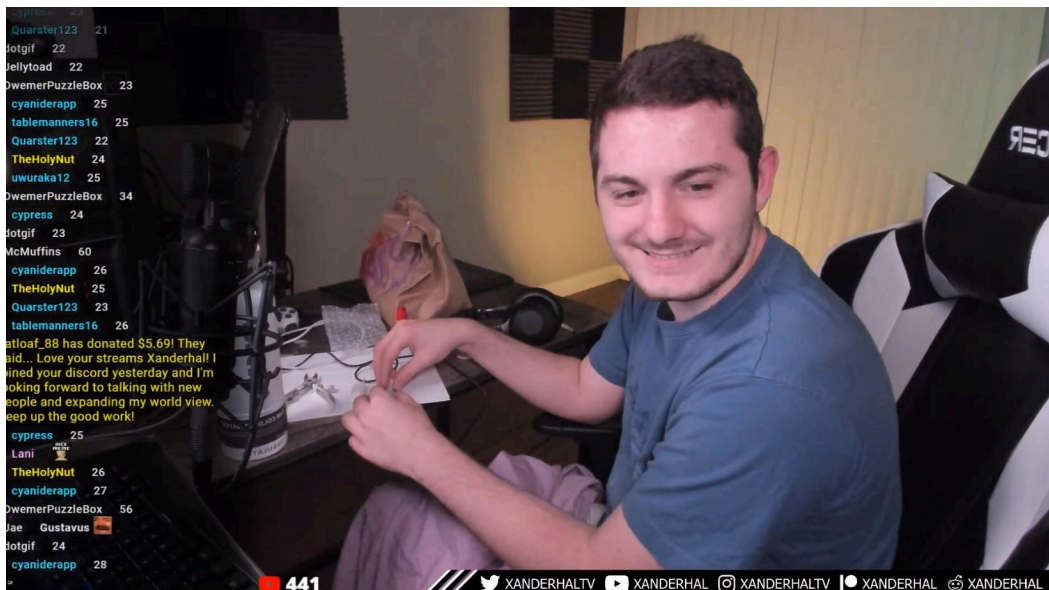


# Objectifying live streaming artifacts

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Through the proliferation of live streaming platforms, it has never been easier for a person to start their own channel and broadcast their perspective and activity of their choosing to the world. Our study on this particular data sprint revolves around a handful of prominent politically charged live streaming channels, utilizing a variety of streaming platforms: This includes Dlive, Youtube, and Twitch. While the interfacial affordances of these streaming platforms vary greatly, there are common elements and patterns that we could objectify, categorize, and taxonomize. In doing so, we map out common artifacts across the platforms, creating a new set of vocabulary for studying these streams of attention. By establishing these visual objects in the ephemeral stream, we are able to ground them for cross-platform analysis.



## 1.Delineating the multiflow-composition

What comprises livestreams? What are the key visible and invisible components establishing the common interfacial language and grammar of live streaming? Since there are multiple objects going on at the same time on a single live streaming screen, it is perhaps more practical to classify the components into what we can and cannot see, and following the ephemeral nature of this particular data sprint project, the durability of the object: permanent and evanescent.

As such we develop a broad categorization according to their durability in a two by two matrix as followed :

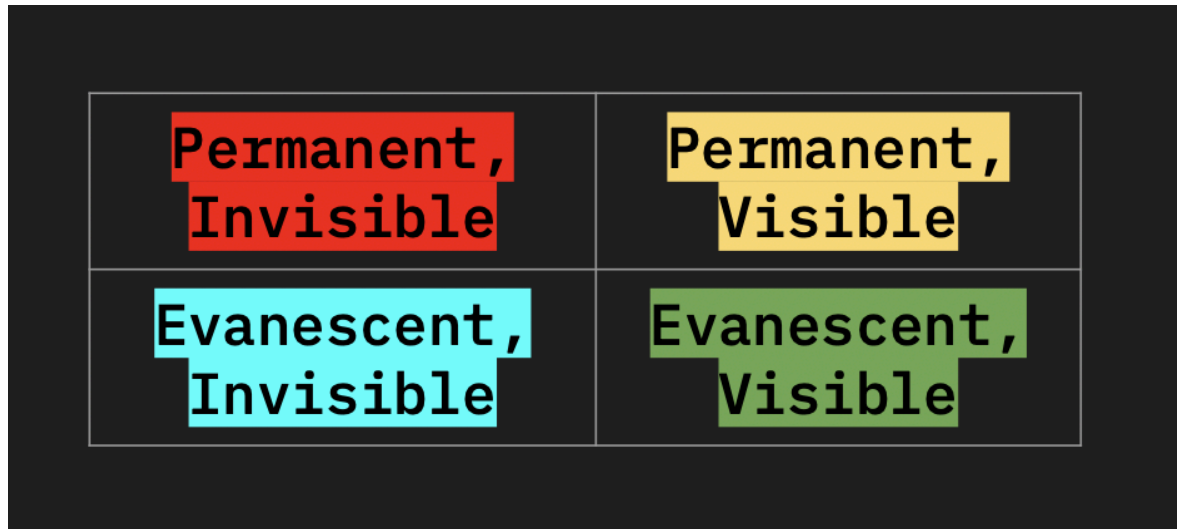


Figure 1: Broad categorization matrix for the livestream objects. The classification is based on its materiality and visibility.

With this broad categorization we could begin to classify the components of each stream independent of the platform's inherent difference to create the common vocabulary. For example:

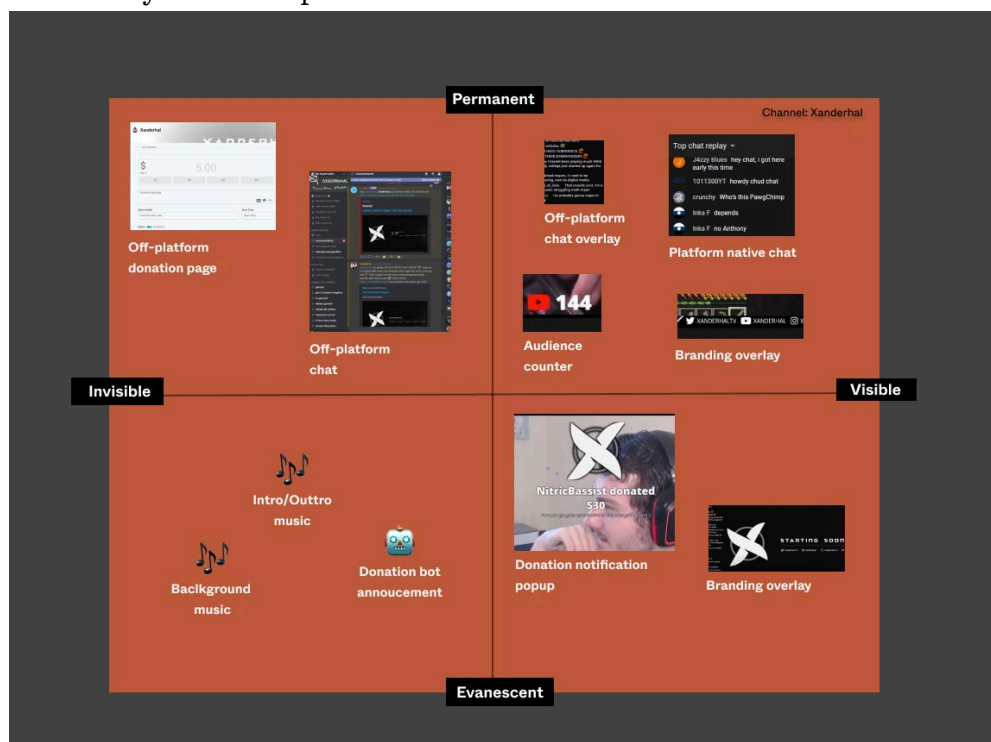


Figure 2: The diagramisation of observable objects from Xanderhal's livestream video.

With this matrix, we are able to delineate the nature of the artifacts of the livestream from both visibility and materiality perspective. Secondly, it allows for a quick

deconstruction of the type of objects favoured by each particular channel. To demonstrate:

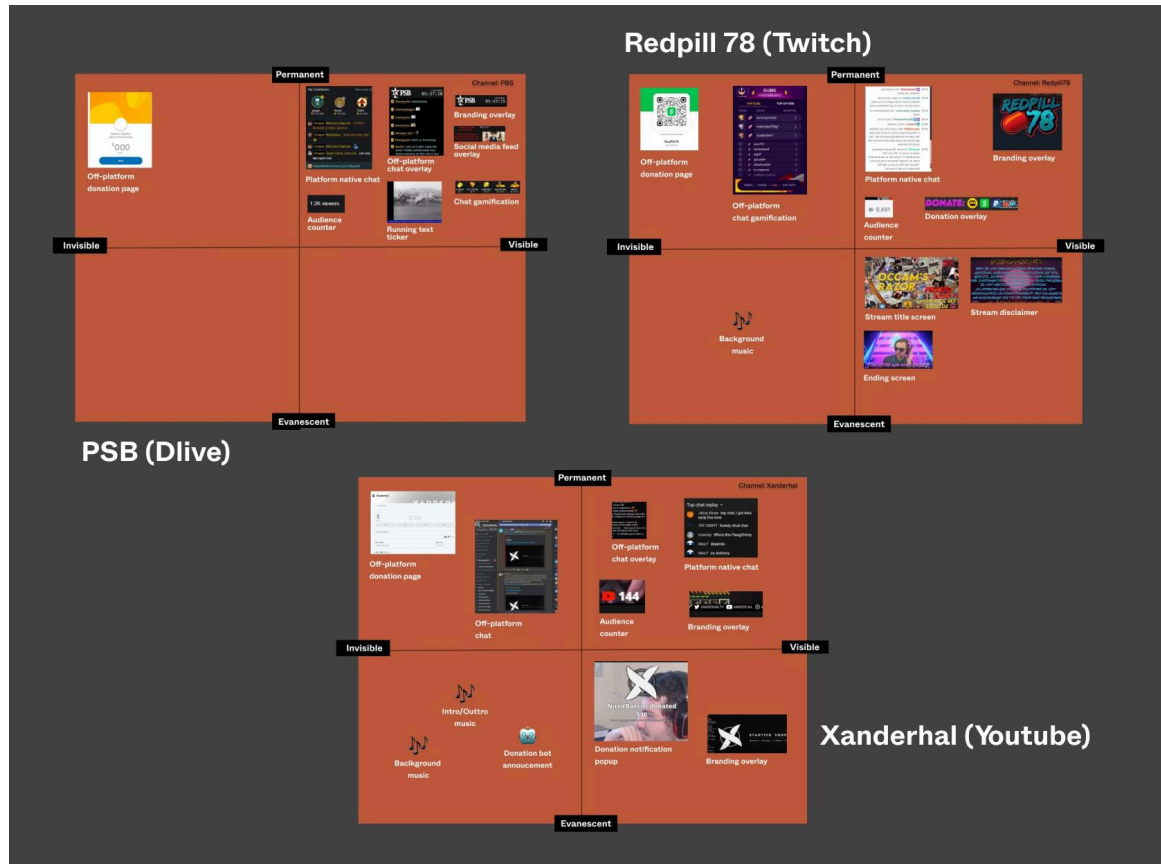


Figure 3: Comparing the three diagrammatisation of three different channels and platforms.

By laying out the diagrammatisation of three different channels (Xanderhal, The Patriot Soap Box, Redpill78) on three different platforms (Youtube, Dlive, and Twitch), we could depict both the material and immaterial artifacts employed by each channel. The underlying technology that comprises the live streaming activity such as an off-site donation page and a separate, but concurrently in use Discord server are also documented. For this particular comparison, the 24/7 streaming PSB channel does not utilise much of the evanescent artifacts, whilst Redpill 78 stages its live stream in a more segmented format, using objects such as stream title and disclaimer. Xanderhal, on the other hand utilises much more traditional 'gamer' objects such as constant background music, and donation announcement text-to-speech bot.

## 2. Classifying livestream activity types

Aside from the livestream artifacts, it could be helpful to classify the activities happening during the livestream. This allows for ease of cross-platform and cross-channel content analysis. For example, if we could map out the major activities

from 3 different streams that respond or broadcast to the same event, syncing them with the tools prototyped in this data sprint project, we would be able to add another layer of understanding to the streaming content.

One of the major challenges in studying live streaming or an archived livestream video is its length. All of the channels in this study archived their past streams which can be upward of 3 hours in length. This makes it inherently difficult and time consuming to study the content and the ephemeral activity in the stream. We develop a method to efficiently categorise the main activities in each stream using two basic softwares : the Media Player Classics and Adobe Lightroom.

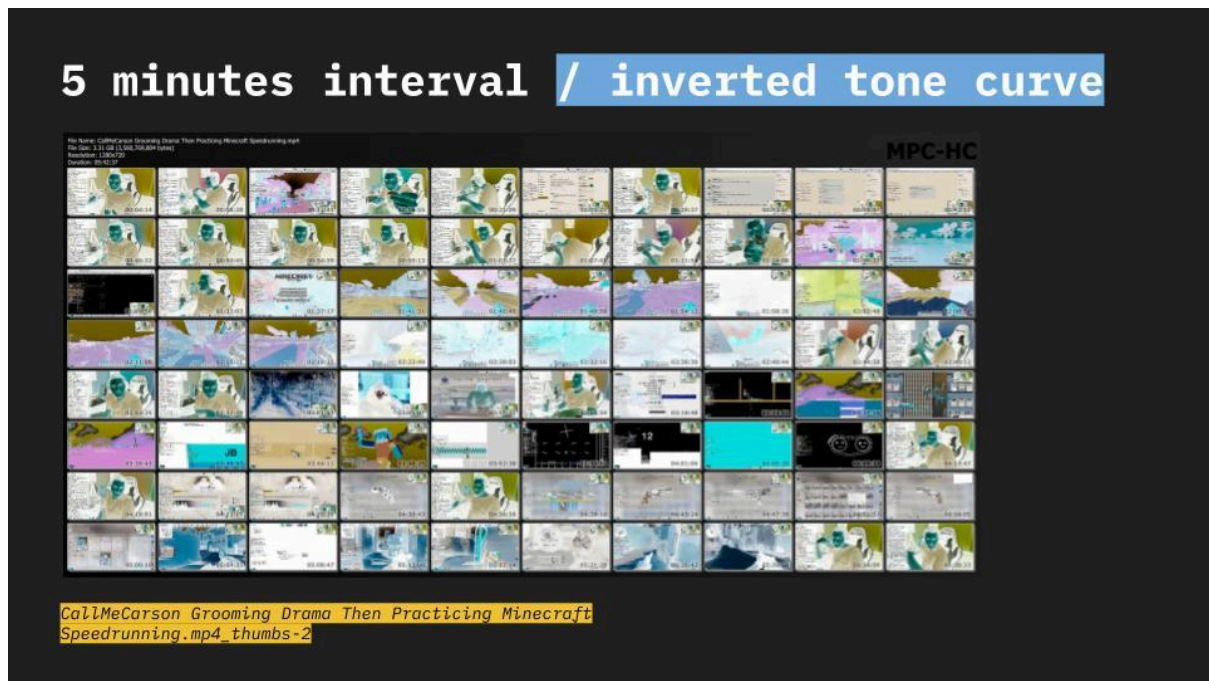
First, we download the archive stream and open it with the Media player classics software, then use the “generate thumbnail” functions to create a thumbnail gallery with a specified time interval (in this case, 5 minutes). The output is a .jpeg image which allows us to glance at the whole stream.



Picture 1: A snapshot of a 3 hours stream from Xanderhal's archived stream on Youtube.

Once the thumbnail gallery is created, we use Adobe Lightroom to invert the image tone curve. This changes the color of the gallery into an x-ray like visual.





*Image 2: Image 1, but with inverted tone curve applied.*

An inverted tone curve is similar to a film negative. An inverted image produces less visual noise and allows us to depict a matching visual pattern from the image quickly. This means we could identify the main activity in a particular stream archive, and calculate to what percentage those activities constitute the stream length.

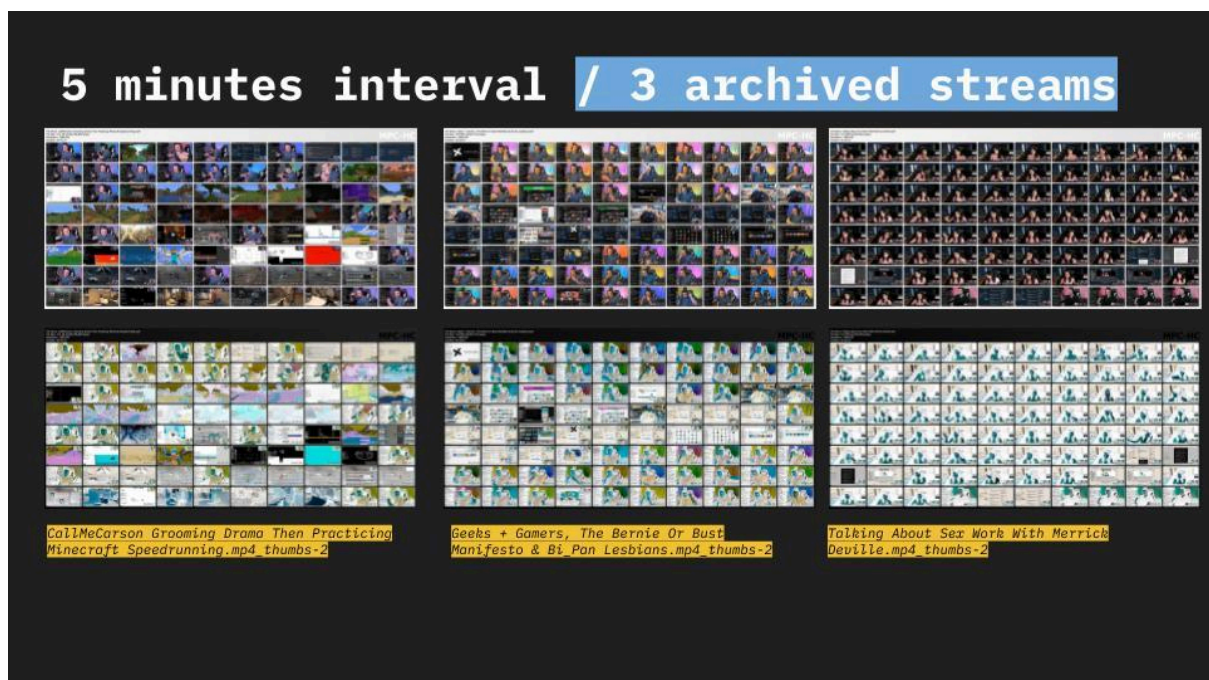
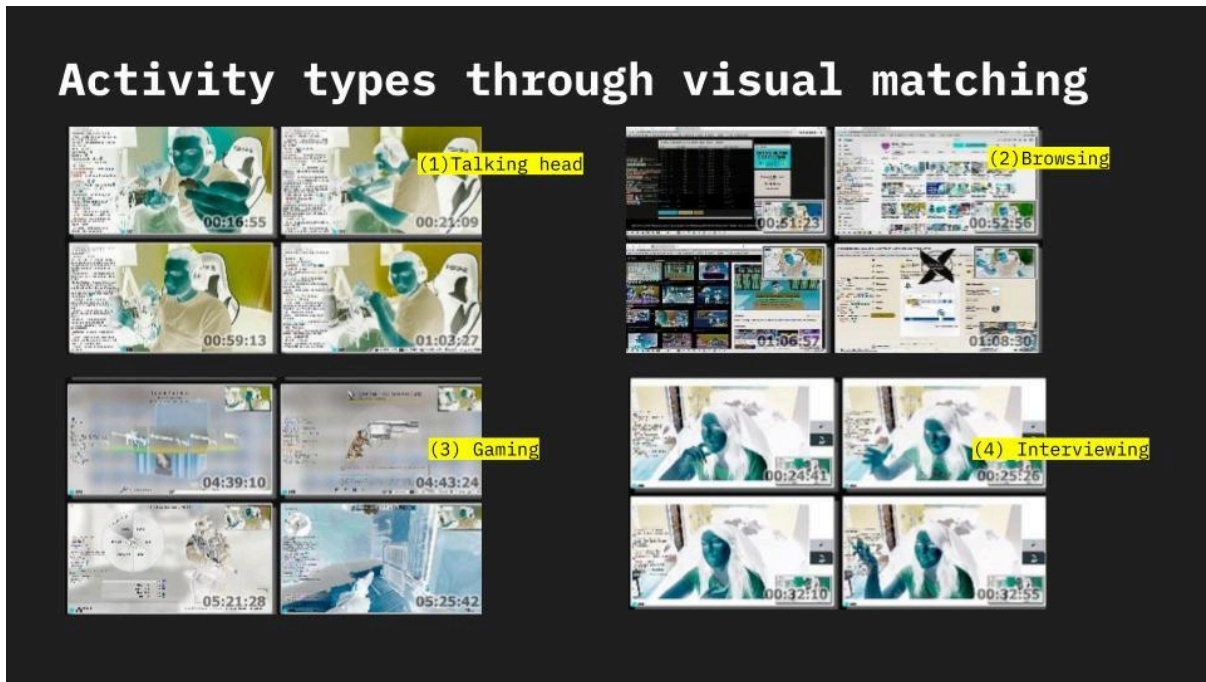


Image 3: Image 1, a comparison of three Xanderhal' stream archives, with inverted tone curve applied.



*Image 4: Manually and visually classifying and matching activity types across different streams archived.*

he stream length.

### 3. Concurrent Platform in use

Apart from the primary composition of the live stream, what often goes unnoticed on the surface level is the underlying technology that enables and sustains the livestreaming activity. While the video streaming platform is apparent to any bystander, external tools used are often not recognized by observers outside the streaming community. It could be helpful to identify typology of the platform, perhaps by its ephemerality of the media, as well as the format used. The latter categorization perhaps allows for an efficient overview of the underlying technology for each channel before the evaluation through digital methods are applied. Below is an example from the Xanderhal's Youtube stream:

	Platform 🏠	Format 📺	Permanence 🔒
1	Youtube	Video	True
2	Twitch	Video	False (no archived recording)
3	Streamlab	Text / Audio	True
4	Discord	Text	True
5	Twitter	Text	True

#### 4. Streaming Economic activity and mechanism

Most of the streaming channels in this study is an economically viable operation, funded by a multitude of visible and invisible activity. Similar to why the concurrent platform should be categorized, the economic activity enabling these live streamings should also be clearly qualified and categorized. One possibility of typifying these activities is to observe it from a mechanical and behaviour point of view. This method helps segmenting observable, human activity (such as the streamer asking for donation), against mechanical activities such as the audience providing donation, or the commoditized archived streams published with platform advertising enabled to generate revenue on the video publishing platform.

Behavioural 🖐️	<ul style="list-style-type: none"> <li>- Signaling donation</li> <li>- Signaling subscription</li> <li>- Disclosing financial situation</li> </ul>
Mechanical 🤖	<ul style="list-style-type: none"> <li>- Archived streams</li> <li>- Merchandise</li> <li>- Donation</li> <li>- Gamified donation</li> <li>- Subscription</li> </ul>

#### 5. Limitations