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Tag analysis as a tool for investigating information behaviour: comparing fan-tagging on Tumblr, Archive of Our Own and Etsy.

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3 **Title:** Tag analysis as a tool for investigating information behaviour: comparing fan-tagging on
4 Tumblr, Archive of Our Own and Etsy.
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7

8 **Abstract**

9
10 **Purpose:** This article describes the third part of a three-stage study investigating the information
11 behaviour of fans and fan communities, the first stage of which is described in Price and Robinson
12 (2017).
13

14 **Design/methodology/approach:** Using tag analysis as a method, a comparative case study was
15 undertaken to explore three aspects of fan information behaviour: information gatekeeping;
16 classifying and tagging; and entrepreneurship and economic activity. The case studies took place on
17 three sites used by fans – Tumblr, Archive of Our Own (AO3), and Etsy. Supplementary semi-
18 structured interviews with site users were used to augment the findings with qualitative data.
19
20

21 **Findings:** These showed that fans used tags in a variety of ways quite apart from classification
22 purposes. These included tags being used on Tumblr as meta-commentary and a means of dialogue
23 between users, as well as expressors of emotion and affect towards posts. On AO3 in particular, fans
24 had developed a practice called ‘tag wrangling’ to mitigate the inherent ‘messiness’ of tagging.
25 Evidence was also found of a ‘hybrid market economy’ on Etsy fan stores. From the study findings, a
26 taxonomy of fan-related tags was developed.
27
28

29 **Limitations/implications:** Findings are limited to the tagging practices on only three sites used by
30 fans during Spring 2016, and further research on other similar sites are recommended. Longitudinal
31 studies of these sites would be beneficial in understanding how or whether tagging practices change
32 over time. Testing of the fan-tag taxonomy developed in this paper is also recommended.
33

34 **Originality/value:** This research develops a method for using tag analysis to describe information
35 behaviour. It also develops a fan-tag taxonomy, which may be used in future research on the tagging
36 practices of fans, which heretofore have been a little-studied section of serious leisure information
37 users.
38
39

40 **Keywords**

41 tag analysis; fandom; information behaviour; folksonomy; Tumblr; Etsy; Archive of Our Own; tagging
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44

45 **Introduction**

46
47 The purpose of this paper is to describe the final part of a three-stage study into the information
48 behaviour of fans and fan communities. The first two parts comprised a literature analysis and a
49 Serious Leisure Delphi study, and are described in Price and Robinson (2017). The Delphi study
50 identified three aspects for further investigation: information gatekeeping, classifying and tagging;
51 and entrepreneurship and economic activity. The final stage took the form of a comparative case
52 study.
53
54

55 Since tagging was a topic of some contention in the Delphi study, it was decided to investigate these
56 three aspects (i.e. information gatekeeping; classifying and tagging; and entrepreneurship and
57 economic activity) through the practice of fan-tagging on 3 different sites used extensively by fans –
58 Tumblr, Archive of Our Own (AO3) and Etsy. Fan-tagging is essentially synonymous with tagging, but
59 is used to denote tagging practices in the context of fan activities. Tag analysis was the method used
60

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3 to investigate fan-tagging practices on the three sites. Upon completion of the tag analysis, a
4 comparison was made of the findings from each site, supplemented by additional interviews with
5 fans who were users of the websites. The results of the case study then helped to develop a fan-tag
6 taxonomy.
7

8
9 Each site under investigation serves the fan community in different ways, and their information
10 architecture is very different. Tumblr is a social media blogging site which allows traditional long-
11 form text-based posting, although the site is more heavily skewed towards audiovisual material than
12 most blogging platforms, with animated gifs, memes, and video clips circulating widely. Website
13 links, chat transcripts and quotes can also be uploaded (Attu & Terras, 2017). Since Tumblr does not
14 have a traditional commenting functionality, unless an entire post is reblogged by another user, the
15 tagging function “has been creatively exploited by some users beyond its folksonomic use” for
16 “discourse functions such as expressing an opinion, a reaction, or including asides” (Bourlai, 2018, p.
17 46).
18
19

20
21 AO3 is a fanfiction repository which stores mostly text, although other formats such as images, audio
22 and video may be embedded into a post using HTML. Despite this, the vast majority of works are
23 text-based. Users may tag their posts freely, or use pre-defined and/or canonical tags which have
24 been already been approved by the site’s volunteer tag wranglers, “volunteers who look through
25 tags and match non-canonical tags with canonical tags to ensure some level of control over
26 terminology” (Johnson & Forsythe, 2019, p. 17). This system is “a unique combination of author-
27 generated metadata and backstage volunteer federation” (Gursoy, Wickett & Feinberg, 2018, p.
28 492), similar to Hilderley & Rafferty’s (1997) concept of democratic indexing. Tag wranglers must
29 exercise their judgement and expertise in standardising tags, but it is not yet clear how accurate
30 their judgement might be, whether their wrangling choices accurately reflect the intentions of the
31 original tagger, or whether they inadvertently practising a form of information gatekeeping by
32 choosing to merge tags that are not synonymous to the original tagger.
33
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35
36 Lastly, Etsy holds a very different function as an online marketplace for small businesses dealing in
37 craft, vintage or handmade goods. Custom fandom merchandise is produced by many Etsy stores,
38 although these are unlicensed (King & Ridgway, 2019). Similar to AO3, users may freely tag their
39 posts, or use pre-defined tags. Thus far, investigation of tagging on Etsy has been limited, with
40 Blanchflower & Hodges (2014) being the only research of significance on this topic; however, this
41 study does give intriguing insight into how strategic tagging could bolster the success of selling an
42 item.
43

44
45 Each platform, with their individual, unique functions, was chosen to address each of the three
46 specific aspects under investigation. Tumblr, with its “discourse functions” of tagging (Bourlai, 2018),
47 was used to investigate how tags are used to communicate between fans online; AO3, with its tag
48 wranglers, to investigate information gatekeeping on the site; and Etsy, as an online marketplace, to
49 investigate the practices and attitudes of fan entrepreneurs online.
50

51
52 As stated in Price and Robinson (2017), the aim of the study is to examine the information behaviour
53 of fans from a library and information science (LIS) perspective. While serious leisure and fun life
54 contexts have been a subject of research within LIS in recent years (Ocepek et al., 2018), fandom
55 itself has rarely been so. It is therefore a domain that is deserving of deeper consideration, especially
56 when considering the rich, complex and diverse information practices as already examined in Price
57 and Robinson (2017). Understanding this domain would benefit not only LIS, but also other
58 disciplines, such as the media industry, which may wish to understand how intellectual properties
59 are consumed and remediated; publishers and policymakers may find fan publishing paradigms and
60

1
2
3 attitudes to copyright of interest; and educators teaching information and digital literacy may
4 benefit from an understanding of fan practices. Future exploration may include the domains of
5 mental healthcare, and the positive effects fan activities may have on both fan creators and
6 consumers (c.f. Anderson, 2019).
7

8 Specifically, the case studies reported here aim to address the following points:
9

- 10 • Understanding fan-tagging practices may help to improve information architectures used in
11 fan contexts;
- 12 • Fan-tagging practices will give insight into how fans share, disseminate, promote and
13 organise their work;
- 14 • Fan-tagging practices may give insight into the non-classificatory ways in which fans use
15 tags, such as on Tumblr.
- 16 • Investigating the practice of ‘tag wrangling’ on AO3 may tell us if and how fans act as
17 information gatekeepers;
- 18 • Investigating fan sellers on Etsy may have wider implications for domains outside of LIS, i.e.
19 the media industry, copyright law, the sharing economy (Cohen & Sundararajan, 2015) etc.
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31 A more in-depth discussion of these case studies, including thorough details of the tag analysis
32 process, can be found in chapter 5 of Price (2017).
33
34

35 **Scope and limitations**

36 The three case studies focus on 3 online platforms – Tumblr, Archive of Our Own (AO3), and Etsy. All
37 have very different functions, but are widely used by fans. Tumblr is mainly an image-based social
38 media site; AO3 is a fanfiction repository; Etsy is a marketplace for small businesses primarily selling
39 handmade, vintage, or arts and crafts goods. As we have discussed, these sites were specifically
40 chosen to investigate and address the objectives outlined above.
41
42

43 The case studies focus on one particular fandom, or sub-fandom, specifically called ‘Romy’. Romy
44 fans follow the ‘ship’, or relationship, between two characters called Rogue and Gambit, who are
45 mutant superheroes from Marvel’s *X-Men* franchise. The term ‘Romy’ itself is a portmanteau of the
46 two character’s names, i.e. Rogue + Remy = ‘Romy’. Both this term and its synonyms are widely used
47 in online contexts to tag fanworks (i.e. fan-made creative works) related to these two characters.
48 The reason for choosing this fandom is twofold. Firstly, it is a relatively small fandom and easier to
49 investigate than more popular ones such as Harry Potter and Star Wars. Secondly, fan nomenclature
50 tends to be rather impervious and difficult for outsiders to understand. Some Marvel Universe-
51 specific fan terms include: ‘ironshield’ (to denote a pairing between the characters Iron Man and
52 Captain America); ‘fem!clint’ (to denote a gender-swapped Hawkeye character); and
53 ‘MPreg!Charles’ (to denote male pregnancy in the character Charles Xavier). Many Marvel tags are
54 references to obscure characters, story arcs, plot elements and locations that are also inscrutable to
55 outsiders. To analyse the ‘Romy’ tag and all its co-occurring tags, therefore, would require either
56 substantial knowledge of the Marvel Universe, or substantial research in the area to familiarise
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oneself with it. As the author has been a long-time fan of the Marvel Universe and the Romy fandom in particular, an analysis of the 'Romy' tag and its synonyms was chosen for the case studies, as the author's expertise would greatly reduce the time needed researching tag meanings, and also improve coding accuracy.

There are, of course, limitations to the presented case study. Case (2012) has pointed to the fact that case studies can only show a snapshot in time, and this is especially pertinent in the case of tagging, where tags may reflect passing trends, fads, or events. The quantitative data collected in this study reflects a snapshot of time in 2016, and of course, changes will have taken place on all these platforms, particularly on Tumblr, whose user base was drastically reduced after its December 2018 adult content ban (Bronstein, 2020). Additionally, as this case study focuses solely on the Romy fandom, results should not necessarily be generalised to the wider fan community.

Also, manually coding tags is of course very subjective and there are many instances where a tag can likely fit into more than one category. For example, the term 'X-Men' may refer to the Marvel superhero team, or it may refer to the fandom itself. To put this in simpler terms, using Smith's (2008a) tag categories (see Table 1), the term 'my art' might refer to a resource, or it might be self-reference. In such cases, it is necessary for the researcher to make an informed judgement as to the category that best describes the tag, which naturally leaves the potential for erroneous judgement. Such biases can be mitigated using coding teams, but unfortunately the limited time, resources and expertise available for this study did not allow for this.

Literature review and rationale

Tag analysis, wherein the network properties of tags are analysed, has its roots in hyperlink network analysis, or link analysis (Thelwall 2004), which in turn has its roots in social network analysis (Park and Thelwall 2003), and has seen growing use in the LIS field, and is popular in analysing the use of Twitter hashtags. For examples of research using network tag analysis, see Ahmed & Lugovic, 2019; Buarki & Alkhateeb, 2018; Ewbank, 2015. For other examples of LIS studies looking at tagging in wider contexts, Navarro Bullock, Hotho & Stumme (2018) discuss how effective tags are when accessing information; Samanta & Rath (2020) compare the usefulness of tags and controlled subject headings on LibraryThing; and Szuban (2018) investigates a videogame wiki to appraise how the use of a folksonomy can complement the top-down work of a hierarchical structure. Sarkar & Bhattacharya (2020) give an excellent overview of comparative studies of folksonomies and controlled vocabularies within LIS.

It is also worth mentioning here that research into tagging in fan contexts has been recently conducted. Messina (2019) evaluates tag usage in *The Legend of Korra* fanfiction from a genre studies perspective; Hoch's (2018) paper uses content analysis to examine the posts using the fan-tags "zoethian" and "sjips" on Tumblr, in order to highlight fan conduct norms; Gursoy, Wickett & Feinberg (2018) investigate the different uses of tags within fanfiction repositories; and Navar-Gill & Stanfill (2018) looks at tagging from the lens of media studies, discussing queer fan-tag campaigns as interventions in the creation of media products.

Attu and Terras (2017) give a summary of the academic research that has been done on Tumblr thus far. Their overview shows that "blogging, education, libraries, identity, and fandom are the most frequent topics in Tumblr-focused research" (2017, p. 544). No mention, however, is made of any research on Tumblr tagging metrics, in stark contrast to Twitter. This suggests that the kind of research reported in this paper is novel and should present some new insights.

1
2
3 Attu and Terras' work only covered papers up to 2015; more recent research includes Misailidou
4 (2017), McGuire (2017), Bury (2016), Gonzalez (2016), Petersen (2017), Bourlai (2018), and Hoch
5 (2018). Of these studies, only Bourlai (2018) and Hoch (2018) look specifically at Tumblr tagging.
6 However, the emphasis appears to be on the discourse functions and fannish cultural norms
7 observed in fan-tagging, rather than on information behaviour, the network properties of fan-
8 tagging, or the development of a fan-tagging taxonomy. This further verifies the novelty of the
9 research presented here.
10
11

12 Some research has been done on AO3's tagging system. As seen above, Messina (2019) looks at AO3
13 tags from a writing analytics and genre perspective; Gursoy, Wickett & Feinberg (2018) recommend
14 creating tagging systems that allow for expressivity, according to the findings of their research,
15 which concluded that fans use tags creatively, as well as for information organisation purposes. Prior
16 to this Johnson (2014) gave an overview of how tagging affected the findability of fanfiction on AO3;
17 and Dalton's (2012) Masters thesis surveyed AO3 users about their perceptions of the site's tagging
18 structure.
19
20

21 Research into Etsy's tagging system is sparser. Blanchflower & Hodges (2014) mention tagging briefly
22 as a strategy for improving traffic to products on the site; and Close (2016) briefly touches on similar
23 findings of strategic tagging. As yet, this appears to be the extent of research on this topic.
24
25

26 The above studies are useful in that they shed some light on tag users' behaviour in several ways –
27 however, most are *not* conducted from a LIS perspective, nor is their intention to investigate
28 information behaviour per se. Where the research presented here differs from these studies is that
29 it employs tag network analysis as a quantitative method to investigate human information
30 behaviour, undertaken firmly within an LIS context. As far as can be ascertained, LIS has not used
31 either tag or network analysis in this way before i.e. as a method to investigate human information
32 behaviour. Since information behaviour has been defined as "the totality of human behavior in
33 relation to sources and channels of information, including both active and passive information
34 seeking, and information use" (Wilson 2000), tag analysis can offer some unique insights into how
35 humans relate to information, in the way they seek, classify, organise and manage it. Not only this,
36 but it may also shed light on the thoughts and motivations behind human information behaviour.
37
38
39

40 First, and most obviously, using network theory measurements such as betweenness centrality can
41 illustrate how effective a tag is as an information or content carrier; a densely clustered group of
42 tags will imply that they are highly influential within the network. But the type of tags used, as well
43 as their frequency, can provide important information on how humans interact with information.
44 They can tell us how users organise information and communicate on different platforms (e.g. Flickr,
45 Twitter, Instagram, Tumblr, Bibsonomy etc.), and whether those methods change in different
46 environments. Tag types can also suggest the motivations behind tagging, and the community
47 and/or cultural norms behind tagging practices (such as Wargo's #socialjusticewarrior users on
48 Tumblr). For example, the use of the emoticon tag type (as seen in Table 2) can indicate how an
49 individual tagger affectively annotates a resource. Looking at the use of the emoticon tag type within
50 an entire Tumblr dataset, and comparing its use within an entire Instagram dataset, can tell us
51 whether affective annotations are more important on Tumblr or Instagram. It can also tell us about
52 the motivations for tag usage – are users more concerned with using tags to organise resources, or
53 to signify social identity? Are they more interested in using tags to disseminate resources, or to
54 annotate them?
55
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57

58 This research builds on the premise that tags can provide a new and innovative method for
59 investigating human information behaviour. Since this is a novel application for this method within
60

1
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3 LIS, its use here is exploratory, but it is hoped that this can be refined and developed in further
4 research.
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6
7

8 **Ethics**

9
10 The research received ethical approval from the relevant City, University of London, ethics
11 committee.
12

13 The tag analysis required the use of web crawling, which brings with it particular ethical concerns.
14 Thelwall and Stuart's (2006, p. 1777) policy of ethical webcrawling was used, namely:
15

- 16 • Email webmasters of large sites that are about to be crawled to allow them to make an
17 informed decision to opt out.
- 18 • Obey the robots.txt convention.
- 19 • Follow the robots guidelines.
20

21
22 Additionally, all data obtained using webcrawling methods was anonymised, with any data which
23 might lead to the identity of those included on the dataset (such as blog URL) removed.
24
25

26 **Methods**

27
28 The comparative case study was split into two sections. The first was a social media data analysis,
29 specifically using tag analysis as a research method. The second comprised semi-structured
30 interviews. For the first section, several programmes were used to aid in the social media data
31 analysis. Tags were scraped from all three sites using different methods:
32
33

- 34 • Tumblr: An open source Python script, `get_tagstats`, available on GitHub, was used to access
35 the Tumblr API and scrape tags used on the site. This necessitated the installation of Python
36 2 to run the script. A Tumblr account was needed to use the API.
- 37 • AO3: The free web crawler, SocSciBot, developed by Mike Thelwall and the Statistical
38 Cybermetrics Research Group at the University of Wolverhampton, was used to scrape tags.
39 Pajek, an open source programme for analysing and visualising networks, was used to a
40 render the resulting dataset in a format that could be imported into NodeXL.
41
- 42 • Etsy: A free online tool, EtsyRank, was used to scrape tags from Etsy. Since EtsyRank is
43 connected to the Etsy API, an Etsy account is needed to use it.
44
45

46 All resulting datasets were cleaned in Microsoft Excel before being imported into the NodeXL
47 network analysis tool (Smith, Shneiderman, Milic-Frayling et al. 2009).
48

49 In the second section of the study, semi-structured interviews were conducted with taggers and tag-
50 wranglers, and the data analysed thematically in Nivo.
51
52
53

54 **The sites**

55 A brief description of the tagging systems used in each of the 3 sites investigated in these case
56 studies is given here, to better facilitate an understanding of how these systems affect the social
57 media data analysis.
58
59

60 *Tumblr*

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2
3 Tumblr uses a hybrid tagging system. Firstly, it is a self-tagging system, i.e. a system where a user can
4 only tag the resources they have created (Zollers, 2007). Secondly, it incorporates an automanual
5 function, where Tumblr itself will suggest recommended tags based upon the first few characters
6 typed in, previous tags the tagger has used, and the most popular tags used on the site (Warner,
7 2011; Smith, 2008b). Lastly, the site allows the reblogging of other users' resources, and when
8 reblogging, a user has the option of retagging the resource with their own terms. Of note is the fact
9 that only the first 20 tags are indexed by the site (Unwrapping Tumblr, 2014).

10
11
12 [Take in Figure 1]

13
14 Figure 1 shows a screencap of a Tumblr post by Participant B. The resource in this picture is an image
15 (fanart) created by Participant B of the Marvel characters Rogue and Gambit. Users may also add
16 descriptions to their post; here Participant B has added a short caption to her artwork, followed, in
17 parentheses, by a communique to another user. Below the description can be seen the tags. These
18 follow the hashtag format popularised by Twitter; however, unlike Twitter, spaces are allowed
19 between words; there are no restrictions to formatting (e.g. numbers and special characters are
20 allowed), nor are there any restrictions on the amount of tags that can be used. Descriptive tagging
21 is used (“#romy”, “#rogue”, “#gambit”); but another form of tagging, unique to Tumblr, is also used.
22 Three tags are used to express the affective impressions of the tagger, while also enriching the
23 description of the resource itself (“#still pissed about uncanny avengers 5”, “#this is how i vent”,
24 “#well this and alcohol”). These three tags are separated into phrases, but together form a coherent
25 sentence or thought. Not only do they express affect, but they also communicate Participant B's fan
26 identity (i.e. her disappointment with a certain comic book and its depictions of her favourite
27 characters) to other fans on the site. The final tag used in this post is an emoji (“#0:”), which
28 represents a smiley face with a halo above it, and lends a playful emphasis to Participant B's
29 affective tags.

30 31 32 33 34 *Archive of Our Own (AO3)*

35
36 As with Tumblr, AO3 implements a combined self-tagging and automanual system. The site suggests
37 pre-defined tags when filling them in, although taggers are free to choose whatever terms they wish.
38 Tags do not take a hashtag format, and there are no restrictions on spaces, length or characters.
39 Non-Roman script is also allowed.

40
41 Figure 2 shows a random search result of works archived under the ‘Remy LeBeau/Rogue’ tag. The
42 tags are displayed after the archive warning (in this case, the author chose not to employ any archive
43 warnings, e.g. violence, non-consensual sex, etc.).

44
45
46 [Take in Figure 2]

47
48 Greyed out tags are **Ship** tags (i.e. denoting a romantic pairing of two characters), or **Friendship** tags.
49 **Character** tags follow, and then descriptive tags. Normally, pre-defined tags start with a capital (e.g.
50 “Mental Health Issues”, “True Love”, “School”). There are several tags that the author herself has
51 applied freely to the fanfic. These express themes (“normal people suck”, “cute and crazy”) and
52 story elements (“AU jumping from the aftermath of the battle with Apocolypse”, “Logan is a good
53 daddy”). These tags are typical examples of how users choose to tag their works on AO3, i.e. using a
54 mixture of pre-defined tags and free ones. If a free tag becomes popular enough, it will be merged
55 by a tag wrangler with a standard, pre-defined one; or a new tag will be entered into the system's
56 taxonomy to accommodate it. For example, in Figure 2, the free **Character** tag, “and many many
57 more” has been made equivalent to the standard tag “Other(s)” – if the tag is clicked on, it will lead
58
59
60

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3 to all works on the site that have used the tag “Other(s)” or their equivalents. Therefore, tag
4 equivalencies, once determined by a tag wrangler, are saved automatically in the site’s database.

6 *Etsy*

7
8 Etsy’s tagging mechanism is also a self-tagging and automanual hybrid; a maximum of 13 tags are
9 allowed. Others, such as Smith (2008b) and Warner (2011), have already given excellent accounts of
10 how Etsy’s tagging works. The automanual function suggests pre-defined tags for the resource. As
11 Smith describes, “Etsy’s pre-defined tags form the top-level category navigation on the website. The
12 suggested tags are actually sub-categories for each of the main categories” (Smith, 2008b, p. 16).
13 These can be seen in at the bottom of Figure 3, where four of the tags (“Craft Supplies & Tools”,
14 “Frames, Hoops & Stands”, “Picture Frames” and “Frames”) are hierarchical tags pre-defined by Etsy.
15 The other tags are free tags entered by the user.
16
17

18 [Take in Figure 3]

20 **Tag analysis**

21
22 This section details the process for the tag analysis on each of the three online platforms
23 investigated.
24

25 *Tumblr*

26
27 Tumblr does not allow crawling of the site; therefore, a Python script, `get_tagstats.py`, was used to
28 access Tumblr tags, via the Tumblr API, and retrieve data on posts using that tag.
29

30 Since the fandom, and hence extent of social media activity, being studied was relatively small, the
31 script’s search parameters were set to the last 2000 Tumblr posts that used the Romy tag. The
32 minimum incidence of a co-occurring tag was set to 1, so that all tags with at least one other co-
33 occurring tag would be represented. After data cleaning, the dataset comprised 684 posts by 186
34 users.
35

36
37 The data was analysed using NodeXL. It was necessary to manually create multiple edges through
38 linking vertices into node pairs, since in NodeXL an edge can only connect two vertices, a source and
39 a target, while in this study one source tag often linked to multiple target tags.
40

41 Further normalisation was required to remove case sensitivity, concatenated names, and obvious
42 errors. However, synonyms were not merged, so as to preserve the idiosyncrasies of the Romy
43 folksonomy intact, they were preserved in their entirety. Lastly, duplicate vertex pairs were merged
44 together using NodeXL’s merge tool. This resulted in a total 2338 vertex pairs or edges.
45

46
47 The remaining tags were then coded by type. The typology used is shown in Table 1; it is due to
48 Smith (2008a), in turn an amalgamation of the typologies developed by Golder and Huberman
49 (2006) and Marlow, Naaman, boyd et al (2006). While coding, it became clear that the fine
50 granularity of the tags in the dataset could not be adequately described by Smith’s very broad
51 outlines. Inductive coding was used to create a more detailed typology, adding new categories in a
52 nested format under Smith’s main categories. New categories were added as and when a new tag
53 type was encountered in the data.
54

55 [Take in Table 1]
56
57
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59
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1
2
3 This process of inductive coding continued throughout the social media data analysis. From this
4 iterative process, a final taxonomy was developed by the conclusion of the social media data
5 analysis, which is presented in Table 2.
6

7 Two datasets were created from the Tumblr data. One of the top tag users in this set was Participant
8 A, whose account functioned as an aggregator of fanworks related to the character Rogue, unlike
9 the other accounts in the dataset. Therefore, in order to moderate the skewing affect Participant A's
10 tagging might have on the set, a second set was created where Participant A was removed and the
11 data thus normalised. This would enable a comparison to be made between the two datasets, and
12 thus ascertain whether there was any appreciable difference between the original and normalised
13 data.
14
15

16 *Archive of Our Own (AO3)*

17
18 Archive of Our Own (AO3) is a fanfiction archive which was developed and run by fans for fans. It
19 allows users to organise and categorise their work using tags. However, in a system dubbed a
20 'curated folksonomy' by Bullard (2014), volunteers called 'tag wranglers' filter these tags by
21 associating them with established synonyms. This flexible system allows for both individual
22 idiosyncrasies in user tagging behaviour to remain intact, while also enabling efficient search
23 retrieval. It does however require considerable effort on the part of the volunteers to combine user
24 tags with established synonyms.
25
26

27 AO3 tags are based on their own 'home page' that has its own URL, and can only be retrieved via a
28 static URL address. On AO3, 'Romy' is equivalent to the standardised tag 'Remy LeBeau/Rogue'
29 (http://archiveofourown.org/tags/Remy%20LeBeau*s*Rogue/). Figure 4 shows the 'Remy
30 LeBeau/Rogue' tag homepage.
31
32

33 [Take in Figure 4]

34
35 A crawl of the Romy tag was made using SocSciBot (Thelwall 2004), and the results imported into
36 NodeXL, giving a total of 8182 individual tags, with a total of 4368 tag names. A separate dataset was
37 created by merging synonyms according to their standardised 'tag wrangled' version. Thus all
38 incidences of 'Romy' were merged with 'Remy LeBeau/Rogue', 'ultimate x-men' was merged with 'x-
39 men (ultimateverse)', 'logan – oc' was merged with 'logan (x-men)/original character', and so on.
40 Merging synonyms left all tags that were not popular enough to have been 'tag wrangled' yet. These
41 comprised the 'long tail' of the dataset. The wrangled dataset came to a total of 4946 individual tags,
42 with a total of 2752 tag names. This indicates that 63% of tags that co-occur with 'Romy' have been
43 wrangled by tag wranglers. The two datasets, that comprising pre-wrangled tags, and that
44 comprising wrangled tags, were compared, by manually coded each tag to a tag type, using the same
45 iterative, inductive process as used with the Tumblr dataset. Five new tag subtypes (types 1.7-1.11 in
46 Table 2) were added during this stage of the process.
47
48
49

50 *Etsy*

51
52 Etsy is an online marketplace that caters specifically for handmade and vintage goods; most of its
53 users are individual sellers or small businesses. It is also home to a growing number of fandom-
54 related stores that offer handmade items created for fans. These include postcards, prints, badges
55 and jewellery featuring favoured characters, or even items of clothing for cosplay. Items can be
56 tagged by the seller to enable more efficient search retrieval; at the time of the study, a maximum of
57 13 tags could be used per item. As with AO3, the 'Romy' tag is not commonly used on Etsy. The
58
59
60

1
2
3 synonyms 'Rogue and Gambit' or 'Gambit and Rogue' are more often used by Etsy sellers, and so the
4 tag 'Rogue and Gambit' was the base tag for Etsy tag analysis.
5

6 As with Tumblr, Etsy does not allow crawling of the site. Tag data was gathered using EtsyRank, a
7 free service developed using the Etsy API. This service includes a Keyword Tool, which allows any
8 Etsy tag to be searched; the tool will retrieve all posts that use the tag, along with other details such
9 as item views, likes, shop or seller name, and also co-occurring tags.
10

11 EtsyRank was able to harvest data on all currently active postings that used the 'Rogue and Gambit'
12 tag. This returned a total of 173 individual posts. Since this dataset was comparatively small, the
13 data was manually imported into an Excel spreadsheet, which was then brought into NodeXL; each
14 tag was then assigned to a tag pair, as outlined above. After this process, the total number of
15 individual tags came to 4603, with only a total of 438 tag names.
16
17

18 **Interviews**

19
20 To supplement the results of the social media data analysis, semi-structured interviews were
21 conducted. Six participants were interviewed, two from each of the platforms investigated in the
22 social media data analysis. To facilitate anonymity, these participants are coded A-F, and are
23 identified thus throughout this paper.
24
25

26 In keeping with the Delphi study that was used in the authors' previous study into fan information
27 behaviour (Price & Robinson, 2017), it was decided that participants for these interviews should be
28 'experts' or highly influential users of their respective platforms. Whilst this can skew results (Liu,
29 Morstatter, Tang et al (2016), give an excellent account of social media mining bias), this method
30 was chosen as these participants would likely have far greater insight into their tagging strategies
31 and information behaviour. The use of expert participants in LIS studies is not unprecedented.
32 Recent research includes Lund (2020), who gives a thorough overview of the use of experts as Delphi
33 participants within LIS; Howard (2018) discusses educational requirements Australian information
34 professionals need to operate across "blurred cultural heritage boundaries"; and Andresen, Huvila &
35 Stokstad (2020) made a case study of information professionals on their attitudes towards the
36 crowdsourcing activities of their users. Of course, the experts in this study are not experts in a
37 professional and academic sense, but they are highly conversant in the usage of their respective
38 platforms, which gives them valuable insight into how those platforms work.
39
40
41

42 Tumblr interviewees were selected from the most popular users of the 'Romy' tag, according to the
43 number of 'likes' and 'reblogs', and for Etsy from the most popular sellers of items using the 'Rogue'
44 and 'Gambit' tags were ascertained according to the number of 'hearts' their items had received.
45 These participants would be likely to have greater post (and thus tag) visibility, be more conversant
46 in their tagging practices, and have a better understanding of how their tagging affected both their
47 own information behaviour and that of their audiences.
48
49

50 AO3 interviewees were recruited from the tag wranglers, who would be expected to have the best
51 knowledge of the tagging system.
52

53 All interviews were conducted via email. Participants' responses were coded thematically in NVivo.
54 When responses highlighted concepts that required further investigation, a follow-up email was sent
55 with further questions. Once replies were received, they were also coded in NVivo.
56

57 [Take in Table 2]

58 **Analysis**

59
60

1
2
3 The final taxonomy resulting from the inductive coding and tag analysis is shown in Table 2. While
4 most tag types speak for themselves, it is worth further clarifying the **Opinion** and **Play &**
5 **Performance** types. The **Opinion** type refers to any tags that are the author's performative
6 judgement of their own work; or, in the case of Tumblr (where tags may be implemented by users
7 on the works of others) users' judgements of other peoples' works. **Play & Performance** refers to
8 tags that are used on posts that are part of fannish events, such as contests, competitions, themed
9 months, celebrations, and other (semi-)formal fan performance.
10
11

12 The data was visualised as co-occurrence graphs, with tags clustered according to tag type, and laid
13 out using the Fruchterman-Reingold algorithm, which attempts to produce a layout that clusters
14 tightly connected nodes together (Fruchterman and Reingold, 1991, Smith et al 2009). Compared to
15 alternative algorithms investigated, Fruchterman-Reingold was the most visually coherent and most
16 clearly presented nodes and the relationship between clusters. Edge opacity is denoted by the edge
17 weight (how many times a tag pair co-occurs); tag type by colour and vertex shape; vertex size by
18 betweenness centrality (how often a node appears on the *shortest path* between two other nodes).
19 The higher the betweenness centrality, the higher the importance of that node in exchanging a
20 resource within the network. This in turn indicates how effective that node is as an information or
21 content carrier. In this case, each node represents a tag or keyword, and thus "[t]he larger the
22 number of betweenness centrality, the higher the influence of one specific keyword [...and h]igher
23 betweenness centrality suggesting more importance of one keyword plays the role of a "connector"
24 to keywords in different topics [...] therefore indicating an important role in the transmission of data
25 in the network" (Cheng et. al, 2018, p. 642). The importance of betweenness centrality in this
26 transmission of data is also highlighted by Zhang, Luo & Boncella (2020), where it "essentially reveals
27 how important each node is in providing a "bridge" between different parts of the network" (p. 15).
28
29
30
31

32 Bar charts (via Excel) also visualised the overall usage of tag (sub-)types. These can be seen
33 throughout this section.
34

35 *Tumblr*

36
37 In total there were 624 named tags that co-occurred with 'Romy' in the Tumblr dataset. After
38 merging tags, there was a total of 535 named tags. The final individual tag count was 4582. The
39 entire network is laid out in Figure 5. Figure 6 depicts a similar network, but only those tags with a
40 betweenness centrality of 1 or above: this indicates tags that are on a pathway between two other
41 tags and are therefore more significant carriers of information content. Fifty-six (10.5%) tags reached
42 this value – most of these tags were represented by the **Descriptive** tag type, specifically **Ship**,
43 **Character**, **Fandom** and **Fanwork** sub-types, thus highlighting the importance that these types have
44 in mediating information within the Romy fandom. As can be seen in Figure 6, the tags that have the
45 highest betweenness centrality are those that have the largest nodes. Since 'Romy' is the base tag, it
46 is not surprising that it has the highest betweenness centrality, and is therefore the highest carrier of
47 information content between tags; this was followed by **Character** type tags – 'Rogue' and 'Anna
48 Marie' (synonymous), and 'Gambit' and 'Remy LeBeau' (synonymous); and **Resource** type tags –
49 'fanart', 'fanfic' and 'fanfiction' (synonymous), and 'Romy fanfic' also had high betweenness
50 centrality.
51
52
53

54 [Take in Figure 5]

55 [Take in Figure 6]

56
57
58 Figure 7, which shows the total tag count arranged by tag type, demonstrates that the bulk of all
59 Tumblr tags used were classified as **Descriptive** tags. When arranged by sub-type, Figure 8 shows
60

1
2
3 that the **Character** and **Ship** sub-types (both **Descriptive** sub-types) were the most popular
4 respectively. This was followed by the **Creator/Source** sub-type (an **Ownership** sub-type), which is
5 used to denote the author of a fanwork. This type was heavily used by Participant A's account,
6 which, as an aggregator of Rogue-related fanworks, concentrated on reblogging other peoples'
7 work, and used the tag function to indicate the original author of the post.
8
9

10 Participant A's blog was the top user of the 'Romy' tag on Tumblr, but this account - a community
11 account, aggregating fanworks and serving as a hub for the Rogue fandom on Tumblr - was very
12 different from the other, personal, accounts in the dataset. A second, normalised, dataset from the
13 Tumblr results, with A's data removed, was therefore created, to mitigate any skewing effects.
14

15 [Take in Figure 7]

16 [Take in Figure 8]

17
18
19 Figure 9 shows the results of this normalisation. Contrary to expectations, there was little overall
20 difference to the original dataset., showing that A's tag usage did not inordinately skew the results
21 of the dataset.
22

23 Figure 10 shows the same comparison, this time broken down by tag sub-type. Again, there was little
24 significant difference between the normalised and pre-normalised datasets. The most notable
25 difference was in the **Character** sub-type. Usage of this tag sub-type was markedly lower after
26 normalisation (23% versus 16% respectively). This suggests that A's account uses the **Character** sub-
27 type far more while tagging their posts. Possibly this is because A's is a Rogue community account,
28 rather than a Romy community account, and therefore focuses on other romantic pairings involving
29 Rogue, e.g. Rogneto (Rogue/Magneto) and Rogan (Rogue/Logan), so that naming characters
30 becomes more important in classifying the different ships.
31
32
33

34 Figure 11 shows a comparison of the tag usage of participants A and B, which is very similar, except
35 in two respects. Participant A has a higher occurrence of tags in the **Ownership** type, specifically the
36 **Creator/Source** sub-type. As an aggregator of others' posts, A is careful to cite or credit the source
37 of the original work as well as add relevant descriptors, as mentioned in their follow-up interview:
38

39 I'm thinking of the audience I have in mind when I tag things, so I put in character names, relationship
40 names, and artists/creator.
41
42
43

44 [Take in Figure 9]

45 [Take in Figure 10]

46
47
48 In comparison Participant B has a higher occurrence of **Opinion** type tags, specifically in the
49 **Communication** sub-type. These are idiosyncratic tags, sometimes formatted as sentences over
50 multiple tags, which the user may employ to communicate thoughts, feelings and emotions. Some
51 examples of these tag-(sub)types from Participant B are:
52

53 its been 6 months since Ive actually drawn a full picture];

54 Rogue and Gambit have gotten me thru a lot of dark times;

55 Rawrrr comics are supposed to make a person happy Damnit;

56
57
58
59
60 READ THIS NOW;

1
2
3 i have no idea how to tag people on tumblr dear;

4
5 :)

6
7 These examples express a wide range of affective and communicative impulses, and indeed B was
8 the heaviest user of the **Opinion** and **Communication** (sub)-type tags in the dataset:

9
10 More often than not I use tags to voice personal opinions so I don't ruin the aesthetic of the original
11 post.
12
13

14
15 Participant B also mentions other forms of communication via Tumblr tagging during reblogging,
16 such as "personal opinions or replies to the tags in the original post. My personal favorite thing is
17 when followers say nice or supportive things in the tags when they repost my stuff."

18
19 Analysis of the Tumblr tag usage shows that, in the Romy fandom, descriptive tagging is of
20 importance, with heavy usage of the **Character** and **Ship** tag sub-types. This indicates that fan
21 identity is paramount, i.e. signalling to other fans the basic classification of ones' own fan identity –
22 in other words, *this is the ship I support, these are the characters I support*. Content description is a
23 form of communication, a way of 'speaking' to other fans, of making sure that an author's post
24 reaches the right audience – a fellow fan with the same basic fan identity. This kind of phenomenon
25 has been seen in contexts other than fandom – for example, Wargo (2017) discusses how the
26 #donttagyourhate tag on Tumblr is a way to signal (or curate, as Wargo puts it) one's own identity as
27 a #socialjusticewarrior. In a similar vein, tags such as 'Romy' can be used to curate one's own fan
28 identity, as well as the content of one's post or blog.
29
30
31

32 [Take in Figure 11]
33
34

35 Also of significance is the importance placed on ownership. While crediting sources might be
36 considered basic netiquette, Tumblr Romy fans, particularly participant A, made a point of naming
37 sources. This is especially important on Tumblr, as one of the site's main functions is to easily
38 'reblog' other people's posts, where adding an original **Creator/Source** tag would be appropriate.
39

40 In some cases, the tags were used in a manner which appears to be unique to Tumblr. Multiple
41 hashtags could be employed by a user to express thoughts or emotions that were especially
42 complex. This phenomenon might be considered similar to footnotes, meta-commentary, or indeed,
43 paratext, qualifying or framing the main content of the post. These tag types are however more
44 personal in nature, and not all users chose to employ them. Accounts like A's, whose function in the
45 Tumblr Romy community is as an aggregator, used **Communication** or **Opinion** type tags much less
46 frequently.
47
48

49 *Archive of Our Own (AO3)*

50
51 The 'wrangled' dataset showed higher levels of homogeneity and much lower tag name counts than
52 the 'pre-wrangled' set: 4946 individual tags as against 8182, and 2752 tag names as against 4638.
53 63% of the tags in the set had been processed by tag-wrangers. In contrast to the Tumblr findings,
54 the Romy fandom on AO3 exhibited a much wider scope of co-occurrence with other tags used on
55 the site. While on Tumblr the 'Romy' tag seemed to co-occur mostly with other tags related to the
56 Romy and X-Men fandom, on AO3 its use was distributed amongst other fandoms, mostly from the
57 wider Marvel Universe (e.g. the Avengers), but also amongst non-Marvel fandoms such as Harry
58
59
60

Potter. This suggests a much higher degree of connectedness and crossover between fandoms on the AO3 platform.

Figure 12 shows a directed co-occurrence graph for the 'Romy' tag on AO3. Figure 13 depicts all tags with a betweenness centrality of 1 or above (that is, tags that appear to be more efficient carriers of information content within the network). Three hundred and nineteen (11.6%) tags reached this value, which was similar to that found on Tumblr (10.5%). Again, and in common with Tumblr, most of these tags were represented by the **Descriptive** tag type, specifically **Ship**, **Character** and **Fandom** sub-types – these figures were similar in both 'pre-wrangled' and 'wrangled' datasets.

The similarity between the results of both the 'pre-wrangled' and 'wrangled' datasets is notable, as it suggests no evidence for gatekeeping or bibliographical control. Figures 14 and 15 compare the number of tag names in both pre-wrangled and wrangled datasets – they show very similar tag type and sub-type usage patterns, despite the standardisation of the wrangled set.

[Take in Figure 12]

[Take in Figure 13]

This suggests that tag wrangling is not a form of gatekeeping of the vernacular – or indeed, the taxonomy – used in the Romy or wider Marvel fandoms, nor of the bibliographical control of fanworks. This is borne out by the interviews with the tag wranglers, who confirmed that they do not see themselves as gatekeepers, and that they try to follow the original tagger's meaning and intent as closely as possible. Interview statements show considerable expertise in their chosen area, and tag wranglers pride themselves on being able to recognise the obscure references in certain tags, preserve them in the wrangling process, and standardise them if warranted:

What I do see myself as providing is a chance to make too many years reading a lot of comic books useful. Marvel has a very, shall we say, dense, history. But if you think there aren't users out there who will tag for characters who appeared in one issue of Fantastic Four back in 1973, I want to assure you: you are wrong (Participant D).

[Take in Figure 14]

[Take in Figure 15]

This knowledge capital could equate to some prestige in the fan community, but tag wranglers do not benefit from this, as they are unseen and anonymous.

Unlike Tumblr, **Ownership** type tags were seldom employed as ownership was inherent in the post itself (i.e. the author of the story is the poster of the content). The **Descriptive** type was highest, particularly the **Character** sub-type. **Communication** was the second highest tag type employed, and surprisingly this type showed a marked percentage rise post-wrangling. This may be because **Communication** (sub)-type tags are idiosyncratic, and unlikely to be used more than once. Since their usage is so low, this means that they are rarely tag wrangled and merged with synonymous tags. Therefore, their percentage of the total tag count tends to remain static, while other tag types, particularly **Descriptive** and **Resource** tags, tend to be readily merged with already-existing synonyms.

As with **Ownership**, there was negligible use of **Self-reference** or **Task** organising tags (less than 1%) in both datasets. There was some slight use of the **Play and Performance** tag type, used in very

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2
3 specific instances, e.g. stories written as part of events, competitions, contests, challenges or games,
4 often hosted on other social media sites. Examples are: 'i accepted a few prompts', 'community:
5 xmen15', 'secret mutant ficathon 2014' and 'x-men big bang challenge'.

7
8 Figures 16 and 17 show a comparison of the total tag count used in the 'pre-wrangled' and
9 'wrangled' datasets. Figure 16 demonstrates that on the level of tag type, there is little difference
10 between the two sets. Figure 17, however, shows some significant disparities at the level of tag sub-
11 type. These are at the following sub-types: **Ship**, **Character**, **Friendship**, **Citation** and **Explanatory**
12 **Communication**.

13
14 [Take in Figure 16]

15
16 This is where the 'long tail' of tags, not popular enough to have been wrangled, manifests itself most
17 clearly. Some obscure tags are 'shoehorned' into a standardised tag that did not encapsulate the
18 specificity of its original meaning. For example, in the **Citation** sub-type, the tag 'Star-Lord and Kitty
19 Pryde', which is the title of a comic series, and of low popularity, has been tag-wrangled into a
20 synonym of the much broader Fandom sub-type, 'Marvel'. Likewise, the **Ship** tag 'loroki' (denoting
21 the Loki/Storm pairing) has also been made a synonym of 'Marvel'. Not only has the precise meaning
22 of the original tags has been lost, but both have also been classified under an inaccurate sub-type.
23 While examples of this are not common, they are still frequent enough to suggest that, at the tag
24 sub-type level, tag wrangling is slightly less successful than it is at the tag type level. Such funnelling
25 of less popular tags into inaccurate tag sub-types might account for the unusual spikes in the
26 **Friendship**, **Citation** and **Explanatory** sub-types in the 'wrangled' dataset, and in the **Character** sub-
27 type in the 'pre-wrangled' dataset.

28
29
30
31 [Take in Figure 17]

32
33 *Etsy*

34
35 In this small data set with 438 named and 4603 individual tags, merging tags was not required. While
36 this tag count was similar to Tumblr's, the number of named tags used was lower, suggesting that
37 Etsy has a smaller core taxonomy for the Romy fandom than Tumblr.

38
39 Figure 18 depicts a directed co-occurrence graph for the 'Gambit and Rogue' tag on Etsy. Figure 19
40 depicts all tags with a betweenness centrality value of 1 or above, i.e. those most effective as
41 information carriers. Most are the **Descriptive** tag type, specifically the **Character** sub-type. Other
42 tags with high usage in the **Descriptive** and **Resource** types were generic rather than fandom-
43 specific, e.g. 'blue', 'drawing' and 'vintage'. Resource tags such as 'comic books', 'illustration' and
44 'art' were also popular. These generic type tags saw much less use on Tumblr and AO3. This suggests
45 that Etsy taggers assign more importance to the nature of the item being sold, to attract appropriate
46 buyers.

47
48
49 [Take in Figure 18]

50
51 [Take in Figure 19]

52
53 The **Ship** tag sub-type, so popular on Tumblr and AO3, makes little appearance on Etsy, being
54 reflected only in the 'Gambit and Rogue' tag. The **Ship** element of this dataset co-occurs with other
55 more generic terms such as 'couples', 'love' and 'wedding'. This suggests that **Ship** sub-type tags
56 might be used to sell fanworks targeted at couples.

57
58
59 Figure 20 shows how tag usage is heavily skewed to **Descriptive** and **Resource** type tags, although
60 **Resource** type tags are used at a far lower frequency on Tumblr and AO3, again suggesting that Etsy

1
2
3 tags are used to describe the material attributes of individual items on sale. Olbrich and Holsing
4 (2011) have shown that tag usage on e-marketplaces increases buyer click-throughs. This would
5 account for the mundanity of many keywords in the Etsy dataset which describe formal
6 characteristics, such as item type (“fabric blocks”, “postcard”), material used (“pencil”, “vinyl”),
7 colour (“brown”, “black and white”) and size (“3 5”, indicating 3.5 inches).
8
9

10 [Take in Figure 20]

11 [Take in Figure 21]

12
13 Figure 21 shows the lack of granularity seen in the Etsy tags, with very little use of tag sub-types,
14 apart from **Character** and **Creator/Source**. The latter was utilised on items such as art prints and
15 individual comic issues, where potential buyers might be looking for the work of certain creators,
16 but, unlike Tumblr and AO3, does not appear to fulfil the function of acknowledging or crediting the
17 original creator per se.
18
19

20 23 out of the 174 posts were assigned tags that did not refer to the item on offer, but described
21 characters or fandoms peripherally related to the actual characters or fandoms represented in the
22 item; Figure 22 shows an example where only two tags accurately describe the item – ‘sticker’ and
23 ‘costume’. None of the other tags were relevant, and may be an attempt to draw traffic by adding
24 tags irrelevant to the product, but relevant to a popular film just released at the time.
25
26

27 The complete lack of **Communication** and **Play and Performance** tag types in the Etsy dataset
28 further serves to validate the idea that tagging on Etsy is not intended for social or community
29 purposes, as might be seen on Tumblr and AO3. Zollers (2007), in a study of tagging on Amazon,
30 noted that:
31

32 The consumption centric system creates a different dynamic between the users and the system
33 [compared to social media sites], and perhaps elicits new motivations for tagging since the users are
34 no longer tagging the content that they produce, but rather predefined content already available on
35 the site (n.p.).
36
37
38
39

40 [Take in Figure 22]

41
42 Etsy, while also an online marketplace, implements a different tagging system in that sellers may tag
43 their own work. It is also a ‘consumption-centric’ tagging system, and the taggers, while fans on the
44 one hand, are also concerned with selling their wares. Their tagging practices are motivated not only
45 by their fan identities, but also by their primary purpose in being on the Etsy site, which is to sell
46 their fanworks.
47
48

49 This is borne out by the interviews with two Etsy sellers. For example, referring to her tagging
50 practices, Participant E (who sells cross stitch patterns of characters from many fandoms) said:

51 I use [tags] with every listing and try to have some which are broad – like “cross stitch” and “geeky” –
52 and some which are more specific – like my shop name and the names of the characters in the
53 pattern – in hopes of capturing the attention of as many customers as possible.
54
55
56
57

58 While her tagging appears to be sales-driven, E nevertheless considers herself a fan:
59
60

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2
3 I've always considered our patterns as fanart – a way for us to celebrate the movies, shows, books,
4 and comics that we love so much. We're working in a medium which certainly isn't traditional in the
5 fanart community, but that doesn't make it any less relevant.
6
7

8 and:
9

10 Yes, I am a fangirl [...] Being a fan has certainly influenced the business from both directions though –
11 it's not just our own passions that dictate what we design, but those of our customers too – we've
12 had so many requests for shows and movies and comics that we ourselves weren't initially familiar
13 with, that we just had to get to know those franchises too.
14
15
16

17 This suggests that a clear dichotomy is present in these sellers' tagging motivations – the languages
18 of business and fandom are *both* present. Moreover, there does not appear to be any conflict
19 between their fan and business identities. Both identities seem to be equally strong. Participant E
20 even embraces the participatory aspects of fandom while selling items for her business – she takes
21 requests (a notable characteristic of fandom's gift economy; see Jones, 2014), and even joins new
22 fandoms in order to learn enough about them to do her products justice.
23
24

25 Participant F, who owns a store that sells corsets patterned with fan motifs, showed a similar
26 approach to tagging her products: "I try to think about what is most culturally relevant to my
27 product and market on what I think my buyers are looking for". As with E, she felt that being a fan
28 influenced her identity as a seller:
29

30 I feel like being a fan of the properties that I'm making inspired pieces by helps me to know what
31 another fan would want to buy. It provides more passion and inspiration of the works if I'm a part of
32 the fandoms like I'm pulling from.
33
34
35

36 In these cases, fan identity is not abandoned for business identity. These sellers see themselves as
37 fans providing fanworks and collectibles to other fans, and pride themselves on knowing their
38 audiences and what fans want to see, because they are fans themselves. This does seem to influence
39 tagging behaviours, since sellers who are fans share enough 'subcultural literacy' (Zollers, 2007) with
40 their intended buyers to effectively target fan-tags at them. Yet simultaneously much of their
41 tagging behaviour is also commercially-driven, the tagging strategies employed being influenced by
42 the need to promote the consumption of products.
43
44
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48 Discussion

49 When comparing the three datasets, several points of similarity are seen. On all three sites,
50 **Descriptive** tag types are the most popular, reiterating the primary function of tags as descriptors of
51 a resource's content. Figure 23 shows this, the **Descriptive** type having the highest usage in all sites
52 and datasets. Of the **Descriptive** type, the **Character** sub-type was the most popular; see Figure 24),
53 presumably as character is the main criterion in determining the interest of the audience in a
54 resource.
55
56

57 Likewise, all three platforms showed lowest usage in the **Self-Reference**, **Task Organising** and **Play &**
58 **Performance** types. Of all the tag types, these three also present least granularity, implying that, in
59
60

1
2
3 the Romy fandom at least, these types serve more specialised, and comparatively little-used,
4 functions.
5

6 [Take in Figure 23]
7

8 [Take in Figure 24]
9

10 There were, however, significant differences between the three sites studied. These are detailed
11 below.
12

13 *Tumblr*

14
15 Tumblr shows the highest incidence of **Ownership** and **Opinion** tag types. While Participant A, as an
16 aggregator of Rogue-related fanworks, used the **Ownership** tag type particularly heavily to credit
17 sources, there was heavy use of this type by other users, suggesting a strong culture of crediting
18 other peoples' work. Indeed, A mentioned in their interview that,
19

20 [s]ome people are inconsiderate by not posting the creator's name when it comes to fan works, but
21 over time, most posters learn that it's a Tumblr faux-pas.
22
23

24
25 Participant B noted:
26

27 I know of one poster who makes a point of sharing the art/post directly from the original poster (as a
28 sign of respect). As far as a lack of respect, I've also frequently seen works reposted with no link back
29 to the original artist/writer. There are two people I follow who become incensed whenever this
30 happens to their own work.
31
32
33

34
35 Since Tumblr thrives on the reposting of the works of others, a culture has grown within many of its
36 communities that makes it best practice to credit the source of the original post. AO3 and Etsy have
37 no reposting function; the post's author is an inherently visible attribute of that post, and therefore
38 there is no need for **Ownership/Source** type tags to be applied on these platforms.
39

40
41 The use of the **Communication** tag sub-type, rarely used on other platforms, highlights Tumblr as a
42 site for the novel use of tagging, that is, as a form of creative expression in itself, as a form of
43 engagement with other users in its own right, or as a means of communicating with other fans. Only
44 interviewees from Tumblr talked explicitly about using this type of tag:
45

46 More often than not I use the tags to voice personal opinions so I don't ruin the aesthetic of the
47 original post (Participant B).
48
49

50 I occasionally make a smart-ass remark in the tags, instead of having as [sic] permanent commentary
51 (Participant A).
52
53

54
55 As an aggregator of Romy posts, Participant A felt that her purpose was not to write commentary on
56 the resource, but merely to describe it or credit its creator; only sparingly did she pass a "smart-ass
57 remark". However, her account showed good evidence of the **Conversational & Enunciative** tag sub-
58 type (meaning that the tag flagged a resource as a two-way dialogue between two users). Part of the
59 account's function is to run a question-and-answer service – anyone can ask a question about the
60

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2
3 character Rogue, and A will answer it, tagging it with '#questionsanswered'. An example of this type
4 of post is in Figure 25. Other questions may be encyclopaedic in nature, and in such cases A will use
5 this format to share her extensive knowledge of Rogue and her backstory with other fans.
6

7 Tumblr's fan-tagging is notable for the discursive and playful ways in which tags are used. Monnin
8 (2009) highlighted the ludic aspects of tagging, using Flickr as an example of how Web 2.0's
9 technological affordances have blurred the line between work and play. Sites like Flickr are spaces
10 where "a user's browsing trails are leveraged to generate a singular gaming experience by
11 transforming any casual task, any toilsome effort – or rather the data they leave behind, into playful
12 actions" (Monnin, 2009, p. 2). Monnin calls Flickr and other similar sites that use collaborative
13 tagging "ludic computer-human interfaces... transforming senseless tasks... into entertaining and
14 enjoyable meaningful actions while operating at a completely different level to perform a desired
15 task" (p.3).
16
17
18

19 [Take in Figure 25]

20
21 This is the sort of phenomenon witnessed on sites such as Tumblr and AO3, where fan-tagging is
22 consistently used in playful and creative ways. As well as being descriptive, tags can be expressive
23 and dialogic, or symbolic and visual, reminding us, as Monnin says, that "tags are not, and never
24 were, mere words" (p. 4).
25

26 Both interviewees believed the tagging system could be improved; most of their objections centred
27 on problems with searching and homonymous terms, as there is currently no function to filter tags:
28

29
30 Take the tag "Rogue," for instance. While I may be looking for an X-Men character, many other things
31 come up: an anime character, crossfit gear, roleplaying character class, and non-English versions of
32 Harry Potter [...] The aforementioned issues when searching through common terms could be aided
33 by having a way to exclude other words. There have also been issues with spam, where completely
34 incorrect tags were applied by spambots and they brought up disturbing results. Manually blocking all
35 of those spambots was irritating (Participant A).
36
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39
40 I would like to be able to see the collected tags from all posters in the same place instead of clicking
41 on each repost and reading their tags. (Participant B)
42

43 These responses give some idea of the trade-off Tumblr users must pay for the free use of tags on
44 the site. While users can use tags in uninhibited and creative ways, the lack of formal, bibliographic
45 and taxonomic control makes information retrieval challenging. There is no way to filter results;
46 there is a great deal of redundancy (reblogs of a single post can be reduplicated in a search), and
47 some tags are not even indexed by the system. This contrasts with both AO3 and Etsy, where various
48 controls have been put into place.
49

50 51 *Archive of Our Own (AO3)*

52
53 AO3 had the highest tag usage of the three platforms, taking nearly half (47%) of the total combined
54 individual tag count. AO3 tagging practices show very high density and granularity, as authors
55 attempt to convey the details of their fandom, as well as the plots of their stories. Fans are known to
56 be particular about the types of fanworks they will engage with (Driscoll, 2006), showing preference
57 according to characters, ships, genres and 'kinks' (i.e. the sexual predilections depicted in fanfic), and
58 these elements are important both for audience and creator. Hence, tagging on AO3 in particular,
59 becomes an important finding aid.
60

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3 While there is the unique practice of 'tag wrangling' on AO3, this did not seem to affect the overall
4 meaning or sense of the original tags used. Tag wranglers in Marvel fandom appeared to have an in-
5 depth expertise in their area, and, judging by the marked similarity between the pre- and post-
6 wrangled AO3 datasets, they were for the most part correctly able to interpret and maintain the
7 sense of the original tags. Indeed, the tag wranglers appeared to be very dedicated to this mission,
8 and to preserving the authenticity of the original tags, as a form of fanwork in itself:
9

10
11 The Ao3 Terms and Conditions and the Wrangling First Principles both strictly prevent us from being
12 gatekeepery. We can't change tags, we can't tell users how to tag in any official capacity ("describe
13 not proscribe"). Our goal is to organize tags in a way that fans will be able to find what they're looking
14 for. To do that, we have to speak their language and use the words they use. (Participant C)
15
16

17
18 One of the most important principles of tag wrangling is that we don't alter a user's tags. The beauty
19 of the AO3's system is that everyone can tag for whatever they want, in exactly the format they want.
20 As well, most large fandoms have multiple wranglers assigned to them, and that means that there has
21 to be a general consensus on how to handle any given tag that is for some reason challenging, or
22 requires a judgement call of some kind. (Participant D)
23
24

25
26 Tag wrangling is a way I can contribute to a community that I love. I like this kind of work and, with
27 the decline of livejournal, I felt less connected to the community and less like I was pulling my own
28 weight. Wrangling both lets me meet people from across fandom and help out (Participant C).
29
30

31
32 I consume a great many fanworks in my day to day life, but I don't really create that many. Tag
33 wrangling is a way that I can feel as though I give something back to the community that has brought
34 me so much joy (Participant D).
35
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40 Both interviewees rejected the idea that they were gatekeepers within their fandom. Participant C
41 even went so far as to say "I don't think of myself as a gatekeeper, mostly because I hate that word".
42 Despite this, it seems that tag wranglers are information gatekeepers in the sense that they are
43 "shaping, emphasizing, or withholding" information, or the flow of information (Case, 2012, p. 339).
44 Rather than actively or intentionally withholding or emphasizing certain aspects of information
45 within their fan community, they are shaping it by streamlining its flow and facilitating greater
46 access. Many more co-occurring tags in this dataset had a higher betweenness centrality, and hence
47 a greater role in information exchange, when compared to the other sites. AO3's tag wranglers, and
48 by extension Bullard's (2014) 'curated folksonomy', are effective in mitigating the unpredictable
49 effects of online tagging.
50
51

52
53 While users of Tumblr felt that there was improvement to be made on the site in terms of
54 information retrieval, the AO3 tag wranglers interviewed had positive views on the tagging system.
55 Participant C felt that the filtering system could be better streamlined in order to increase retrieval
56 accuracy. Participant D was largely satisfied with the system, but felt the "most changes that could
57 be proposed would have more to do with changes in policy":
58
59
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3 For example, there are an unfortunate number of tags floating about that can't be wrangled because
4 users entered them in the wrong field, but if you put "Tony Stark" in the Fandom field, we can't make
5 it a synonym of Tony Stark the character tag. Changing the type of a given tag is changing what a user
6 entered in a way that we don't do as a matter of policy, and it's a policy I have to agree with.
7
8
9

10 This is indicative of the trade-off between 'messiness' and control that is so often seen in
11 folksonomic systems (Smith, 2008a). While AO3 suffers in some ways from maintaining this
12 balancing act, it seems to be managing this successfully.
13

14 *Etsy*

15
16 Etsy tagging appears closer to that of online marketplaces, rather than social information sharing
17 sites. For example, Amazon shows minimal tagging activity in comparison to sites such as
18 LibraryThing, because "the tagging feature is not given much prominence [...]. Additionally, the main
19 purpose of the site is commercial and not organizational, so users might not be as motivated to tag
20 content" (Zollers, 2007, n.p.). Etsy's percentage of the tag count across the platforms studied was
21 similar to Tumblr, at 27% and 26% respectively, rather than AO3's 47%. This indicates that despite
22 both the low prominence of tags on Etsy, at the bottom of a post's page, and the limit to the number
23 of tags per resource, users still make as much use of tags as possible. One of the interviewees
24 thought that a higher cap on tags was the only improvement that Etsy could make:
25
26

27 It would be nice to have a few more tags - sometimes 13 just doesn't seem enough. 20 tags per listing
28 would be wonderful! (Participant E)
29

30 While Etsy, like Tumblr and AO3, shows heavy usage of the **Description** tag type, there is less
31 evidence of fandom-related sub-types. Instead there is a heavier reliance on generic **Description** and
32 **Resource** tags. Of fandom-related sub-types the most-used is **Character**. There is some use of
33 **Ownership** tag types, particularly in references to artists/creators, but also in indicating the Etsy
34 store name itself. Other tag type usage is negligible.
35
36

37 Overall, tag usage on Etsy points towards both functional and commercially-driven use. While fan-
38 tagging does exist, its primary function seems to be to draw in fans as buyers. This tagging is always
39 supplemented by generic tags describing the characteristics of a resource, and there is significant
40 use of tags that do not describe the fandom in the resource, but fandoms peripheral to it. This could
41 be a strategy to maximise the potential audience and/or buyer pool: as Blanchflower and Hodges
42 (2014) remind us, "strategically tagging an item and giving it a clear title, along with providing clear
43 product images, are the factors that are required for a seller's shop to succeed" (p. 819).
44
45

46 Despite this, Participant E felt a connection to the fan audience:
47

48 [...] it's not just our own passions that dictate what we design, but those of our customers too - we've
49 had so many requests for shows and movies and comics that we ourselves weren't initially familiar
50 with, that we just had to get to know those franchises too. Without customers urging us to check out
51 shows like Supernatural and Sherlock, we never would have designed those patterns and become
52 fans of those shows too.
53
54
55

56 This suggests a kind of symbiosis between the seller and buyer, and that the gift economy that is
57 seen in many fan communities has been transferred in part to the online marketplace. This
58 hybridisation should not surprise us, since fan culture itself is driven by commercial culture (the need
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3 to consume and collect official fan goods and artefacts) as it is by transformative culture (the need
4 to create and share fanworks based on those goods). As Jones (2014) opines:

5
6 [...] it is not simply the binary of commodity culture and gift economy that work with (or against) each
7 other [...F]an culture itself is influenced by two opposing sets of values that dominate the cultural field
8 and that fans take positions in line with: cultural value based on the profit motive, and cultural
9 production for its own sake—that is, the gift economy (2.6).
10
11
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13 These two opposing forces were not a personal source of tension for the two interviewees. This is
14 supported by Cherry's (2016) study of fan fabric artists who also sell their work:

15
16 As an independent dyer, [the seller] can incorporate her fan interests into her business, but as a fan
17 she can "geek out" with other fans [...] The sense in which the two sides are both part of a shared fan
18 community [...] can lead to the dyer and the customers feeling as though they share the bond of the
19 fan community rather than it straightforwardly being a commercial transaction (p. 171).
20
21
22

23 and:

24
25 Such shared love of the text between the dyer and her customers is indicative of [a] hybrid market
26 environment in which there is no clear distinction between social and commercial economies [...]
27 Furthermore, the social network influences both production and consumption within the fan-knitting
28 community (p. 171).
29
30
31

32 The interviewees showed an ambivalent attitude towards copyright and licensing, despite having an
33 awareness of copyright issues:

34
35 There's actually a little known loophole when it comes to using licensed fabrics. Since you've already
36 paid the licensing fee by purchasing the fabric, the company has already received a licensing fee for
37 that product if it's a pre-printed fabric. There has actually been a lawsuit over this and the licensor
38 lost, as they'd already received revenue from the product. I don't recall the name of the case, though,
39 but it caused a splash in our community. (Participant F)
40
41
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44 Cherry (2016, p. 176) cites two similar cases, one where sellers on Etsy and eBay received cease and
45 desist notices from the BBC after selling knitted Doctor Who adipose dolls, and the other from 20th
46 Century Fox to knitters selling replicas of Jayne Cobb's hat from Firefly.

47
48 Despite this, E did not show much concern for copyright, saying "I've always considered our patterns
49 as fanart", as if proclaiming her work as fanart automatically precludes any accusation of copyright
50 infringement. This is an erroneous assumption (Johnson, 2016), but it is one that many producers of
51 fanworks share, led perhaps by the notion that they are part of a moral economy, respecting the
52 original creator while assuming a right to appropriation (Postigo, 2008), a perception that "their
53 endeavours [are] important social work" (Lantagne, 2015, p. 302), a sense of 'safety in numbers', or
54 "a lack of knowledge" or "confusion about copyright law" (Fiesler, Feuston and Bruckman, 2015):
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3 In my experience I don't think fans worry too much about the copyright laws. They're definitely more
4 concerned that the fanworks are true to the characters and the franchise. If the fanwork is honest and
5 a fair representation of the story/characters that's really what's important. (Participant E)
6
7

8 I don't think fans care, because the fans want to see more products of their fandom out there. And
9 licensing is hard to come by and so expensive that your average creator and crafters on Etsy don't
10 have the ability to license 100,000 pieces from the intellectual property. Licenses only work when
11 mass-producing, and don't work as well for small runs or custom creations. (Participant F)
12
13
14

15 Intellectual property, as it currently stands, does not seem to adequately serve small businesses, or
16 indeed fans, or communities that consider themselves a part of the Maker Movement. Perhaps a
17 new paradigm on intellectual property would be beneficial in making licensing and copyright a
18 relevant issue to these communities.
19
20

21 **Conclusions**

22 The tag analysis presented in this study, bolstered by interviews with tag users and 'tag wranglers',
23 gives insight into the information behaviour of fans, which has not previously been available. When
24 combined with the literature analysis and Delphi study previously reported, this analysis gives a clear
25 picture of the sophisticated information practices in this form of serious leisure.
26
27

28 Generally, fan-tagging, when used as a classification or organisation tool, exhibits high granularity,
29 which better facilitates findability and sharing. However, it is also used in different ways – as a
30 method of expressing affective and emotional reactions to a resource; to engage in a dialogue with
31 other users; to visually embody affect through emojis; and to give opinions on or explain a
32 resource's content. As can be seen from the examples shown above, particularly on Tumblr and
33 AO3, these motivations can result in rich tagging practices, that evidence the fan community's desire
34 to share and engage widely with one another, as well as to accurately and usefully organise and
35 classify their works. The exception to this is Etsy, where tagging practices take on a far more
36 traditional form. Indeed, tagging on Etsy is far more strategic and commercially-driven, despite (as is
37 clear from the interviews) fan sellers on Etsy emphasising their fan identities, and seeing themselves
38 as providing for, and inspired by, other fans. Additionally, the interviews also suggest that there is an
39 ambivalent view among fans towards copyright and intellectual property issues.
40
41
42

43 Future studies would be encouraged, to further test the use of tag analysis as a method of
44 investigating information behaviour. This may take place in a longitudinal study, performing the
45 same analysis as was undertaken in this study, in order to observe any changes over time. This
46 would be especially appropriate, since Tumblr's December 2018 adult content ban "cost the
47 platform its user base" (Bronstein, 2020, p. 240), driving many users to other platforms such as
48 Twitter, and which may have subsequently affected user behaviour on the site. Such a longitudinal
49 study may be performed on other fan communities, to see whether there are any differences in
50 observed tagging behaviour between fans. It may also be used on other, non-fandom, communities
51 (e.g. photographers on Instagram), to assess whether different information behaviours can be
52 observed between different types of users, through the prism of their tagging practices. For future
53 study, it would also be useful to test the fan-tag taxonomy in other fandom contexts.
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Journal of Documentation



Figure 1. Tumblr post by Participant B, 4th Feb 2016 (reproduced with permission).

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 **They Never Trained Me For This** by [IronRaven](#) 14 Oct 2016
[X-Men Evolution](#)

Creator Chose Not To Use Archive Warnings, [laura/alex summers](#), [Kurt/kitty](#), [rogue/remy](#), [Logan/Ororo Munroe](#), [Kitty Pryde & Kurt Wagner](#), [Rogue & Kurt Wagner](#), [rogue & kitty pryde](#), [Laura/X-23](#), [Kitty](#), [Rogue](#), [Logan](#), [Ororo Munroe](#), [Kurt Wagner](#), [Remy LeBeau](#), [Elizabeth Braddock](#), [Alex Summers](#), [Charles Xavier](#), [And many many more](#), [AU jumping from the the aftermath of the battle with Apocolypse](#), [Xavier Institute](#), [cute and crazy](#), [Friendship](#), [True Love](#), [Violence](#), [Revenge](#), [School](#), [normal people suck](#), [Conspiracies](#), [Mental Health Issues](#), [Logan is a good daddy](#), [Laura hates it when people call him her dad](#), [Originally Posted on FanFiction.Net](#)

X-23 joins the Xavier Institute. For most schools, madness and terror would ensue. For this one, she's a little more odd than most, but she's pretty normal person here. Normal is something she's never been. A person is something she's never been. She was trained to track, to kill, to survive and to adapt. Not to have family, friends, people she can count on.

Untrained, she will be thrown into the deep end. The end where they catch you.

Language: English Words: 12,387 Chapters: 7/? Collections: 1 Comments: 4 Kudos: 33 Bookmarks: 5 Hits: 858

Figure 2. Archive entry for an X-Men Evolution fanfiction on AO3, "They Never Trained Me For This", 14th October 2016. Source: <http://archiveofourown.org/> (Retrieved 5 January 2020).

300x144mm (72 x 72 DPI)

Tag type	Examples
Descriptive	css, webdesign, ajax, Minnesota, drama, gardening, zen, microfinance, music, halo3, networks, sushi, hibiscus
Resource	blog, book, video, photo
Ownership/Source	nytimes, genesmith (author), newriders
Opinion	cool, funny, *****, lame, beautiful, crap, defective by design
Self-reference	mystuff, mine, me
Task Organizing	toread, todo, work
Play and Performance	squaredcircle, seenlive, aka vogon poetry

Table 1. Tag types (Smith 2008a).

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Couples Picture Frame - Rogue and Gambit - Comic Book Picture Frame - Nerdy Wedding Gift - Nerdy Anniversary Gift - Nerdy Couple

£15.92
VAT included (where applicable). [plus delivery](#).

Style
Select a style

Add to basket

Almost gone. There's only 1 left.

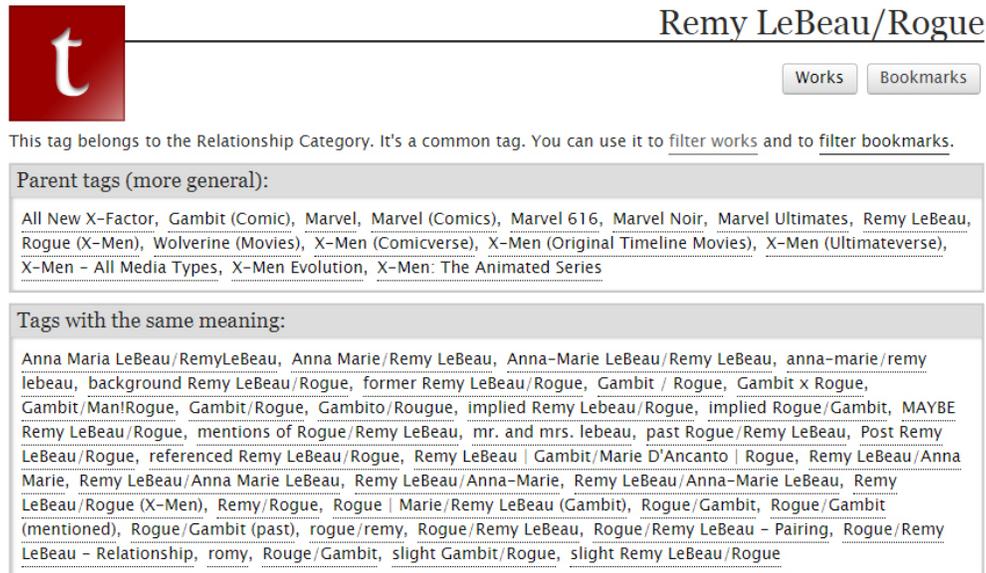
Item details
Handmade

Craft Supplies & Tools rogue gambit couple couples nerdy geeky picture photo frame
gift anniversary wedding comic book Frames, Hoops & Stands Frames Picture Frames

Figure 3. Couples picture frame – Rogue and Gambit. Tags are displayed at the bottom, in the box titled 'Related to this item'. The item details, usually under the picture, have been cropped here to save space. Source: <https://www.etsy.com/> (Retrieved 5 January 2020)

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Remy LeBeau/Rogue

Works Bookmarks

This tag belongs to the Relationship Category. It's a common tag. You can use it to [filter works](#) and to [filter bookmarks](#).

Parent tags (more general):

[All New X-Factor](#), [Gambit \(Comic\)](#), [Marvel](#), [Marvel \(Comics\)](#), [Marvel 616](#), [Marvel Noir](#), [Marvel Ultimates](#), [Remy LeBeau](#), [Rogue \(X-Men\)](#), [Wolverine \(Movies\)](#), [X-Men \(Comiverse\)](#), [X-Men \(Original Timeline Movies\)](#), [X-Men \(Ultimateverse\)](#), [X-Men - All Media Types](#), [X-Men Evolution](#), [X-Men: The Animated Series](#)

Tags with the same meaning:

[Anna Maria LeBeau/RemyLeBeau](#), [Anna Marie/Remy LeBeau](#), [Anna-Marie LeBeau/Remy LeBeau](#), [anna-marie/remylebeau](#), [background Remy LeBeau/Rogue](#), [former Remy LeBeau/Rogue](#), [Gambit / Rogue](#), [Gambit x Rogue](#), [Gambit/Man!Rogue](#), [Gambit/Rogue](#), [Gambito/Rougue](#), [implied Remy Lebeau/Rogue](#), [implied Rogue/Gambit](#), [MAYBE Remy LeBeau/Rogue](#), [mentions of Rogue/Remy LeBeau](#), [mr. and mrs. lebeau](#), [past Rogue/Remy LeBeau](#), [Post Remy LeBeau/Rogue](#), [referenced Remy LeBeau/Rogue](#), [Remy LeBeau | Gambit/Marie D'Ancanto | Rogue](#), [Remy LeBeau/Anna Marie](#), [Remy LeBeau/Anna Marie LeBeau](#), [Remy LeBeau/Anna-Marie](#), [Remy LeBeau/Anna-Marie LeBeau](#), [Remy LeBeau/Rogue \(X-Men\)](#), [Remy/Rogue](#), [Rogue | Marie/Remy LeBeau \(Gambit\)](#), [Rogue/Gambit](#), [Rogue/Gambit \(mentioned\)](#), [Rogue/Gambit \(past\)](#), [rogue/remylebeau](#), [Rogue/Remy LeBeau](#), [Rogue/Remy LeBeau - Pairing](#), [Rogue/Remy LeBeau - Relationship](#), [romy](#), [Rouge/Gambit](#), [slight Gambit/Rogue](#), [slight Remy LeBeau/Rogue](#)

26 Figure 4. AO3's 'Romy' tag homepage. Note that the standard form for 'Romy' on AO3 is 'Remy
27 LeBeau/Rogue'. User tags that have been designated by tag wranglers as synonyms are shown under 'Tags
28 with the same meaning' (retrieved 5 January 2020).

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CODE	TAG TYPE/SUB-TYPE	DEFINITION	EXAMPLES
1	Descriptive	Describes content	vintage; commission; black and white; regram
1.1	Fandom	Describes fandom	X-Men; Marvel; Avengers; Harry Potter
1.2	Ship	Describes characters in a romantic relationship	Romy; Erik Lehnsherr/Charles Xavier; loroki
1.3	Character	Describes characters	Gambit; Rogue; Thor; Wade Wilson
1.4	Genre	Describes genre of resource	drabble; fluff; angst; slash; steampunk
1.5	Event	Describes a 'real world' event	Christmas; Valentines Day; dragoncon
1.6	Person	Describes a 'real world' person	Channing Tatum
1.7	Friendship	Describes characters in a friendship	kitty pryde & kurt wagner; darcy and logan
1.8	Organisation/Team/Group	Describes a group of people	witches; Hydra; X-Men; Illuminati
1.9	Location	Describes a location or setting	Alkali Lake; Xavier Institute; Wakanda
1.10	Plot	Describes a fictional story element	M-Day; Crimson Gem of Cyttorak
1.11	Warning	Describes sensitive content	spoilers; swearing; rape/non-con
2	Resource	Type of resource	comics; drawing; photo; video
2.1	Fanwork	Type of fan resource	fanfic; fanart; cosplay; fanfic rec list
2.2	Title of fanwork	Title of fan resource	In Between; Loki and the Loon
2.3	Citation	Citation of fan resource	Episode: Shadowed Past; X-Men Legacy 272
3	Ownership	Ownership of tagger	mike draws
3.1	Creator/source	Name of fan resource creator	Jim Lee; toyscomics; bbrae; ishandahalf
3.2	Recipient	Name of intended recipient of fan resource	txpeppa
4	Opinion	Opinion on resource	sexy; geeky; quirky; badass; epic
4.1	Communication	Communicates thoughts	I blame Tumblr; I need this shirt; great gift idea
4.2	Explanatory	Explains resource content	this is how I vent; iron fist is shameless
4.3	Affective	Explains emotional reaction	poor Pietro; ineedhelp; theyre so cute omg
4.4	Conversational & enunciative	Instigates or responds to a dialogue	why?; ask me stuff; leah shut up; askbox
4.5	Emoticon	Visual communication	XD; :D; 0:)
5	Self-reference	Reference to tagger/self	personal post; my art; self; my life
6	Task organising	Personal organisation of resource	work in progress; other character tags to be added; queueballs
7	Play & performance	Resource is part of an event, or (semi-) formal performance	prompt fill; fangirl challenge; frostiron month

Table 1. Fan-tag taxonomy as developed during analysis of the 'Romy' tag. Tags in bold denote Smith's (2008a) original categories. Non-bold tags denote those developed through inductive coding of the datasets. Examples given are taken from the datasets.

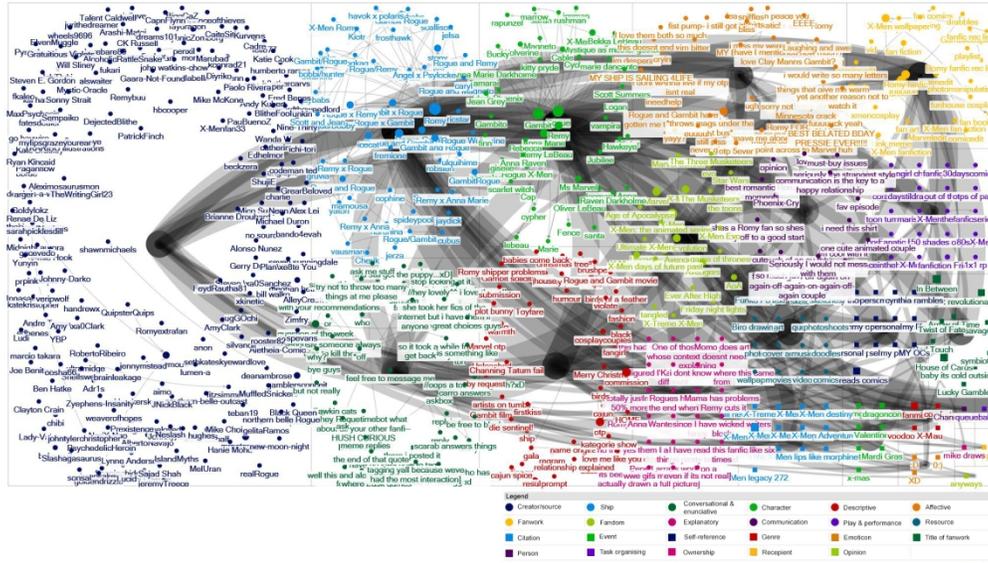


Figure 5. Co-occurrence graph for the 'Romy' tag on Tumblr.

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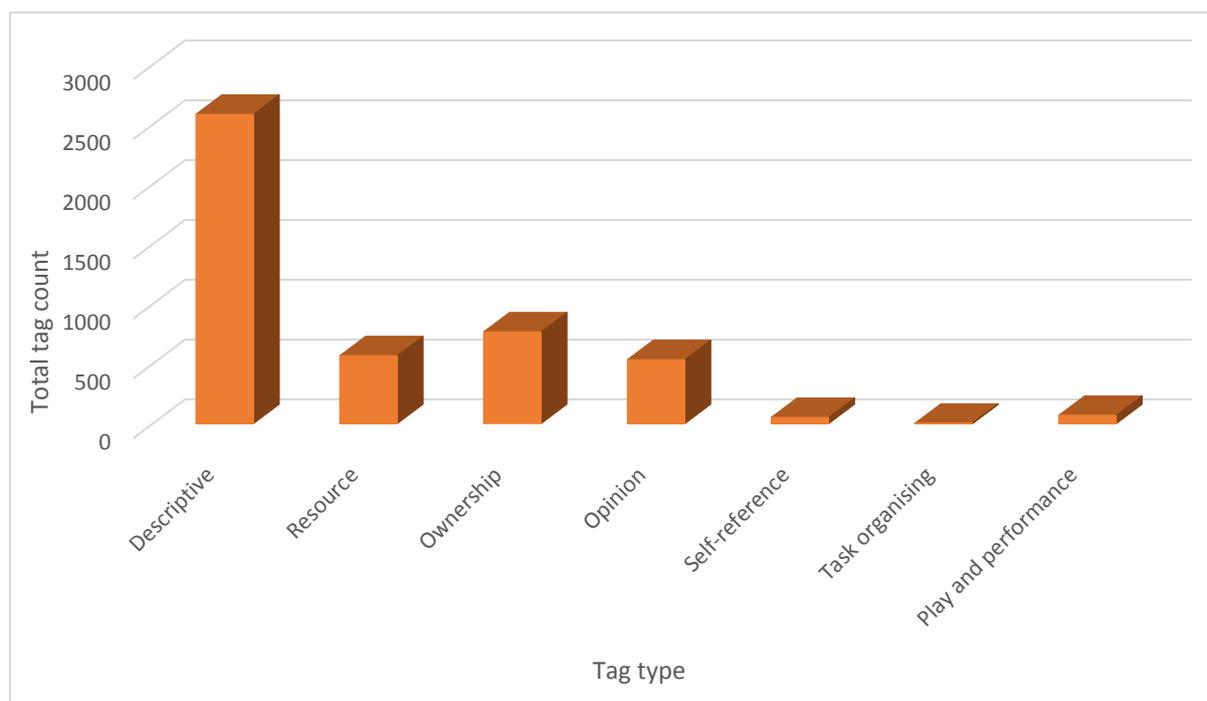


Figure 7. Total Tumblr tag count by type (see Table 2 for tag types).

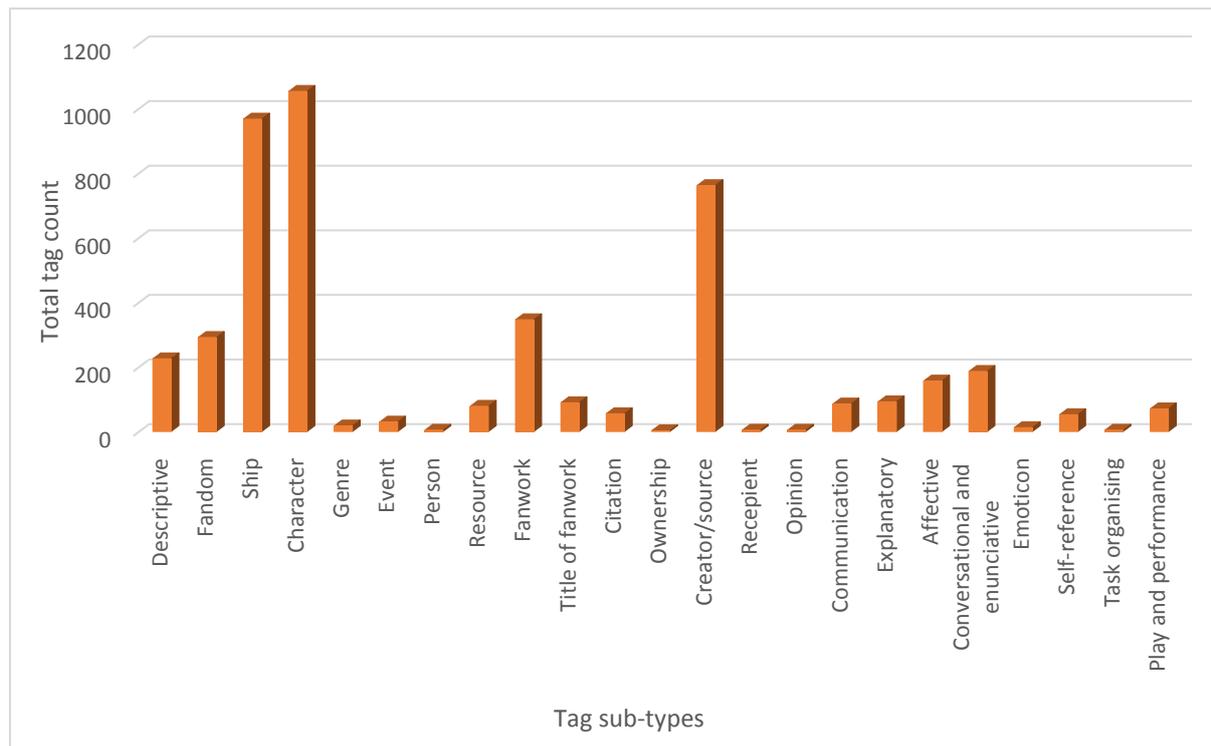


Figure 8. Total Tumblr tag count by sub-type (see Table 2 for tag types). The **Character** type (a Descriptive sub-type) was the most frequently used tag, closely followed by **Ship** (also a Descriptive sub-type).

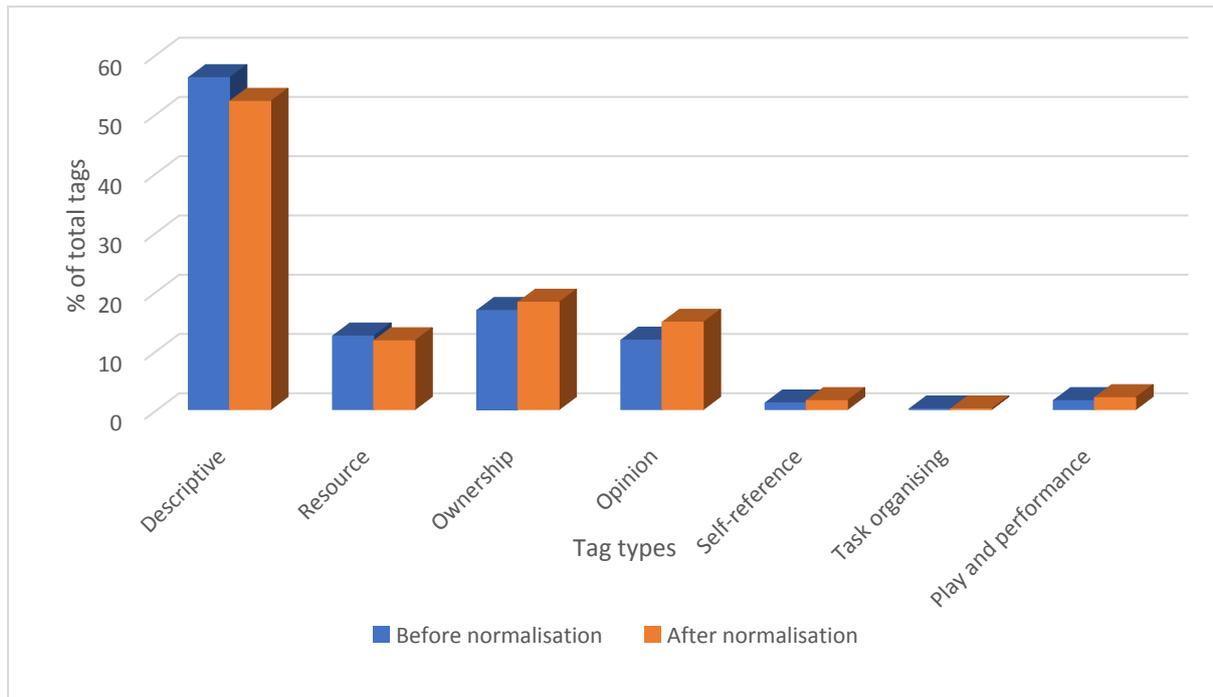


Figure 9. A comparison of Tumblr tag counts by type, before and after normalisation (see Table 2 for tag types). There is no marked difference between datasets before and after normalisation.

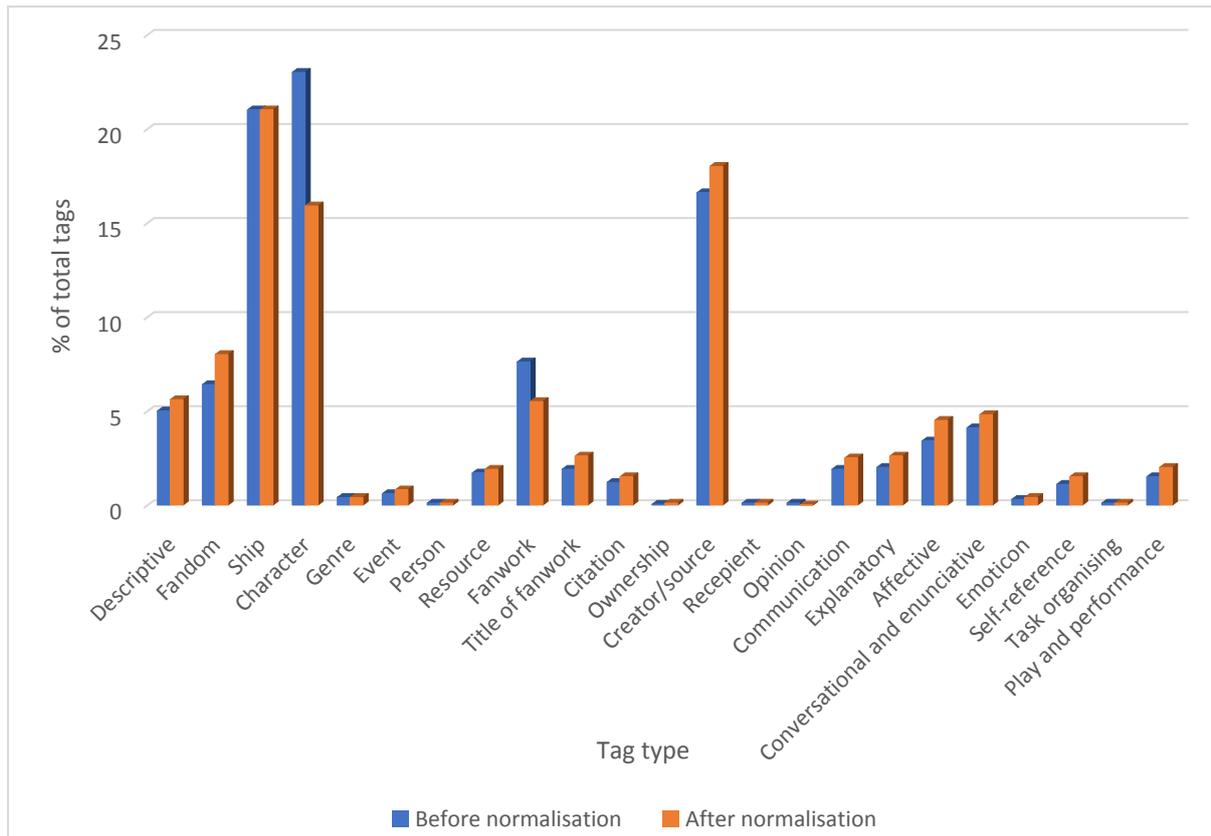


Figure 10. A comparison of Tumblr tag counts by sub-type, before and after normalisation (see Table 2 for tag types). The most marked difference is in **Character** sub-type usage.

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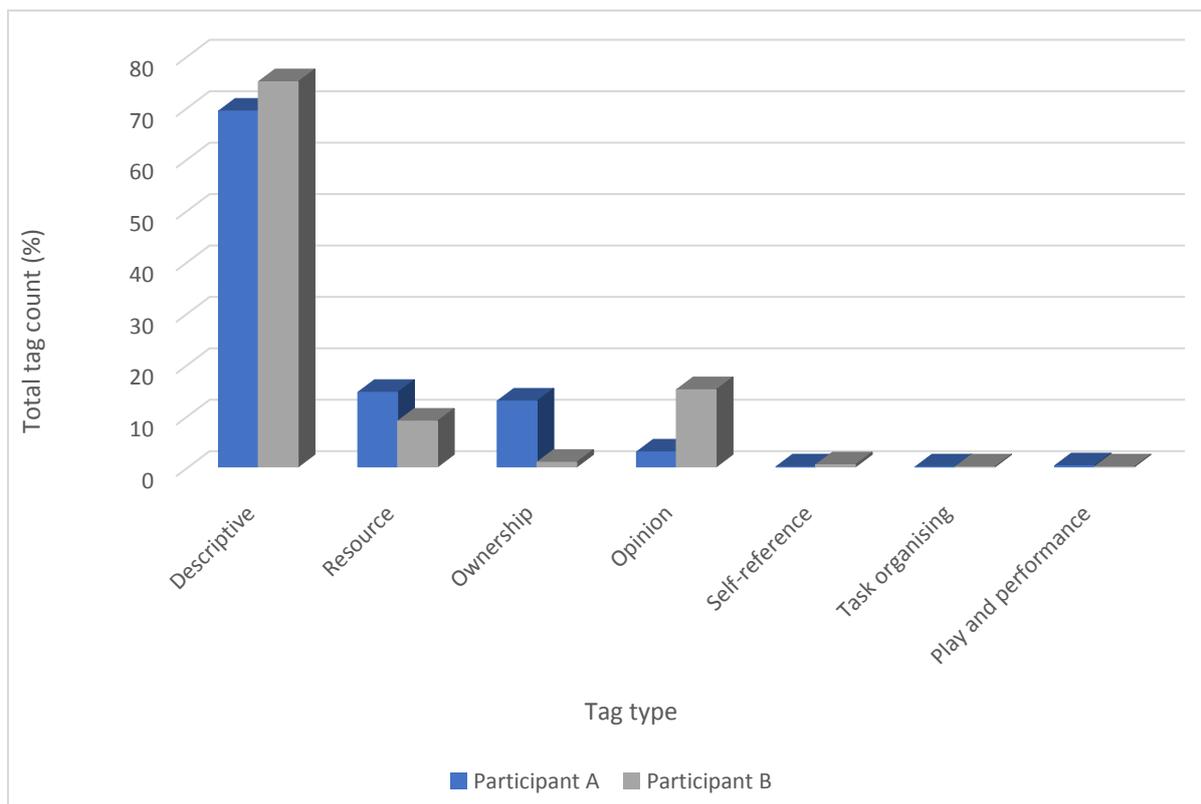


Figure 11. Comparison of tag type usage by Participant A and Participant B, by percentage (see Table 2 for tag types). Participant B showed marked use of the **Opinion** tag type.

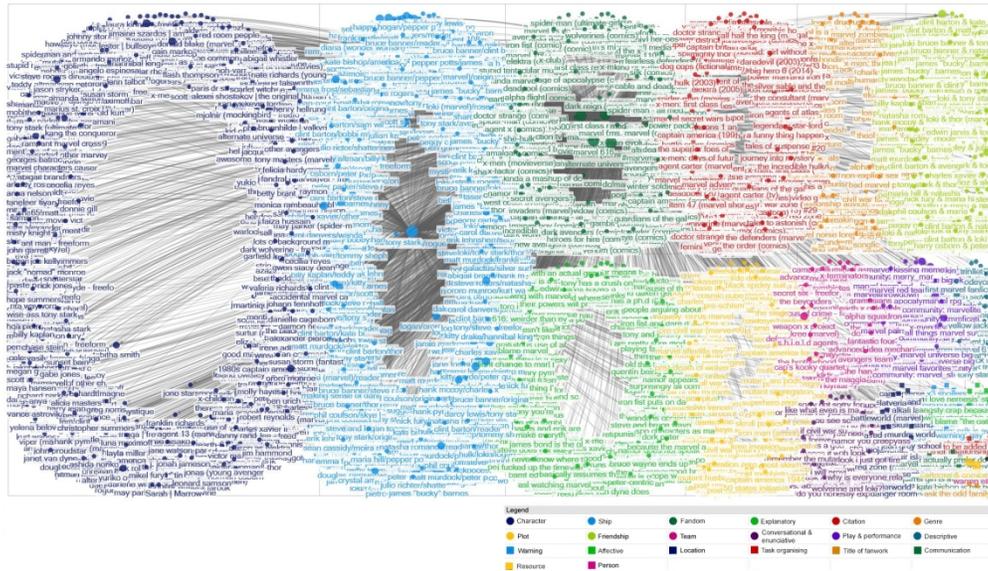


Figure 12. Co-occurrence graph for the 'Rogue/Remy LeBeau' tag on AO3 (from the wrangled dataset).

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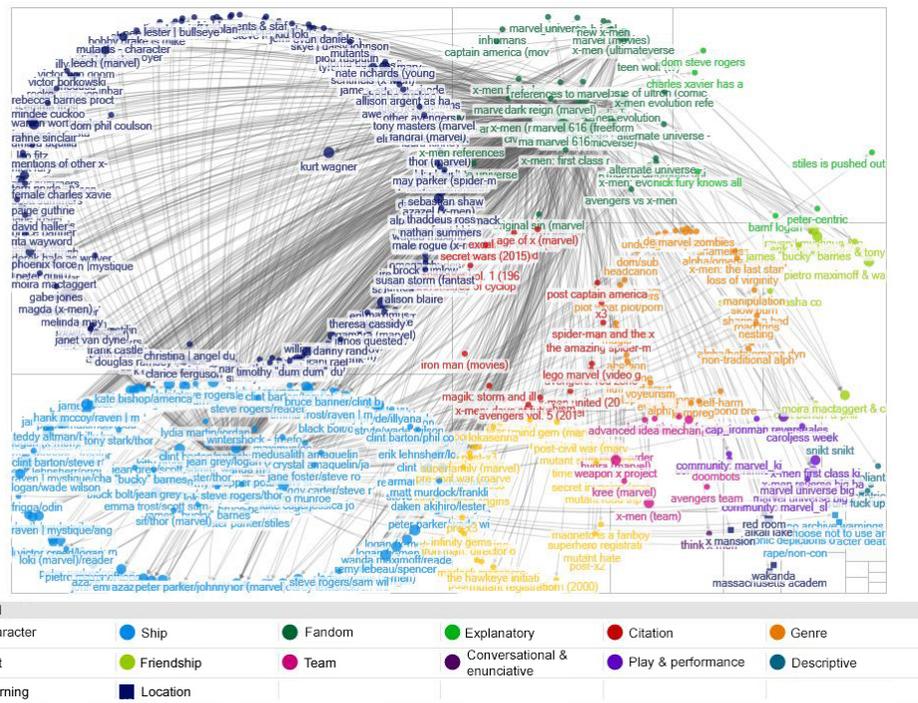


Figure 13. Co-occurrence graph for the 'Rogue/Remy LeBeau' tag on AO3 (from the wrangled dataset). All displayed tags have a betweenness centrality of 1+.

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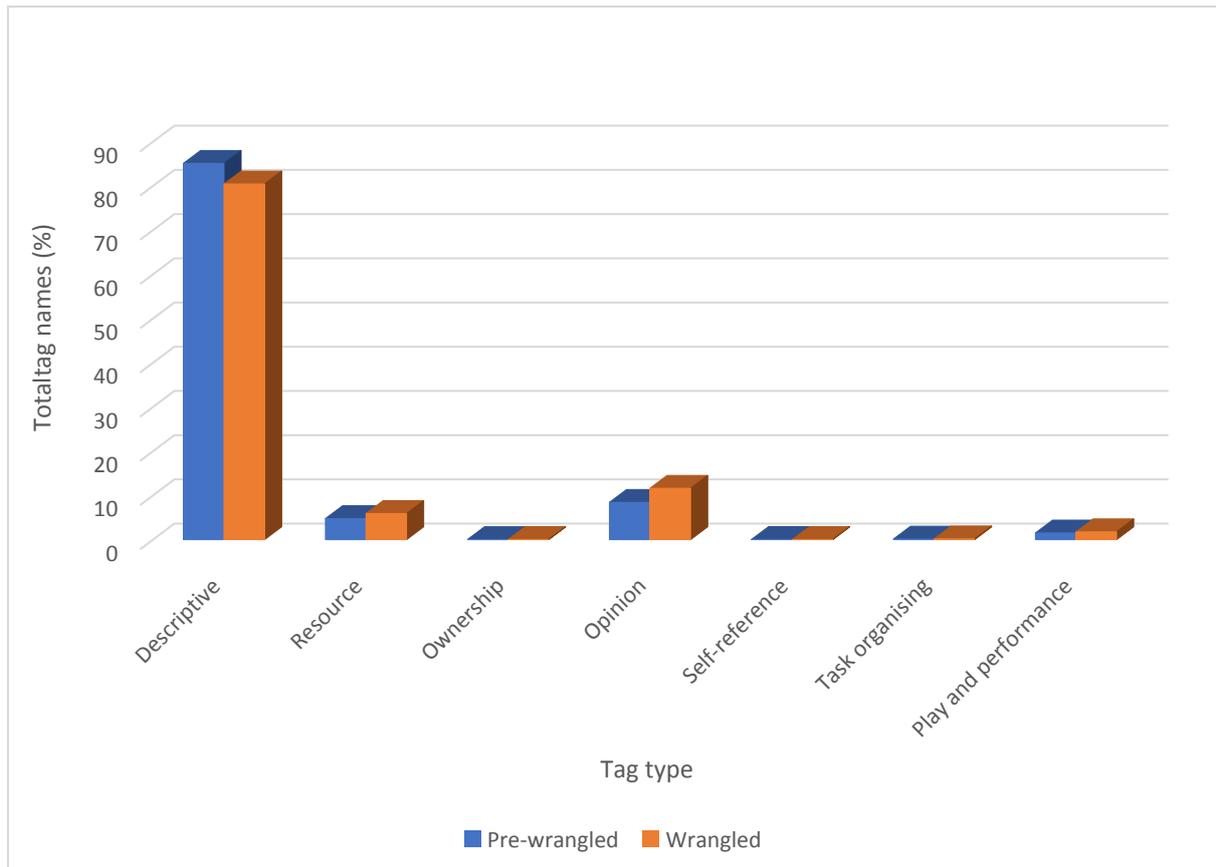


Figure 14. Comparison of pre-wrangled and post-wrangled tag names, by type (see Table 2 for tag types). There is little appreciable difference.

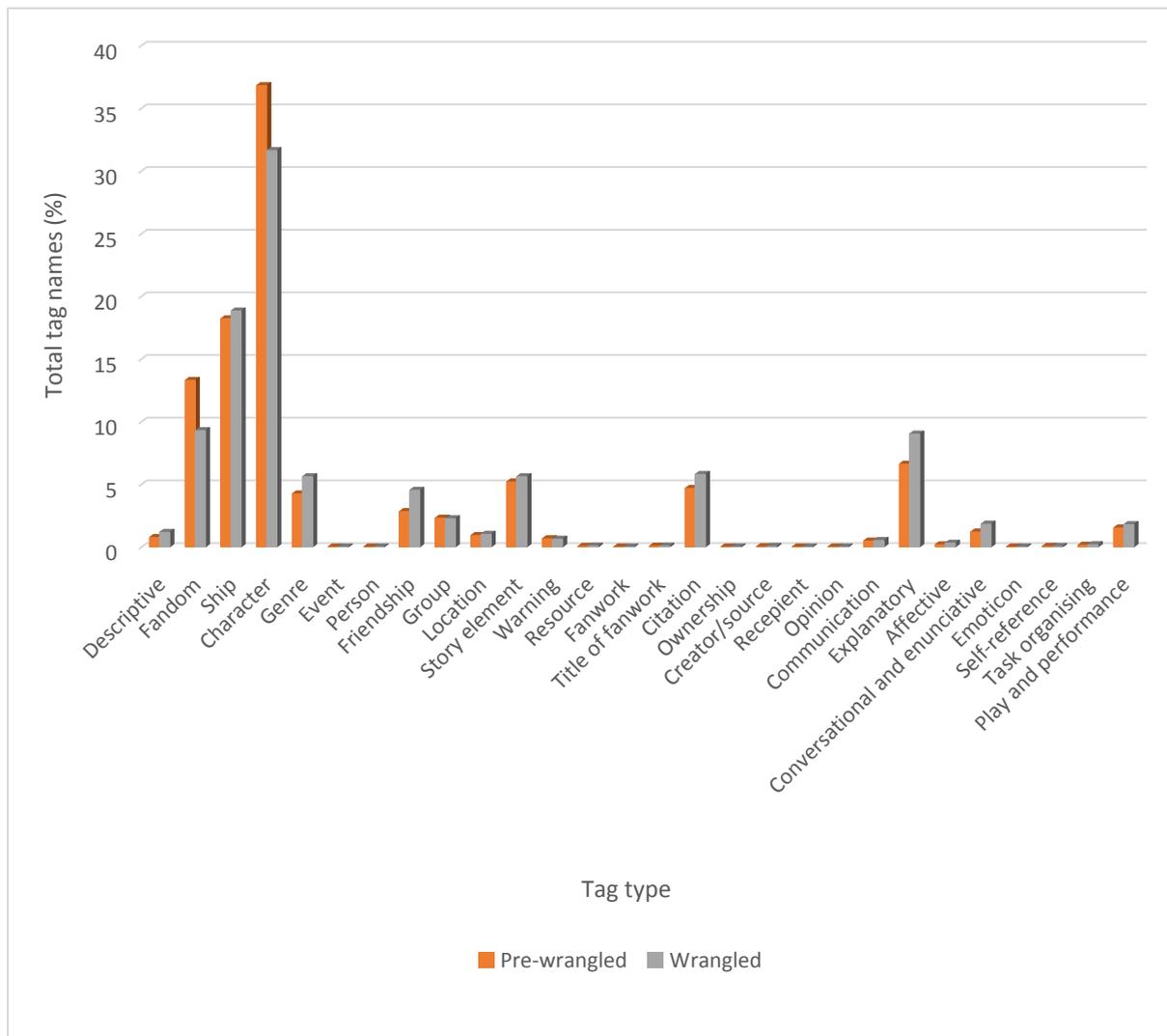


Figure 15. Comparison of pre-wrangled and post-wrangled tag names, by sub-type (see Table 2 for tag types).

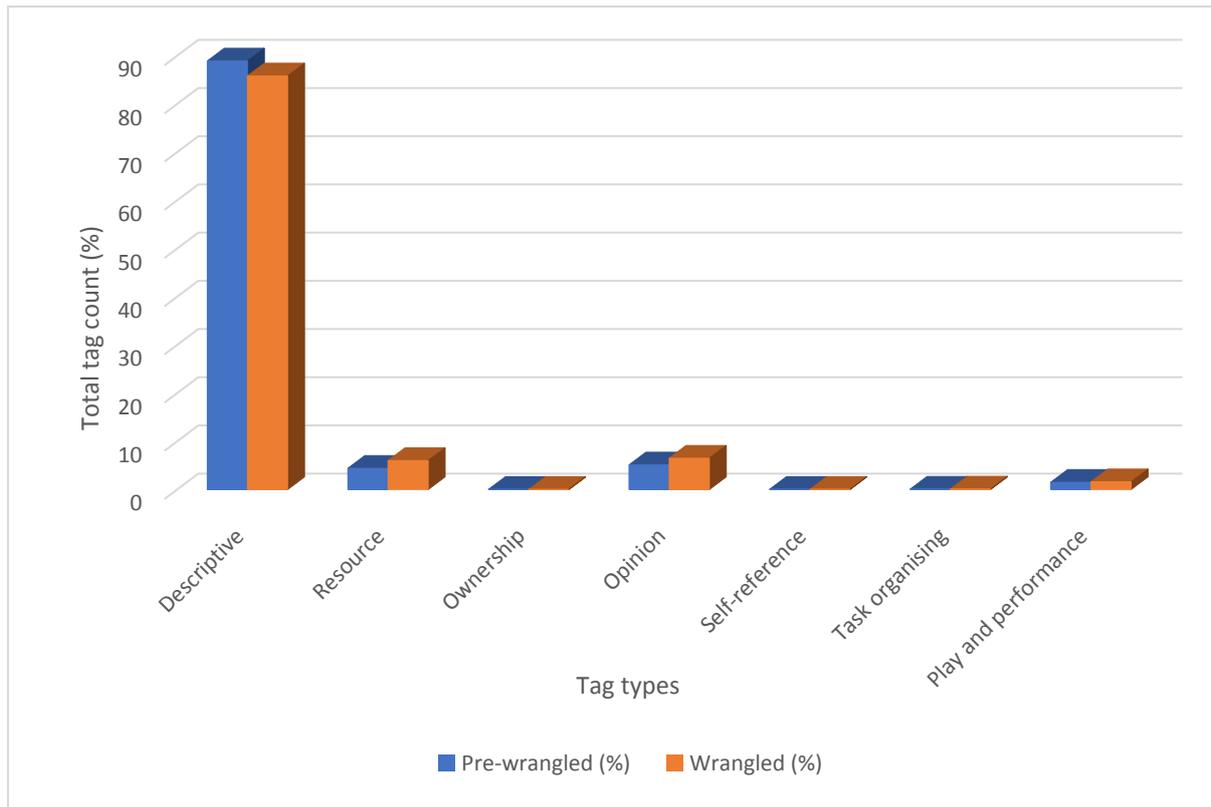


Figure 16. Comparison of the percentage of the total tag count in the pre- and post-wrangled datasets, arranged by tag type (see Table 2 for tag types).

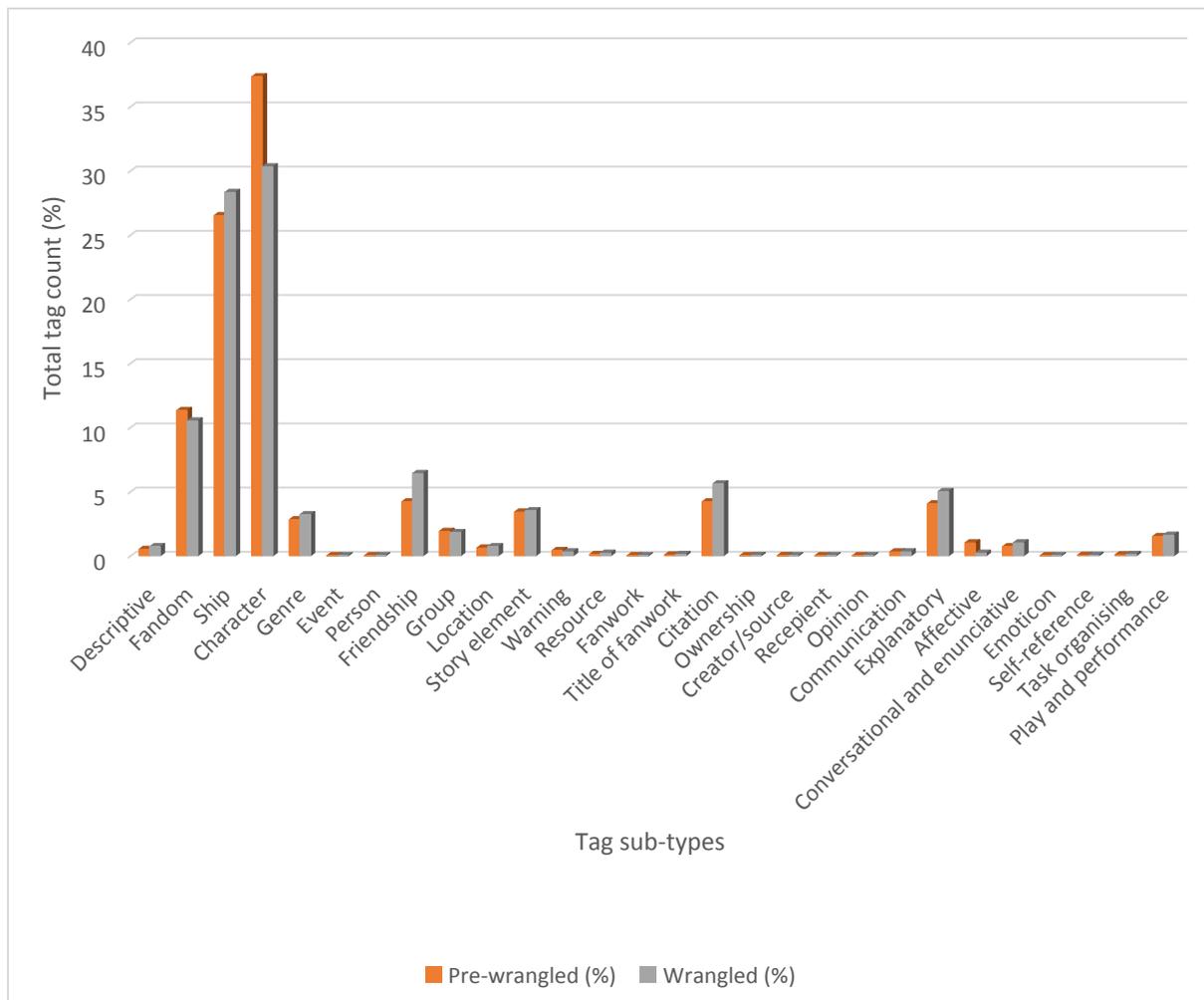


Figure 17: Comparison of the percentage of the total tag count in the pre- and post-wrangled datasets, arranged by tag sub-type (see Table 2 for tag types). **Ship**, **Character**, **Friendship**, **Citation** and **Explanatory** sub-types show the most marked difference.

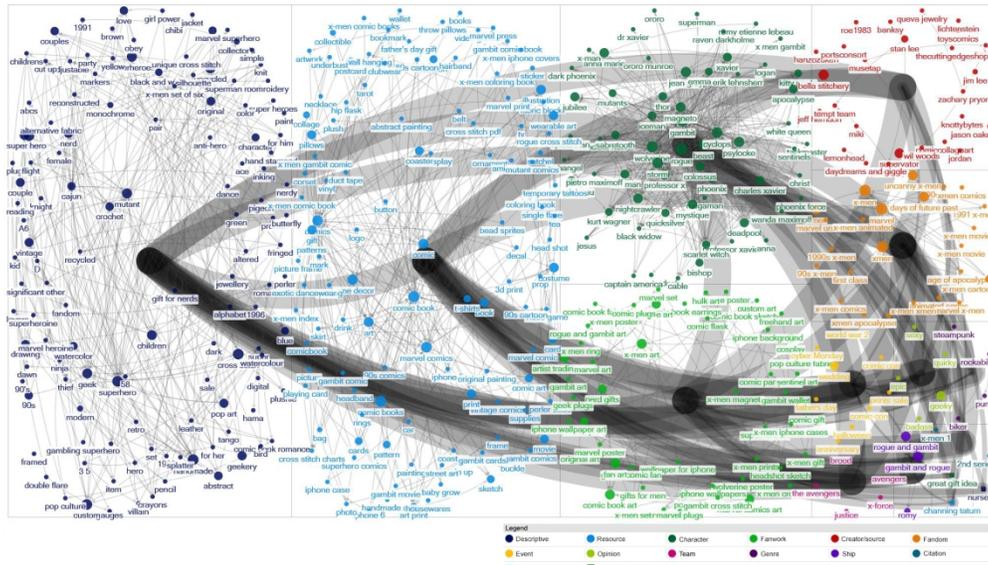


Figure 18. Co-occurrence graph for the 'Rogue and Gambit' tag on Etsy.

529x306mm (96 x 96 DPI)

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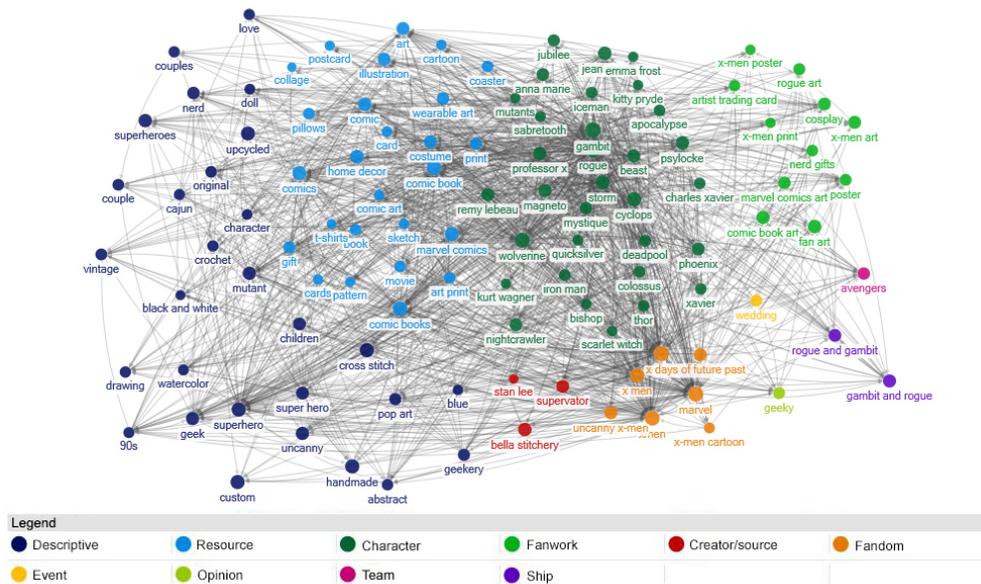


Figure 19. Co-occurrence graph for the 'Rogue and Gambit' tag on Etsy. All displayed tags have a betweenness centrality of 1+.

349x214mm (72 x 72 DPI)

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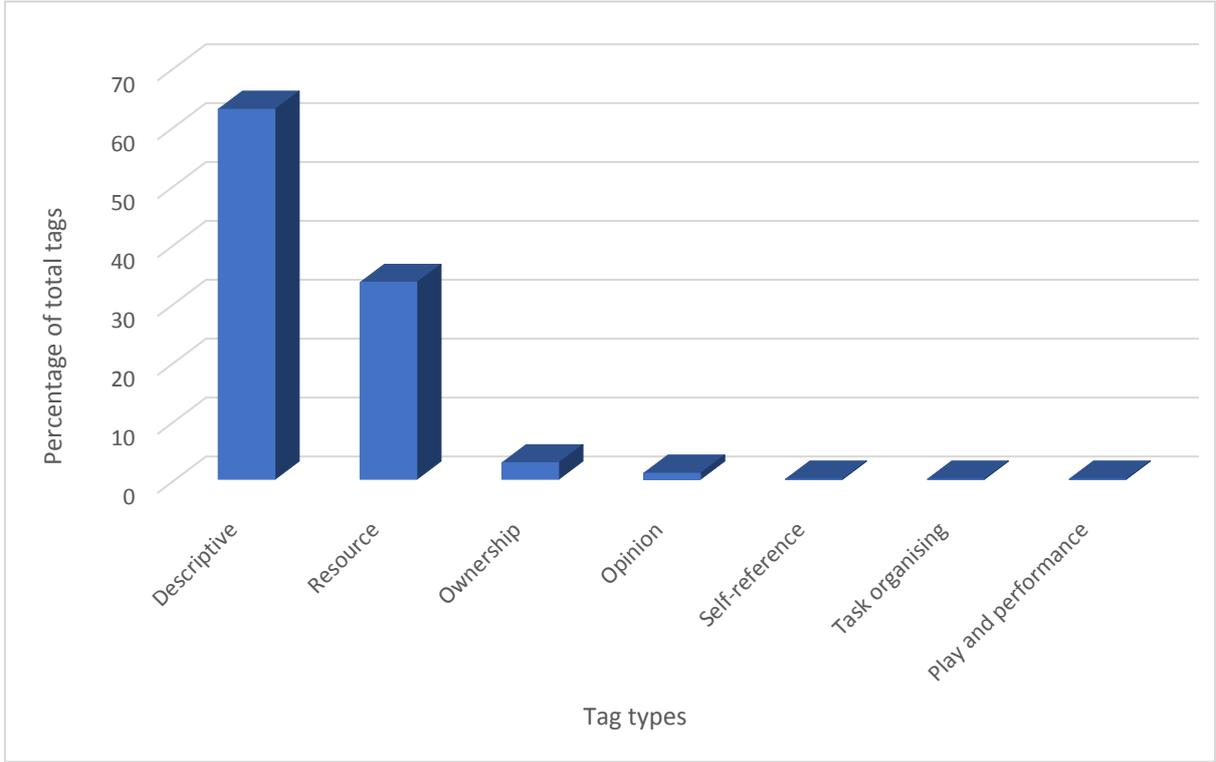


Figure 20. Percentage of Etsy tag usage by type (see Table 2 for tag types). **Descriptive** and **Resource** tag types dominate this set.

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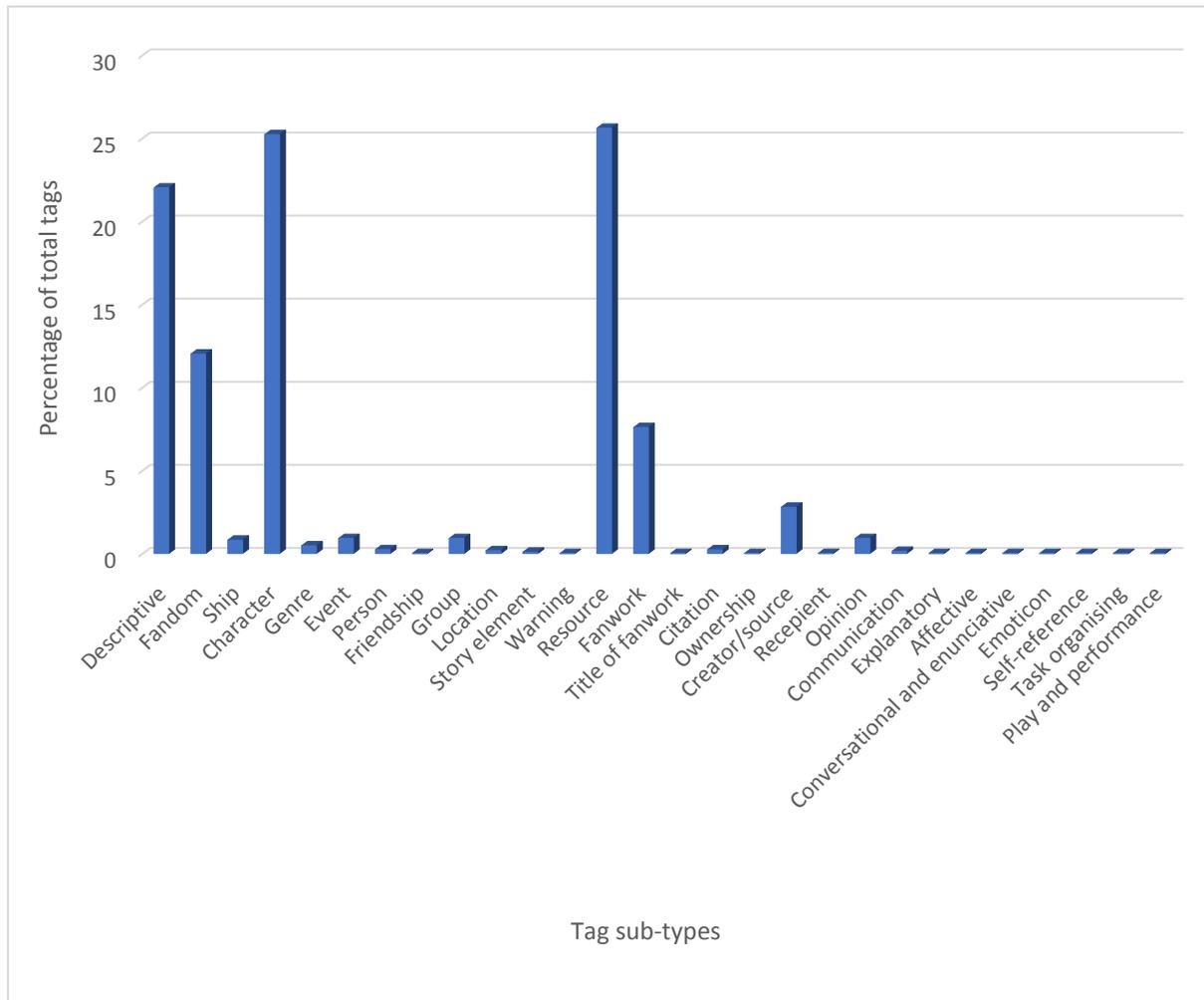


Figure 21. Percentage of Etsy tag usage by sub-type (see Table 2 for tag types). The bulk of **Descriptive** tag sub-type usage is the **Character** sub-type.

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Figure 22. Phoenix symbol curved outline decal, on sale on Etsy. Source: <https://www.etsy.com> (Retrieved 5 January 2020).

295x189mm (72 x 72 DPI)

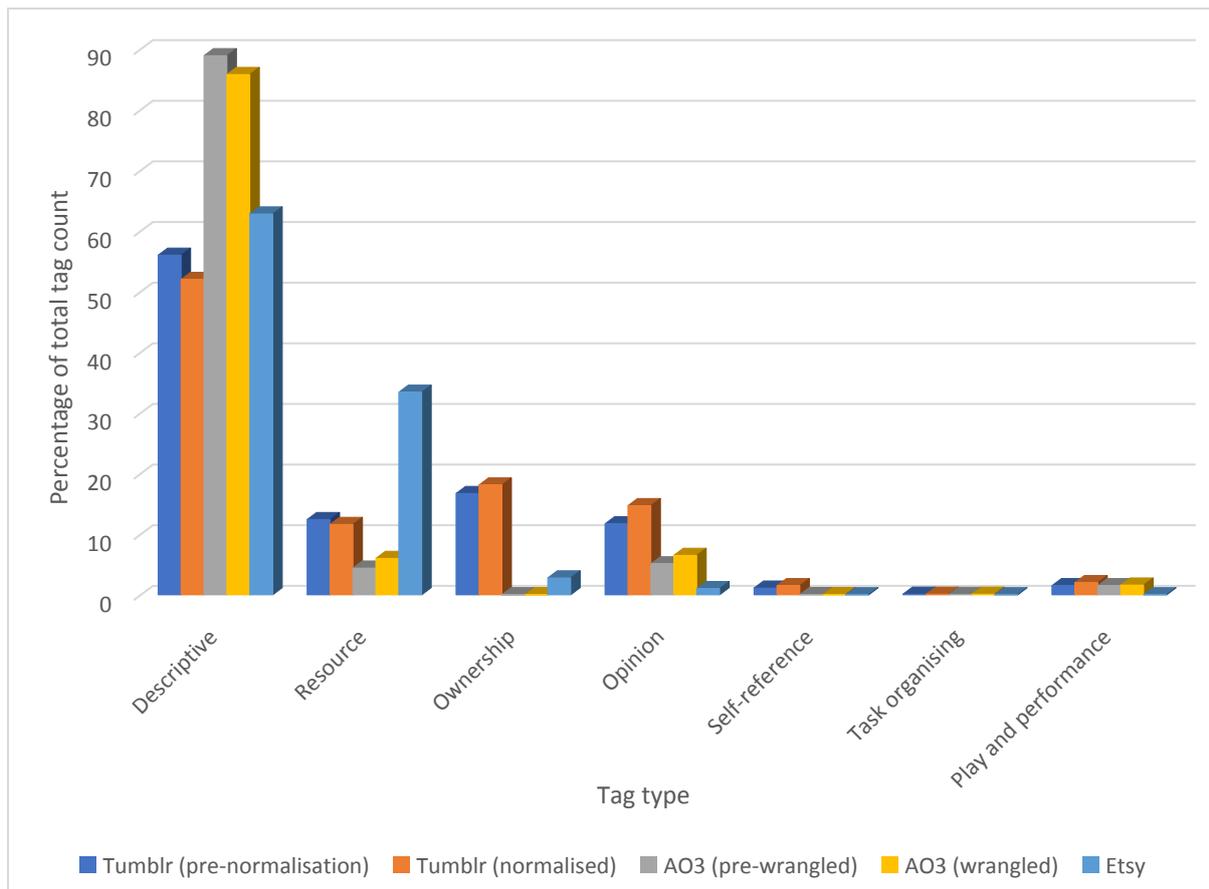


Figure 23. Comparison of the total tag count by type, across the three platforms scraped (see Table 2 for tag types). **Descriptive** tag types were the most frequently used across all datasets.

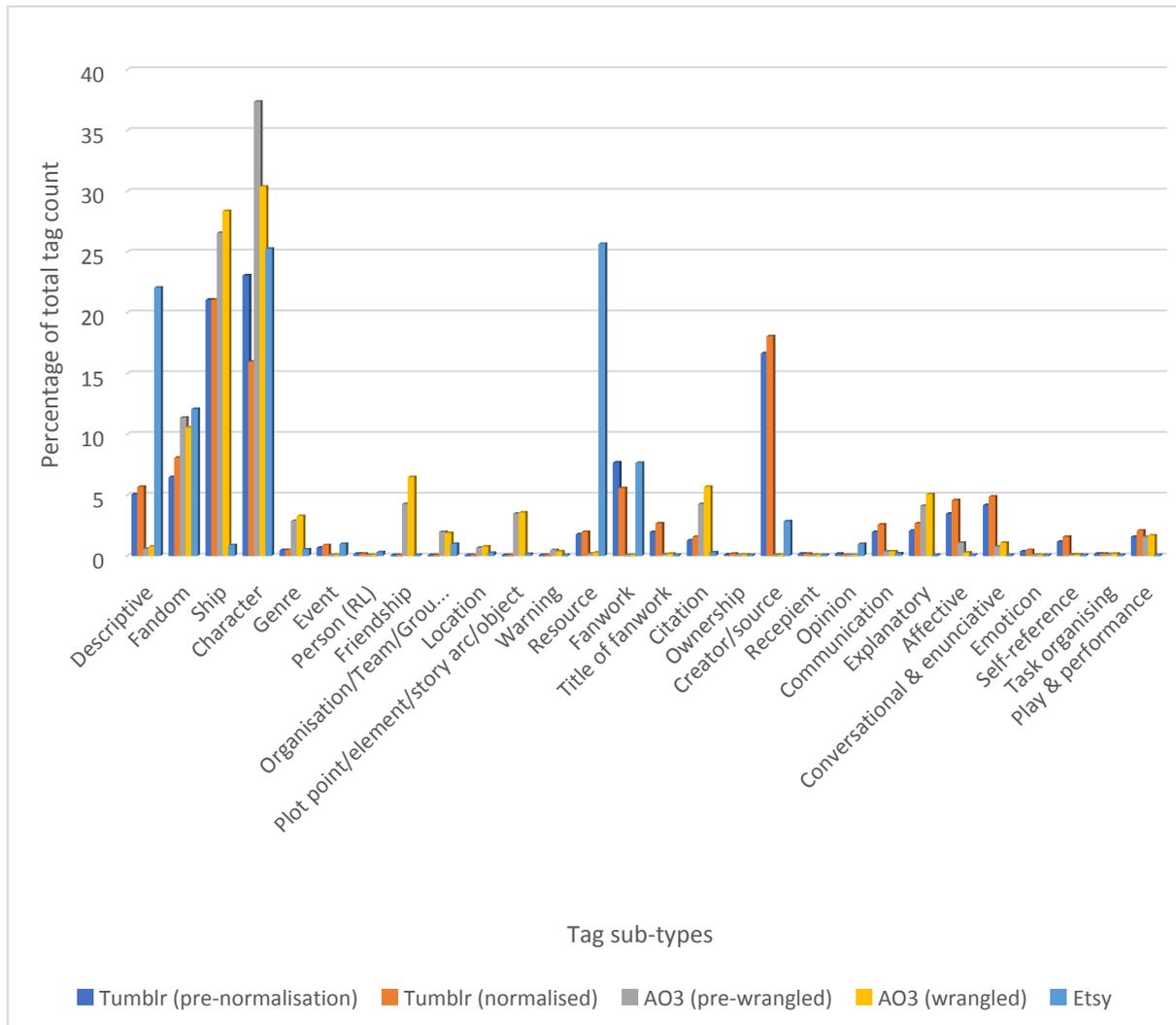


Figure 24. Comparison of the total tag count by sub-type, across the three platforms scraped (see Table 2 for tag types). The **Character** sub-type (a **Descriptive** tag sub-type) was most frequently used in all datasets, apart from Etsy, where the **Resource** tag type saw slightly more usage than the **Character** sub-type.

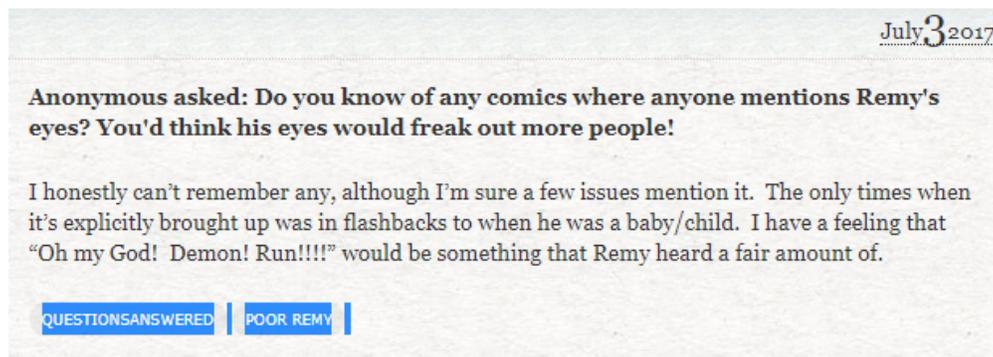


Figure 25. A 'Questions Answered' Tumblr post by Participant A. The tags used are "#questionsanswered" and "#Romy".

218x78mm (72 x 72 DPI)