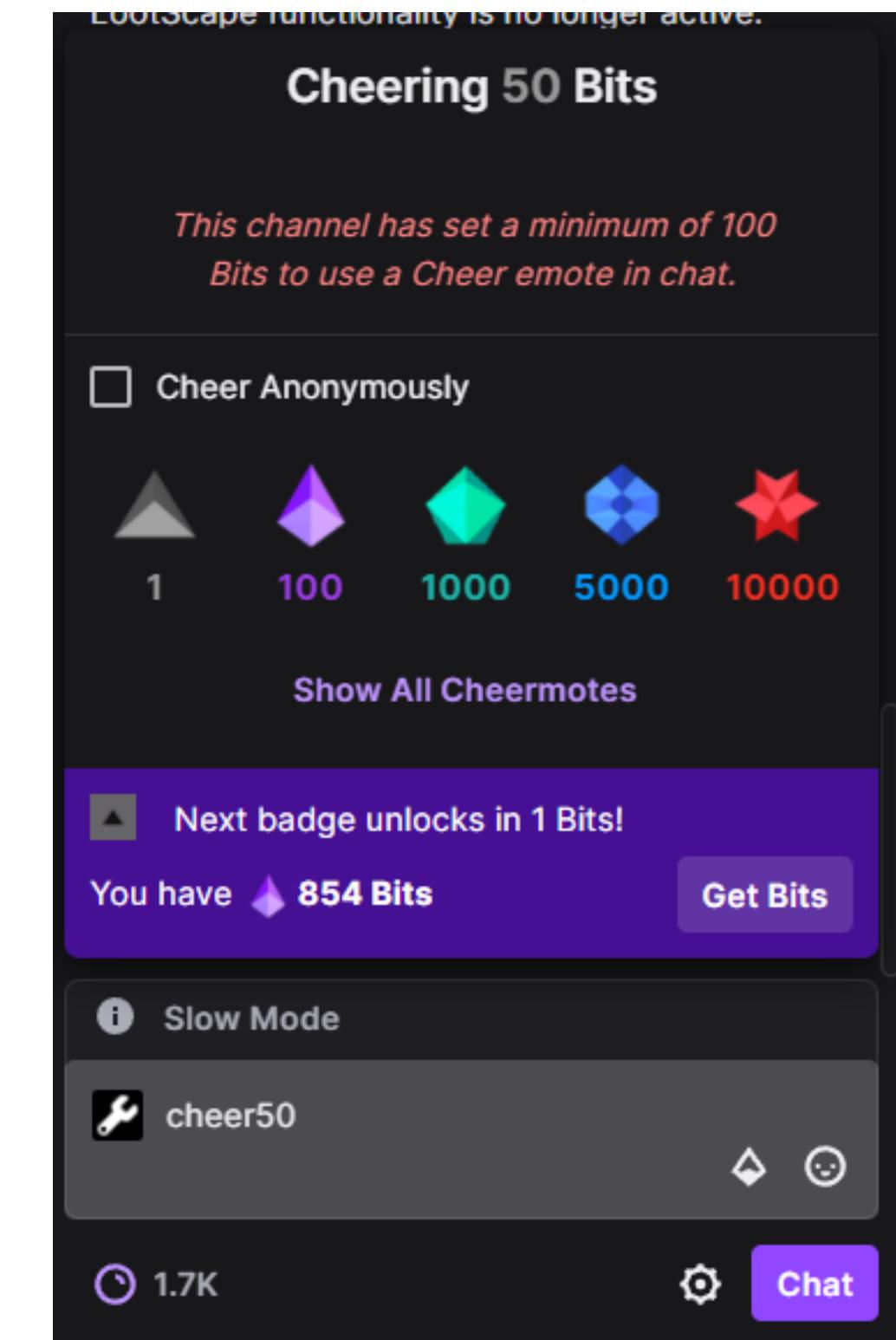
## Motivations for support

- Compensation for learning

- “*The streamer is one of the best game players. I watch him to learn some game skills.*”

- Emotional attachment

- “*She did a Facebook livestream about some struggles she was having in her personal life, and I just thought about how much she has helped me out in my daily life by sharing, and I wanted to help her out a little to make her feel better*”



Wohn, D. Y., Freeman, G., & McLaughlin, C. (2018, April). Explaining viewers' emotional, instrumental, and financial support provision for live streamers. In Proceedings of the 2018 CHI conference on human factors in computing systems (pp. 1-13).

# Parasocial relationships

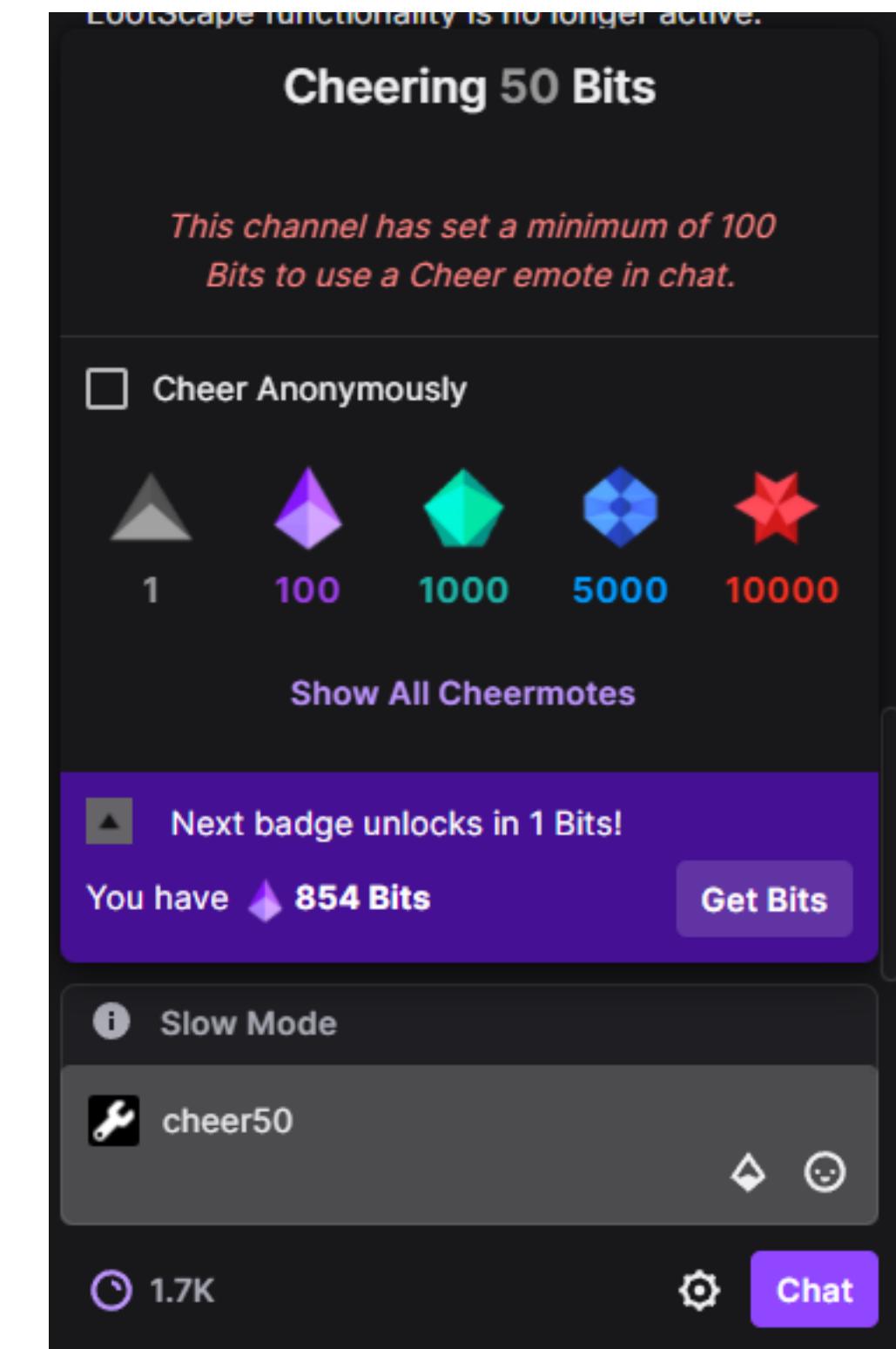
## Motivations for support

- Desire for interaction

- “*To show my support to the streamer, but also to as a way of interacting with the streamer. It was also entertaining at the time, and I consider it money well spent.*”

- To help solve offline social issues

- “*He was doing it for a charity, I believe it was AIDS research. There was also another charity one he did for disadvantage children*”

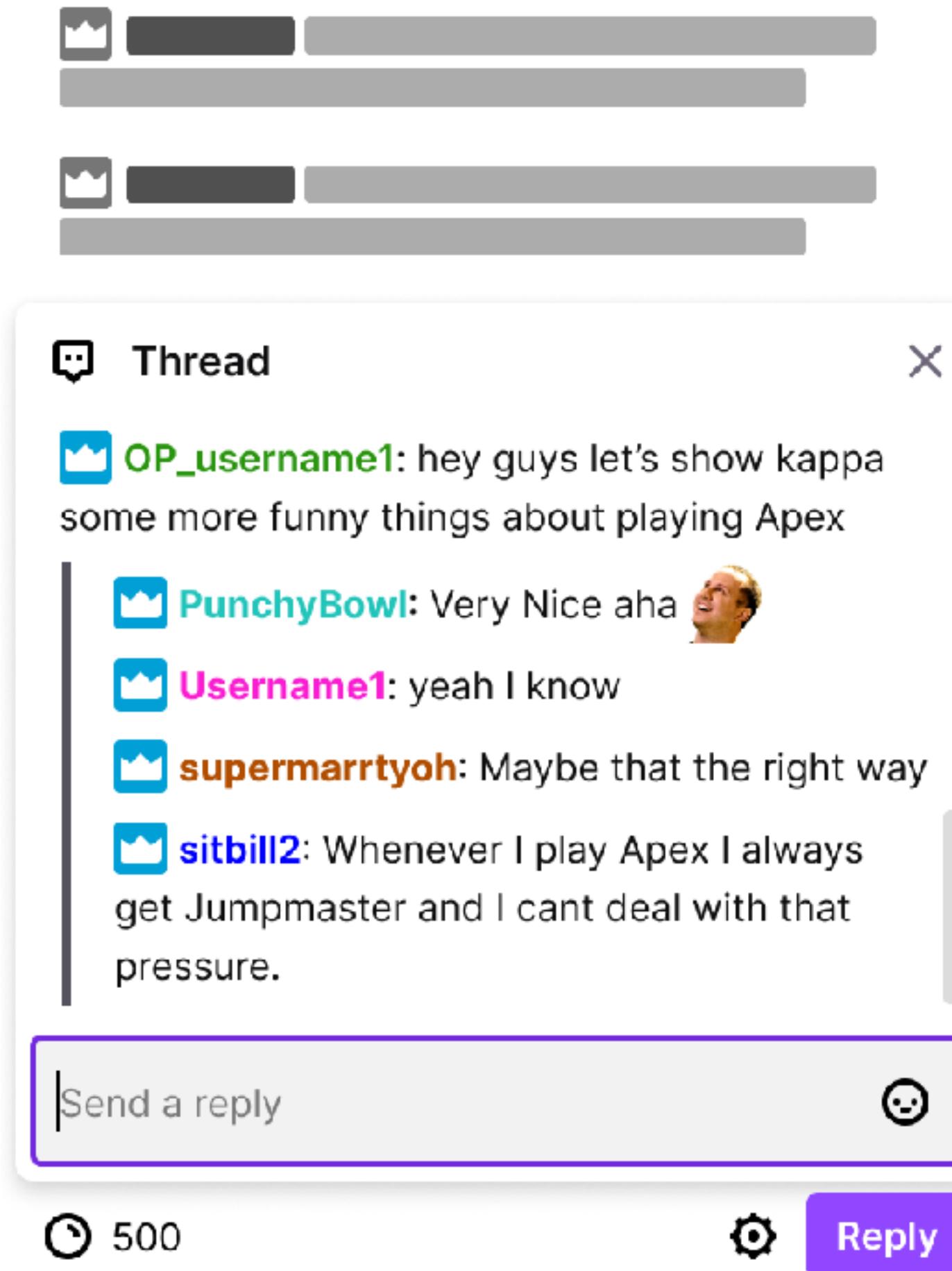


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# **Interactivity**

# Interactivity with streamers

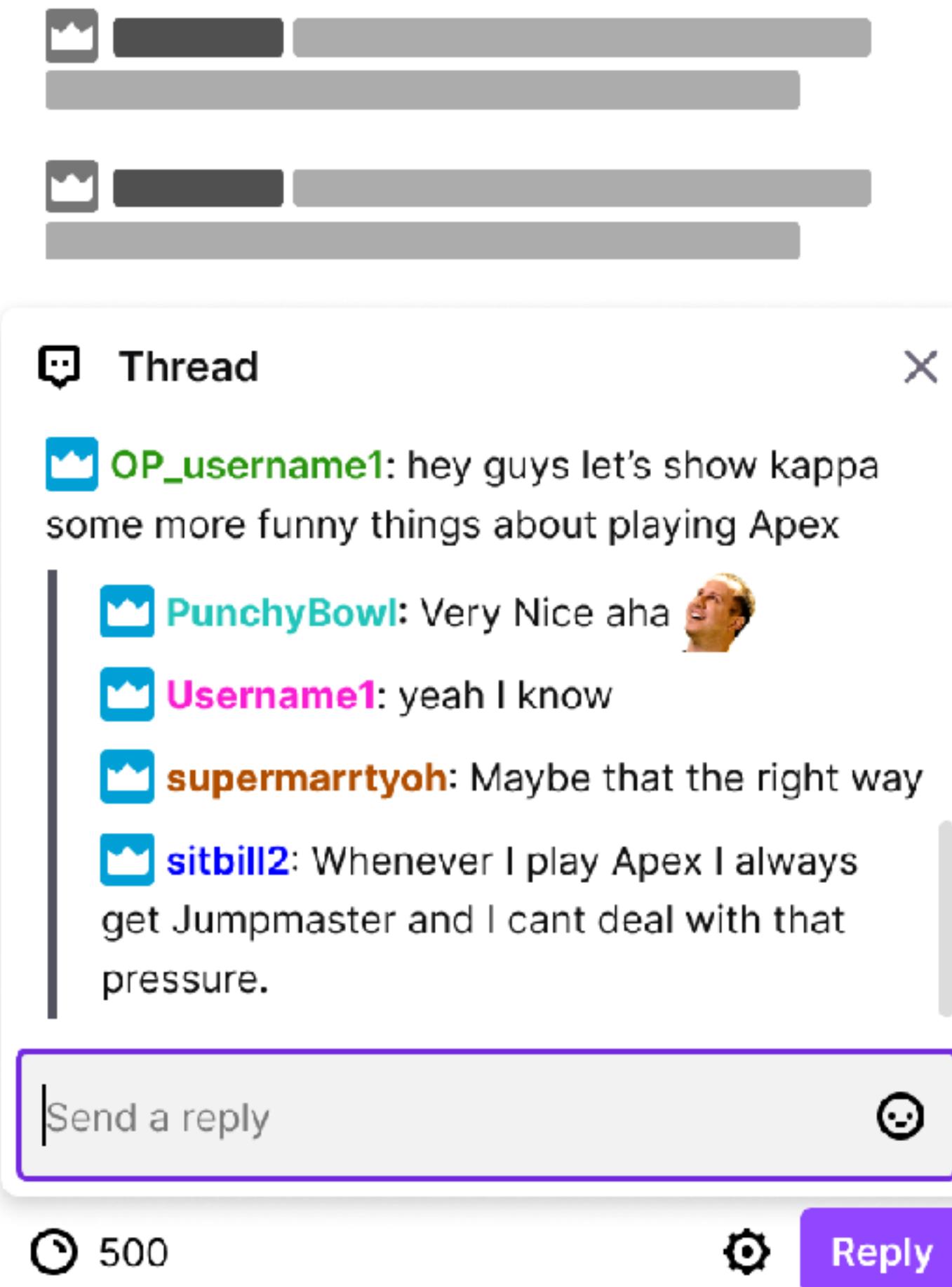
- Chat as a “side channel” for communication
- Streamers may engage with chat content, but it’s usually presented separately from what the streamer is communicating



**Discuss: Why is chat a central component of livestreams? Why chat as the medium, versus audio/video/etc.?**

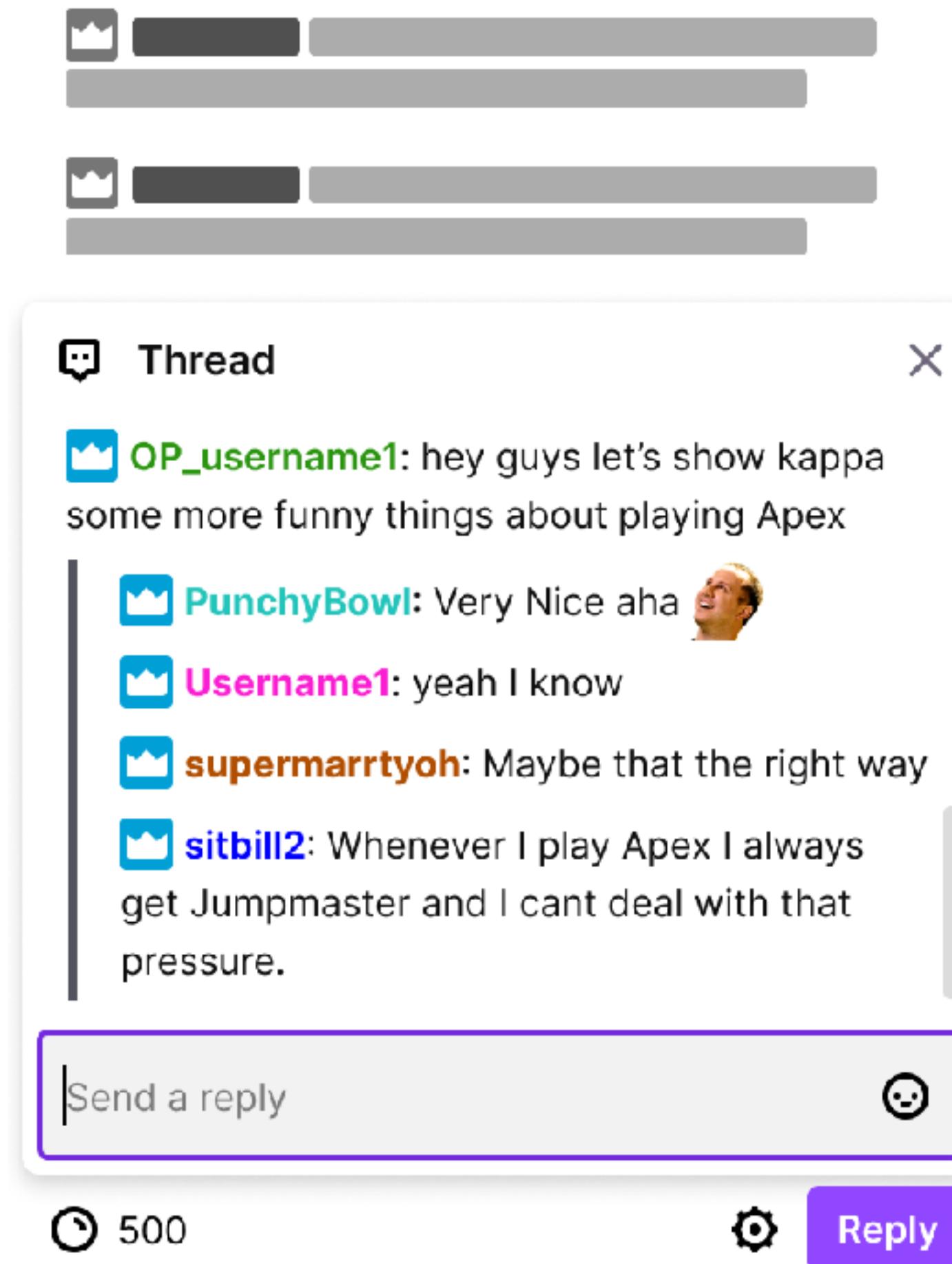
# Why chat?

- Why chat at all?
  - Community-building
  - Getting some feedback from the audience
- Why text as a medium?
  - Scaleable
  - Easier to moderate
  - Less interrupting



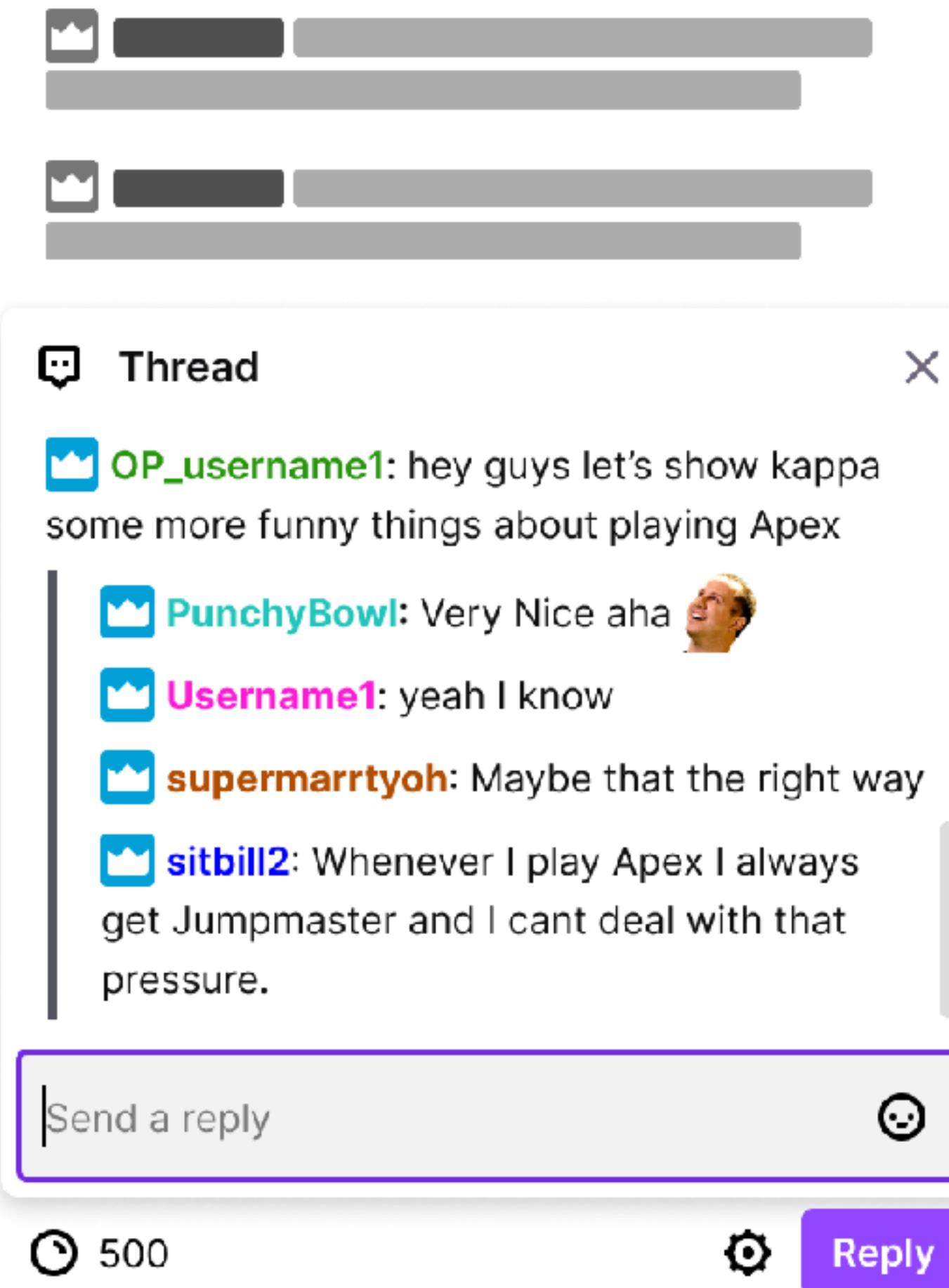
# Interactivity with streamers

- Open research question: should platforms support richer interactivity between viewers and streamers? If so, how?
  - Maybe viewers should be able to click on things on the streamer's screen?
  - Should viewers be able to communicate in mediums other than chat?
  - Or, maybe these choices would be distracting or impact streamer's autonomy?



# Interactivity with streamers

- Small chats tend to be highly interactive
  - Streamers report being able to effectively interact with 100-150 people, some up to 500
  - Past this, personal interaction breaks down, and interaction becomes more explicitly parasocial



Hamilton, W. A., Garretson, O., & Kerne, A. (2014, April). Streaming on twitch: fostering participatory communities of play within live mixed media. In Proceedings of the SIGCHI conference on human factors in computing systems (pp. 1315-1324).

# Interactivity with streamers

- The tension: streaming is a business
  - Streamers rely on money, and money tends to come with a larger audience
  - Twitch introduced subscriber-only streams, subscriber-only chat is pretty common
- But, smaller audiences tend to have stronger community identity

CREATORS / ENTERTAINMENT / CULTURE

## Twitch launches subscriber-only streams, but only for creators who don't violate its rules

A screenshot of a Twitch stream interface. The main video frame shows a first-person shooter game, likely Apex Legends, with a player aiming a weapon. To the left, a sidebar displays various channel statistics: 45,564, 6,010, 3,361, 2,318, 294, 278, 261, 230, 139, 96, and 40. The main title bar says "KappaKares" and "Videos 1". Below the video, it says "Training for Rivals pogpogpog" and "Category: Apex Legends". The right side features a "Stream Chat" window with a list of messages from users like Blarbicus, Sheriff\_Piggy, and crazyletei. At the bottom, there's a "Comments (0 New)" button.

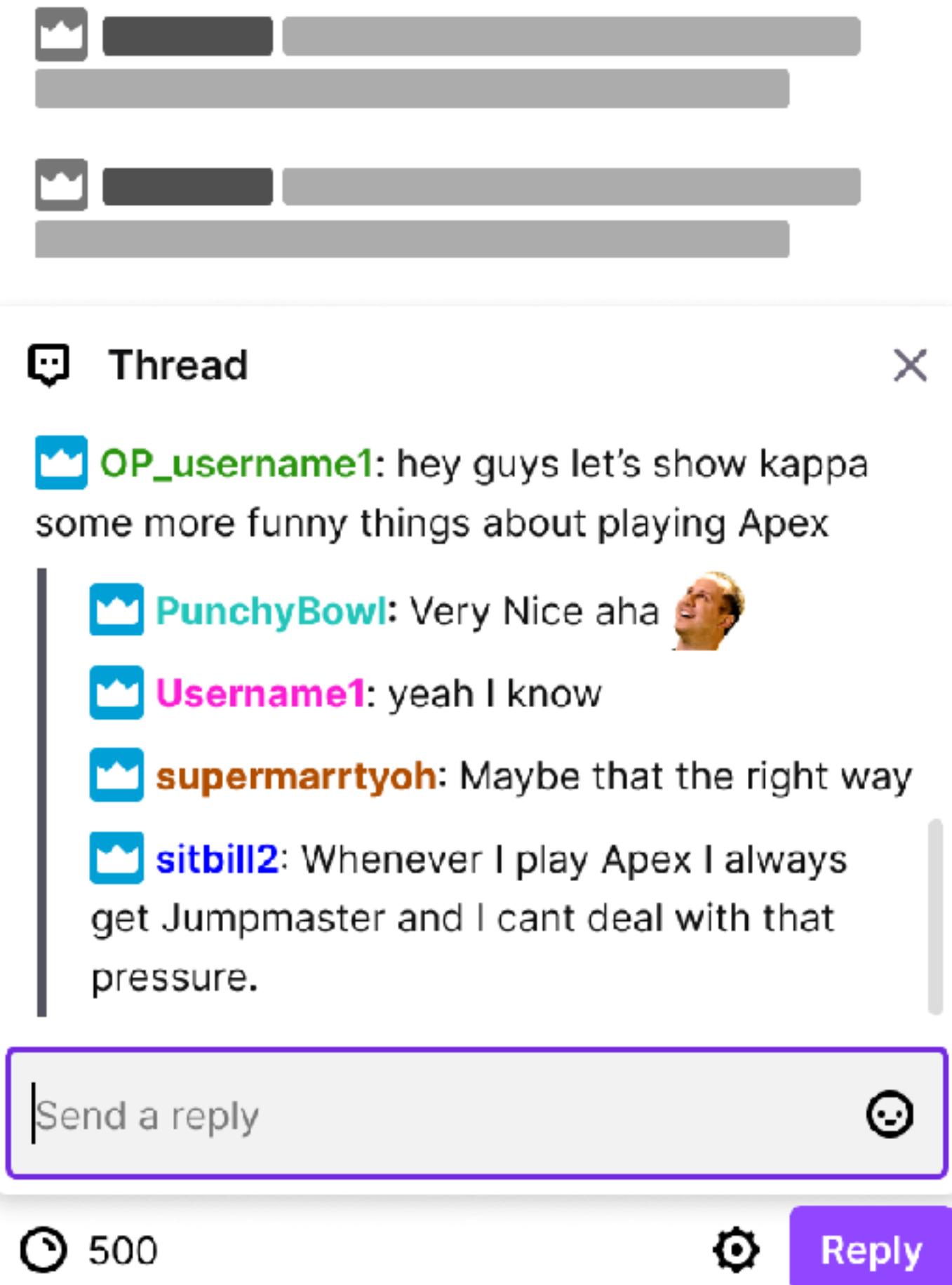
/ A potentially use events

By Julia Alexander  
Jun 26, 2019, 11:30 AM PDT

Hamilton, W. A., Garretson, O., & Kerne, A. (2014, April). Streaming on twitch: fostering participatory communities of play within live mixed media. In Proceedings of the SIGCHI conference on human factors in computing systems (pp. 1315-1324). <https://www.theverge.com/2019/6/26/18759995/twitch-subscriber-only-streams-chat-events-membership-fee>

# Interactivity with streamers

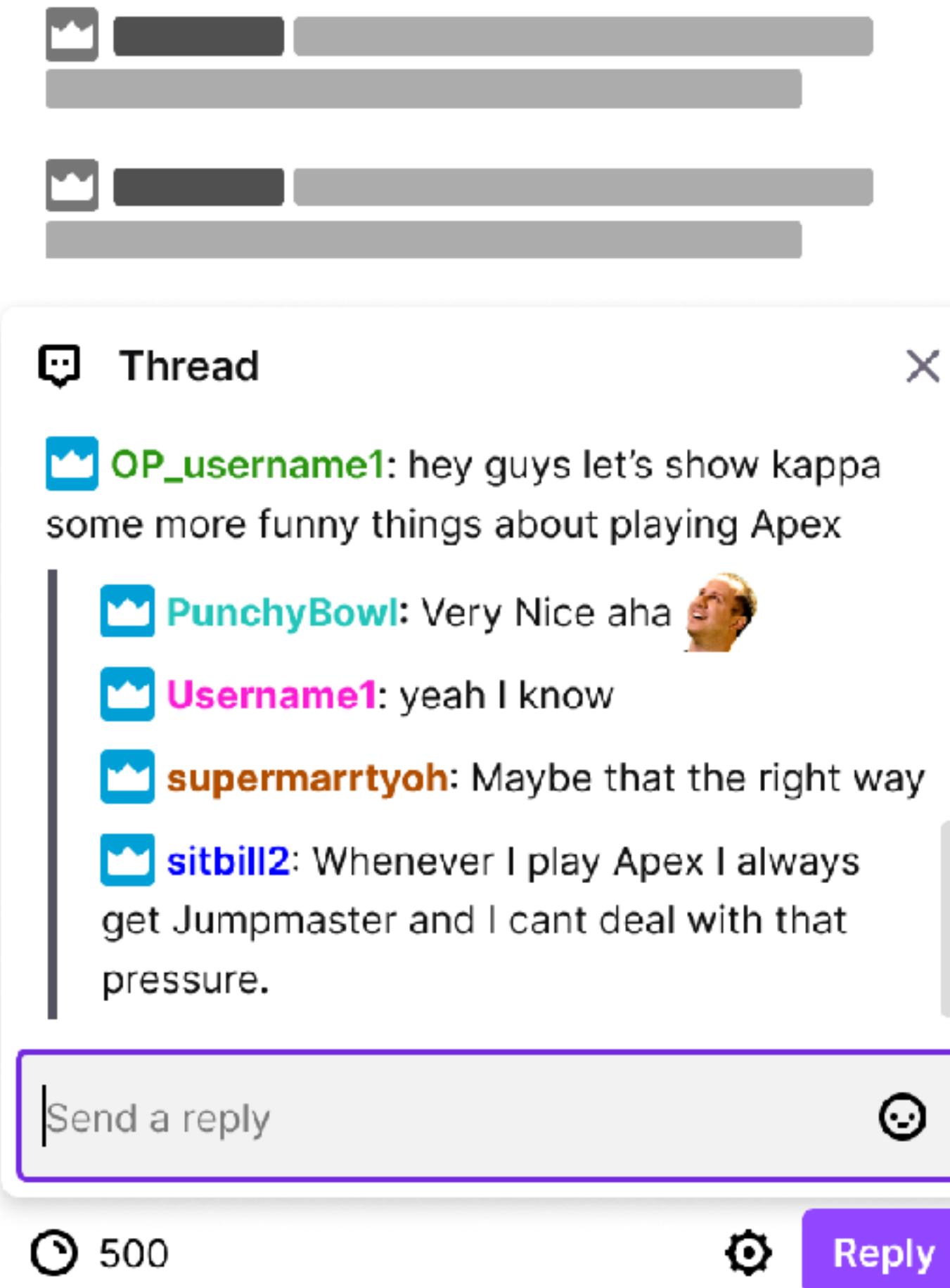
- Big chats tend to use a lot of shorthand
  - Emotes, abbreviations
  - Shorter messages
- Big chats tend to be repetitive
  - Lots of people sending the same messages
- But, these practices lead to a strong community identity
  - In-jokes, callbacks



Ford, C., Gardner, D., Horgan, L. E., Liu, C., Tsaasan, A. M., Nardi, B., & Rickman, J. (2017, May). Chat speed op pogchamp: Practices of coherence in massive twitch chat. In Proceedings of the 2017 CHI conference extended abstracts on human factors in computing systems (pp. 858-871).

# Interactivity with streamers

- So, big chats can still have strong community identity.
- It just looks different
  - Less conversational, more memes
  - More about connecting with others in the community than connecting directly with streamers



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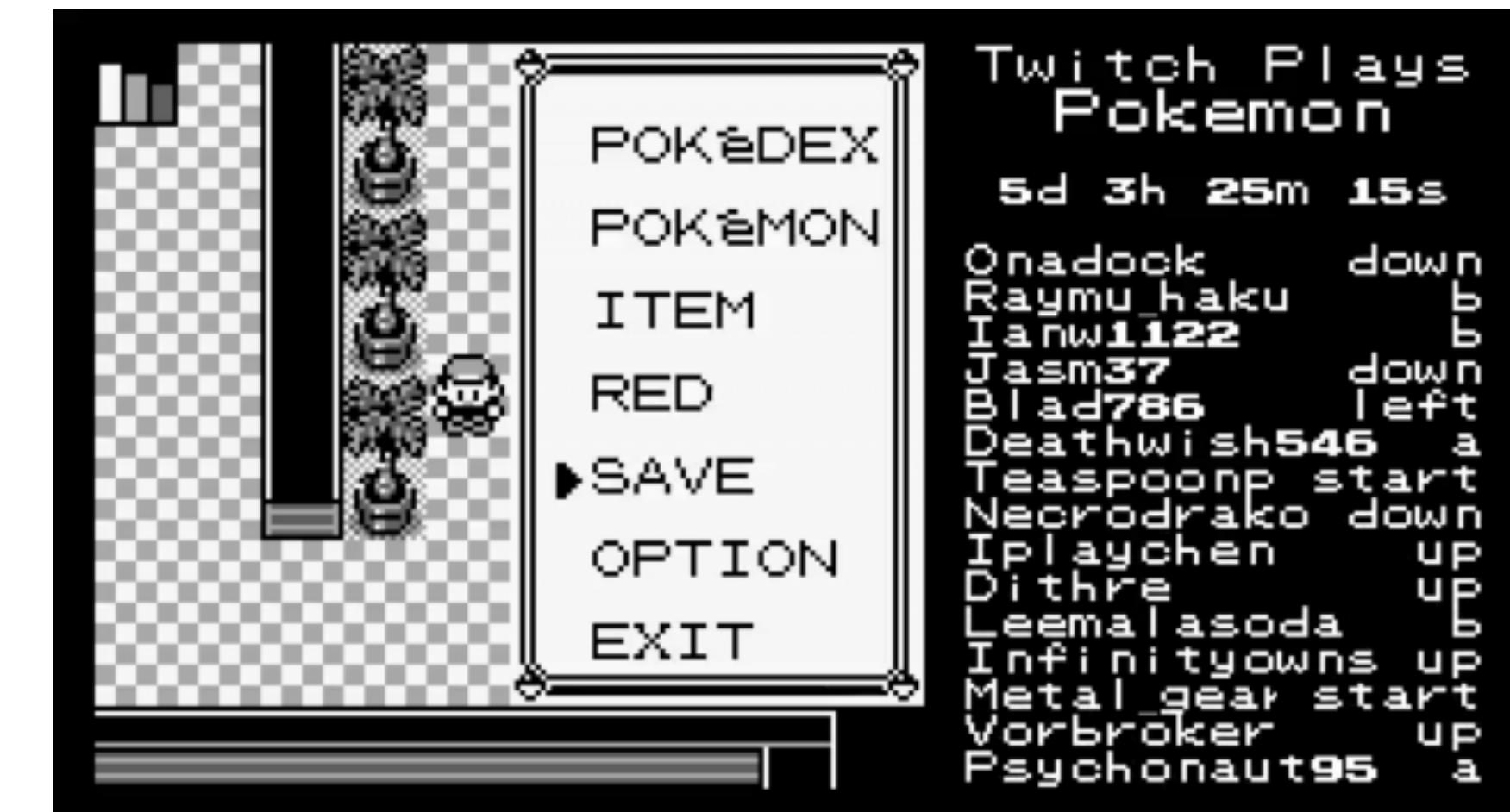
# **Twitch Plays Pokemon: a case study in interactivity, scale, and moderation**

# Twitch Plays Pokemon



# Twitch Plays Pokemon (2014)

- Over 1 million people participated
  - Largest Twitch stream at the time
- Took 16 days to complete the game

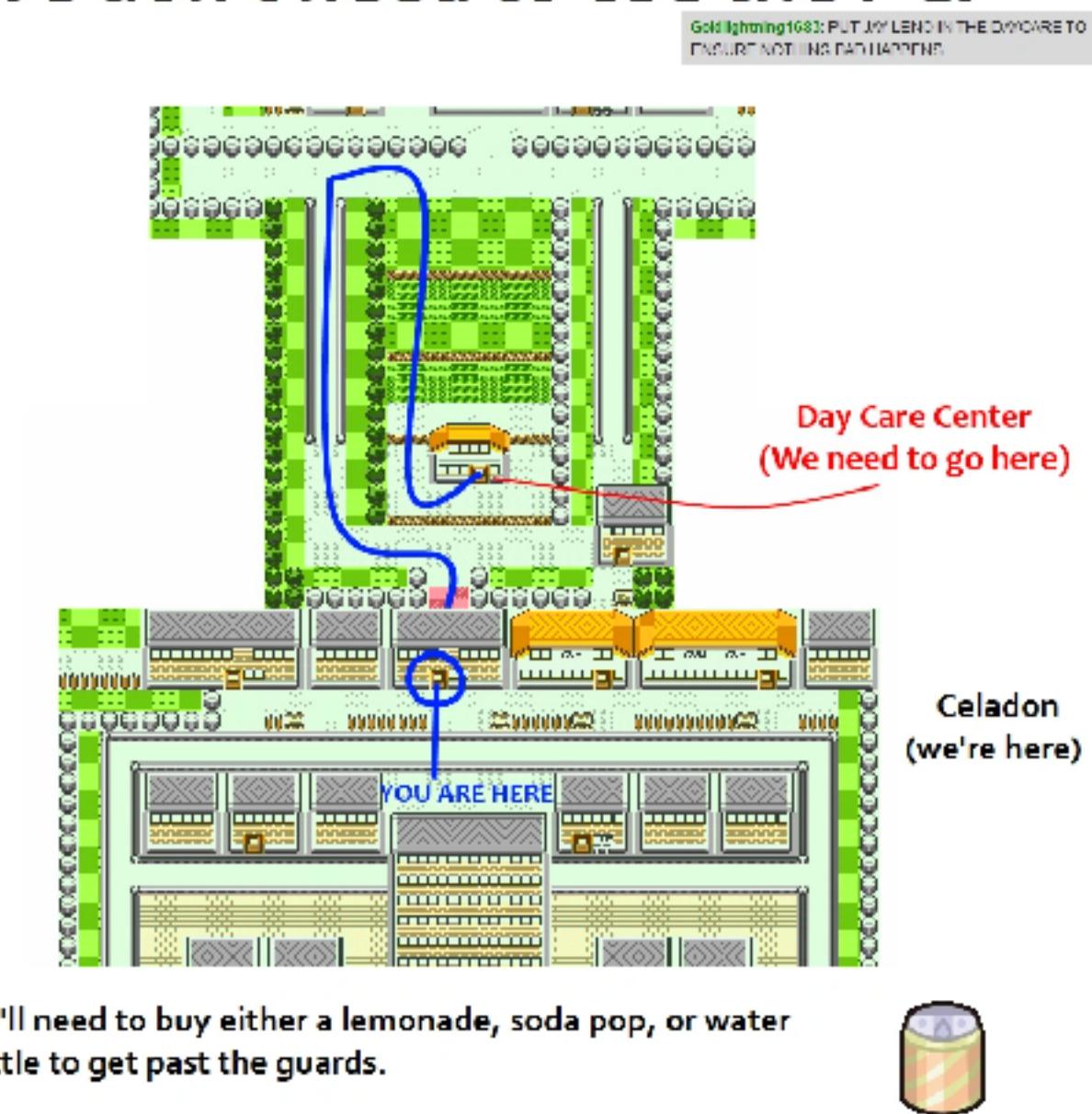


# Twitch Plays Pokemon (2014)

## Interactivity

- The chat can impact the stream, that's so cool!
- Collective action
  - Elaborate schemes to get past difficult versions of the game

Guys! We can do this!  
We don't need to use the PC!



The Day Care Center won't take Pokemon with HMs. We won't have to worry about accidentally putting in DUX or ABBBBBBK(.

Let's try to put Jay Leno in the day care. It may be our best shot.



# Twitch Plays Pokemon (2014)

## Scale

- But, the game became much more challenging as it grew more popular
  - Harder to coordinate a large group
  - Trolls tried to prevent progress, spamming commands which were useless

# Twitch Plays Pokemon (2014)

## Moderation

- The creator implemented a “democracy” mode to take votes for the next action
  - Minimized the impact of trolls
  - Effectively a form of content moderation

Twitch Plays Pokemon	
5d 13h 45m 21s	
Anarchy	Democracy
down	
down	90
left	41
right	6
b	3
start	3
start9	2
a	1
Dunnorandom	down
Naakratal	down
Smartspud	anarchy
Rainbowashe	left
Aurora2k7	left
Ultraguys	democracy
Yenuker	down

# **Moderation and community management**

# Moderation and community management

- Like any platform, Twitch has its trolls
- The goal of real-time interaction makes moderation especially difficult
  - Streamers need to pay attention to content coming in, so they can't wait for someone to decide whether it meets certain standards or not
- We'll touch on moderation more in a few weeks

# Moderation and community management

- Twitch users *imitate* others on the platform
  - Spam chats increase when someone posts spam, but so do positive emoticons
- People are more likely to “follow the lead” of more invested community members
  - Moderators
  - Subscribers

Behavior	% Increase after Event
Spam	43.8%
Question	55.3%
Smile	220.0%

Table 4: Percentage Increase after Event of Same Type

Behavior	User Type	% Increase after Event
Spam	Mod	67.8%
	Sub	46.4%
	Turbo	15.0%
	Regular User	38.6%
Question	Mod	76.3%
	Sub	45.2%
	Turbo	62.5%
	Regular User	52.1%
Smile	Mod	333.3%
	Sub	236.7%
	Turbo	166.7%
	Regular User	233.3%

Table 6: Percentage Increase after Event of Same Type Posted by Given User Type

Seering, J., Kraut, R., & Dabbish, L. (2017, February). Shaping pro and anti-social behavior on twitch through moderation and example-setting. In Proceedings of the 2017 ACM conference on computer supported cooperative work and social computing (pp. 111-125).

# Moderation and community management

- Imposing consequences can deter future bad behaviors
- Banning offenders minimized future spam posts
- Therefore, moderation plays an important role in maintaining and cultivating positive livestreaming communities

Behavior	Response	% Increase after Event
Spam	Banned	13.1%
	Not Banned	46.7%
Question	Banned	34.0%
	Not Banned	55.3%
Smile	Banned	-10.0%
	Not Banned	220.0%

**Table 9: Percentage Increase after Event of Same Type, Banned vs Not Banned**

Seering, J., Kraut, R., & Dabbish, L. (2017, February). Shaping pro and anti-social behavior on twitch through moderation and example-setting. In Proceedings of the 2017 ACM conference on computer supported cooperative work and social computing (pp. 111-125).

# Moderation and community management

- Moderators have to deal with a lot of negativity
  - “*Anytime you time someone out you basically get prepared to be called the Nazi. The mods that actually do their job, people will call them Nazi mods. I've been called that plenty of times for actually enforcing rules in streams and timing people out or purging them, you know, just part of the part of the game, I guess*

Wohn, D. Y. (2019, May). Volunteer moderators in twitch micro communities: How they get involved, the roles they play, and the emotional labor they experience. In Proceedings of the 2019 CHI conference on human factors in computing systems (pp. 1-13).

# Moderation and community management

- Many Twitch moderators, especially of smaller streams, are uncompensated and feel underappreciated
  - *“Having a healthy chat is a good part of a good live stream in my opinion and moderators do most of the job to keeping the chat healthy... Sometimes you rarely get a thank you. Like alright, I’m just doing hours of work just for you, just for the chat, just for the stream. You’re getting paid for it. I don’t even get a thank you”*

Wohn, D. Y. (2019, May). Volunteer moderators in twitch micro communities: How they get involved, the roles they play, and the emotional labor they experience. In Proceedings of the 2019 CHI conference on human factors in computing systems (pp. 1-13).

# Moderation and community management

- Moderators can also have a more parasocial relationship with the streamer
  - “*I think friendship is a strong priority for most people [to moderate] but this relationship is just going to stay where it's at. Some days it can be frustrating but usually it just feels like it is what it is*”
  - “*During stream, we talked about going to this event together but when it came to the actual planning of the travel, I was completely left me out. That's when I realized what I really meant to them. I thought I was part of the streaming family and I wasn't.*”

Wohn, D. Y. (2019, May). Volunteer moderators in twitch micro communities: How they get involved, the roles they play, and the emotional labor they experience. In Proceedings of the 2019 CHI conference on human factors in computing systems (pp. 1-13).

# Summary

- Compared to post-based social media, livestreaming can enable sharing new and different kinds of content
- Relationships with streamers are often parasocial, and people often provide different kinds of support
- Livestreaming platforms try to support interactivity, but are a bit limited in their capabilities for doing so
- Interactivity requires moderation, which is particularly challenging at scale and in real-time

# Today's goals

**By the end of today, you should be able to...**

- Articulate how content produced and shared live differs from post-based content in response, engagement, and structure
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- Identify design challenges for effective livestream platforms and content

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