1. Introduction: Topic and Evaluation Policy.

- **Title:** Console gaming - release rumours
- **Description:** Find documents that discuss the pre-release rumours about the current generation of Sony PlayStation and Microsoft Xbox consoles.
- **Narrative:** A relevant document will discuss the pre-release rumours surrounding the PlayStation 4 or the Xbox One. Documents that discuss rumours surrounding the yet-to-be-announced release of the next generation PlayStation 5 and Xbox Two will also be relevant. However, documents that discuss hardware or firmware revisions to either console of the current generation are not relevant, and neither are documents that discuss the release of, or rumours about, game titles.

**Evaluation policy:**

A document will be considered relevant if it fulfils one or more of the following criteria:
- Discusses pre-release specification rumours concerning the PlayStation 4, PlayStation 5, Xbox One or Xbox Two.
- Evaluates pre-release rumours of said consoles after release.

A document will be considered not relevant if it fulfils one or more of the following criteria:
- Discusses "wish lists" for new consoles as opposed to rumours.
- Discusses gamers’ reactions to rumours.
- Discusses an element of the narrative only briefly.
- Discusses sales figures of new consoles, expected or actual.
- Links to multimedia returned in text searches.
- Solely discusses rumours concerning the naming of consoles.
- Discussion is solely focused on comparing components of new consoles (e.g., processor chips) and not the consoles themselves.
- Discusses revealed specifications of consoles.
- Discusses hardware revisions of current generation consoles (PlayStation 4 Slim, PlayStation 4 Pro, Xbox One S, Xbox One X)
- Multimedia (video) documents over 15 minutes in length.
- Multimedia (video) documents where the focus is not on discussion, but rather a game played in the document.

2. Facet Analysis.

**AD HOC:** Object facet: PlayStation 4, PlayStation 5, Xbox One, Xbox Two. Outcome facet: Rumours. Date facet: Pre-release. Not facet: Game titles.

**Reflection:**

An anomalous state of knowledge (ASK) was identified, in which the information need can be described as “conscious topical needs” - that is, some information is known about the topic, yet this is not sufficient to resolve the ASK.

There was some debate about which form of facet analysis to employ. PICO, being domain-specific, was dismissed, and initially the PMEST approach was employed. Personality consisted of “console gaming”, matter was “PlayStation 4, PlayStation 5, Xbox One, Xbox Two”, energy was “rumours, release”, and time consisted of “hardware revision, firmware revision, current generation, next generation”. A “not” facet of game titles was also added.
Upon reflection, however, the result was unsatisfactory. The “time” facet appeared to be complicating the analysis, and could be said to stretch over both matter and time: that is, PlayStation 4 and Xbox One occupy one timeline, PlayStation 5 and Xbox Two another, with hardware and firmware revisions to consoles adding a third layer of “time”. Furthermore, information about hardware and firmware revisions were deemed to be not relevant, and so should have been included in the “not” facet.

A second attempt was made, this time using an ad hoc approach, and six unnamed facets were identified: facet one, PlayStation current generation; facet two, PlayStation next generation; facet three, Xbox current generation; facet four, Xbox next generation; facet five, release rumours; facet six, hardware revisions, firmware revisions, games.

However, here there were multiple overlaps. Including PlayStation and Xbox within multiple facets seemed illogical and would become overly complicated when building a search strategy. Moreover, “time” again stretched over many facets.

Examining these six facets, it became apparent that they could be collapsed into a simplified, named analysis. PlayStation and Xbox – both current and next generation – are essentially the same entity: that is, they are consoles, and they are the objects of the ASK. For this reason, an “object facet” consisting solely of the console names was decided upon.

In keeping with this simplified approach, the narrative was revisited in order to define what was needed in relation to these objects. Rumours about the consoles formed the basis of the information need, and so “rumours” naturally populated the “outcome facet”.

In both the PMEST and first ad hoc attempts at a facet analysis, “time” proved to be the most troublesome to resolve or define, as there was an overlap between current and next-generation consoles and updated console versions in the current generation.

However, it was clear that a time facet was required based on the information need: a distinction between pre- and post-release of consoles was explicit. After due consideration, the decision was made to again follow a collapsed approach to a “date facet”. “Hardware revision”, “firmware revision”, “current consoles” and “next-generation consoles” were concertinaed into the term “pre-release” for the time facet, as this represented the core of the information need when considering the object and outcome facets.

In addition, a “not” facet was required so that when the search strategy was created, information surplus to requirements would not be retrieved. In considering this, the date facet (pre-release) was found to have added value. Hardware and firmware revisions to consoles could not exist if the initial console had not been released, and so again a simple, clear, straightforward approach to the facets could be employed: “games” populated the “not” facet.


1 – Boolean Building Blocks:

[Object facet]
“PlayStation 4” OR PS4 OR Orbis OR “Orbis Vita” OR “PlayStation 5” OR PS5 OR “Xbox One” OR Durango OR “Xbox 720” OR “Xbox Two”

[Outcome facet]
“Release rumour” OR “release rumor” OR rumor OR rumour OR “second hand game” OR “always on” OR “always connected”

[Date facet]
YR(<2014)

2 – Adapted Boolean Search For Web:

("PlayStation 4" OR PS4 OR Orbis OR “Orbis Vita” OR "PlayStation 5" OR PS5 OR "Xbox One" OR Durango OR “Xbox 720” OR "Xbox Two") AND ("Release rumour" OR "release
Rumor OR rumor OR rumour OR "second hand game" OR "always on" OR "always connected"

3 – Adapted Boolean Search For DuckDuckGo:

(PlayStation 4 OR PS4 OR Orbis OR Orbis Vita OR PlayStation 5 OR PS5 OR Xbox One OR Durango OR Xbox 720 OR Xbox Two) AND (Release rumour OR release rumor OR rumor OR rumour OR second hand game OR always on OR always connected)

4 – Google Advanced Search:

All these words: orbis, durango
Any of these words: "PlayStation 4" OR PS4 OR "Orbis Vita" OR "PlayStation 5" OR PS5, "Xbox One" OR "Xbox 720" OR "Xbox Two" OR "Release rumour" OR "release rumor" OR rumor OR rumour OR "second hand game" OR "always on" OR "always connected"

5 – Bag of words search:

Orbis, Durango, Xbox 720, Xbox Two, PlayStation 5, rumours

Reflection:

Having decided upon a suitable set of facets, the search strategy was then created. In order to compare web and online search services effectively, a “one size fits all” strategy, with only minor adjustments where absolutely necessary, was required. To do this, the limitations of web search engines were used to define both the number of search terms included in the strategy, and the use of Boolean operators.

Google limits the number of search terms to 32 words and ignores everything after that number has been processed. Whilst online search tools like ProQuest Dialog and Factiva are more efficient in this regard, if a complicated Boolean search were constructed for online search and then drastically altered for web search, this would likely heavily weight the results in favour of online search, and produce a search service evaluation based on biased results.

Furthermore, from experience, web search engines have not coped adequately satisfactorily with complicated Boolean searches. In defining the facets, the date facet had been set at “pre-release”, which had the benefit that hardware revisions - the PlayStation Slim and Pro, and the Xbox One S and X - could be removed from the “not” facet, thereby simplifying this aspect of the search strategy.

However, various connotations of “game release” remained in this category. It was decided at this point that the strong date facet, set at before 2014 because both the PS4 and Xbox One were released at the end of 2013, would be enough to remove the possibility of search returns being flooded with irrelevant documents which discussed new or upcoming game titles. At this stage, therefore, the “not” facet was removed entirely, and the search strategy from this point was built upon the object, outcome and date facets.

A pearl growing method was employed in order to discover a suitable number of terms with which to build the search strategy. However, initial searches on Google for terms discussing either “PlayStation 4 release rumours” or “Xbox One release rumours” only returned results which discussed either rumours about the yet-to-be-announced next generation of consoles, or hardware revisions to both, like the PS4 Slim or Xbox One X.

Two issues became apparent. One: documents discussing the next generation were acceptable, but the primary intention of the search as laid out in the narrative was to garner documents discussing the pre-release rumours of the current generation. Two: hardware revisions were released post-current generation, and so by the terms of the evaluation policy, these would not be relevant, although it was predicted that the strong date facet would resolve this issue.
These problems were anticipated, as the PS4 and Xbox One were released in 2013, and through a little research it became apparent that neither console was referred to by name until at least close to release. The code names “Durango” and “Orbis”, and the possibility of a console called the “Xbox 720”, therefore became crucial terms in the object facet, the “all these words” field in Google Advanced Search, and the bag of words terms.

As the next-generation of consoles could be said to be in the “pre-rumour” stage at this point, with no official confirmation that they are in development, “PlayStation 5” and “Xbox Two”, and any variations thereof, were deemed to be sufficiently strong terms to add to the object facet.

For the outcome facet, various incarnations of “rumour” were used, along with the American spelling, with the wildcard added in order to widen the reach of the search. Here, some pre-existing domain knowledge proved to be beneficial. At the time, disapproving responses on gaming forums were common to a proposed “always-on” internet connection, together with an oft-rumoured draconian approach to digital rights management which would severely affect the sale of used games, and so these terms were added to the outcome facet.

With the Building Blocks thus set, the search strategy was adapted for web search. It was decided to remove the date facet for these searches. It was predicted that the inclusion of this factor in searching ProQuest Dialog would limit the results to the current generation of consoles, and so strictly fulfil the brief, and that its removal for web searches would garner more documents discussing the next generation, but these documents would also be both relevant and desirable.

4. Evaluation.

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Reflection:

The results of the laboratory-style evaluation indicate that the use of the Boolean search strategy in StartPage yielded the highest number of relevant documents in this search, yet in every other search engine, the bag of words search outperformed the Boolean search. What is interesting to note is that StartPage also outperformed Google by a considerable margin, which one might not necessarily expect, considering the searches were conducted in a home environment, or context, and therefore Google’s “filter bubble” effect would be highly likely to influence the search results.

Yet if the relevant documents retrieved by StartPage are examined, without exception they discuss the PS5, with none discussing pre-release rumours of the current generation. Given that such documents were to be determined relevant in the narrative, and that relevance is binary, these had to be marked relevant, although the overall usefulness of these documents would not be as successful in resolving the ASK as, say, the results returned by the Bing bag of words web search; that is, results are entirely loaded in the favour of a yet-to-be announced console.

Comparing online with web search, the marked difference in the types of documents retrieved was that the sole topic of documents returned by ProQuest Dialog was the pre-release rumours of the PS4 and Xbox One, whereas web searching retrieved documents discussing the PS5 and Xbox Two. This is understandable, given that the date facet was included for online and removed for web, but it was hoped that the strong search terms “Durango” and “Orbis” would pre-empt a possible set of documents as retrieved by StartPage.

A little surprisingly, Factiva produced poor results, and this can be attributed to the types of sources the search produced. Low quality articles with headlines presumably written to produce hits, like the Daily Express’ “PS5 release date” did not in fact give a release date, with the result that two articles were marked as spam.

Metasearch, using DuckDuckGo, produced better results at P@10, than every other search engine barring StartPage and YouTube, and this can be attributed to two factors. Firstly, there were no duplicates, which one might expect when using metasearch engines, and secondly, no videos were returned, whereas they were with every other web search engine, and these had been determined not to be relevant in text search.

The multimedia search results were a mixed bag. Image searches were uniformly deemed not relevant, and this was to be expected. By the very nature of the information need, text was required to resolve the ASK. Both Bing Images and Google Images returned results displaying concept art, generally on the Pinterest website, which did not address the aim of the search.

YouTube, however, performed well, and it is a credible statement to say that perhaps it was the most useful search service for the topic. It is interesting to note here that the researcher is much more reliant on how the content creator chooses to index the document, as the content is less suited for scanning.

A video tagged with “Durango rumours” might be a video of a gamer talking about Durango rumours whilst playing a game, and so the focus of the video can be said to be on gameplay, not any new console rumours.

In such a case, the task becomes one of audio rather than video retrieval. This complicates the task, as one must watch the video in its entirety in order to determine its
relevance. To overcome this issue, the decision was made in the evaluation policy to set a limit on the length of videos, 15 minutes, and anything over this was dismissed as not being relevant.

To counter this, one might extract the subtitle file, if available, to more quickly scan the document to determine its relevance. However, what was a video evaluation, and became an audio evaluation task, has now been reduced to a text evaluation. Given that videos were not acceptable in text search, such a method for judging video relevance could not be employed.

Moreover, if the subtitles are auto-produced, then accuracy becomes an issue. As automatic speech recognition develops, particularly with regard to distinguishing different speakers rather than producing a single block of text, one might well predict a significant positive impact on multimedia information retrieval.

Bing Video’s disappointing results can be attributed to the decision in the relevance policy to enforce a video length limit. The search results were either not relevant in terms of their content, or a video’s length exceeded the 15-minute maximum. In this case such a policy might at first seem unfair as it affects precision. However, it was deemed necessary to apportion equal time reviewing every video retrieved and assess relevance on these terms. A one-hour-plus video might have more time within it devoted to discussing pre-release rumours of consoles yet still be proportionally of less value or relevance than a 15-minute video.

The fact that bag of words searches in all but one case outperformed Boolean searches is not surprising. As has been mentioned, Google limits the number of search terms to 32 words, and if we consider that users of search engines generally submit terms of no more than four or five words, it is perhaps to be expected that such searches will return the best results, as opposed to a complicated Boolean search constructed for online search in ProQuest Dialog or Factiva.

A robust relevance policy was created and enforced when reviewing the retrieved documents. However, the assumption that relevance was binary meant that an equal measure of relevance was assigned to documents discussing existing consoles and yet-to-be announced consoles. The perhaps unsatisfactory results of such a determination may be observed in the documents retrieved in StartPage, in that precision is high, yet operationally, the results would not be as useful in resolving the ASK as those when using Google.

Lastly, the results the bag of words search on Social Searcher appear on a par with that of Google, yet if we look to the types of documents retrieved, they did not offer significantly more information, and often from the same sources. One must note, however, if the ASK had required documents which discuss gamers’ reactions to rumours, precision would have been far higher.

5. Summary.

An anomalous state of knowledge was determined, and this was translated from the cognitive to the linguistic level, in that a simple yet satisfactory set of facets was decided. From these, a search strategy was produced with which to resolve the ASK.

A robust and holistic relevance evaluation policy was created from the narrative and initial searches with which to determine a document’s relevance. By the terms of this policy, StartPage appeared to be the best search service for this topic. However, the statistics are misleading. If the material contained in the documents are investigated, StartPage would not be as useful as, say YouTube – evidence that when evaluating a document’s relevance, a laboratory-style evaluation’s results can be misleading, and a human element in the evaluation is essential, rather than if the process were automated.

The conclusion may be drawn that, putting image search and Bing’s universally set of poor results to one side, there is no real advantage in using online or web search (in all its instances) to resolve the ASK for this topic - a range of sources are required, which can be achieved using a combination of online and web search tools.