

CHAPTER 20

Drawing Out: How designers analyze written texts in visual ways

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Within design discourse, much attention towards the written word is directed at typography – how words are arranged to visually communicate meaning. In this article, we consider the written word from a different perspective, revealing how designers analyze written texts for research and concept development. We describe three analytical methods we developed through our own practice, and observed in the practice of other designers. We name these methods Visual Abstraction, Focused Data-mining and Exploratory Data-mining. Each method is supported by examples from our own work, and the work of Stefanie Posavec and Sam Winston, who both describe analyzing written texts as part of their design process.

Although these methods are commonly used in design practice, they are less frequently reported in a research context. Therefore, it is valuable to reframe these practice-based methods as a meaningful contribution to design scholarship.ⁱ

Three methods for analyzing written texts

This first section describes three methods designers use to analyze written texts:

1. Visual Abstraction – a way to see past the written narrative to reveal patterns and rhythms in a text;

2. Focused data-mining – searching written texts for predetermined themes or ideas;
3. Exploratory data-mining – searching written texts with undetermined focus, allowing focus to occur in the process of searching.

1. Visual Abstraction

Two examples where visual abstraction has been used to reveal rhythm and patterns in written documents are Stefanie Posavec's 'Writing Without Words' and Zoë Sadokierski's thumbnail schemas. In these examples the act of abstracting written text removes the distraction of the narrative in order to reveal patterns and find new readings of the text.

Stefanie Posavec completed an MA in Communication Design from Central Saint Martins College of Art and Design in 2006.ⁱⁱ Posavec's final work, 'Writing Without Words', treats classic novels as data sets; she extracts quantitative information from the books in order to communicate something about the text other than the author's narrative. Posavec describes this work as "a project that explores methods of visually representing text" in order to visualize "differences in writing styles of various authors." (2007) The result is a set of diagrams, posters and books that visually represent the texts.

'First Chapters' are diagrams visualizing the first chapters of classic novels – the number of words per sentence determines the length of the line, each new sentence turns the line 90°.

Abstracting sentences to lines renders the narrative unreadable, allowing the viewer to focus on the 'units of language' that compose each book. As a collection, these drawings quickly describe the different writing styles of the various authors. Explaining the variations in sentence length

would be lengthy and potentially boring to read – displaying them as a collection of juxtaposed drawings makes a concise point, that can be further interpreted the longer the viewer spends comparing the diagrams to each other.

Interpreting the sentence lengths and paragraph structure is not the same as interpreting the narrative. Each sentence diagram is a visual onomatopoeia of the written text – as well as the length of sentences, they reveal the rhythm and pattern of the writing style.

<Insert Figure 20.1 here>

Figure 20.1: 'First Chapters' – Hemingway and Kerouac. Stefanie Posavec 2007.

For example, compare Hemingway and Kerouac's diagrams. Hemingway is known for his pared-back prose and conversely Kerouac for his unpunctuated rambling. The visual language of these maps succinctly reveals the different writing styles.

Through teaching this method, we have witnessed students applying sentence diagramming in surprising ways. For example, investigating whether chatbots are intelligent (through machine learning, they continually evolve based on interactions with humans) or static (they recall preformatted answers), Elle Doggett asked the same set of questions to a range of bots over several weeks, and used sentence diagramming of these 'conversations' to reveal which chatbots were static and which were intelligent based on small changes (or not) in their responses over time.

While Posavec abstracts novels into quantifiable data to understand and communicate something about different writing styles, Sadokierski abstracts novels into thumbnail schemas, in order to understand image placement within hybrid novels. Her 2010 doctoral thesis analyzed hybrid novels – novels in which graphic elements such as photographs, drawings and diagrams are integrated in the written narrative. The appearance of graphic images on the pages of novels is unusual; novels are conventionally a purely written literary form. In order to understand what kinds of graphic elements appear within a hybrid novel, and where they appear in relation to the written text, Sadokierski sketched thumbnail schemas for a range of novels. The thumbnail schema is coded using different colours to represent different types of graphic element:

<Insert Figure 20.2 here>

Figure 20.2: Thumbnail schema of Jonathan Safran Foer's novel Extremely Loud and Incredibly Close. Zoë Sadokierski 2010.

Designers generate thumbnail sketches to map out a document (print or digital), creating a schema similar to the floor plan of a building. This schema allows the designer to plan where compositional and graphic elements appear and to establish rhythm within the layout (considering how design decisions affect the pace of reading and comprehension of the text). A thumbnail schema helps the designer envision the document as a whole – to make decisions about individual design elements in the context of the whole document.

Although thumbnailing is generally used in the planning stages of a design project, this example shows how it can be an analytical tool; deconstructing the composition of a book to reveal

insights about how written and graphic elements relate. The schema allows us to consider the kinds of questions a designer would ask: Could the placement of graphic devices be related to printing specifications?ⁱⁱⁱ; Is there visual rhythm that orchestrates the placement of graphic devices? The thumbnail schema has the effect of ‘flattening the landscape’; it removes all the cues a visual person would be distracted by – typeface, line length and other compositional elements – to think about a text as a map. This method analyses a written text by abstracting it completely, revealing insights that may have been missed by looking at the book as a ‘codex’ – page by page, rather than as a schema.

Sketching thumbnails is a meditative exercise that encourages a ‘conversation’ with the text, revealing new insights about the design of each page without the distraction of reading the narrative. Committing pen to paper – sketching the graphics – requires breaking down the composition of the page to sketch it. The slowness of the process encourages reflection; for between an hour and an hour and a half – the time it took to sketch the schema for an entire novel – focus was entirely on the compositional elements. The thumb-nailing exercise encourages looking with a ‘curious eye’ – actively seeking what is not yet known, placing it into the context of a research method not a design planning tool.^{iv}

Posavec also discusses the value of performing her initial text analysis by hand, rather than using computer programs:

“Much of what I do is with pencil and paper.... I find a subject that I love, and try to find within it something I can map, or markdown on paper. Then I spend lots of time reading and rereading the text and counting words or counting numbers or just going through a

subject matter repeatedly until I have all the data in a notebook ... by reading and rereading these texts, I'm able to understand more about a specific text or a specific subject matter than I would otherwise, than I would if I wrote a computer program to analyse that text for me.” (*interview on Protein TV, 2011*)

Diagramming and thumbnailing force the researcher to engage with a text with her hand as well as her eye. Richard Sennett (2008) discusses the ‘link between the head and hand’, in his book *The Craftsman*. For craftspeople – including writers and designers – planning and drafting are vital stages in the creative process. In ‘thinking’ through the hand, ideas are fleshed out in action, through the process of making, and reflecting on making. Le Corbusier, an advocate of sketching, wrote:

“Once the impression has been recorded by the pencil, it stays for good, entered, registered, inscribed. ... To draw oneself, to trace the lines, handle the volumes, organize the surface ... all this means first to look, and then to observe and finally perhaps to discover ... and it is then that inspiration may come.” (in Anthony 1966)

These examples demonstrate that revealing rhythm and pattern is a particular strength of the visual. Through the process of turning text into ‘data’, we stop reading the narrative and start to read something else. Here, that something else is a visual language that the designer has created to explore the text in non-traditional ways. From these abstractions, we read the visual language of the designer, not the original text. The visual language is a kind of coding using design elements such as color, line, shape, pattern and hierarchy.

These two examples use drawing to reduce written texts to abstract compositions, allowing readings of the text beyond the narrative. These new readings provide insights and interpretations otherwise difficult to access through non-visual methods.

2. Focused Data-mining

Focused Data-mining is a method that involves mining a written text for specific information, followed by categorisation and coding of that information. This is a type of Content Analysis. Stemming from the field social science, Content Analysis is a way to systematically identify words, phrases, themes or ideas in a text, which reveal key elements or ideas from that text. In social science and as a design research tool this is a method of data reduction – a way to pick through large volumes of text to find specific things. What is unique about the examples discussed below is the capacity to simultaneously conduct analysis and produce a visualization of the findings. The way designers' conduct content analysis is unique in that graphic qualities such as colour, type size and composition are imbedded in the method. In the examples below, the use of graphic elements enables the analysis to become a point of communication; the data analysis communicates the findings.

In her doctoral research, Sadokierski examined book reviews to determine how literary critics discussed the graphic devices in hybrid novels. For each novel, she chose ten reviews from a variety of publications – book blogs to literary journals – and streamed all the review text into a single document with the same typeface, size and leading. Different colors code where a reviewer discusses: the general format/genre (in dark blue); comparisons to other hybrid works (in light blue); and the presence of graphic devices (in red). Many reviewers noted the presence

of graphics without critiquing them, so where reviewers discuss the *effectiveness* of graphic devices, these words/phrases are enlarged in point size. This ‘word mapping’ technique abstracts some elements of the text (the smaller, grey typography is difficult to read) and gives visual hierarchy to specific words or phrases (color and size draw attention to important descriptions). The illustration below shows a scaled down map of Umberto Eco’s novel *The Mysterious Flame of Queen Loana*:

<Insert Figure 20.3 here>

Figure 20.3: detail from word map of Umberto Eco’s novel The Mysterious Flame of Queen Loana

Each map visualises where graphic devices are simply mentioned (in colour), and where critique of their function is given (enlarged point size). Examining a single map, it is visually apparent where the critique of graphic devices is repeated in different reviews. Comparing the maps for different novels also visually identifies patterns in the critique of different books, as did the sentence diagrams and thumbnails schemas discussed previously.

Producing these maps revealed an important insight. Descriptive adjectives such as ‘gimmickry’ and ‘trickery’ frequently appear in reviews of hybrid novels. To clearly communicate this insight, all the descriptive adjectives for graphic devices used in one hundred and twenty four published reviews of hybrid novels were converted into a word cloud. The size of the word is directly proportional to the number of times it appeared in the various reviews:^v

This unexpected discovery provoked a shift in the research focus. The term ‘gimmick’ carries connotations of being superfluous – a supplementary incentive to purchase (free steak knives, a cereal box trinket). Transferred to a literary context, describing graphic devices as gimmicks dismisses them as supplementary marketing strategies rather than integral literary devices. To investigate whether the term was being used in a dismissive way, this analytical process was next applied to the reviews of individual books, but for each book the list of adjectives was split into three smaller clouds indicating whether the term was used in a positive, negative or neutral way by the reviewer:

<Insert Figure 20.4 here>

Figure 20.4: ‘Adjective Word Cloud’ for a single hybrid novel – where adjectives are split into positive, negative and neutral

These adjective word clouds map the reviews of a single book to quickly communicate how reviewers respond to the graphic devices in a particular novel, regardless of the way the reviewers critiqued the plot or writing style. Further, the word clouds can be used for comparative analysis – comparing the adjective word clouds of several hybrid novels reveals how different hybrid novels were critically received in terms of their graphic elements and not plot or writing style.

Sam Winston is another designer who uses Focused Data-mining to extract themes from a written text and communicate his findings through visualisation. Winston deconstructs Shakespeare’s *Romeo and Juliet* by categorizing the text into three emotional states – passion,

rage and solace. By typesetting these new data sets, Winston creates visualisations that communicate the emotive qualities embedded in the language, as well as providing a quantitative account of language use. He then takes the text from each data set and creates collages that abstractly visualise each emotional state. As described on *This Is Art*: “These collages create a new visual catalogue for the emotions expressed by the play’s protagonists, displacing the linear narrative of literature for a chronology that’s much more apt for our chaotic internet age.”

(www.thisisart.eu/)

<Insert Figure 20.5 here>

Figure 20.5: ‘Rage’ (left) and ‘Solace’ (right) by Sam Winston

Although the text is no longer legible – Winston intentionally cuts each letterform so that it is unreadable and composes the form of the collages to suggest rage, passion or solace. These three themes are now understood through shape. Winston replaces the written text with an abstract visual language.^{vi}

Winston continues this approach in his 2009 work ‘Darwin’. With an interest in how a scientist and a poet use language, Winston analyses Charles Darwin’s ‘On the Origin of Species’ and Ruth Padel’s ‘Darwin, A Life In Poems’. He separates out the nouns, verbs, adjectives and ‘other’ and arranges them into columns which reveal patterns of usage. He writes, “I wanted to present a visual map [...] a look at how much each author used real world names (Nouns) and more abstract terminology (Verb, Adjective and Other) in their writings.” (Winston 2016)

Although an exercise in quantification, Winston creates a qualitative account of the data by visually listing every word in each category.

These two examples show how designers use the methods of Focused Data-mining and Visual Abstraction to create new knowledge of a text and the means by which to communicate it.

3. Exploratory Data-mining

The third method that we have identified to analyze written texts is Exploratory Data-mining: searching written texts with an undetermined focus.

Every researcher tells a story of looking for one thing only to discover something far more interesting in the process. When this occurs the researcher's initial focus can shift or dissolve, which opens up new possibilities and turns the task of search – looking for a predetermined theme or idea, into exploration – looking without a clear motive. Kate Sweetapple used Exploratory Data-mining in the initial stages of her experimental cartographic maps of Sydney. When briefed to design an alternative map of Sydney, Sweetapple started to read the *Sydney White Pages* – the 2010 telephone directory for Sydney residents – with little more than a vague notion that surnames might prove to be an interesting starting point.^{vii} Although the exact purpose was unclear, the approach was analytical: each surname was read and assessed for its potential value. 'Is this surname interesting (amusing, unusual, unexpected) or not?' The measure of value is highly subjective, which is problematic for a demographer but less so for a designer looking for a new angle on Sydney. The process of separating out potentially useful surnames (Burger, Mule, Tooth) from the less so (Barnard, Gibbs, Smith) is an interpretive

method. It is a method that removes Sydney residents from the logic of A-Z and places them into a coarser categorization system – ‘yes’, ‘no’ and ‘maybe.’

The visual aspect of this analysis lies in the particularity of what a designer finds interesting. For Sweetapple, the surnames that were initially interesting were sets of names that could be: rendered visually (e.g. the Blacks, Whites, Greens); paired (e.g. Salt and Pepper, Waugh and Peace, Gin and Tonic); categories of names (e.g. cars, trees, birds); and, actions (e.g. Chase, Hug, Hurt). At some stage during the process loose fields of interest began to tighten, as Sweetapple noticed that surnames that were part of large groups began to emerge as a theme: birds (Crow, Eagle, Quail); heavenly bodies (Mars, Moon, Pluto); fish (Bass, Herring, Pilcher); trees (Gum, Oak, Wattle); cars (Audi, Ford, Holden) etc. Yet there was still too much data, and no clear way of representing it – further editing was required. Sweetapple noticed some subsets had more visual potential than others. The birds, fish and heavenly bodies all clustered: birds in a flock, fish in a school and heavenly bodies in a constellation. For example, by plotting each residential location of an individual, couple or family with an avian surname, a flock that traced the geography of Sydney emerged.^{viii}

<Insert Figure 20.6 here>

Figure 20.6: ‘Map of Sydney: Avian Surnames’, Sweetapple 2009

If we understand exploratory data-mining as looking in a particular way, even if it is not for a particular thing, then this particular way could be termed designerly; revealing insights into a data set only afforded by the perspective of a designer.

Below, we discuss a collaborative project that was driven by our analysis of a written text, using a combination of Exploratory and Focused data-mining.

Case Study: ‘Unlikely Avian Taxonomies’

Unlikely Avian Taxonomies is a speculative project, exploring the potential to represent a well-known data set in a new way. The aim of the project was to analyse a particular data set – bird names – in order to reveal alternate narratives about birds and bird naming.

In 2009 we realised that through independent avian-related projects, we were both spending large amounts of time reading ornithological texts and delighting in bird names. This avian affinity led to ongoing conversations about language, ordering, and information visualisation. Before long, we had a random collection of odd bird names – *Sandwich Tern*, *Satanic Nightjar*, *Bare-faced Go-Away-Bird*, to name a few. This early collection of names was drawn haphazardly from a range of sources and search methods: online, print, in conversation. We were uncertain where this process would lead, but sensed it was worth pursuing. To develop this into a research project, a more systematic categorisation approach was needed, starting with a comprehensive list of birds. We chose the International Ornithological Committee (IOC) World Bird List because it contains 31 500+ names. Systematically, we read each bird name in the database and copied curious names into loose groups, only knowing what we were looking for when we found it: a process of Exploratory Data-mining. We were searching the List with designers’ understanding of the way in which recontextualization can form new narratives.

Through Exploratory Data-mining, the categories we created most quickly were based on graphic qualities such as colour (*Pink-footed Goose*, *Red Goshawk*, *Blue-bellied Parrot*) and pattern (*Dot-winged Crake*, *Spotted Sandpiper*, *Striped Flufftail*). In time, we formed more poetic categories, based around word play in the names. We noticed birds that sounded terrifying (*Cut-throat Finch*), amusing (*Helmeted Pygmy Tyrant*), sorrowful (*Greyish Mourner*), and just plain ridiculous (*Spangled Drongo*). Birds that sounded as if they were hiding something – *Hooded Grebe*, *Masked Duck* – were categorised as ‘Birds Incognito’. ‘Regal Birds’ are plentiful – *Emperor Penguin*, *Royal Tern*, *Imperial Shag*.

Exploratory Data-mining allowed us to develop a set of fledgling categories. Through this process we also developed sensitivity to the language in bird names and realised we may have overlooked some birds that belonged to the categories. To ensure comprehensiveness, we turned to Focused Data-mining. We returned to the IOC database, this time searching for the predetermined bird-categories formed through exploratory data-mining. However, rather than re-reading the whole database, we used the search function to locate particular birds – for instance, searching for ‘red’ allowed us to find all the red birds – making the process more efficient than the initial data mining.

Through a combination of Exploratory Data-mining and Focused Data-mining, we generated new data sets to work with. Below, we discuss how we translated three of these data sets into visualisations. The first – birds by colour – is based on visual references within the bird names, the second two – antisocial and incognito – are based on social sounding qualities within the names.

1. *Birds by colour*

<Insert Figure 20.7 here>

Figure 20.7: Birds with colour in their names (list, dots and chart form) (See

zoesadokierski.com/exhibitions/unlikely-avian-taxonomies for color images of the figures featured in this chapter)

Initially, to visualise birds with colour in their names, we planned to create charts of bird silhouettes using single colours – for example, a chart of yellow birds, a chart of green birds, etc. However, as we searched, the number of colours and the number of birds of each colour grew to an extent we had not anticipated. In the end we had 3,442 birds categorised into 87 different colours. This was by far the largest data set we collected and would take a whole book of bird charts to communicate. In addition, the process of cataloguing the colours revealed other stories: the variety of colours (87 that we identified), the quantities of each colour (only 20 ‘pink’ but 52 ‘dusky’), colour names (we found words we knew were colours but not what colours they were – flavescent and rufous – and colours that we did not know were colours at all – cinerious, fuscous and malachite). Below are three of the visualisations we created from this data set.

‘Avian Taxonomy 2a’ is a list. [Figure 20.7] We typeset each bird name in its appropriate colour and arranged the names into a spectrum. This approach enabled us to give an overview of the range of colours, while showing the richness of the names: Emerald-bellied Puffleg; Fire-maned Bowerbird; Azure Dollarbird.

Although this visualisation allows the viewer to read the bird names, it does not efficiently communicate the precise number birds with a particular colour in their name. The varying length of the bird names distorts the information, as some are longer than others. In ‘Avian Taxonomy 2b’, quantity is more accurately depicted using dots of a standard measure (1 dot = 1 bird).

[Figure 20.7 middle]

While 11 birds will always equal 11 dots, the length of the names of 11 ‘red’ birds will differ from the length of the names of 11 ‘cinnamon’ birds. Using dots as colour swatches also more clearly shows the variations in colour across our spectrum.

While the swatch taxonomy resolves issues of efficient visual quantification and the communication of subtle shifts in colour, it does not visualise the colours in bird names as a continuous spectrum, nor does it provide, at a glance, the most and least common colours. We created ‘Avian Taxonomy 2c’ (a hybrid pie and radar chart) to allow accurate comparison of quantities of colours from any point in the spectrum. [Figure 20.7 right]

An accurate data set was required to visualise the range and quantity of colours that appear in bird names to produce the Birds by Colour taxonomies. Therefore, the comprehensiveness afforded by Focused Data-mining was important. For the more poetic taxonomies discussed below, quantitative comprehensiveness was less important than an editorial process to develop narratives based on word play. Focused Data-mining was still used in these poetic taxonomies, although in a different way.

What kept us engaged through the slow process of reading the IOC List was our tendency to anthropomorphise bird names – to assume that a Greyish Mourner is actually depressed, or a Red-necked Woodpecker is small minded and abusive.^{ix} Below we discuss two of the taxonomies we created that explore the poetics of bird names.

2. Antisocial Birds

We compiled numerous lists of birds that were loosely associated by a ‘social’ quality in their name. In contrast to flamboyant sounding birds – Splendid Sunbird, Festive Amazon, Spangled Coquette – birds that sounded boring appealed to us – Plain Swift, Unadorned Flycatcher, Solitary Snipe. Annoying sounding birds also stood out – Screaming Cowbird, Whooper Swan, Belcher’s Gull. Birds with violent names are alarmingly common – Blood Pheasant, Razorbill, Grimwood’s Longclaw. We ended up with a data set containing hundreds of bird names that reflect human qualities. To create a cohesive narrative from this, we used Focused Data-mining as an editing tool.

‘Avian Taxonomy 3a’ communicates antisocial sounding birds. We placed the names into a hierarchy of antisocial tendencies, from the harmless Solitary Snipe to the homicidal Cut-throat Finch. These tendencies are organised into three categories – Unsocial, Offensive and Malicious. Subcategories further clarify how to read the bird names in relation to these categories. For example, Unsocial Birds were divided into Standoffish, Reclusive and Boring. The ‘Bearded Mountaineer’ may not easily be understood as ‘Antisocial’ without the further qualifiers of being ‘Unsocial’ and ‘Reclusive’.

<Insert Figure 20.8 here>

Figure 20.8: Antisocial birds (left) and Birds in cognito (right)

For this taxonomy to communicate effectively we needed to edit out duplicates. If there were multiple birds with ‘common’ in their name, we chose the most ‘common’ sounding example; the Common Jery sounded more boring than the Common Blackhawk. Once we structured the taxonomy, we could be more playful within it. For example, birds with plain, common, drab, dull in their names were categorised as boring, but we also included the Vegetarian Finch, to highlight the subjectivity of these categories.

Many of these bird names have great illustrative potential – Satanic Nightjar, Fire-tufted Barbet, Jackass Penguin. However, we felt that illustrations would detract from the subtlety of the taxonomy, which aims to communicate the implied antisocial behaviour within the names. Therefore, this chart is the most conventionally ‘taxonomic’ looking. Visually, it threatens to be dull reading, which makes it more surprising when the unlikely taxonomy is revealed. To extend this rhetorical strategy, the diagram was distorted subtly on a photocopier (first printed out on a laser printer, then photocopied smaller and larger to blur the text), and reproduced in the purple hue associated with old stencil prints students were given at school, before desktop printers.

Conversely, to visually communicate ‘Birds Incognito’, we opted to illustrate a small sample of the collection, in order to emphasize the elements that would clarify the taxonomy. Although it seemed obvious to us that masked, bearded, moustached and spectacled birds might be

disguising their true identity, we weren't convinced all viewers would make the conceptual link. We illustrated four birds in ink, each with one of these words in its name, and collaged a paper-cut of the 'disguise' slightly clumsily on top to draw attention to the 'prop' and clarify the concept.

We presented this work as an exhibition, so it was important to quickly communicate our process of exploratory data mining; without understanding that these are all real bird names laboriously plucked from a definitive world bird name database, the work has less impact. We printed the entire database of English and Latin names on a large-format plotting printer, mounted it on the back wall of the gallery, then repeated our data mining using coloured markers. The 7-hour process can be viewed as a stop-motion animation on our website. In repeating this process, we began forming new taxonomies: birds to take camping (the Firewood-gather, the Canvasback, the Ovenbird, the Fishing Owl, the Spiderhunter and the Sunbird) and fiscal birds (the Dollarbird, the Green-backed Firecrown, the Rothschild's Swift), birds who should never cohabitate (the Morningbird and the Nightjar, the Immaculate Antbird and the Short-billed Leaf Tosser, the Oilbird and the Water Pipit). This shows that the process can be repeated.

This case study shows how Exploratory Data-mining and Focused Data-mining can be used in tandem within a design research process, and in the process of visualising the findings of the research.

Conclusion

The methods we present in this paper analyze written texts in visual ways or for visual ends.

They are methods designers use in practice, shown here in the context of research.

It is important to stress that Visual Abstraction, Focused Data-mining and Exploratory Data-mining are analytical methods – tools for inquiry, not to be mistaken solely as visualizations of existing knowledge. That the insights or findings take a visual form is inherent in the methods themselves. The act of conducting visual analysis always produces an outcome. Whether those outcomes are visually refined, such as Winston's Romeo and Juliet work, or less refined, such as the thumbnail schemas is irrelevant in a research context. What matters is that these methods are simultaneously analytical and communicative, whether they remain in the researcher's notebook or are shared with a wider audience.

It is worth noting that the examples we have used here are from designers – all are explicit and articulate about the research process that drove the projects.^x Designers using visual methods to analyze written texts are mindful of scholarly conventions, particularly reproducibility. It was important to Posavec that her sentence diagramming method was reproducible: “although I wanted to create a grand, large analysis of *On the Road* I still wanted all of the strategies to be easily adaptable to other works of literature (minus the color-coding, of course). This was one of my main concerns throughout the project.” (2011) Posavec's concern for reproducibility highlights that these are research tools, not simply drawings. Likewise for Sadokierski, the reproducibility of the ‘gimmick clouds’ allowed comparison between a range of novels.

Although our background is in Visual Communication design, the methods we describe here could be applied to the analysis of written texts within any field. As practitioner-researchers we bring methods that would otherwise remain embedded in practice to the field of design research.

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ⁱ Although there are many approaches to the analysis of written texts, for example: semiotic (Kress and van Leeuwen 2001, 2006); content (Krippendorff 2004); discourse (Gee 1999); and, more recently visual methods (Rose 2007), none of these methods directly address how designers draw out ideas, understanding and inspiration from written texts.

ⁱⁱ Posavec's MA project led to a career exploring data and information communication, including two co-authored books introducing experimental visualization practices to broad audiences: *Dear Data* (2016) with Giorgia Lupi and *I Am a Book. I Am a Portal to the Universe* (2020) with Miriam Quick.

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- iii Sections of specialty paper may be ‘tipped in’ so graphics are printed at higher quality, or colour graphics may be printed only on certain pages to reduce production costs.
- iv Further findings from this method can be found in Sadokierski 2010: 79–84.
- v An online resource generates these cloud maps when you submit a list of data: www.wordle.net
- vi Beetroot design group’s ‘Romeo and Juliet’, (2012) (<https://beetroot.gr/49-romeo-juliet.html>) and Stephan Thiel’s ‘Understanding Shakespeare’ (2010) (<http://understanding-shakespeare.com/>) are further examples of designers simultaneously analysing texts and using graphic qualities (colour, composition, scale) to communicate the findings.
- vii Commissioned by Dr Naomi Stead as part of the exhibition, *Mapping Sydney: Experimental Cartography and the Imagined City*. DAB LAB Research Gallery, University of Technology Sydney, August 2009.
- viii At this point the search became more focused, switching to an online phonebook and typing in avian names, rather than reading the entire directory. However, beginning in exploratory mode made possible the discovery of different avian surnames – the idea would not have been realized by starting with a focused search, as Sweetapple did not yet know what she was looking for.
- ix Other researchers also link human and avian behaviour. Keith Tester extends Levi-Strauss’ writing on humankind’s fascination with birds: “Birds are totally removed from human social relations, and this distance means that their relationships can be perceived as a metaphor of our own (they are a parallel society). Now, because birds are a metaphor for humans – it is possible to speak of them as if they were use – their names can be metonymical to human names.” (1991: 35)
- x See Sadokierski 2010 for a more detailed discussion of the distinction between practitioner and practitioner-researcher.