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Empirical Comics Research
Digital, Multimodal, and Cognitive Methods Edited by Alexander Dunst, Jochen Laubrock, and Janina Wildfeuer

## Empirical Comics Research

 Digital, Multimodal, and Cognitive MethodsEdited by<br>Alexander Dunst, Jochen Laubrock, and Janina Wildfeuer

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## Contents

List of Figures and Tables ..... ix
Acknowledgements ..... XV
1 Comics and Empirical Research: An Introduction ..... 1
ALEXANDER DUNST, JOCHEN LAUBROCK, AND
JANINA WILDFEUER

## PART I

Digital Approaches to Comics Research
2 Two Per Cent of What? Constructing a Corpus of Typical American Comic Books
bart beaty, Nick sousanis, and benjamin woo
3 The Quantitative Analysis of Comics: Towards a Visual Stylometry of Graphic Narrative
alexander dunst and rita hartel
4 "The Spider's Web": An Analysis of Fan Mail from Amazing Spider-Man, 1963-1995
JOHN A. WALSH, SHAWN MARTIN, AND JENNIFER
ST. GERMAIN
5 Crowdsourcing Comics Annotations
MIHNEA TUFIS AND JEAN-GABRIEL GANASCIA

6 Computer Vision Applied to Comic Book Images

## 4 "The Spider's Web"

# An Analysis of Fan Mail from Amazing Spider-Man, 1963-1995 

John A. Walsh, Shawn Martin, and Jennifer St. Germain

## 1. Introduction

The following study provides an analysis of 33 years of fan mail published in Marvel Comics' Amazing Spider-Man (ASM) comic book, from the beginning of the series in 1963 through 1995.
Like advertisements for Sea-Monkeys and Charles Atlas bodybuilding products, the fan mail feature is a common and familiar paratextual element in the American comic book, particularly from the 1950s through the end of the twentieth century, when communication among fans, publishers, and creators increasingly moved to online forums and social media. Letters columns were a regular feature of science fiction magazines from the early 1930s. Comics scholar Matthew Pustz discusses how these columns contributed to the development of science fiction (and comic book) fandom:

In the late 1920s and 1930s, pulp magazines such as Amazing Stories began to publish letters from readers that included their authors' names and addresses, thereby allowing fans of the genre to find and meet others with similar interests... Organizations devoted to science fiction quickly developed, and these organizations spawned amateur magazines-"fanzines"-and conventions. People interested in science fiction began to discuss comic books in these fanzines.
("2. EC Fan-Addicts and Marvel Zombies")
Later, the letters columns common in science fiction magazines would find their way into comics. Target Comics \#6 from Novelty Press is frequently cited as the first American comic book to include a fan letter page ("Target Comics \#6 Mile High pedigree"). Superman \#124 (September 1958) marks the beginning of the first letters column appearing as a regular feature in a mainstream superhero title (Irvine 91). Letters columns helped publishers establish relationships with their readers. Publisher EC comics was particularly adept at using letters columns to build a rapport with their fans:

Other companies, such as EC Comics, were consolidating their younger audience by creating a sense of cooperation between readers
and creators. Letters pages in EC titles such as Vault of Horror and Weird Science allowed fans to interact with each other and, in the company's horror comics, with the titles' [fictional] hosts.
(Pustz "2. EC Fan-Addicts and Marvel Zombies")
Stan Lee and Marvel Comics also adopted the letters columns as a vehicle for establishing relationships with fans. In Fantastic Four \#10 (January 1963), Stan Lee opens the "Fantastic 4 Fan Page" with a bold statement advocating a more informal and personal relationship between creators and readers:

Hi, fans and friends! Look—enough of that "Dear Editor" jazz from now on! Jack Kirby and Stan Lee (that's us!) read every letter personally, and we like to feel that we know you and that you know us! So we changed the salutations in the following letters to show you how much friendlier they sound our way!

After this proclamation, the salutations in fan mail to Marvel comics were changed from "Dear Editor" to something more personal and informal like "Dear Stan and Jack." Into the twenty-first century, fan mail features remained a staple in mainstream comics from Marvel, DC, and other major publishers and were also adopted by independent, alternative, and underground comics. However, with the rise of the internet and social media, communication between fans and creators migrated to online discussion forums and platforms such as Facebook and Twitter. In recent years, a retro-nostalgia has motivated a resurgence in comic book fan mail pages, with comics such as Vaughn and Staples' Saga and Fraction and Zdarsky's Sex Criminals including many pages of fan mail per issue. Sex Criminals \#8 (October 2014) includes nine full pages of fan mail, far more than the half-page, one-page, or two-page letters features one would find in a typical twentieth-century comic book.

## 2. Methodology

Our study employs mixed methods, including text encoding and analysis, topic modeling, and close reading. It is worth noting that the digital methods described below were exceptionally helpful, but not strictly necessary for a corpus of relatively small size like our own. At about 300,000 words, our corpus is roughly the same size as a single Victorian novel like George Eliot's Middlemarch, and significantly smaller than The Fellowship of the Ring, the first volume of Tolkien's trilogy The Lord of the Rings. Our fan mail corpus is a minute fraction of data sizes typically associated with Big Data or digital humanities 'distant reading' methods (Moretti). Nonetheless, as we will illustrate below, these
methods provide conveniences and efficiencies and support data manipulation and information visualizations that aid in the exploration and analysis of even a relatively small data set.

## 2.a Data Collection \& TEI Encoding

We obtained our data from the DVD title The Amazing Spider-Man: The Complete Collection, which includes PDFs of every issue of ASM from the series beginning in 1963 through 2006. Fortunately for our project, the PDFs contain the complete publication, including fan mail, advertisements, and other paratextual elements that are generally omitted from more recent print and digital reprints. The fan mail pages were extracted from the PDFs and automatically transcribed with FineReader optical character recognition (OCR) software. The results were typically very accurate. For example, we manually checked a random 1000 -character sample from the OCR output from ASM \#176 (January 1978) against the original PDF and found only three errors-an accuracy rate of $99.7 \%$. A check of a random 1000-character sample from an earlier issue, \#8 (January 1964), revealed twelve errors-an accuracy rate of $98.8 \%$. Despite the very high accuracy of the OCR process, obvious errors were corrected during the encoding process, discussed below.

Transcribed texts were encoded following the Text Encoding Initiative's Guidelines for Electronic Text Encoding and Interchange (TEI Consortium). This Text Encoding Initiative (TEI) encoding supports the semantic tagging of the text, with XML elements and attributes, for reuse and analysis. TEI provides tags for encoding structural elements, such as headings, divisions, and paragraphs, and for encoding content of interest, such as titles, personal names, place names, etc. For example, the TEI element <div> represents a generic division of the text, such as a volume, chapter, or section. The @type attribute on the <div> element, provides more specificity, e.g., <div type="volume"> or <div type="chapter">. For the ASM data, we created a separate TEI data file for each issue with relevant metadata, such as: issue number, month, year, and the number of pages containing fan mail per issue $(0,1$, or 2$)$. We did not distinguish between a partial and a full page.
The fan mail content was divided into letters (<div type="letter">), replies (<div type="reply">), and editorial and introductory content (<div type="editorial"> and <div type="introduction">). Letters and replies were explicitly grouped together using <div type= "group">. Within letters, opening content, such as salutations, and closing content, such as closing salutations and addresses, were demarcated using the <opener> and <closer> tags. The encoding of openers and closers allowed us to filter this content in order to focus our analysis on the more substantive bodies of letters and replies. Below is a short illustration of an encoded letter and reply group (Figure 4.1):

```
<div type="group">
    <div type="letter">
        <opener><salute>Dear Stan and Steve,</salute></opener>
        <p>This morning I walked two miles for SPIDER-MAN #5, and it
        was well worth it! (The comic, not the walk!) Only one thing
        bugs me - why do you always put exclamation marks after
        whatever your characters say? (except for questions)</p>
        <closer>
        <signed>Gordon Flagg, Jr.</signed>
        <address>
            <addrline>1906 Clairmont Terr.</addrline>
            <addrline>Atlanta, Ga.</addrline>
        </address>
        </closer>
    </div>
    <div type="reply" rendition="拉 #i">
        <p>There's a reason for the exclamation marks, Gordon ... When
        ordinary periods are used between sentences, they sometimes do
        not reproduce clearly when the mag is printed and the
        sentences seem to run together. But, exclamation marks show up
        much better, thus eliminating the possibility of any
        confusion.</p>
    </div>
</div
```

Figure 4.1 TEI XML encoding of a letter-reply group.
XSLT, or Extensible Stylesheet Language Transformations, is "a language for transforming XML documents into other XML documents, text documents or HTML documents" (W3C). XSLT stylesheets were written to analyze the content and to output a comma separated values (CSV) file with basic statistics about the data. We also used stylesheets to produce plain text files, with the metadata and openers and closers removed, for further examination with text analysis and topic modeling tools.

### 2.6 Text Analysis

The plain text files of letters and replies-organized as a separate file for each year of publication, 1963 through 1995-were processed with Laurence Anthony's AntConc concordance software and Stéfan Sinclair and Geoffrey Rockwell's Voyant Tools. Both tools were used to generate concordances, word frequency lists, and visualizations for our exploration of the corpus. We used these tools to establish word frequencies for our discussion of reader citation habits below. Additionally, after conducting the topic modeling analysis described below, these text analysis tools were used to find occurrences and frequencies of words suggested by the topic models and to identify specific relevant passages from individual letters for closer examination.

## 2.c Topic Modeling

As explained by historians and digital humanities scholars Graham, Weingart, and Milligan ("Topic Modeling"): "A topic modeling tool takes a single text (or corpus) and looks for patterns in the use of words; it is an attempt to inject semantic meaning into vocabulary." Topic modeling tools implement statistical models such as Latent Dirichlet Allocation, Pachinko Allocation, and Hierarchical LDA (Blei, Underwood) to produce lists of 'topics,' clusters of words associated with one another in the documents that comprise the corpus. For this study, our corpus-plain text files of letters and replies, with openers and closers removed as described above-was processed with Andrew McCallum's MALLET topic modeling software. In establishing the parameter settings for the processing, we experimented with different numbers of topics, eventually settling on 30 . We set the 'doctopicsthreshold' parameter to .05 , to ignore topics with less than a $5 \%$ proportional representation in a given document/year. We increased the 'numinterations' parameter, which sets "number of iterations of Gibbs sampling" (McCallum), from the default of 1000 to 10,000. And we set the 'optimizeinterval' parameter, which sets the "number of iterations between reestimating dirichlet hyperparameters" (McCallum) to 20. MALLET produced two output files: a 'topickeys' file with the top 19 keywords for each of the 30 topics and a 'doctopics' file with the proportional representation of the 30 topics across the documents of the corpus.

For both the text analysis and topic modeling tools we used the standard English stopword list included with MALLET 2.0.6, and supplemented this list with an additional stopword list tailored to our corpus. For instance, in our tailored list we included the words 'amazing,' 'spider,' and 'man,' so that our results would not be skewed by the omnipresent references to the comic book title and main character.

## 2.d Data Set

Our data set consists of 33 years of fan mail, published from 1963 through 1995 (issues \#1-406) in the "The Spider's Web" feature in the Amazing Spider-Man comic book. "The Spider's Web" includes correspondence sent to Marvel Comics by readers of ASM. Readers' letters were generally accompanied by a reply from Marvel. Below is a very brief example from an early issue, ASM \#11 (April 1965):

Dear Stan and Steve,
I like the way you put two stories in one mag in your last issue of SPIDER-MAN—\#8!
Harlan Reckner
150 Hickory Rd.
Akron 13, Ohio

What do the rest of you web-spinners say? More issues with two stories, or keep the one book-lengther each month?
"The Spider's Web" feature first appears in ASM \#3 (July 1963) and is found consistently in every issue-with the exception of issue \#103 (December 1972)—through issue \#161 (October 1976). Starting with \#162 (November 1976), there are sporadic and then frequent issues that do not include "The Spider's Web." 1981 was the first year Marvel published fewer issues of ASM with fan mail (4) than without (8). Of the 406 issues we examined, 323 , or nearly $80 \%$, include fan mail. From 1964-the first full year of publication-through 1975 all but one issue, or $99 \%$, contained fan mail. Thereafter, from 1976 to 1995 , only $69 \%$ of issues included fan mail. From issue \#3 thru \#99 (August 1971) two pages of fan mail are included in all but six issues-\#63 (August 1968), \#78 (November 1969), \#79 (December 1969), \#88 (September 1970), \#89 (October 1970), and \#93 (February 1971)—which included only a single page. Beginning with issue \#100 (September 1971), "The Spider's Web"-when it appears-is consistently a single page or less, except for a brief recurrence of the second page in issues \#133-141 (June 1974 through February 1975). The 406 issues include 1,971 individual letters and 1,598 replies. The letters total approximately 301,079 words. ${ }^{1}$ The replies are typically much shorter and total approximately 110,489 words. In the early years of the magazine, the number of letters per issue declines and the average number of words per letter grows correspondingly, indicating a trend towards publishing longer letters. From 1964, the first full year of publication, to 1972, the number of letters published annually declines steadily and steeply, from a high of 138 in 1964 to a low of 39 in 1972. Over this same period there is a corresponding steady and steep increase in the average number of words per letter, with the average word count more than doubling from 111 words per letter in 1963 to 233 in 1972 (Figures 4.2 and 4.3).
One of most interesting discoveries of our research-and one that provides important context for the overall data set-is the special case of "The Spider's Web" in ASM \#201 (February 1980), in which the editors of $A S M$ undertook-on a smaller scale, looking at a single issue-an analysis of fan mail not unlike the present study. In issue \#201, rather than publishing individual letters, "The Spider's Web" provides a summary of all the correspondence commenting on issue \#195 (August 1979). One of the limitations of our study and our data set is that we are looking at only published fan mail. While scholars have access to small samples of unpublished fan mail that may be found, for instance, in the personal papers of comic book creators held in research archives, our conversations with fellow comics scholars and industry figures indicate that the major publishers, such as Marvel and DC, do not maintain archives of unpublished fan mail. Because we lack access to such an archive, we do

Letterstrepies per year


Figure 4.2 Number of letters per year.


Figure 4.3 Yearly average of words per letter, per reply.
not know the total number of letters received for a given issue or how representative the published sample is of the whole. However, the curious case of ASM \#201 provides answers, albeit for a single issue, to some of these mysteries. The feature opens with the following explanation:

Although THE AMAZING SPIDER-MAN is generally the top Marvel book in terms of volume of mail received every issue...,

Spider-Man \#195 garnered even more response than a single issue of this title usually gets. ... Because the issue attracted such unusually strong feedback, we would like to handle this letters page in an equally unusual way. How many times have you heard us say that we only wish we had room to print the comments of everyone who wrote in? This time around, we're going to do almost that: we're going to list every single person who wrote in and what they had to say! And we'll do it all in one page, too. Fortunately, the letters on S-M \#195 are easily divided into several major categories of comment.... So, for the most offbeat letters page of them all, we proudly present...

THE ANATOMY OF FAN RESPONSE.
There were 132 correspondents this month out of the 558,630 people who constitute this magazine's readership (according to circulation statements).
("The Spider’s Web," ASM \#201)
The column goes on to list all 132 correspondents grouped under nine topics about which the letter writers wrote. ${ }^{2}$ The above paragraph provides significant benchmarks for our study. We now have data-albeit for a single issue-about the total number of letter writers. And we learn further that it is a fairly representative number. ASM is "generally [but not always] the top Marvel book in terms of volume of mail received every issue" so it may be on the high end, but is nonetheless representative of other Marvel titles of the period. 132 is a higher number of correspondents "than a single issue of this title usually gets," but not the highest. We can hypothesize that, at least in 1980 and surrounding years-from 1972 to 1984, when paid circulation fluctuated from about 240,000 to about $300,000^{3}$-a single issue of $A S M$ may have received more than 100 letters but 'usually' fewer than 132. Based on these assumptions, we will guess that a single 'typical' issue of ASM in 1980 might receive about 110 letters. Excluding the special case of \#201, in 1980 seven issues of ASM included fan mail, including a total of thirty-two letters, for an average of 4.57 letters per issue. Again, assuming a typical issue might receive something like 110 total letters, then the published content represents roughly $4.15 \%$ of the total correspondence received. Conversely, over $95 \%$ of correspondence received was never published and, barring some unforeseen discovery of archival materials, is likely lost forever.

## 3. Results

In the sections below, we examine in detail three specific discourses that are present in the corpus: Making and Makers, Characters, and Social Issues.

## 3.a Discourse: Making and Makers

All the methods we applied to the corpus suggest that a dominant topicacross all thirty-three years of our corpus-is commentary on the creative teams, primarily writers and artists, responsible for the creation of the comic books. The topic modeling analysis revealed that the letter writers' dominant concerns are the process of making comic books and the individual creators responsible for them. Of the seven topics that are present across multiple years (with a proportional representation greater than or equal to $5 \%$ ), five topics are about making or makers. The most highly represented topic throughout the corpus, Topic 3 (Making), ${ }^{4}$ is one we associate with commentary on the creation and craft of comic books. Here are the key words of the topic:
issue good great story make comic comics read art work time page thing super issues reading cover web made

We have italicized words that we interpret as related to the form and craft of comics. The words story, make, comic, comics, art, and work are obviously associated with the comic itself and the act of making the comic. Issue and issues are included as they are often synonymous with either story/stories or comic/comics. Cover is also included because comic book covers-an intentionally attention-grabbing marketing tool-are frequent targets of commentary and praise. ${ }^{5}$ Topic 3 (Making) is the dominant topic in twenty-seven of the thirty-three years represented in our corpus, and it is prominent in the remaining six years. Its proportion in each year ranges from a high of $57 \%$ in 1963, the first year of publication, to a low of $24 \%$ in 1971. The average proportion across all years is $35 \%$.
In addition to Topic 3 (Making), the corpus contains a number of other prominent topics about individual creators, a conclusion drawn from the presence of creator names in the topic word clusters. These topics appear and disappear as the creative teams on the title come and go. Below, discussed in chronological order, are topics related to individual creators that are present across multiple years. The top 19 words comprising the topic are listed. The topics consist predominantly of creator names and the names of characters that feature prominently during the tenure of those creators. In the listings below, the first and last names of creators are in bold. The names or partial names of characters-animate and inanimate, e.g., the Spider-Mobile-are italicized.

Topic 28 (Makers: Wein \& Andru):
len ross wein wisp harry nova andru proverbial molten nightcrawler panel hamilton liz stegron dying tie mike mobile madison Topic 18 (Makers: Various II):
marv supporting lee ned ditko keith graduation mooney byrne wolfman jigsaw pollard leeds trick jij graduate doubt fact dc

Topic 11 (Makers: McFarlane and Michelinie): todd mcfarlane venom michelinie david mj mutant suit brock prize caesar alien eddie fox sable prowler rendition humor webs
Topic 12 (Makers: Larsen):
erik larsen power punisher vulture sinister storyline mr ock eyes characters nathan wars nation earth felicia nose assassin gravity Topic 5 (Makers: Various I):
venom bagley mark carnage david michelinie larsen erik storyline cardiac punisher series emberlin parents awesome chameleon major nova randy

We will examine more closely the first three topics listed above. Topic 28 (Makers: Wein \& Andru) appears at $9 \%$ in 1976, rises to a high of $26 \%$ in 1977, and remains relatively high at $21 \%$ in 1978 before disappearing below $5 \%$ in 1979 and thereafter. Len Wein began as the writer of ASM with issue \#151 (December 1975) and continued through issue \#180 (May 1978). Ross Andru was the artist throughout this period, and Mike Esposito was the inker from December 1975 through August 1977. Wein's tenure on the magazine coincides with the emergence and disappearance of this topic in our topic model. Other words in the topic are primarily names of featured characters during Wein's tenure: characters Harry Osborne and Liz Allen dated and became engaged; another major character, J. Jonah Jameson, met his second wife, Dr. Marla Madison; the ignominious Spider-Mobile was reintroduced; the villain Will o' the Wisp was introduced by Wein and Andru; villains Stegron and the Molten Man and superheroes Nightcrawler and Nova all made appearances. The discourse represented by these keywords appears to be the creators and major characters involved in the narrative during the tenure of these creators.

The next 'maker' topic to appear is Topic 18 (Makers: Various II), which appears at $26 \%$ in 1979 , drops to $5 \%$ in 1980, and then falls below $5 \%$ and disappears from our model. Marv Wolfman took over from Len Wein as writer of ASM with issue \#182 (July 1978) and continued until issue \#204 (May 1980). Keith Pollard was the artist on issues \#186205 (November 1978-June 1980). Jim Mooney was a frequent artist and inker on the title from issues \#65-233 (October 1968-October 1982). John Byrne was the artist on issues \#189 (February 1979), \#190 (March 1979), \#206 (July 1980) and Amazing Spider-Man Annual \#13 (1979). All these writers and artists are at work during the two years that Topic 18 is prominent in the letters. However, Stan Lee and Steve Ditko-the co-creators and original writer and artist of Spider-Man-also appear in the keywords for this topic, even though it had been many years since they made their major contributions to the comic. Our initial assumption was that the current creators from 1978 to 1980 were being compared to original creators Lee and Ditko, and a closer look at the letters confirms this hypothesis. Lee and Ditko are each mentioned 12 times in
"The Spider's Web" in 1979. In 1980, Lee is mentioned six times and Ditko three. Some example reader commentary:

Re: SPIDER-MAN \#186. Stan Lee and Steve Ditko reborn! It was clearly planned that way! Marv wrote the kind of script Stan used to scribe back in Spidey's early days, complete with the same supporting cast. Keith and Mike produced that special kind of Ditko art with all Steve's trademark's [sic]. It was a great trip in Nostalgia, but best of all, it also had something I haven't seen since those old days: Experimentation!
(Kaufman)
As an old-timer who's never been able to forget Ditko, I thank you for the cover of SPIDEY \#188.... The story has plenty of that old-fashioned feel too, with well over half the book devoted to Peter Parker and his soap opera cast of supporting characters. \#188 was a Spidey story in the tradition we haven't seen for years upon years.
(Grosvenor)
A third reader expresses similar sentiments: "Although this issue brought with it all the excitement of the Lee-Ditko days (and have you noticed how so many people are talking about Lee and Ditko of late?), it did not imitate in the slightest" (Weintraub).
The next Making and Makers topic is Topic 11 (Makers: McFarlane and Michelinie), with the keywords:
todd mcfarlane venom michelinie david mj mutant suit brock prize caesar alien eddie fox sable prowler rendition humor webs
David Michelinie was the writer on ASM from issues \#290-388 (July 1987-April 1994). Todd McFarlane was the artist on issues \#298-328 (March 1988-January 1990). The presence of Topic 11 in the letters corresponds closely to Todd McFarlane's time as artist on ASM. Venom, one of the most well known Spider-Man villains, is an alien symbiote that bonds to a human host. Venom, in the form of the black Spider-Man suit, initially bonded to Peter Parker. After discovering the true nature of the suit, Parker separated from Venom, who then bonded with journalist Eddie Brock. Venom quickly became one of Marvel's most popular characters. His name appears ninety-two times in "The Spider's Web" from 1988 to 1991, the years this topic is present in the corpus. The letters themselves reveal strong reader reaction to the character. Below are some sample comments on Venom that also address the creators' handling of the character:

Issues 316 and 317 with Venom were awesome! Todd really captures the evilness of Venom. He has to be the best Spider-Man villain since the original Hobgoblin!
(Brown)

David Michelinie is a very creative writer. The Venom storyline is one of the most exciting in Spidey's colorful career.... The love-hate triangle between Peter Parker, the alien symbiote, and Eddie Brock is an inspired piece of work.
(Graham, "The Spider's Web")
Venom is the best villain that has come along in comics for as long as I can remember. The writers of AMAZING have done a great job of making him seem truly ruthless and evil. I also think that the art of Todd McFarlane brings Venom to life....
(Forbes)
The Prowler, Black Fox, Silver Sable, and Jonathan Caesar are all characters featured during Michelinie and McFarlane's run on the book. And Mary Jane Watson, or MJ, appears in every issue drawn by McFarlane. Mary Jane is a major character throughout the many decades of ASM, but especially during this period. Mary Jane and Peter Parker were married in Amazing Spider-Man Annual \#21 (1987), written by David Michelinie, and each of the five letters published in issue \#298 address the topic of Peter and Mary Jane's wedding.
The presence of these many prominent topics about making and makers suggests that readers are interested not just in the characters and stories of ASM (and presumably other similar comic books) but also have a more sophisticated interest in the craft and aesthetics of comics. Further evidence of this sophistication is the extent to which readers cite specific passages (i.e., pages and even individual panels). Together the words


Figure 4.4 Representation of multiple topics related to making and makers throughout the corpus.
page and pages-the 10th and 84th most frequent words in the corpus, respectively-appear 674 times in the corpus. Panel and panels-the 225th and 73rd most frequent words, respectively-appear 229 times. Frequently these words appear in the context of a citation of a specific passage in the comic. For instance, in arguing that Peter Parker should be optimistic and grateful for his spider powers, reader Michael J. Susko, Jr. (1970, \#86) writes: "To top it off, it is his career as a hero that has given him the dynamic personality that made him his closest friends (see \#38, page 10, panel 3)." The corpus provides evidence, over many years, that readers are reading carefully, citing evidence, and making sophisticated arguments supported by the comic book image/text.

## 3.b Discourse: Characters

In the summer of 1973, ASM issues \#121 (June 1973) and \#122 (July 1973) portray the deaths of two major characters: Gwen Stacy, Peter Parker's longtime girlfriend, and the Green Goblin, Spider-Man's arch-nemesis. Fan reaction to these events was published over the course of four subsequent issues, \#124-127 (September-December 1973). Although both Gwen and the Goblin had been significant characters in the series, fan reactions were more focused on the shocking death of the love interest rather than the demise of the villain. Fans voiced a range of sentiments, from disgust and disbelief to praise and admiration for the bold plot-twist and portrayal of life's harsher realities.

Many fans expressed their sympathy for Spider-Man's pain, citing their own experiences with grief and loss. D. Horowitz shares: "Gwen's death really opens a lot of feelings, maybe some hard experiences that I want to forget. I'm a loner like Spider-Man, and I relate to his feelings because a lot of tragedy has happened in my life too." Salvatore M. Trento praises the storyline, saying "Gentlemen, you have succeeded in placing the comic book, SPIDER-MAN, onto a newly defined aesthetic plane of realism. But Lord, you have also succeeded in touching my soul." Other fans, clearly unhappy with the turn of events, took the opportunity to show off colorful and creative invectives. Sergio J. Andrade writes

You rattlesnake, you buzzard, you large red insect, you worm, you cockroach, you lizard, you skunk, you tapeworm in the digestive system of humanity: Why is it when a superhero and his girl finally seem to be getting it together, you kill off the girl?

JaneStarr effuses, "You evil-eyed-blackhanded-bow-legged-flint-hearted-claw-fingered-foul-bellied-bloodthirsty ORCS!!!! You killed GWEN!!!!!" Such highly charged fan reactions had an impact on the creators behind the stories. When asked at a recent comic book convention about his
attitude towards fan mail, comic book creator the writer responsible for 'killing' Gwen Stacy, replied:

I valued it until the death of Gwen Stacy. Then I was traumatized by it. It was just hate mail from then on. I basically stopped reading it. Thank God there was no Internet because I would have been crucified.

Reader interest in the deaths of Gwen Stacy and the Green Goblin is supported by our topic model of the corpus. Topic 8 , which we've labeled 'Character: Gwen Stacy' first appears in 1969 and continues until 1976, appearing once again in 1980. The representation of this topic in the corpus peaks at $12 \%$ in 1973, the year of Gwen Stacy's death. The topic declines back to $5 \%$ in 1974, the year after Gwen's death, but rises again to $8 \%$ in 1975. In 1975 Gwen Stacy returned to ASM in the context of the 'Clone Saga,' a major multi-issue story arc. After dropping below 5\% for a few years, the topic reappears in 1980, demonstrating readers' enduring interest in this character and her tragic death. Below is the cluster of words associated with this topic:

Topic 8 (Character: Gwen Stacy):
gwen stacy death petey strip brought marveldom knowing gonna kill move tragic eye immediately arm imagination trust radioactive results

We've highlighted in bold those words likely to be associated with the character of Gwen Stacy and her death. Figure 4.4 shows the distribution of two character-driven topics across the corpus (Figure 4.5):


Figure 4.5 Two topics associated with major characters: Topic 8 (Character: Gwen Stacy) and Topic 13 (Character: Peter Parker).

Another character-driven topic is Topic 13 (Character: Peter Parker). The cluster of words representing the topic suggests that the topic is about Peter Parker, and more specifically about Parker's many trials and tribulations. Below are the keywords the topic:
peter parker pete life back time aunt years people problems panel identity jameson things letter change feel character long

The words highlighted in bold are likely to be associated with Peter Parker and the various difficult issues he faces in life. His Aunt May, a widow and Peter's guardian when he was a child, suffers from poor health and is a constant source of worry to Peter. J. Jonah Jameson, publisher of the Daily Bugle newspaper, hounds Spider-Man in the pages of his newspaper and mistreats Peter, who works for the Daily Bugle as freelance photographer. Spider-Man co-creator Stan Lee has been credited with revolutionizing the superhero genre by developing more realistic characters with significant life trials and personal problems. Wright (207) explains:

The Fantastic Four [another title written by Lee] immediately became Marvel's top seller and prompted an unprecedented barrage of fan mail.... These readers showed an enthusiasm for what Lee called "realistic fantasy" stories about superheroes who performed impossible feats but evinced believable human qualities and failings.
Peter Parker possessed a host of "human qualities and failings" and other troubles. Lee and Ditko especially portrayed Peter Parker as "an angsty teenage nerd who sometimes struggled to make good choices.... [a] moody, outcast kid" (Howe, "Prologue"). Topic 13 (Character: Peter Parker) appears to reinforce this perception of Lee's character and demonstrate reader interest in these more mundane personal issues.

## 3.c Discourse: Social Issues

A third discourse that presented itself in "The Spider's Web" is fan commentary on social issues such as student protests, the Vietnam War, civil rights, and drug abuse. An early instance of a reader addressing political issues is, found in \#35 (April 1966) when Art Raveson declares, "I feel you should take a serious stand." Raveson believes that Spider-Man should "go through college and become the first intellectual, left-wing liberal super-hero." In issue \#38 (July 1966), reader H. Doyle Abernathy, responds to Raveson's earlier letter: "It is not the purpose of a super-hero to attempt to indoctrinate readers with any specific political credo." The editors respond to Abernathy:

We kinda agree with you. We try to keep the moral tone and the entertainment value of our mags as high as possible. But when it
comes to political philosophies, we figure that's best left to those who specialize in that area.

In issue \#41 (October 1966) a reader responds to Spider-Man's reaction to a campus protest in issue \#38:

I was disappointed at the way you dumped on the protest marchers....[Y]ou have painted a picture of student protest which focuses on the personalities of the picketers, not the reason for their picketing....[Y]ou have engaged in an anti-intellectual exercise in name-calling, which considerably lowers the level of sophistication on which opinions are formed.
(Fletcher)
The editors, with a lighthearted response, avoid taking a stand on the issue of student protests:

We never in a million years thought anyone was gonna take our silly protest-marchers sequence seriously! We just tossed it in for a little comedy relief—or so we thought! ... Read it again, fella, and see if you didn't possibly attach too much importance to a relatively innocuous sequence.

Here the editors-or perhaps publishers—avoid taking a committed stance on political issues of the day. In issue \#70 (March 1969), published during the Vietnam conflict, reader Cole Kitchen suggests that Peter Parker should enlist and fight alongside other Americans. In this case, the editors indicate that letter writers have been "both pro and con on this subject ever since we started setting a few special stories in Vietnam several years ago." And the editors state that they would write about the war "only if a particular story truly cried out for such a locale." Here again the magazine shies away from taking a firm stand, likely to avoid offending or alienating any of their audience.
The issue of African-American civil rights-another important and divisive issue that received attention in the fan letters-elicited complicated responses from Marvel. In Issue \#59 (April 1968), reader Martin Stern criticizes Marvel's portrayal of African-Americans:

Everyone praises you for using Negroes, but it seems to me that your Negroes are merely white people drawn by the artist with their skins darkened by the colorers. I don't think Negroes who read Marvels and see token Negroes who live in luxury, popularity and good health are going to feel any better when they themselves may live in poverty and have vast racial pressure on them.

Marvel responds by rejecting the claim that they include "token" characters and asserting that they are, in effect, colorblind regarding race:

First, if our Negro characters seem like white people with dark skin, it's because that's how we see them! Or, for that matter, we might just as easily see Caucasians as Negroes with white skin! We honestly don't favor people because they belong to a particular race! We depict them because they are people - people whom we hope are interesting! To us, there is no such thing as a "token" Negro!
Issue \#71 (April 1969) includes another dialogue on race. Reader Jeff Chown writes, "Your Negroes acted like Negroes instead of whites....I can see that civil rights really turn you on as a writer, and I hope you continue to use this as a plot." In their response to Chown, the editors imply the social and moral imperative of the movement, describing civil rights as more than a "mere" plot device: "[W]e don't think of civil rights solely or even primarily as mere 'plot material' ... We try not to categorize humanity into stereotypes." Vietnam and race both surface in our topic model in Topic 16, which includes the keywords Vietnam and negroes and appears at $12 \%$ in 1969 . Vietnam appears again in topic 7 , at $17 \%$ in 1970. In the case of Topic 7, the relevant keyword is the shorter Viet, resulting from the once common practice of writing Vietnam as Viet Nam or Viet-nam.
In issues \#96-98 (May-July 1971), Spider-Man confronted a new enemy: drug dealers. In the 1960 s, the Nixon administration-through the Department of Health, Education, and Welfare-approached Stan Lee about addressing the issue of drug abuse in one of Marvel's titles, and according to Adkinson, Lee's choice to address this issue in ASM "speaks to Spiderman's popularity and cultural relevance. It is significant that other Marvel icons such as the Fantastic Four, the Incredible Hulk, and Captain America were not chosen for this 'honor'" (253). Spider-Man was also popular among college students, one of the demographics particularly affected by drug abuse. However, Marvel's effort ran afoul of a prominent industry watchdog, the Comics Code Authority. The Comics Code Authority (CCA) was an industry organization, formed by the Comics Magazine Association of America, that stipulated content guidelines for comic books. In a voluntary effort to avoid government censorship, following an anti-comics crusade led by psychologist Frederic Wertham in the 1950 s, all major comic book publishers adhered to these guidelines, submitted their comics to the CCA for review, and displayed the CCA seal of approval on their comic book covers. Portrayal of drug use was explicitly against the CCA, regardless of whether that use was portrayed in a positive or negative light. Despite the government's request for the story, Marvel had to publish the comic without the seal of the CCA. Stan Lee and the creative team of ASM portrayed an
egalitarian drug scourge affecting black and white, rich and poor, alike (Mondello; Stoddart).
Scholars including Cary Adkinson have argued that ASM's portrayal of drug abuse led directly to the Code's revision and, perhaps more importantly, challenged the traditionally positive comic book portrayals of the criminal justice system and helped to "bring about the dawn of a new and much more realistic era of comic book publishing, one that redefined how the superhero genre portrayed crime and criminal justice" (242). The keywords drugs and code are found in Topic 22, which appears in our model at $22 \%$ in 1971, the year that issues \#96-98 were published. Fan letters responding to issues \#96-98 indicate overwhelming support among readers for Marvel's decision to tackle this important social issue. Even before issues \#96-98, readers had been suggesting rising drug use as a topic for ASM. In issue \#97 (June 1971), Marvel published a letter from Evan Katten-written before the drug story was published—arguing that Marvel should address the issue of drug abuse in the pages of ASM: "Without a doubt, drugs are an important part of the corruption of the youth, as well as the old. With headlines screaming of 2-day-old children showing withdrawal signs because their mothers were addicts." Katten further claims that such issues would be relevant to $A S M$ 's readers because:
[m]any of us deal either directly or indirectly with drugs almost daily. My particular high school is overrun with the problem. ... I can get almost anything: heroin, hash, grass-name it, you've got it! ... Something must be done-literature has been written, but it's adult literature-too complex to read.

Katten argues that "[c]omics are the perfect medium through which messages about this problem can be conveyed. ... Maybe this is the only way to reach the kids-by telling them the facts in comics they read!" Katten's letter suggests that, along with the government's urging, reader suggestions may have been another impetus for this issue-focused story. In the response to Katten's letter, Marvel editors wrote:
[T]he problem of drug abuse could not continue to be ignored. And so we HAD to deal with it, regardless of the repercussions from those who are not aware of the importance and scope of the drug problem in this country. We will continue to follow our conscience-are all of you with us?

Reader reaction to issues \#96-98, printed in issues \#100 (September 1971) and following, was extremely positive. Due to "the tremendous response" to the story, in issue \#100 "The Spider's Web" includes only shorter "excerpts of the many wonderful letters [Marvel] received."

Reactions fall within three broad categories. Obviously, some writers address the topic of drug abuse issue directly. Others specifically target the CCA, and praise Marvel for defying it. Finally, some writers praise Marvel for addressing important social issues and encourage Marvel to continue this practice. Like Katten's letter from issue \#96, the subsequent letters reacting to \#96-98 suggest that the story may help those suffering from drug abuse, "As I see it, if your message reaches at least one person in need, all the effort you must have put in it was well worth it" (Zebrocki). Others stress that such efforts can help young people: "As the father of two young sons, I most earnestly hope that your policy may be helpful and preventative" (Tolces).
Readers who wrote about the Comics Code Authority believed that the Code was preventing discussion of an important issue: "Drug abuse has to be fought. It is terrible that the Comics Code Authority wants you to close your eyes and pretend it's not there" (Kobola), and, "I have to commend you for bucking one of the less reasonable aspects of the Code doing a story on drugs" (Bluhm). Other writers believed that the Comics Code might be violating free speech, "It would seem that a publishing company the size of your outfit should be permitted to speak about social problems the way you did in such a commendable manner, with good taste..." (O'Brien and O'Brien). Other fans praised Marvel for putting a concern for social good above an industry standard: "[C] ongratulations on defiance of the comics code, but more important doing something that will cut a little out of your pocketbooks, but will also help in the improvement of mankind" (Sorrells). Another reader writes in a similar vein: "This was the first time I had seen any company put their magazine in jeopardy rather than cut out something which they felt was right, and was needed" (Konior). Overall, at least in the published letters, fans were grateful and congratulatory: "I find it gratifying to read that hero of the campuses, Spider-Man, voicing thoughts which are uppermost in the minds of concerned citizens" (Abraham), and, "I want to commend you and publisher Goodman for your boldness and just
plain guts" (Resnick).

## 4. Conclusion

In the 'Bibliographic Essay' that concludes his Of Comics and Men: A Cultural History of American Comic Books, Jean-Paul Gabilliet writes that "fan mail constitutes a largely unexplored source of information about the reception of characters, stories, and creators" (363). In the preceding study we have discussed a corpus of fan mail spanning 33 years, giving evidence of the "reception of characters, stories, and creators," and demonstrated how digital analysis tools such as concordance builders and topic modeling software may be useful in exploring a corpus such as this and reinforcing arguments developed from traditional
humanities methodologies such as close reading. As discussed above, we could have undertaken a similar analysis of this fan mail corpus without employing digital and computational methods. However, these tools certainly aided us by drawing our attention to particular parts of the corpus, for example, in highlighting the repeated comparisons between the Wolfman/Pollard ASM and the earlier work by original creators Stan Lee and Steve Ditko. The TEI encoding allowed for easy manipulation of the corpus, generation of statistics about the data set, and transformation into easily searchable HTML and plain text files. Furthermore, the digital and computational methods employed here would be indispensable in exploring, as we hope to do in future work, a larger corpus of comic book fan mail spanning more decades, multiple publishers and genres, and dozens or hundreds of titles. The work here serves as a useful foundation for further studies on larger corpora of fan-centric and reader-centric corpora.

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## Notes

1 We consider our word counts approximate to acknowledge inaccuracies resulting from the occasional OCR error.
2 The 132 letters summarized in "The Spider's Web" in issue \#201 are not included in the count of total letters per year in the data discussion above. The rationale for this omission is that none of the actual text of individual letters was published. In our data set the maximum number of letters published was 138 in 1964. Including the 132 listed correspondents from \#201 as 'letters' would misleadingly skew the data, showing an incredible spike in letters published in 1980.
3 Sales figure data obtained from Miller's Comichron web site.
4 When discussing 'topics' revealed by the topic modeling software, we will refer to the topic by the number assigned by the software, e.g., Topic 3, with an optional descriptive label in parentheses, e.g., Topic 3 (Making). The topic modeling software does not actually reveal topics; it reveals clusters
of associated words. The assignment of a descriptive, topical label to that cluster of words is an interpretive act and subject to the usual subjectivity, caveats, and pitfalls of all interpretive acts.
5 In our word frequency analysis, cover is the $28^{\text {th }}$ most frequent word in the corpus. Examples of commentary on covers include: "The cover of this issue was exceptionally well done" (Jones), "I'll never understand how such a good cover was put on such a crummy story" (Garlinger) "To start with the good cover was put on such a crummy story" (Garlinger), "To start with, the cover art was nowhere. The same goes for the inking of the cover" (Bolick), and "McFarlane drew an excellent cover for AMAZING \#304. I admire his experimentation with unusual angles, his understanding of Spidey's unique body language, and the way he draws his webs" (Balkin).

## Works Cited

Abernathy, H. Doyle. Letter. "The Spider's Web." Amazing Spider-Man, no, 38, Marvel Comics, July 1966
Abraham, Felice. Letter. "The Spider's Web." Amazing Spider-Man, no. 100 Marvel Comics, Sep. 1971.
Adkinson, Cary D. "The Amazing Spider-Man' and the Evolution of the Comics Code: A Case Study in Cultural Anthropology." Journal of Criminal Justice and Popular Culture, vol. 13, no. 3, 2008, pp. 241-261.
Allen, Steve. Letter. "The Spider's Web." Amazing Spider-Man, no. 333, Marvel Comics, June 1990
Andrade, Sergio J. Letter. "The Spider's Web." Amazing Spider-Man, no. 124,
Marvel Comics, Sep. 1973.
Balkin, Frank. Letter. "The Spider's Web." Amazing Spider-Man, no. 313, Marvel Comics, Mar. 1989.
Blei, David M. "Probabilistic Topic Models." Communications of the ACM, vol. 55, no. 4, 2012, pp. 77-84.
Bluhm, Warren. Letter. "The Spider's Web." Amazing Spider-Man, no. 100 Marvel Comics, Sep. 1971.
Bolick, J. Alan. Letter. "The Spider's Web." Amazing Spider-Man, no. 115 Marvel Comics, Dec. 1972.
Bourne, Malcom. Letter. "The Spider's Web." Amazing Spider-Man, no. 342 Marvel Comics, Dec. 1990.
Brown, Jim. Letter. "The Spider's Web." Amazing Spider-Man, no. 323, Marvel Comics, Nov. 1989.
Campbell, Chris. Letter. "The Spider's Web." Amazing Spider-Man, no. 331, Marvel Comics, Apr. 1990.
Chown, Jeff. Letter. "The Spider's Web." Amazing Spider-Man, no. 71, Marvel
Comics, Apr. 1969. Comics, Apr. 1969.
Connelly, Chris. Letter. "The Spider's Web." Amazing Spider-Man, no. 344, Marvel Comics, Feb. 1991.
Conway, Gerry. "Bringing the Punisher to Life: Gerry Conway \& Tim Bradstreet." Indiana Comic Convention Indianapolis, 30 Mar. - 1 Apr. 2017. Panel Discussion.
Editor. Letter. Fantastic 4 Fan Page. Fantastic Four, no. 10, Jan. 1963.
Marvel Comics, Feb. "The Spider's Web." Amazing Spider-Man, no. 344,
Marry. Leter
Marvel Comics, Feb. 1991.
Fletcher, Bill. Letter. "The Spider's Web." Amazing Spider-Man, no. 41, Marvel
Comics, Oct. 1966.

Forbes, Matthew. Letter. "The Spider's Web." Amazing Spider-Man, no. 325, Marvel Comics, Nov. 1989.
Fraction, Matt and Chip Zdarsky. Sex Criminals, no. 8, Image Comics, 2014.
Gabilliet, Jean-Paul. Of Comics and Men: A Cultural History of American Comic Books. Translated by Bart Beaty and Nick Nguyen. UP of Mississippi, 2005.
Garlinger, Doug. Letter. "The Spider's Web." Amazing Spider-Man, no. 12, Marvel Comics, May 1964.
Graham, Lory B. Letter. "The Spider's Web." Amazing Spider-Man, no. 325, Marvel Comics, Nov. 1989.
Graham, Shawn, Scott Weingart, and Ian Milligan. "Getting Started with Topic Modeling and MALLET." The Programming Historian, 2012, programmin-ghistorian.org/lessons/topic-modeling-and-mallet. Accessed 22 Nov. 2017.
Grosvenor, Archie. Letter. "The Spider's Web." Amazing Spider-Man, no. 191, Marvel Comics, Apr. 1979.
Highfield, Jay ‘Flounder’. Letter. "The Spider’s Web." Amazing Spider-Man, no. 333, Marvel Comics, June 1990.
Horowitz, D. Letter. "The Spider's Web." Amazing Spider-Man, no. 126, Marvel Comics, Nov. 1973.
Howe, Sean. Marvel Comics: The Untold Story. Harper Collins, 2013. Kindle Ebook.
Irvine, Alexander. "1950s." DC Comics Year by Year: A Visual Chronicle, edited by Hannah Dolan, DK Publishing, 2010, pp. 62-95.
Jones, Tom. Letter. "The Spider's Web." Amazing Spider-Man, no. 3, Marvel Comics, July 1963.
Kaufman, Matt. Letter. "The Spider's Web." Amazing Spider-Man, no. 190, Marvel Comics, Mar. 1979.
Kitchen, Cole. Letter. "The Spider's Web." Amazing Spider-Man, no. 70, Marvel Comics, Mar. 1969.
Kobola, Frank. Letter. "The Spider's Web." Amazing Spider-Man, no. 100, Marvel Comics, Sep. 1971.
Konior, Robert. Letter. "The Spider's Web." Amazing Spider-Man, no. 100, Marvel Comics, Sep. 1971.
Lee, Stan, and Steve Ditko. The Amazing Spider-Man: The Complete Collection. Graphic Imaging Technology, 2006.
McCallum, Andrew Kachites. "MALLET: A Machine Learning for Language Toolkit." http://mallet.cs.umass.edu. 2002.
Miller, John Jackson. "'Amazing Spider-Man' Sales Figures." Comichron: A Resource for Comics Research!, 29 Apr. 2009, comichron.com/titlespotlights/amazingspiderman.html. Accessed 22 Nov. 2017
Mondello, Salvatore. "Spider-Man: Superhero in the Liberal Tradition." Journal of Popular Culture, vol. 10, no. 1, 1976, pp. 232-238
Moretti, Franco. Distant Reading. Verso, 2013.
Morgensen, Gary. Letter. "The Spider's Web." Amazing Spider-Man, no. 127, Marvel Comics, Dec. 1973.
O'Brien, Bill, and Dennis O'Brien. Letter. "The Spider's Web." Amazing SpiderMan, no. 100, Marvel Comics, Sep. 1971.
Palumbo, Donald. "The Marvel Comics Group's Spider-Man Is an Existentialist Super-Hero; Or 'Life Has No Meaning Without My Latest Marvels!" Journal of Popular Culture, vol. 17, no. 2, 1983, pp. 17-82. Wiley, doi:10.1111/j.00223840.1983.1702_67.x.

84 John A. Walsh et al.
Pustz, Matthew J. Comic Book Culture: Fanboys and True Believers. UP of Mississippi, 1999. Kindle Ebook.
Raveson, Art. Letter. "The Spider's Web." Amazing Spider-Man, no. 35, Marvel Comics, Apr. 1966.
Reckner, Harlan. Letter. "The Spider's Web." Amazing Spider-Man, no. 11, Marvel Comics, Apr. 1964.
Resnick, Michael. Letter. "The Spider's Web." Amazing Spider-Man, no. 100, Marvel Comics, Sep. 1971.
Roberts, Dale J. Letter. "The Spider's Web." Amazing Spider-Man, no. 342, Marvel Comics, Dec. 1990.
Sorrells, Ron. Letter. "The Spider's Web." Amazing Spider-Man, no. 101, Marvel Comics, Oct. 1971.
Starr, Jane. Letter. "The Spider's Web." Amazing Spider-Man, no. 127, Marvel Comics, Dec. 1973.
Stern, Martin. Letter. "The Spider's Web." Amazing Spider-Man, no. 59, Marvel Comics, Apr. 1968.
Stoddart, Mark C. J. "'They Say It'll Kill Me... But They Won't Say When!' Drug Narratives in Comic Books." Journal of Criminal Justice and Popular Culture, vol. 13, no. 2, 2006, pp. 66-95.
Susko, Michael J., Jr. Letter. "The Spider's Web". Amazing Spider-Man, no. 86, Marvel Comics, July 1970
Target. White Streak. No. 6, Novelty P, 1940. Heritage Auctions, 2018, comics.ha.com/itm/golden-age-1938-1955-/target-comics-6-mile-high-pedigree-novelty-press-1940-cgc-nm-mt-98-white-pages-artist-bill-everett-was-a-constant-in-t/a/751-3557.s. Accessed 15 Jan. 2018.
"TEI P5: Guidelines for Electronic Text Encoding and Interchange (Version 3.1.0)." TEI, tei-c.org/release/doc/tei-p5-doc/en/html/index.html. Accessed 22 Nov. 2017
Tolces, Theodore. Letter. "The Spider's Web." Amazing Spider-Man, no. 100, Marvel Comics, Sep. 1971.
"Transformation." W3C (World Wide Web Consortium), w3.org/standards/ xml/transformation. Accessed 22 Nov. 2017.
Trento, Salvatore M. Letter. "The Spider's Web." Amazing Spider-Man, no 124, Marvel Comics, Sep. 1973.
Underwood, Ted. "Topic Modeling Made Just Simple Enough." The Stone under the Shell, 7 Apr. 2012. Ted Underwood, tedunderwood.com/2012/04/07 topic-modeling-made-just-simple-enough/. Accessed 15. Jan. 2018
Walsh, John A., Carol Tilley, and Kathryn La Barre. Comic Book Readership Archive (CoBRA), 2015. Cobra, comics.indiana.edu/cobra/. Accessed 22 Nov. 2017.
Weintraub, Bruce. Letter. "The Spider's Web." Amazing Spider-Man, no. 198, Marvel Comics, Nov. 1979.
Wright, Bradford W. Comic Book Nation: The Transformation of Youth Culture in America. Johns Hopkins UP, 2001
Zebrocki, Paul. Letter. "The Spider's Web." Amazing Spider-Man, no. 100, Marvel Comics, Sep. 1971.

## 5 Crowdsourcing Comics Annotations

Mihnea Tufis and Jean-Gabriel Ganascia

## 1. Introduction

Over the last century, graphic narrative from American comics to Japanese manga and Franco-Belgian bande dessinée has made the journey from the periphery of culture to establishing itself as an artistic medium at the frontier between literature and graphic art. During this journey comics have changed many lives, ignited the imagination of millions, and inspired artists and writers to push the limits of creativity. Recognition as a literary form in the late 1980s ignited academic interest in studying comics; the latest developments in fields such as digital humanities and machine learning now provide scholars with a suitable toolbox for asking increasingly complicated questions about all forms of sequential art. At the same time, throughout the world comics are claiming their place in specialized museums, libraries, collections, and research centers.
From a publishing perspective, comics have left their mark on the industry and now occupy relevant positions in many important markets. They seem to have sailed clear of the troubles that have recently hit the publishing industry worldwide and dealt well with the aftermath of the economic downturn of 2008. Their quick reaction to the smartphone and tablet revolution of 2010 and the subsequent transition to digital media have been recognized as important supporting factors (Tufis). Whether creating enhanced digital content, supplying annotated corpora for academic research, or content indexing for libraries and collections, the future of comics and sequential art will be linked to fully describing and encoding them in appropriate electronic formats. While electronic formats exist in publishing, research, and cultural heritage, they come with a high degree of domain and end-user specificity, which hinders swift application across all these areas. In aiming to resolve the problem of a multi-purpose format for comics, we are left with an even more complicated issue: Retrieving the relevant information from comics corpora and storing it in the format of our choice. Comic books that are digitally available come either in the form of electronic publications (most of them web-based) or as collections of flat images that result

