Web Storytelling

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Bachelor of Science in Internet Computing
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by
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Abstract

Remix and mashup applications on the Internet are features of the Web 2.0 revolution that can be both functional and works of art. They combine multiple inputs to form a combined output. This paper explores the possibility of creating a web storytelling application that remixes words, photographs and other media together to form an application which provides the user with a new experience when compared to the plain text of the story. The paper details an application development, and testing against four hypotheses, focusing on user experience and preferential output. It concludes that the term ‘experience’ is a complex term to quantify, and that such a remix may fall outside our natural semiotic boundaries.

Acknowledgements

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Contents

Chapter 1

Introduction

1.1 Introduction and Examples

Collaborative media has existed for centuries, from music orchestras to monks creating books for the masses prior to the printing press. However, the Internet gives us a new platform for collaborative media, in the form of a remix, or mash-up. Not only are remixes for art, but they may also now be created to function practically, presenting media in a customised manner for the individual.

Figure 1: Cumul.us a weather prediction mash-up which takes feeds from more than one source and takes an average of the feed results to provide a more accurate prediction.

Remixing is an issue that has impacted on authorship since the 20th century. There are paradoxes in the legislation that surrounds their creation. Where music remixes are accepted, other remix concepts are not, due to conflicts of authorship.

A remix is often created out of source material from multiple authors. The aggregation of an author's work for remix purposes is often assisted by web 2.0 technology, such as

tagging, which is an alternative to traditional meta-searching. This has advantages in that images can be tagged, for example in the site Flickr, so that the tags can be searched for relevant photographs. However there are disadvantages where tagging fails in context (where a tagged word may have multiple meanings), and also in the reliance of the author to give relevant tags.

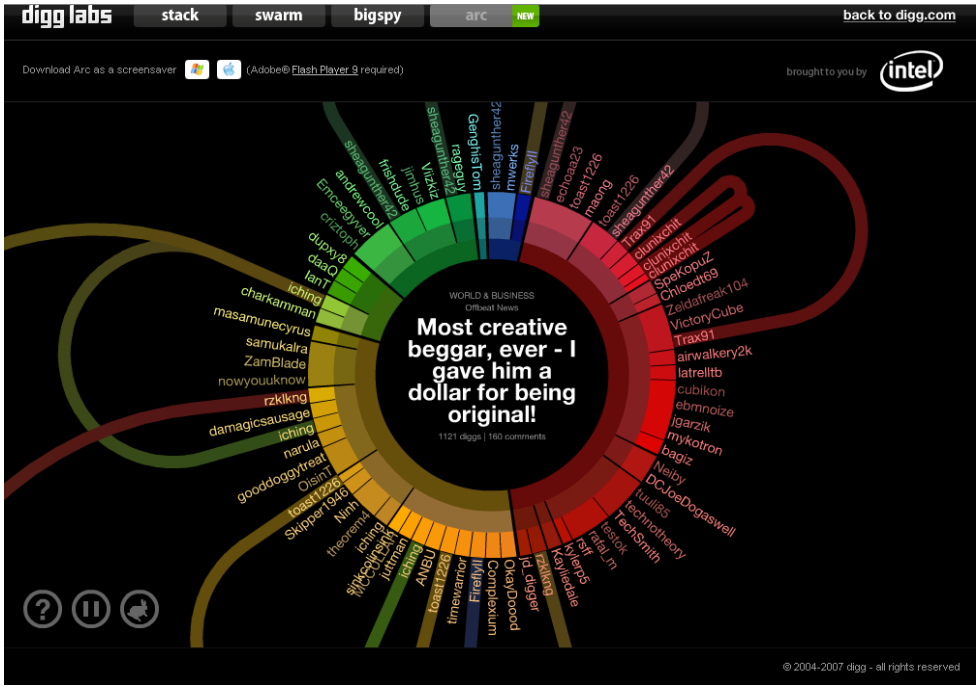

Figure 2: Digg Arc visualises Digg stories as they are added over time.

Within this research into the concept of remixing media to complement a piece of literature, it is hoped that an application may be created and demonstrated to prove this customised manner for the individual may be useful, yet fresh and relevant on each visit, rather than static.

1.2 Aims

The aims of this project are to create and test a remix application which tells a story using mixed media. This will be completed following a thorough literature review to ascertain methods for retrieving relevant media from the Internet, and it will be tested to achieve a suitable evaluation of the application.

1.3 Objectives

- A suitable literature review of the following areas: remixing, mash-ups, tagging, storytelling and web 2.0, thus providing a background and understanding of the present methods and issues surrounding the remix of web content. This will be done with the assistance of case studies as examples.
- To take forward this research to design and create a prototype application to demonstrate how remixing technology can influence the interpretation of a media text, using a storytelling as a medium to create the application around.
- To implement the application, using relevant web technologies and observing correct copyright laws.
- Qualitative testing to be carried out upon the application, to ascertain the relevance of the mixed media remixed to complement the media text selected by a user.
- Evaluation of the project process, outcomes and personal reflections.
- To conclude and consider further research in the subject area.

1.4 Methodology

This project follows a methodology pattern of literature review, design and development, followed by critical evaluation. The topics of the literature review are an overview in some areas, and could have been taken to deeper levels, had the format and length of the paper allowed.

Although the development of the application is detailed, the application itself is not to the standard that was planned in the design or analysis stage. However, it is a working prototype, which produces a remix, though not as legally or in the intelligent way that was initially designed.

1.5 Chapter Outline

The second chapter will contain a literature review of background research carried out

surrounding the topics of: remixing, mash-ups, tagging, storytelling and web 2.0. It will look into the historical theory of remixing, and the practical and artistic reasons for creating mash-ups to customise web content, and the legal issues that surround it. It will discuss the literature surrounding several popular mash-ups, whose functionality relate to the objectives of this research. Categorisation of web content will also be reviewed, encompassing discussion of traditional categorisation such as the Dewey-Decimal System, and the more relevant issue of folksonomy of tagging by Internet users. To tie the literature review back to the element of storytelling, the concept of illustrated literature will also be discussed and contrasted against the creation of a mash-up to illustrate and complement a story.

Within the third chapter, the design of the potential remix will be discussed, including the technologies used to create it, and the presentation and functionality of the prototype. Documentation covering the conceptual model, initial designs and requirement consideration will be included within this chapter.

The fourth chapter will cover the implementation of the design and subsequent prototypes developed from the research and analysis carried out in previous chapters. It will breakdown and illustrate the key points found during the creation of the prototype application and changes made during the development process.

The fifth chapter will detail the testing process, from the pilot questionnaire through to the final sample. It will also detail the four testing hypotheses, and the full questionnaire text.

In the sixth, is the analysis of results, and evaluation of methods, results and findings. Breakdown of findings and results will be delivered, and hypotheses reviewed.

The seventh chapter will detail opportunities and avenues for further research. Routes that would have been travelled, had the time and the experience been there during the project. In the eighth chapter, there is a personal reflection on the project as a whole, before the ninth chapter concludes the research.

Chapter 2

Literature Review

This chapter will focus on the background reading to better inform and study the subject area of the research focus area. Starting with the history and applications of remixing, detailing the purpose of a remix and its attributes, then moving on to discuss the concept of the mash-up and its use of the Internet as a medium. To complement the application development, there is then a discussion of tagging as a folksonomy, and a study of illustration in literature.

2.1 History and Applications of Remixing

In the modern world, many believe we live in a 'remix culture'. This culture is being fuelled partly by the development of computing and the Internet, according to Diakopoulos. Remixing is most commonly seen, or rather heard, in music. Diakopoulos explains:

> From its beginnings as a term used to describe mixing different versions of multi-track music recordings in the 1970s, "remix" has now broadened itself to include notions of mixing other types of media such as images, video, literary text, game assets, and even tangible items such as cars and clothing.
>
> (Diakopoulos, 2005)

Though, it could be argued that remixing was used by the modernist artists such as Max Ernst in the early 20th Century, which would predate the music recordings that Diakopoulos refers to. Ernst and contemporaries were noted for their "unconventional use of familiar elements" by Adamowicz (1998).

Diakopoulos builds on a metaphor by Manovich which compared remixing to a train, traversing down a track, with the passengers representing the information, mixing at each station. Diakopoulos suggests an update to airports, because they have more routes of travel in and out of them, and a larger volume of 'information' passing and mixing through them.

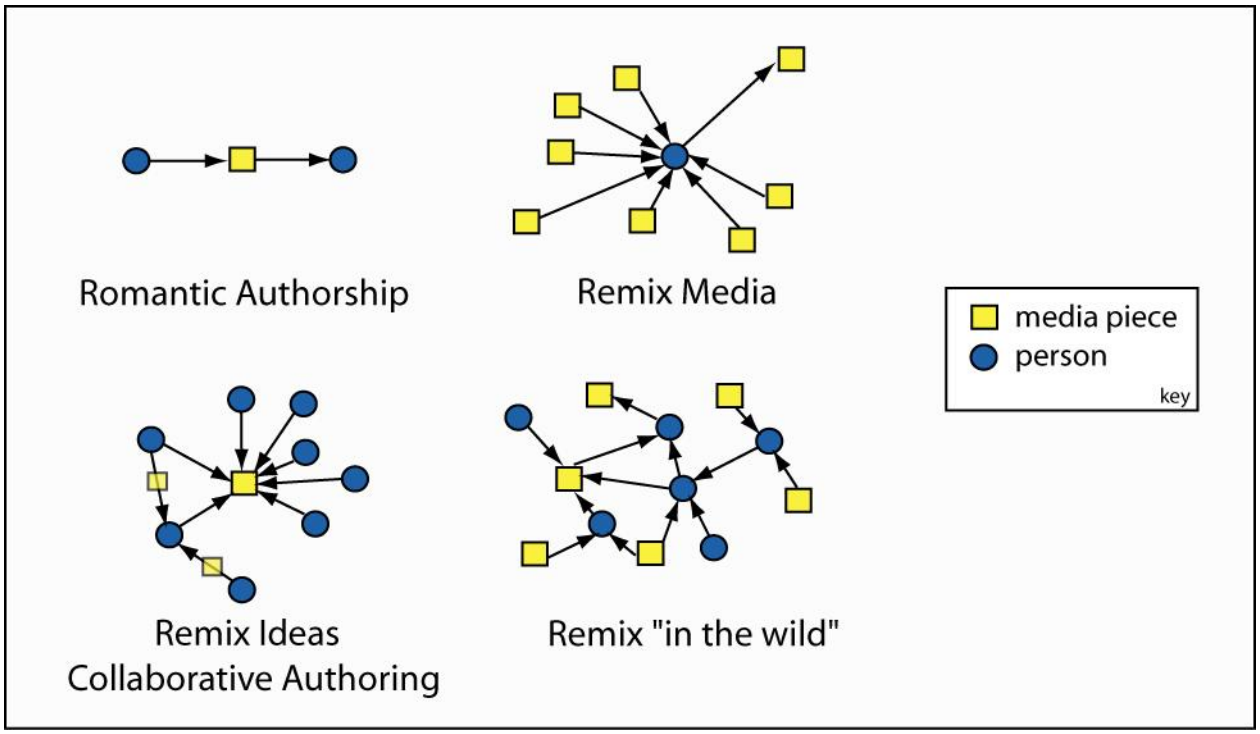

Figure 3: Graph representation of different modes of remix as they relate to people and media elements. (Diakopoulos, 2005)

From the figure above, ownership of traditional media, such as books or paintings, created in previous centuries is defined as *Romantic Authorship*. One author, one media piece are involved. When compared to remix media, one person views several pieces of media. Increasingly *Remix "in the wild"* is seen through the medium of the web.

2.1.1 Mash-ups in UK Law

Remxing can provide customised content, tailored to user preferences, but it can also cause conflicts where authorship is also 'remixed'. When content is remixed, who owns it, the originator, or the mixer? This is difficult when content is taken completely out of context into more of an art-form. As Manovich points out:

> Yet we are left with an interesting paradox: while in the realm of commercial music remixing is officially accepted, in other cultural areas it is seen as violating the copyright and therefore as stealing.
>
> (Manovich, 2007)

In broad terms, it is unethical to profit from work that you did not produce, without the

true owner being compensated. Copyright applies to literature, art, music, sound records, films and broadcasts, along with the economic rights to the intellectual property. Copyright enables authors to control the use of their material in multiple ways, from issuing copies to the public, performance, broadcasting and use online. There are also moral rights attached to the work, that an author must be identified as the creator of the material, and allowed to object to the distortion or mutilation of said work.

> One of the major impediments to scientific and scholarly mashups is the reluctance of many organisations and institutions to share data online in the face of copyright or privacy restrictions. This reluctance does, however, appear to be changing with organisations such as Google, GenBank, UniProt and the World Health Organisation developing interfaces which enable researchers to collaborate online in a lawful way.
>
> (O'Brien and Fitzgerald, 2006)

O'Brien and Fitzgerald herald the current copyright laws internationally are holding back legitimate research and progression with mashups and remixes of material on the Internet. Thankfully, they observe a change in this law, though primarily aimed at their home country of Australia.

In the United Kingdom, Internet mashups are covered in Statutory Instrument 2003 No 2498, The Copyright and Related Rights Regulations of 2003, which amended existing copyright law with the following:

> **ACT 28A Making of Temporary Copies**
>
> Copyright in a literary work, other than a computer program or a database, or in a dramatic, musical or artistic work, the typographical arrangement of a published edition, a sound recording or a film, is not infringed by the making of a temporary copy which is transient or incidental, which is an integral and essential part of a technological process and the sole purpose of which is to enable –
>
> (a) a transmission of the work in a network between third parties by an intermediary; or
>
> (b) a lawful use of the work;
>
> And which has no independent economic significance.
>
> (Statutory Instrument No. 2498, 2003)

To comply with Act 28A, if the mashup is non-profit, and the page is temporary, it would be covered legally by the act. However, to ensure that the page is truly

temporary, strict measures must be made to ensure the images produced are randomised, and cannot be recalled simply by entering the same input twice.

Incidentally, Act 28A also applies to the image search engine results pages of search providers such as Google Image Search, which displays thumbnails of images returned by keyword. It is claimed that as the images are shown outside of their original context, and as the page is temporary, it is not considered to break any laws.

A remix should ideally contain images that have been permitted to be remixed by their authors, a concept discussed below in section 2.1.2, but in the case of a copyrighted image being used – either through application malfunction, or through the source author falsely claiming rights, Act 31 covers the incidental inclusion of copyrighted material.

> Act 31 Incidental Inclusion of Copyright Material
>
> (1) Copyright in a work is not infringed by its incidental inclusion in an artistic work, sound recording, film or broadcast.
>
> (2) Nor is the copyright infringed by the issue to the public of copies, or the playing, showing or communication to the public of anything whose making was, by virtue of subsection (1), not an infringement of the copyright.
>
> (Copyright Act of 1988, Revised 2007)

2.1.2 Creative Commons Licensing in the UK

Creative Commons is a charitable organisation founded in 2001. The founders included cyberlaw and intellectual property experts: James Boyle, Michael Carrol, Lawrence Lessig and Eric Saltzman who combined with Hal Abelson, a computer science professor at MIT, and Eric Eldred, a public domain web publisher.

As the number of creative minds interconnecting through the Internet increases, so do the possibilities for creating derivates of their works, such as remixes and mashups. The reaction to the creation of derivates has not always been positive, as the organisation explains:

> Major right holders have reacted to this in a fourfold strategy:
>
> a) By trying to prevent the deployment of technologies that can be put to infringing uses;
>
> b) By developing tools that enable them to manage their rights with an amount of precision hitherto known and unthinkable: digital rights management and technological protection measures against unathorised copying.
>
> c) By successfully lobbying for support of these technological measures through legal restrictions; and
>
> d) By starting huge publicity campaigns designed to teach young people that they must keep their hands off copyrighted material – or else.
>
> (Creative Commons, 2008)

The Creative Commons ethos is to provide the creators and licensors of creative works with a simple way to indicate the freedoms that they want to apply. In doing so, they make it easier to share or build upon a work, while retaining some of the rights.

> Creative Commons defines the spectrum of possibilities between full copyright – *all rights reserved* – and the public domain – *no rights reserved.* Our licenses help you keep your copyright while inviting certain uses of your work – a *some rights reserved* copyright.
>
> (Creative Commons, 2008)

There are six main license types dictated by the Creative Commons (2008), for use in the United Kingdom. These are:

1. Attribution Non-Commercial No Derivatives
2. Attribution Non-Commercial Share Alike
3. Attribution Non-Commercial
4. Attribution No Derivates
5. Attribution Share Alike
6. Attribution

	Credit Required	Link Back Required	Change Allowed	Distribution Allowed	Remix Allowed	Commercial Use	New work same license	Can base new work on
1	✓	✓	×	✓	×	×	✓	×
2	✓	✓	✓	✓	✓	×	✓	✓
3	✓	✓	✓	✓	✓	×	×	✓
4	✓	✓	×	✓	✓	✓	×	×
5	✓	✓	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✓	✓	✓	×	✓

Figure 4: Matrix of requirements of the Creative Commons copyright types.

Each of the six licenses set out a different set of reserved rights, and permissions, rather than conforming only to the strict restricted overall rights to a creative work, as set out in law. These allow more flexible reuse, perfect for remixing. Flickr is a creative network that has integrated Creative Commons into its community, which therefore lends itself to remix applications.

2.2 Mash-ups and the Internet Medium

A mash-up is an alternative term for remix. It is a web 2.0 technology, which combines data or input from two or more sources to form a combined output for either art purposes, or utility. Tim O'Reilly describes web 2.0:

> Web 2.0 is the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an 'architecture of participation,' and going beyond the page metaphor of Web 1.0 to deliver rich user experiences.
>
> (O'Reilly, 2005)

Businesses can create mashups to better customise their business applications and optimise the use of their data. JackBe.com (2008) is an example of where mashups have been taken to enterprise level. The Economist Intelligence Unit (2007) reported in their January 2007 survey of early adopters, that 22% are already using mash-ups in their companies, and a further 42% plan to follow suit within the next two years.

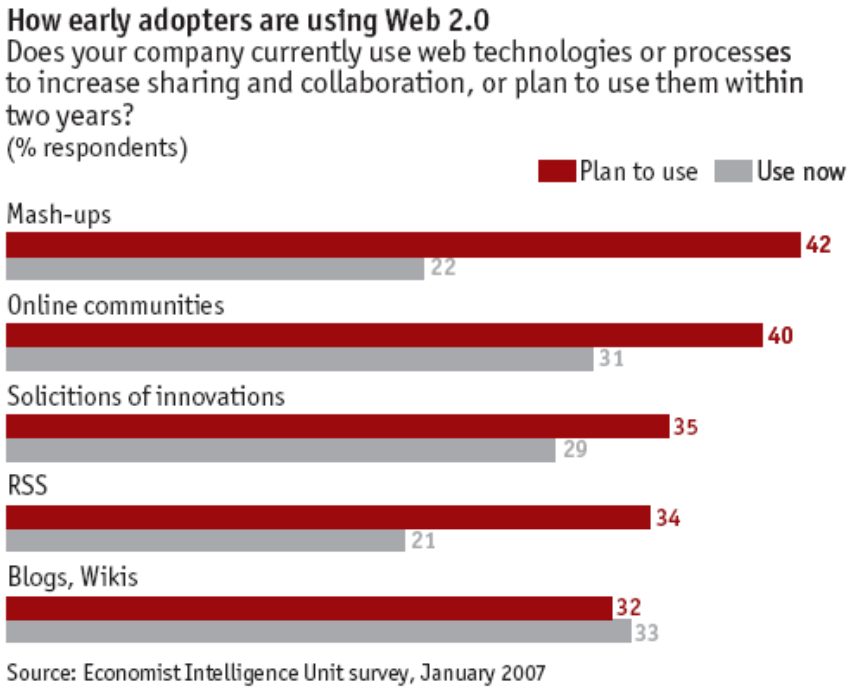

Figure 5: Early adopter graph from the Economist Intelligence Unit survey, January 2007.

Enterprise level mashups could provide one application that combines call centre data with package tracking in one interface, a time saving, and custom application that could be most appealing to businesses as a utility.

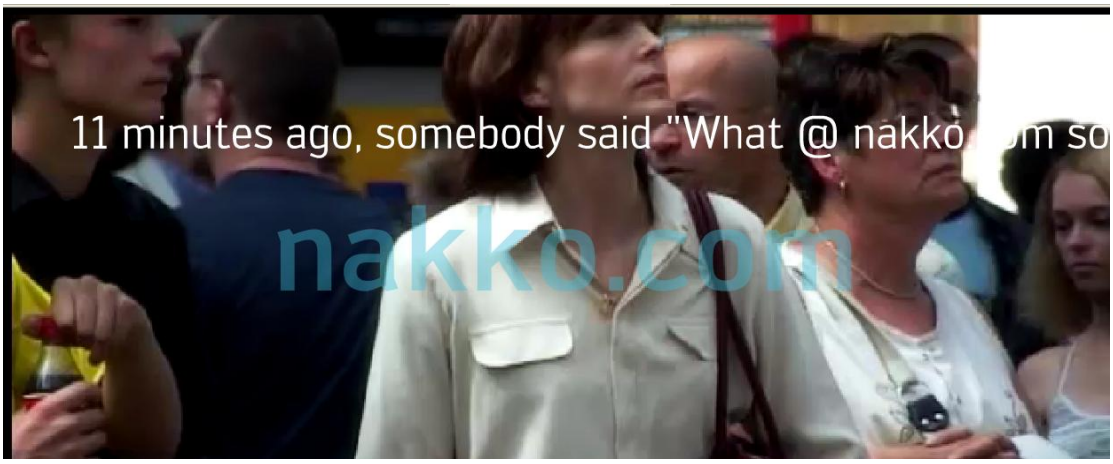

Figure 6: Waiting, by Gregory Chatonsky (2007). An example of an artistic mashup.

However, mashups also have a more fun side to their purpose, in their use for creating art pieces. *Waiting*, by Gregory Chatonsky is an example of how a mashup can be a piece of art. Chatonsky combines feeds with art, sound and videos of people waiting at train stations. The animation transitions with the sound of a camera shutter, while lines of text in various sizes run horizontally across the screen, collecting feed entries from Twitter, photos from Flickr and sound effects from Odeo, mixing them with pre-recorded input of people waiting.

> I divert flows to create a story. It is a principle of translation. On the Internet, an image is a word and, without the latter, I cannot find the image, which is invisible for present-day search engines. Of course, when we take a word and search for the corresponding image, there are absurd matches.
>
> (Grégory Chatonsky by Waelder, 2007)

2.3 Tagging as a Folksonomy

Humans have long been fascinated by a need to organise and sort information to increase efficiency and productivity. Ranganathan studied a child at play, and noted these observations:

> The child instinctively begins to divide them [objects] into fairly homogeneous groups and to arrange the groups themselves in some helpful order.
>
> (Ranganthan, 1989)

The type of system used to organise and sort this information depends on the information in question, and the way in which it will be retrieved. A key example of

sorting information can be seen in a library.

Ranganathan explains that library categorisation has existed since before the time of the Babylonians, and in the hieroglyphics of the Egyptians, there is confirmation of an early attempt at classification. Throughout history, many different classification systems have been put into place, of varying degrees of depth. In the 19th Century, libraries became more accessible to the general public, and classification systems had to become accessible to more than just the librarians, who until now would retrieve resources upon request.

In 1876, Melvil Dewey published the first widely used classification system: Decimal Classification. This system has ten classes, of which each has ten secondary classes, which are again broken down into ten subdivisions. Literature is classified according to its content and subject area, and assigned a classification number. This format of classification was much more flexible than previous attempts, such as the classification devised by Ismael Bouillaud and Jaques Charles Brunet. Their classification developed in their roles as Paris booksellers, but was not expansible with the increase in categorisation and subject matter. The Dewey Decimal System is far more expansible as a categorisation and with subsequent revisions.

Vander Wal discusses that categorisation through tagging took off on the Internet with the introduction of del.icio.us by Joshua Schacter in 2003. This informal classification system was picked up by Flickr, which is a social photograph sharing website, who allow its users to tag photographs with descriptive words.

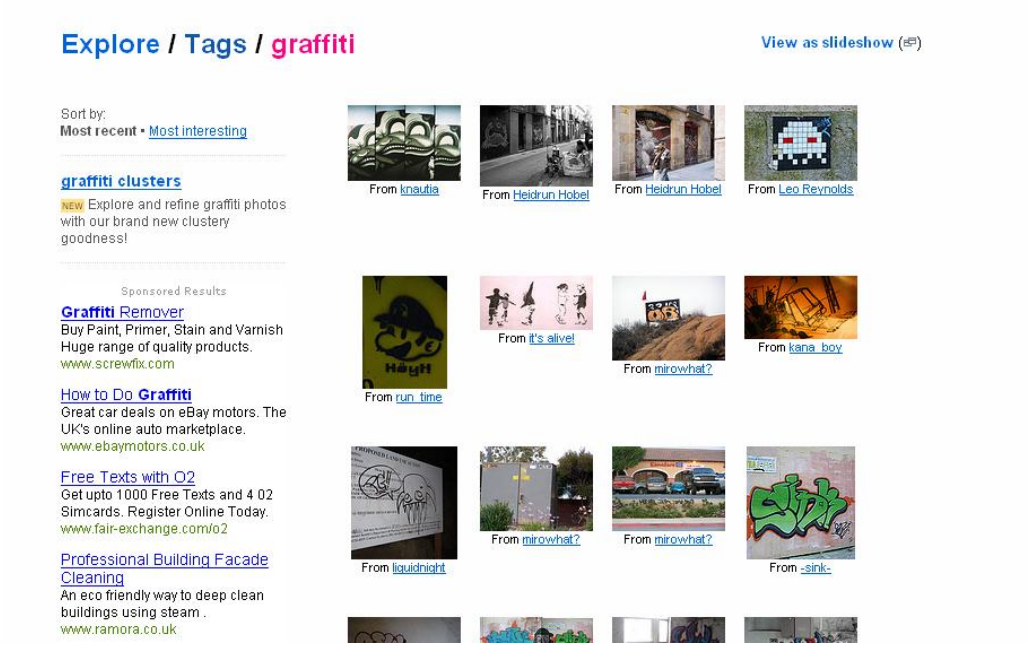

Figure 7: Photos tagged with the word ‘graffiti’ by Flickr users.

As with the natural categorization observed by Ranganathan, tagging had occurred for a long time before it was highlighted by del.icio.us and incorporated into Flickr. Gruber states:

> …keyword tagging is nothing new; the interesting observation is that when these folks do their tagging in a public space, the collection of their keyword/value associations becomes a useful source of data in the aggregate. Hence the term "folksonomy" - the emergent labeling of lots of things by people in a social context.
>
> (Gruber, 2005)

The term folksonomy as defined in Webster's New Millennium™ Dictionary of English:

> A type of classification system for online content, created by an individual user who tags information with freely chosen keywords; also, the cooperation of a group of people to create such a classification system.
>
> (Webster, 2007)

The credit for the creation of the term *folksonomy* is given to Thomas Vander Wal (2007) and describes the systems of tagging in social networks such as Flickr. Users classify their photographs in flickr with freely chosen keywords. Hotho, J¨aschke, Schmitz, and Stumme explain:

> Folksonomies are thus a bottom-up complement to more formalized Semantic Web technologies, as they rely on emergent semantics which result from the converging use of the same vocabulary.
>
> (Hotho et al. 2006)

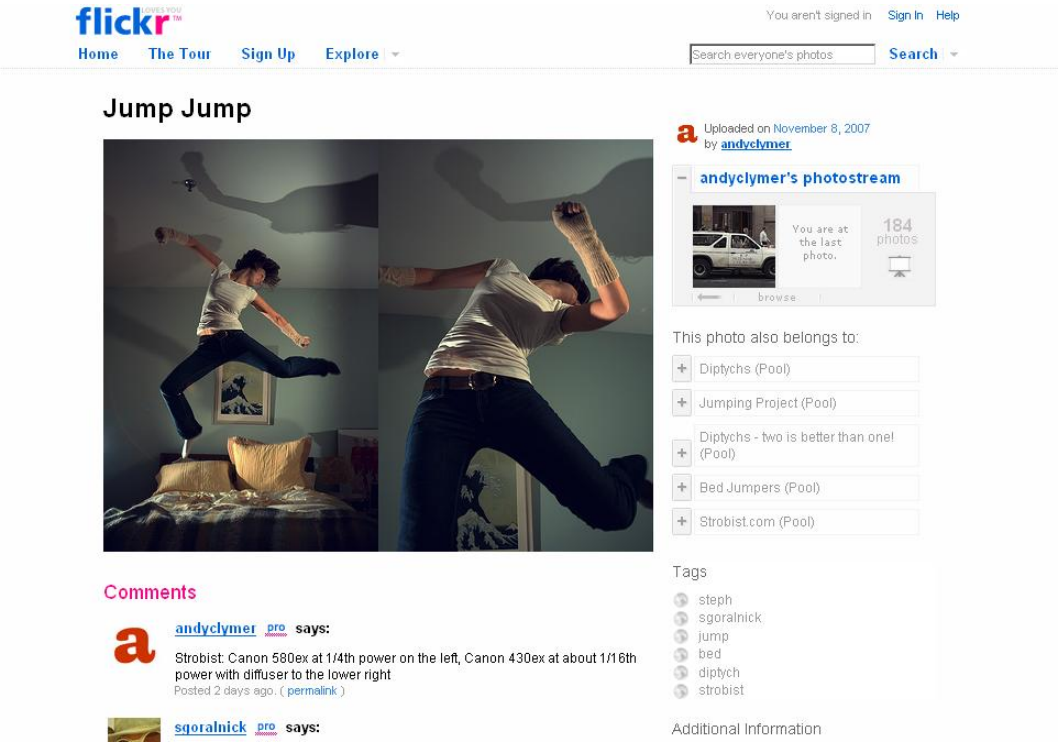

Figure 8: a photograph classified in flickr with the tags: steph, sgoralnick, jump, bed, diptych, strobist

However, an obvious drawback to tagging is the relevance of tags provided by users, if tagged at all. From figure 8, it would be easily agreed that 'jump' is a relevant tag to the photo content, but the others may not. For instance, 'sgoralnick' is the username of a fellow flickr user, and 'strobist' refers to the camera's technical settings. Tags can cause ambiguity which is a difficulty only some sites are beginning to overcome.

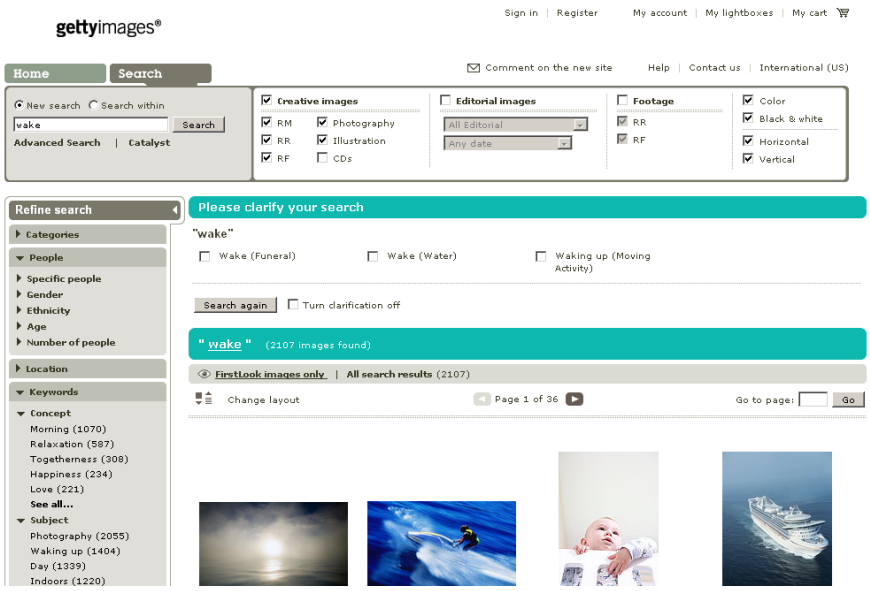

Figure 9: Example of Getty Images search, where the term ‘wake’ is requested for clarification to: wake (funeral), wake (water) or waking up (moving activity).

Getty Images have a clarification system, which can be seen in figure 9. Here, the term ‘wake’, as a homonym, is considered ambiguous, as it may have three contexts that are significantly different. Below, an amalgamation of the returned photographs are displayed, including surfers (wake – water), and a baby peering out of its cot (wake – moving activity). The clarification provided by Getty allows users to filter results to make them more relevant.

2.4 Illustration in Literature

Arguably, some of the earliest forms of writing were pictures themselves, for instance, the hieroglyphics of the ancient Egyptians. As shown in figure 10, the hieroglyphs were a combination of abstract symbols and pictures of animals and people.

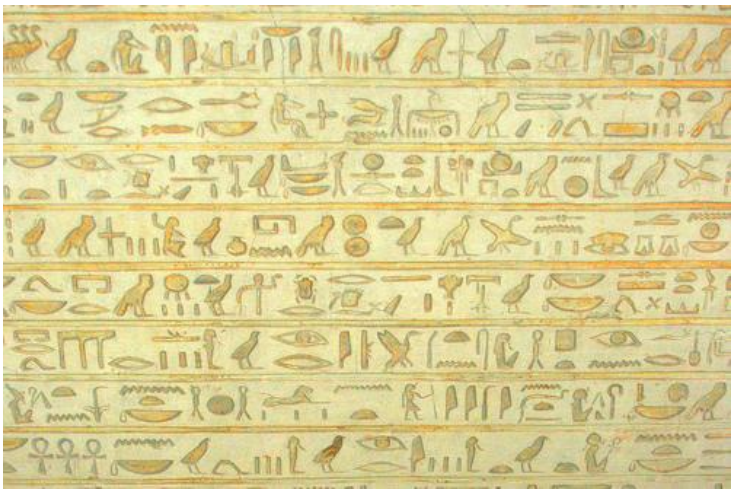

Figure 10: **Photograph of Egyptian hieroglyphics, taken by Bewdlerian**

Another example of illustration in storytelling can be seen in the stained glass of medieval churches. When many of these beautiful windows were made, the population were greatly illiterate, and the windows with their pictorial representations of the Bible stories assisted in reminding the worshippers of the stories.

Figure 11: Photograph of stained glass windows in Hitchin, Hertfordshire, England, showing the calming of the storm on the lake of Gennesaret.

In literature, illustrations are seen as common occurrences in children's books today, but in history, this has not always been the case. Books were an expensive commodity, especially before the invention of the printing press. Those who could afford them were

also those who could afford an education, enabling them to read.

It wasn't until 1658 that the first picture book for children was created. Until this time, there was no demand for children's books, as their reader numbers were in the minority, and the cost of producing books was still very high. *Orbis Sensulium Pictus (The World in Pictures)* by Comenius was the beginning of illustrated books for children, and the move away from illustrations in adult books.

As books became more affordable, and the literacy levels of the population rose, the writing of the books also improved. The descriptions included in the texts rendered much illustration unnecessary, particularly in adult books. This is still commonplace today, where in culture, an adult novel with illustrations appears alien, and much like a comic book.

However, do illustrations take away an element of imagination from a story, or add to the experience? Perry Nodelman (2000) is a critic of children's illustrated literature. He states that we worry that "depictions of certain characters [in book illustrations] will encourage young readers to think in terms of gender stereotypes."

In his view, we worry about the illustrations as a negative against the textual description, possibly a comparison to our worries about the negative effects of television, video games and films on young people. However, Nodelman (2000) suggests that the messages conveyed by the illustrations are not conveyed heavily "I know, not only that these books do convey meanings, but that the meanings they convey are subtle and wide-ranging." He sees that illustrations in literature (predominantly children's literature), are simply signs, in the same way that a red traffic light tells us to stop, or to expect danger.

> Signs tend to be arbitrary. They are representations of other things which they don't necessarily resemble.
>
> Signs and the systems they form can communicate successfully only to those already in possession of the knowledge required to make the not-necessarily-obvious connections between the sign and what it signifies.
>
> (Nodelman, 2000)

Nodelman appears to suggest that a story remix with illustrations created separately to the text may not conform to the sign system, and for this reason, may communicate unsuccessfully or differently to the viewer. The viewer may take a more active role in searching for the connections between the image and the text.

The comparison of signs, is semiology (or semiotics) which is the concern with anything that can stand for something else. Interpreting the signs is the goal for semiology. Sassure (Griffin, 2003) visualised the partnership between a sign and its meaning (signifier) as a piece of paper with writing on both sides, the signifier on one, and the sign on the other. If a part of one side is cut off, an equal amount of the other also goes with it. Bathes' theory of semiotics follows two basic analytical concepts:

1. A sign is the combination of its signifier and signified
2. A sign does not stand on its own: it is part of a system

Barthes believes that semiotic systems have their own world of interrelated signs, and studied this in wrestling, designer clothes, French cooking, Japanese gift giving, household furniture and more. Finding the features common to all semiotic systems, he attempted to create a taxonomy of these, believing that semiotic systems functioned the same way despite their apparent diversity.

In an alternative perspective, relating back to the literature particularly, Stevenson (1998) explains that "text and pictures… can achieve remarkable effects in contradicting one another, expanding one another or even limiting one another." She focuses on a need for balance between the text and the illustrations of books. Picture books almost always start with the text, which would be true for a story remix, though in the human interpretation of the text, the illustrations are likely to follow the sign context of Nodelman, rather than the remixed output of a mashup, which may unbalance Stevenson's view.

> It is partly out of the need for this balance that the best texts don't necessarily make the best picture book texts, and the best art doesn't necessarily make the best picture book illustration…
>
> (Stevenson, 1997)

It could be assumed that a remix of story text and images would be seen as crude in Stevenson's perspective, potentially combining a text that makes for poor illustration, with art that refuses containment to stand for a potentially less complex meaning, balanced by the text. Equally so, the balance could be met, or tipped, to give a new experience.

Chapter 3

Design

3.1 The Potential Remix

The remix in the context of web storytelling will follow a linear format, as illustrated below.

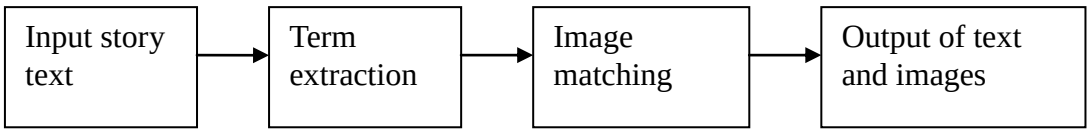

Figure 12: Illustration of the potential remix

To fit the terms of remixing, and also that of the legal issues of static pages with remixed content, the remix must be dynamic: even if the inputted story text is static, the output must be non static. It is quite probable that to begin with the output may be static during development.

The remix will take the form of a website; the user will input a piece of text into an input field, which will be processed first by term extraction, which will be matched to images, covered in more depth later. The final output will be a mix of text and images, which is discussed further in presentation.

3.1.1 Term Extraction

Term extraction is designed for the management of terminology resources. Originally, this was done manually, but with the increase of the quantity of electronic material, this is not feasible without automating the process. It is a process that analyses entered text and creates a set of terms, which have been extracted from the document, and is most commonly used by web page search engines.

Cabré and Estopà (2001) categorise term extraction processes into three forms:

> Systems for TE [Term Extraction] are based on three types of knowledge:
>
> (a) linguistic
>
> (b) statistical
>
> (c) hybrid (statistical and linguistic)
>
> (Cabré and Estopà 2001)

Each of these types have multiple algorithms and implementations, based on complex algebraic equations and word relations with varying degrees of effectiveness at mimicking linguistic programming. Maynard and Ananiadou (2001) discuss that multi-word term extraction traditionally uses hybrid methods, combining linguistic and statistical techniques. They critique the linguistic side as "often unexploited" and consisting of "very shallow knowledge in the form of a simple syntactic filter."

For the implementation of this application, using term extraction, the Yahoo! Term Extraction system will be used. As the accuracy of the term extraction does not need to be as accurate as corporate usage for terminology management, Yahoo!'s term extraction, which is used for its search engine, is adequate for the interpretation of entered text in English.

3.2 Functionality

The functionality this remix ideally will cover will depend on the stage of development reached for testing, but the ideal testing functionality would consist of:

- User selected input (either as a user's free choice, or from a list of selections)
- Appropriate images outputted to match the text
- Presentation that will enhance the user's experience with the text

Prior to this, it is planned to move through the following functionality stages:

- Production of images from a set list of tags from Flickr.
- Successful term extraction from a paragraph of text.
- Manipulation of extracted terms into input suitable for Flickr.

Ideal functionality would include:

- Customer user text (with associated security precautions)
- Presentation of images streamlined with text, the possibility of Flash technology.
- The addition of another sensory input, such as sound – for instance, the words are read aloud.
- Precautions to ensure the output are never static.
- Ability to manipulate the remix – change photographs, move, rotate, resize, similar to Astronaut (see 3.5, Presentation).
- Potential cinematic effects.

3.3 Design Diagrams

3.3.1 Context

The context diagram of the system design has nine key stages:

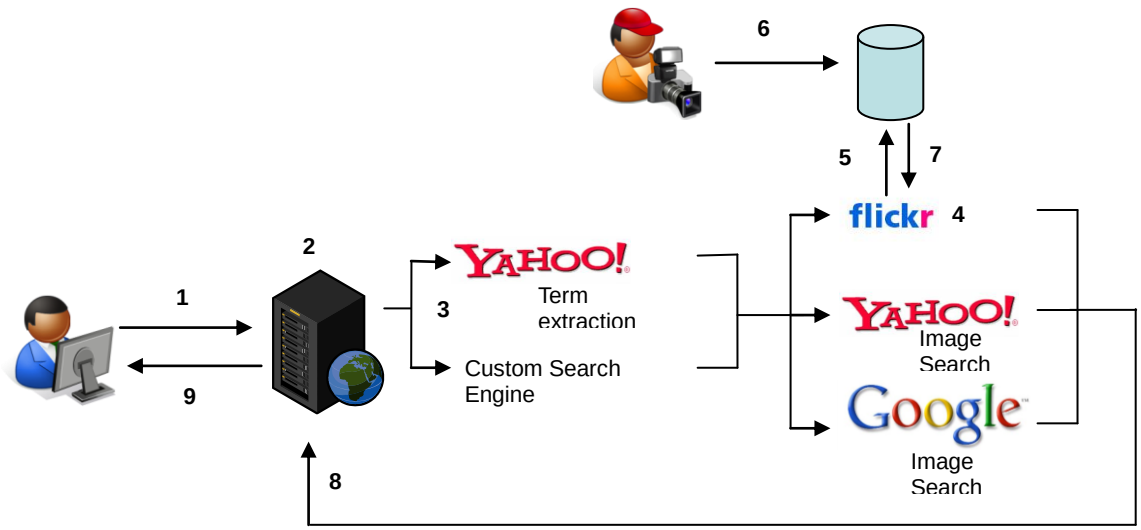

Figure 13: Context diagram of the ideal remix application implementation.

1. The user inputs a media text and their preferences into the application on their client machine.
2. The input is transmitted to a web server, which forwards the input according to the preferences.
3. Term extraction is carried out, either by Yahoo (by default) or by a custom search engine as specified by the user.
4. Once the terms are extracted, they are passed for image retrieval from whichever source the user defines. For simplification reasons, Flickr is exclusively shown expanded above.
5. Flickr queries its database with the extracted terms, querying tags, and secondly descriptions.
6. Flickr users upload and tag photographs to add to the database.
7. The Flickr database returns one image per extracted term.
8. The data is sent back to the web server, which compiles the images and text together, to form an output.
9. The remixed material is outputted to the client machine.

3.3.2 State Transition

The state transition diagram show below, details the process of extracting terms and matching them to photo media, before being displayed. The diagram uses Flickr as an example of a content provider, but could equally be replaced with another image provider.

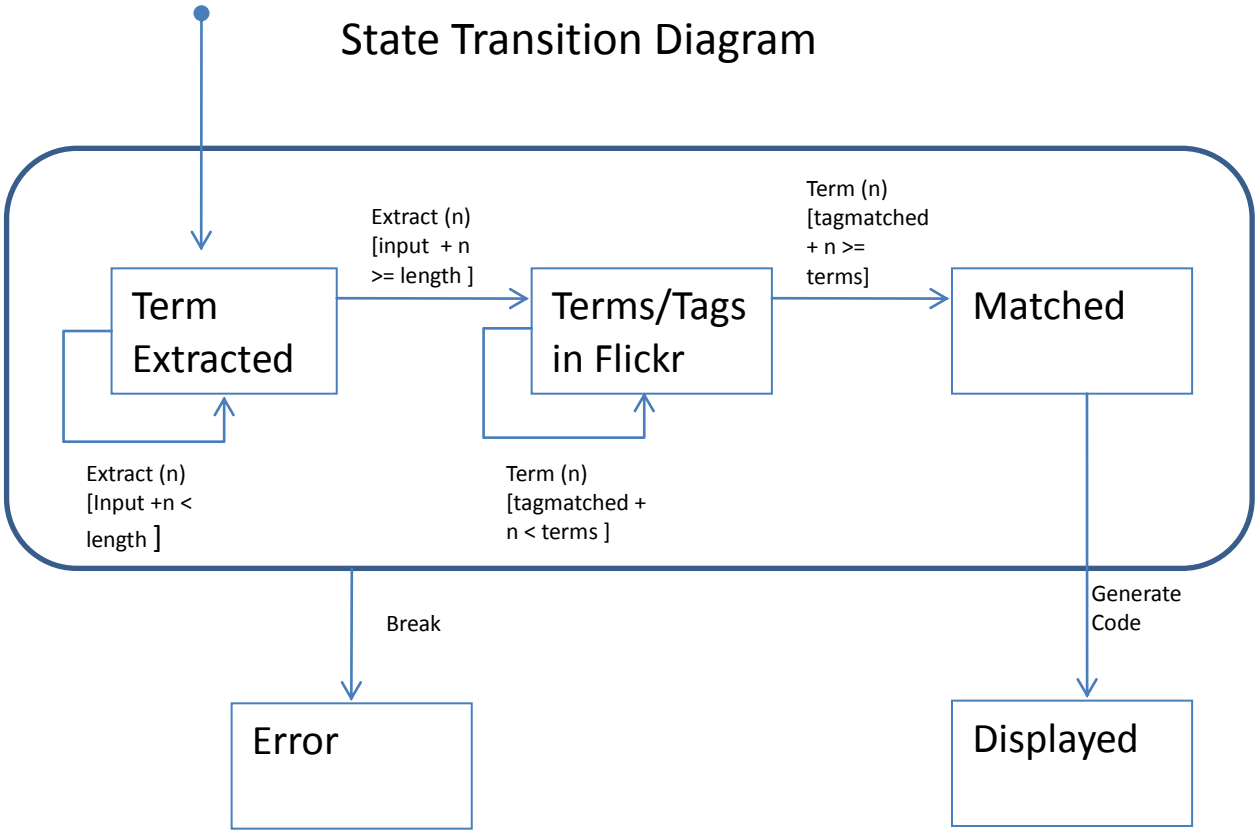

Figure 14: State Transition Diagram of the extraction and matching process.

The initial state of the system, is the inputted text, upon which term extraction is completed. The extraction process extracts a number of terms from the text until it reaches the end of the input. The terms are fed into the image bank, which matches the terms to tags, and collects one image per term. The pairings of text and image are then outputted, generating the output code to display. A break in the transition causes an error message to be generated.

3.3.3 Use Case

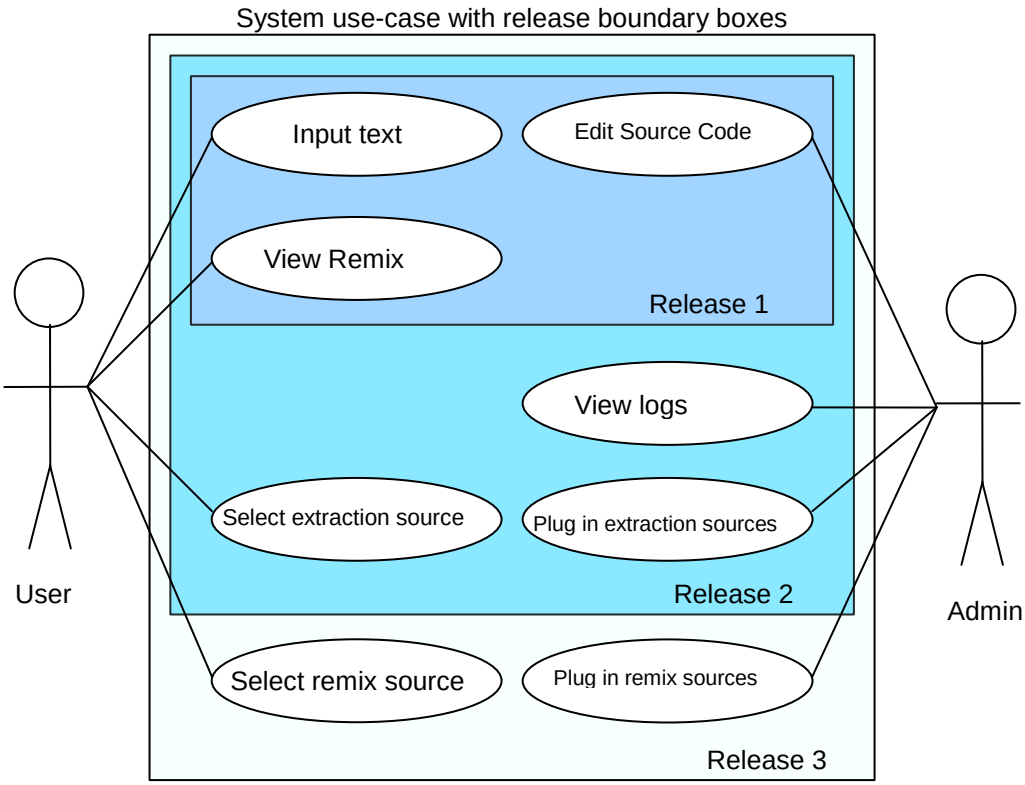

Figure 15: Use Case Diagram showing the release functionality

The above use-case diagram shows the planned functionality of the remix application. In the first release, it is planned that the user will be able to input text and view the remix, with no control over the remixed source, other than the text.

In the second release, the user will be able to change the extraction source, and the administrator will be able to view logs of the entered text and plug in extraction sources for user selection.

In the third release, an additional user control of selecting the remix source (the source of the images returned) is added, along with the administrator's functionality to add these.

3.4 Technology Considerations

To best select an appropriate technology for development, some experimental work with different environments was undertaken, and an investigation into the relevant API support. For this there was an existing Java prototype, and also the research from the previous chapter with regards to using term extraction technology and Flickr. The investigation was into the best way to potentially piece together the pieces of jigsaw into an application.

3.4.1 Java

An existing prototype using Java was available for examination. It made use of pre-existing images and voice technology, which was a consideration for advanced functionality. Partially due to an inherent dislike, and partly due to further experimentation with alternative technologies, it was decided not to use Java for this remix application.

3.4.2 Ruby on Rails

Research was carried out into implementing the application using Ruby on Rails, but this was ruled out partly due to unfamiliarity with the language and also due to the lack of resources with Ruby and Flickr integration for the research purposes. Support appears to have been withdrawn somewhat for this platform[1] , and the investigations were often limited by lack of resources and an abundance of missing pieces to this jigsaw. In the time assigned to developing, it was decided that this technology would not be suitable for development. However, Ruby would possibly be considered to develop subsequent remixes, as familiarity increased.

3.4.3 PHP

PHP appeared to be the most viable solution for development. The reasons for this included existing libraries and integration with Flickr and the Yahoo Term Extraction

[1] http://flickr.rubyforge.org/ and http://rubyforge.org/projects/libyws [Accessed 11 November 2007]

which was suitable for use. There was a familiarity with PHP which was an additional advantage here. Through investigation and experimentation, it appeared PHP was the potential glue to hold together the parts of the remix application.

Yahoo's Term Extraction will, by default, produce results in XML format, but can be set to output in Serialised PHP format. Although PHP can handle XML (Yahoo Term Extraction, 2008), it is considered easier to handle serialised output in PHP than it is to parse XML with PHP. The data is unserialised using the userialise PHP function.

While investigating PHPFlickr, problems were encountered while running PHPFlickr 2.2.0 (2008) which was frustrating and took up a large proportion of time investigating. The main problem was the extremely slow response time, and frequent errors – coincidentally relating to the unserialise function[2]. Through reading the documentation, it was discovered that caching would speed response time up, but since these were just preliminary investigation, cache implementation was not carried out.

Although investigation done using the university network space was fruitless, some basic results were achieved using a different environment – however, not quite the results intended. The conclusions from this investigation were that it was possible to achieve the proposed remix using PHP technology, but it would take a large proportion of development time to ensure everything was compatible.

3.4.4 Pipes

Yahoo! Pipes is a composition tool, modelled on Unix pipes (Yahoo! Pipes Blog, 2007a). The primary expectation for Pipes development is to customise feeds through filtering, unions and manipulation. It allows output in a variety of formats, allowing widgets to be made for websites and custom homepages.

The development process is visual, with a drag and drop system of predefined modules. These modules can be amended and conditions added. Data is fed in from feeds, or user input, and are fed down the pipe, through the conditional modules and out to the output

[2] This can be seen at http://cafe.cic.hull.ac.uk/~303900/phpflickr/example.php

module. The Pipe can be debugged during development, then saved and run. Once developed, the Pipe can be published to the public.

3.5 Presentation

The application could yield a variety of output presentations. The presentation will initially be restricted by the technology used, but in this section, the ideal presentation is considered, for the fully functional prototype. Beginning with a mock presentation, created using PowerPoint, to investigating two similar projects and their presentation.

3.5.1 Paper Based Mock Presentation

The mock prototype was also the first investigation into the relevance of tagging, as detailed in chapter two. A sample text is inputted, and key words are selected by human choice, and then manually entered into Flickr. To get more relevant results, the returned photos were further human filtered to create the mock output.

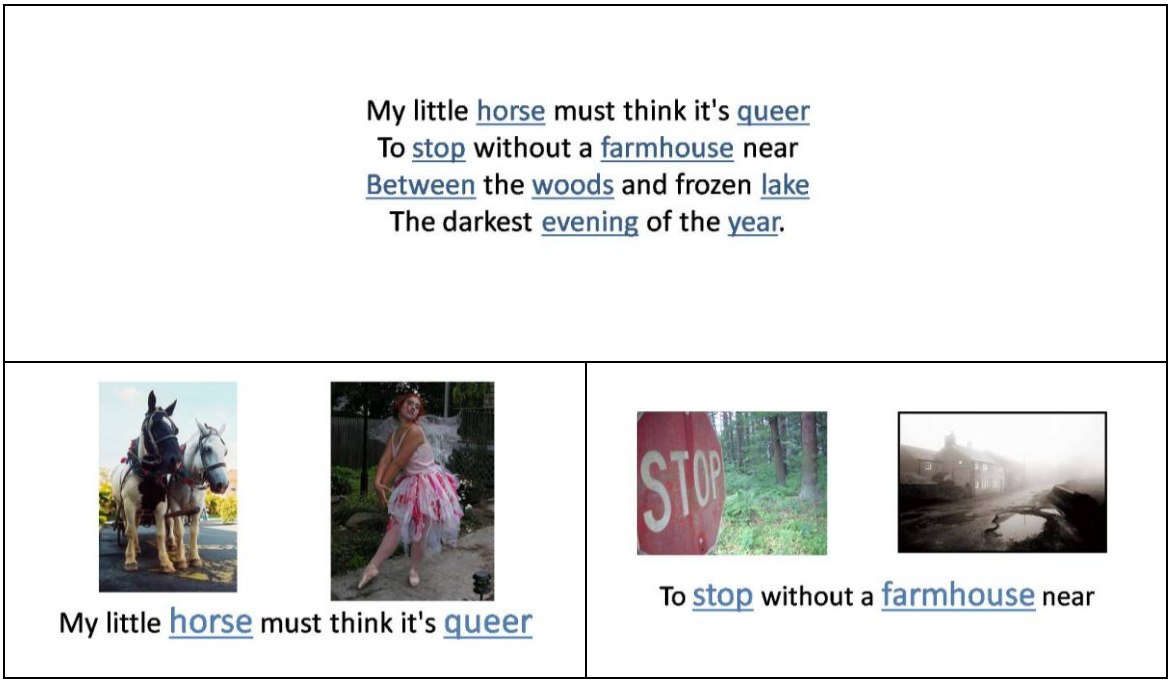

Figure 16: Mock prototype, shown on paper.

The keywords are emphasised, which could either be retained, or removed. In one way, they identify clearly the context the photo has been included for, but this may over emphasize the semiology of the photograph, and make the remix too clear cut.

It is expected that in implementation, photo results will be far more ambiguous, and not be so clear in semiological terms.

3.5.2 PlotShot

PlotShot is a remix application which remixes film plot summaries in a template, beginning with ‘our hero’, and Flickr photographs, returned by tag. This is extremely similar to the storytelling application in development for this project, but with a key difference – the user can only control whether tags or full text are searched, and whether the photos returned should be most relevant, most interesting or most recent. The text is always predefined, though it does remix on each refresh or visit to the site.

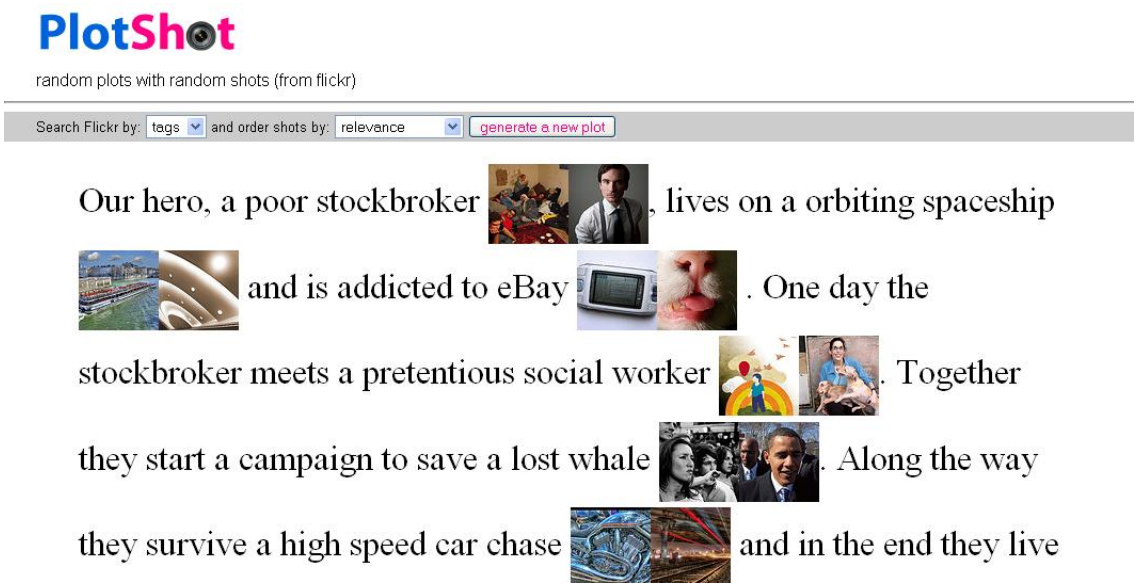

Figure 17: Screenshot of PlotShot, showing the location of the remixed photographs in relation to the text.

The output is displayed in large Times New Roman font, with the search words followed by two thumbnail photographs from Flickr. It is fixed, and conforms to a template. The position of the photographs indicates which words they belong to, and in addition, a footnote lists the tag words searched for: poor, stockbroker, spaceship, addicted, pretentious, social worker, campaign, speed, protection. This is a relatively straightforward output, which is limited in the experience it gives.

3.5.3 Felix Jung

Felix Jung has created two Flash mashups that are similar to the storytelling remix in design. The first mashup, First Snow, is set out as two Polaroid photographs, and the animation fetches photographs from Flickr related to snow, to the remix, displaying them in rhythm to the spoken poem and accompanying music.

Figure 18: First Snow by Felix Jung, modelled as two Polaroid photographs.

The second remix is more dynamic. Astronaut takes the song of the same title by Dan Frick, combining images from Flickr with the song's lyrics to create a flash collage. Photographs can be dragged around the screen, and appear to the rhythm of the words they are associated with.

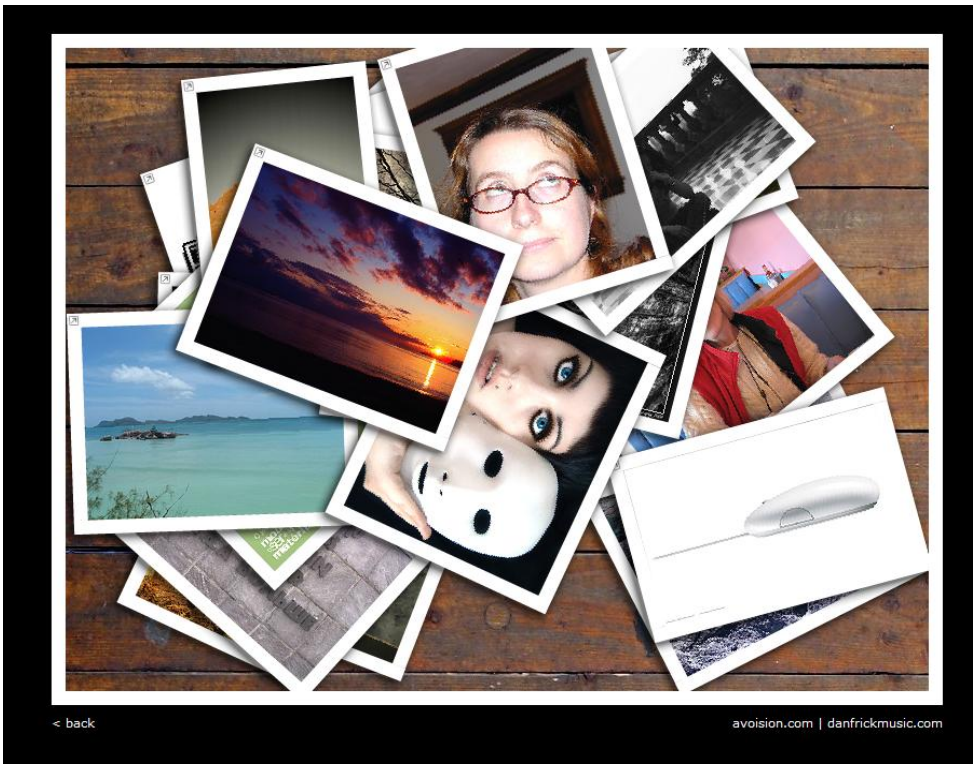

Figure 19: Astronaut by Felix Jung, showing the remix in progress, with the output mimicking photographs laid on a table.

Each time the Flash file is loaded, new images are randomly pulled from Flickr. Jung has hard-coded keywords at set points in the song. When the animation is started, it preloads images from Flickr, queried with random parameters – for instance, date post ascending, date taken decending and so on. One image is randomly selected from the results, and is preloaded, making the application seemingly random.

However, Jung has also encountered difficulties with tag context, and explains:

> In some cases, I've taken a few liberties with my searching. Instead of sticking exactly to the lyrics, I've substituted words in certain places, either to elicit an effect, or due to the fact that the word itself wasn't returning enough results. I've tried searching all text, but found that searching specifically for matching tags proved the most accurate.
>
> (Jung 2007)

Astronaut would be the ideal output for the application, providing interactivity and a lively output, though for earlier implementations, it is probably more practical to aim for a design similar to PlotShot.

Chapter 4

Development

4.1 Yahoo! Pipes Technology

> Yahoo! Pipes is a hosted service that lets you remix feeds and create new data mashups in a visual programming environment. The name of the service pays tribute to Unix pipes, which let programmers do astonishingly clever things by making it easy to chain simple utilities together on the command line.
>
> (Yahoo! Pipes Blog, 2007b)

Pipes is still in its beta phase, over a year since its launch on February 7th, 2007. The system was built by Pasha Sadri, Ed Ho, Jonathan Trevor, Kevin Cheng and Daniel Raffel of Yahoo! (Dickerson, 2007). Tim O'Reilly (2007) gave Pipes high praise on its entrance: "Pipes service is a milestone in the history of the internet."

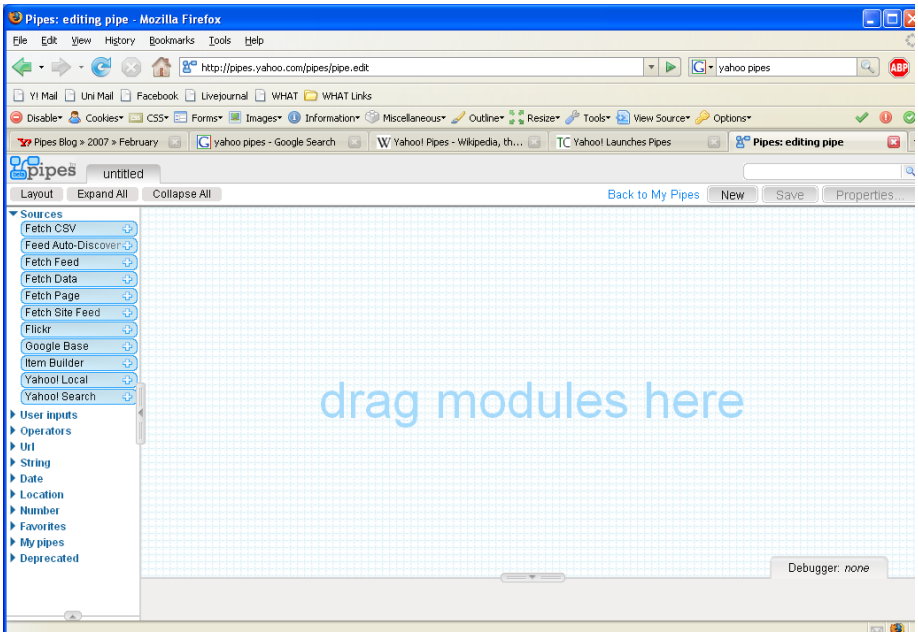

Figure 20: The Yahoo! Pipes development area. Showing the main area for assembling the modules, which are dragged and dropped from the list on the left hand side.

The development interface is a drag and drop system with a library of modules to use and connect with Pipes. Some modules link together, some do not, and others have conditions that can be applied to them. Custom modules can be created out of a series of

modules connected into a Pipe, and then saved for importing.

A Pipe can be run, and will display a standard output page, with a variety of views dependent on the type of media being remixed. Most commonly the media being remixed are RSS feeds, and are outputted as a list in an output pane. Further customization of the output can be performed by manipulating the output as a feed in itself, and applying it externally.

Pipes are listed on a registered user's 'my pipes' page, and can be accessed through customized URIs. A creator can choose to publish a Pipe, and make it publically accessible, where it is listed in the search.

The matter that Pipes was created specially for the development of mashups and remixes, is one of the key reasons that development was promptly changed from a focus in PHP to using Yahoo! Pipes. The functionality, clear development techniques and plug in modules were appealing for swift development, along with a strong remix development community base surrounding the site.

4.2 Development Record

4.2.1 URL Builder PART

http://pipes.yahoo.com/katedavies/urlbuilderpart

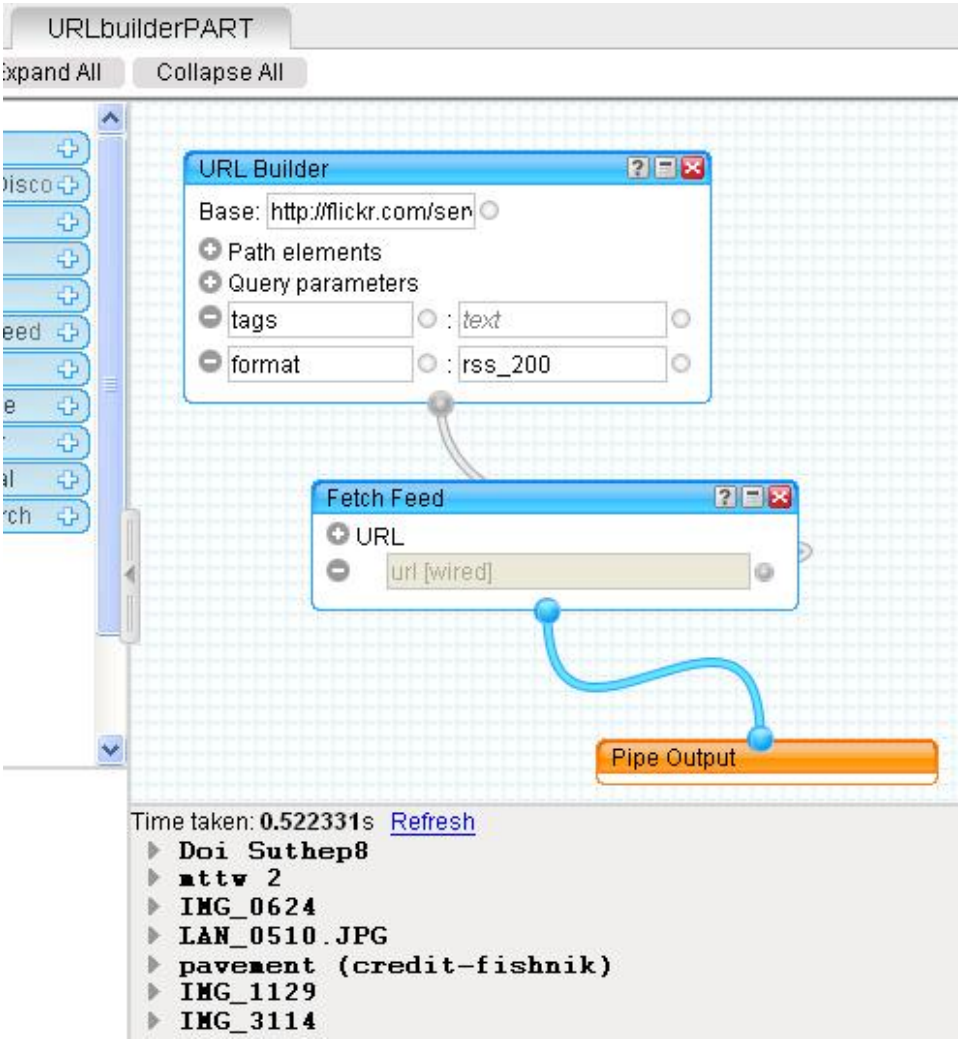

Figure 21: Development screen on URLbuilderPART

The URL Builder module creates a URL to query, based on the inputs it receives. In this Pipe, the base URL for the Flickr service is entered, and query parameters of tags and format are specified. The Fetch Feed module then retrieves the results from the query, and the Pipe outputs.

The purpose of this Pipe was to create a custom module, for use within a loop. Unfortunately, when this was implemented, it was found that the text tag could not be

entered as an input to the loop. Therefore, the loop would by default return multiple results with no specified tag, as the tag query parameter was empty.

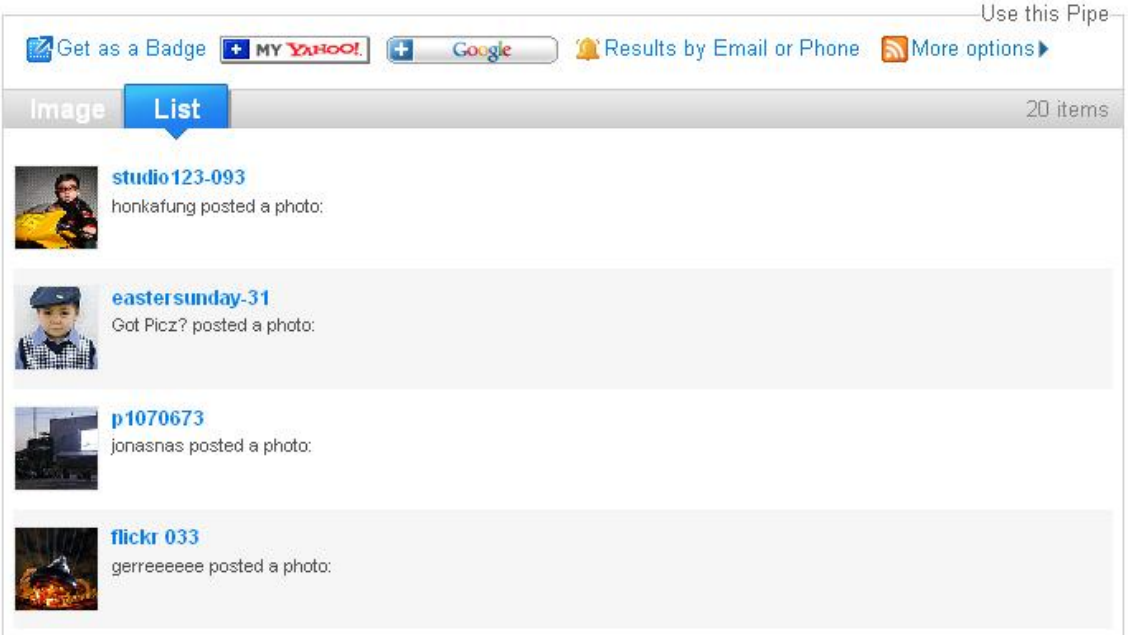

Figure 22: Output screen of URLbuilderPART

As it stands alone, this Pipe is the basis of the Flickr RSS feed query and fetch process that is used in the other Pipes. As can be seen in figure 22, the output is not formatted suitably for remix viewing. It contains raw output relating to authors and photo names.

4.2.2 A Flickr Tag Search

http://pipes.yahoo.com/katedavies/flickrtag

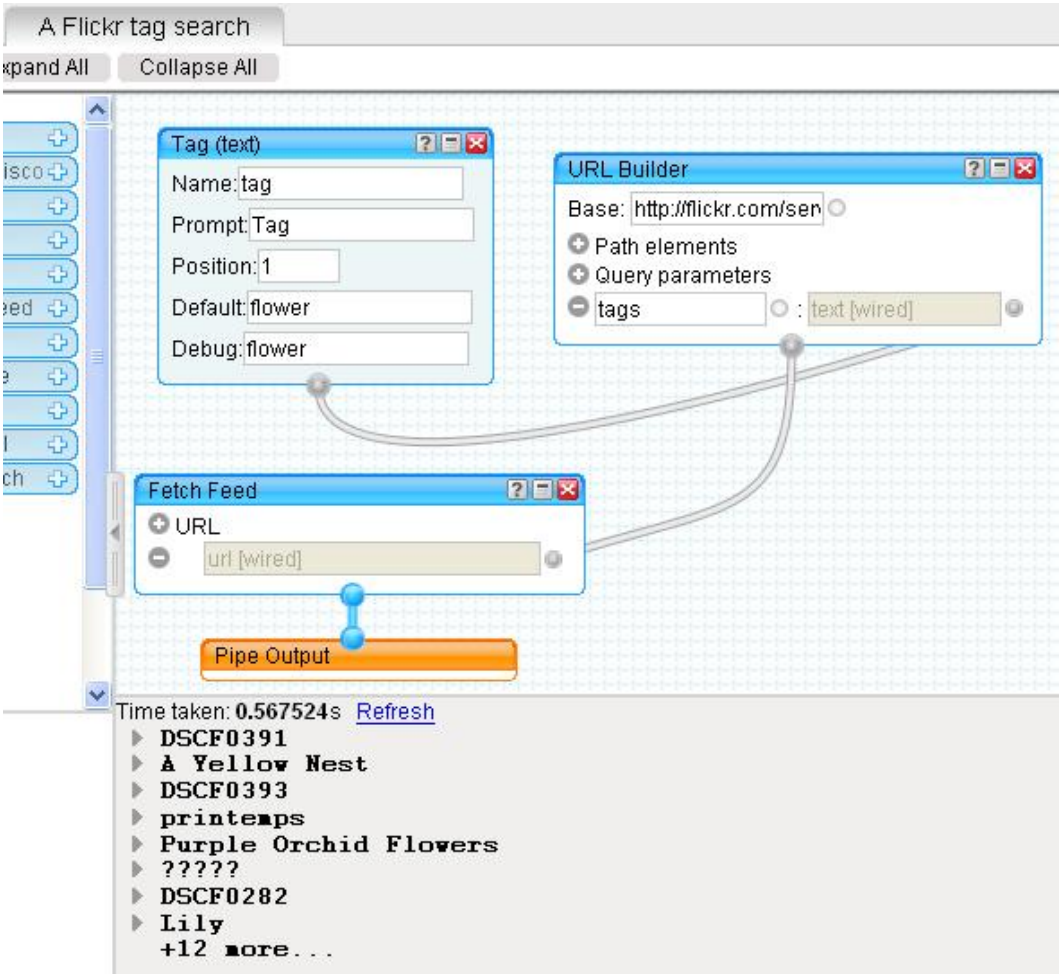

Figure 23: Development view of A Flickr tag search

This Pipe uses a user input text box to ask for a tag word, building upon the problem encountered in the previous Pipe. Once the tag word is entered in the Tag (text) module, it becomes the tag query in the URL Builder, which queries Flickr for photographs. Once again, the Fetch Feed module returns the results to the Pipe, and outputs them.

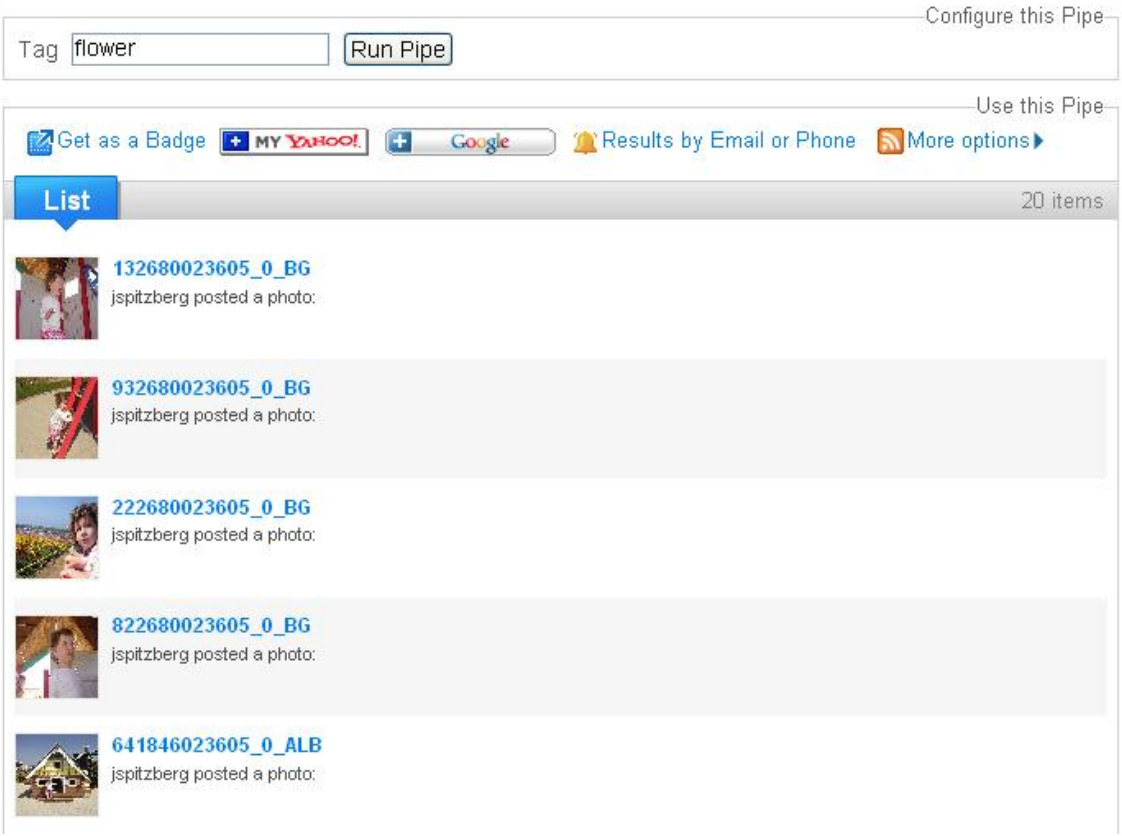

Figure 24: Output view of A Flickr Tag Search

Although this Pipe was successful in querying the correct tag word, and outputting Flickr photos of the correct tag, it does not take the type of input required (currently it only works with single words) and the output comes with author names and image names, which must be stripped in this application. In addition, the number of returned results will need to be restricted to one.

From this Pipe, development needs to be undertaken to truncate the feed to one result, and term extract tag words from input. Use of a loop might be beneficial, but there are restrictions as to what can be used as loop input in Pipes.

Above is the output from this Pipe. It shows multiple results, with much unwanted text output associated with each photo result.

4.2.3 TAG

http://pipes.yahoo.com/katedavies/tag1

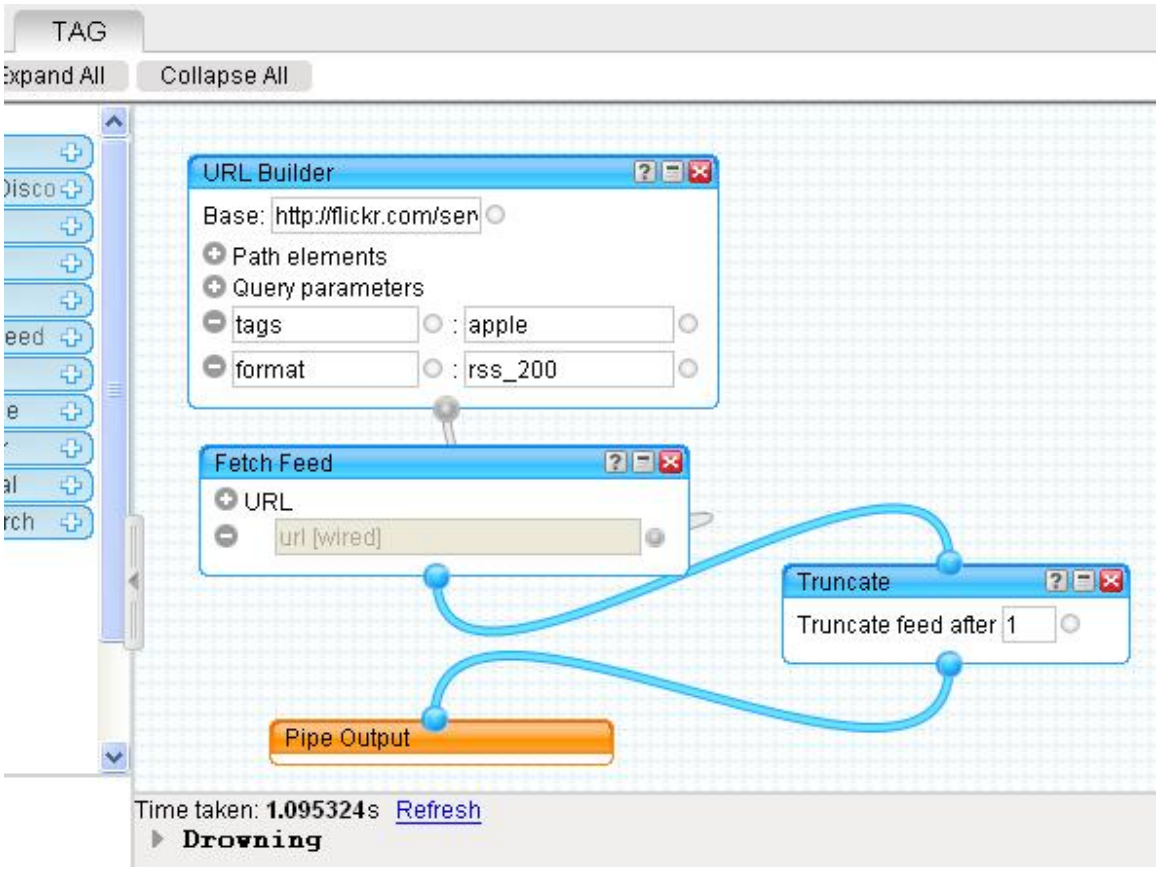

Figure 25: Development view of TAG

This Pipe is development uses the Truncate module to shorten the feed returned by the Fetch Feed module, to one result. This can be seen in figure 26, below. In addition to this, it can be seen that the format of the feed has been queried within the URL Builder. Flickr feeds can be outputted in several ways (Flickr, 2008)

- **rss_200 or rss2** - An RSS 2.0 formatted feed.
- **atom_1 or atom** - An Atom 1.0 formatted feed.
- **rss_091** - An RSS 0.91 formatted feed.
- **rss_092 or rss** - An RSS 0.92 formatted feed.
- **rss_100 or rdf** - An RSS 1.0 formatted feed.
- **rss_200_enc** - An RSS 2.0 formatted feed with enclosures (but without enclosure sizes).

RSS 200 was selected because of the use of thumbnail photographs. This made the output easier to handle, without manipulating sizes of the raw photo output.

The output of this feed can be seen below. As discussed in Chapter 2, the problem with tagging is to maintain the context of the tag. The chosen test tag for this Pipe was apple, which to most would provide thoughts of a shiny red fruit, but in the case of the Pipe test, produced Apple, the company.

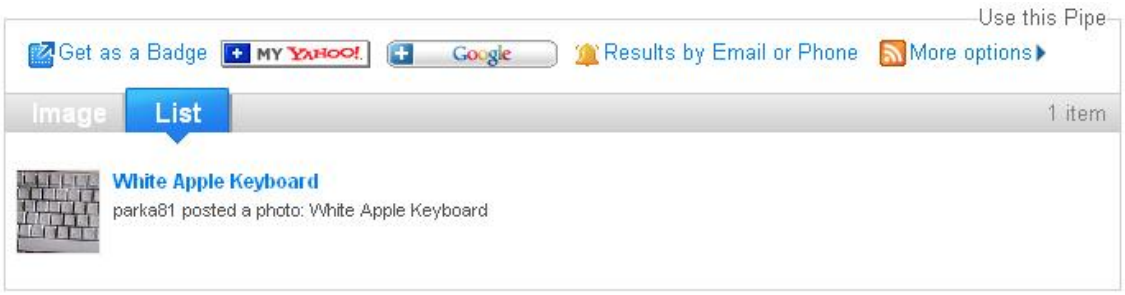

Figure 26: List output for TAG

This is a perfectly understandable event, considering the makeup of the Flickr user community, and its basing on the Internet.

The Tag Pipe successfully demonstrated truncation of the results to one resulting photograph, using the truncate module. However, the photo title and photo poster details are still outputted, and require stripping from the result set, and replacing with the tag word.

4.2.4 TAG 2

http://pipes.yahoo.com/katedavies/tag2

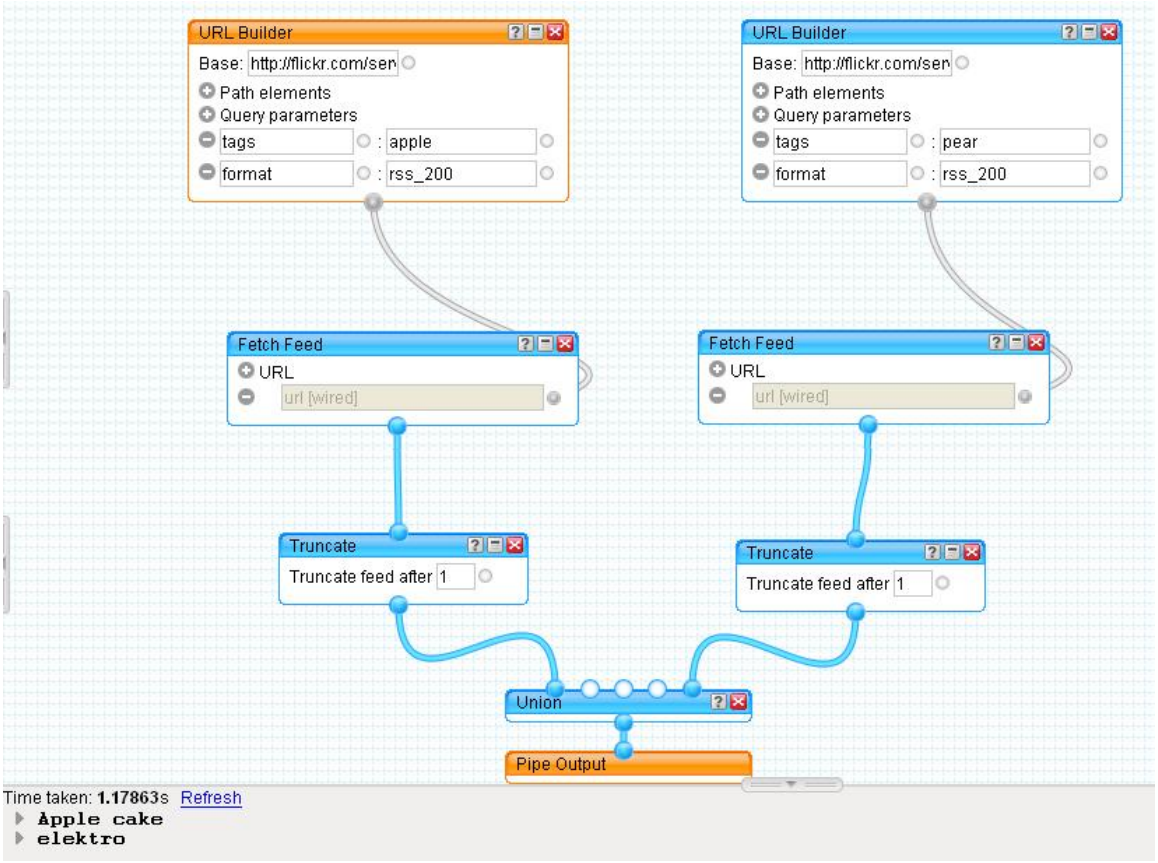

Figure 27: Development view for TAG 2

This Tag Pipe combined what was learnt in the previous Tag Pipe, and demonstrated the use of a Union module to combine results from two tag searches. This is not an ideal solution to the problem, but it is one solution. The results produced are one photograph from the tag word *apple* and one photograph from the tag word *pear.*

At this point, the issue of term extraction through Pipes has not been resolved, and testing works on two tag words, entered in separate text boxes. The scalability of this Pipe would be to create more Union modules, and more sequences of the modules. Though, it could be investigated whether the groups of modules can be saved as an custom module, and used to be implemented into a loop.

Two output types can be seen (automatically generated by Pipes). First, the list output,

further demonstrates that tags can have multiple meanings and concepts, (as homonyms and synonyms) other than the target ideal.

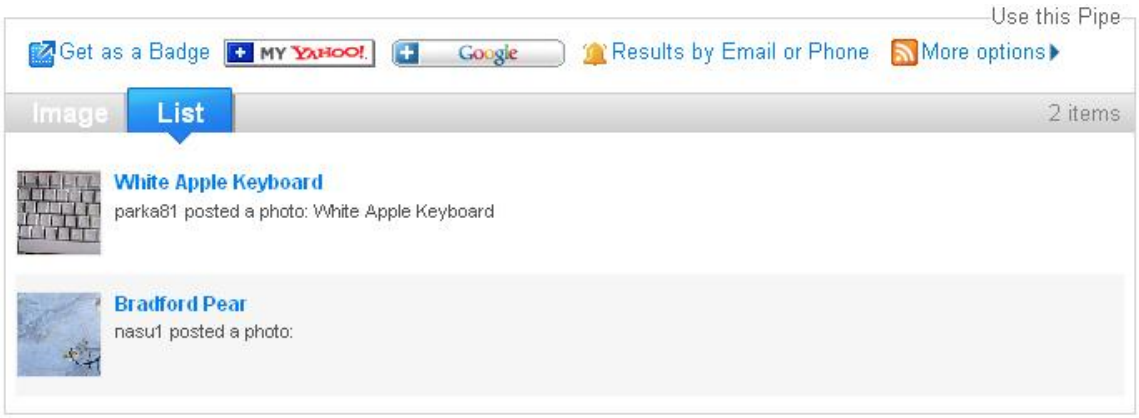

Figure 28: List output for TAG 2

The second output is that of the image output, showing a filmstrip of outputted photos at the bottom, and larger output photos above. This is an output that would be excellent, if the words of the inputted text were still visible at the same time. Though, as shown in test results in chapter 6, this did not appear to be a drawback for experience.

Figure 29: Image output for TAG 2

4.2.5 TAG 2 Hardwired

http://pipes.yahoo.com/katedavies/tag2_hard

This Pipe is an extension and combination of Tag and Tag 2. It produces two tag input boxes, and outputs two results.

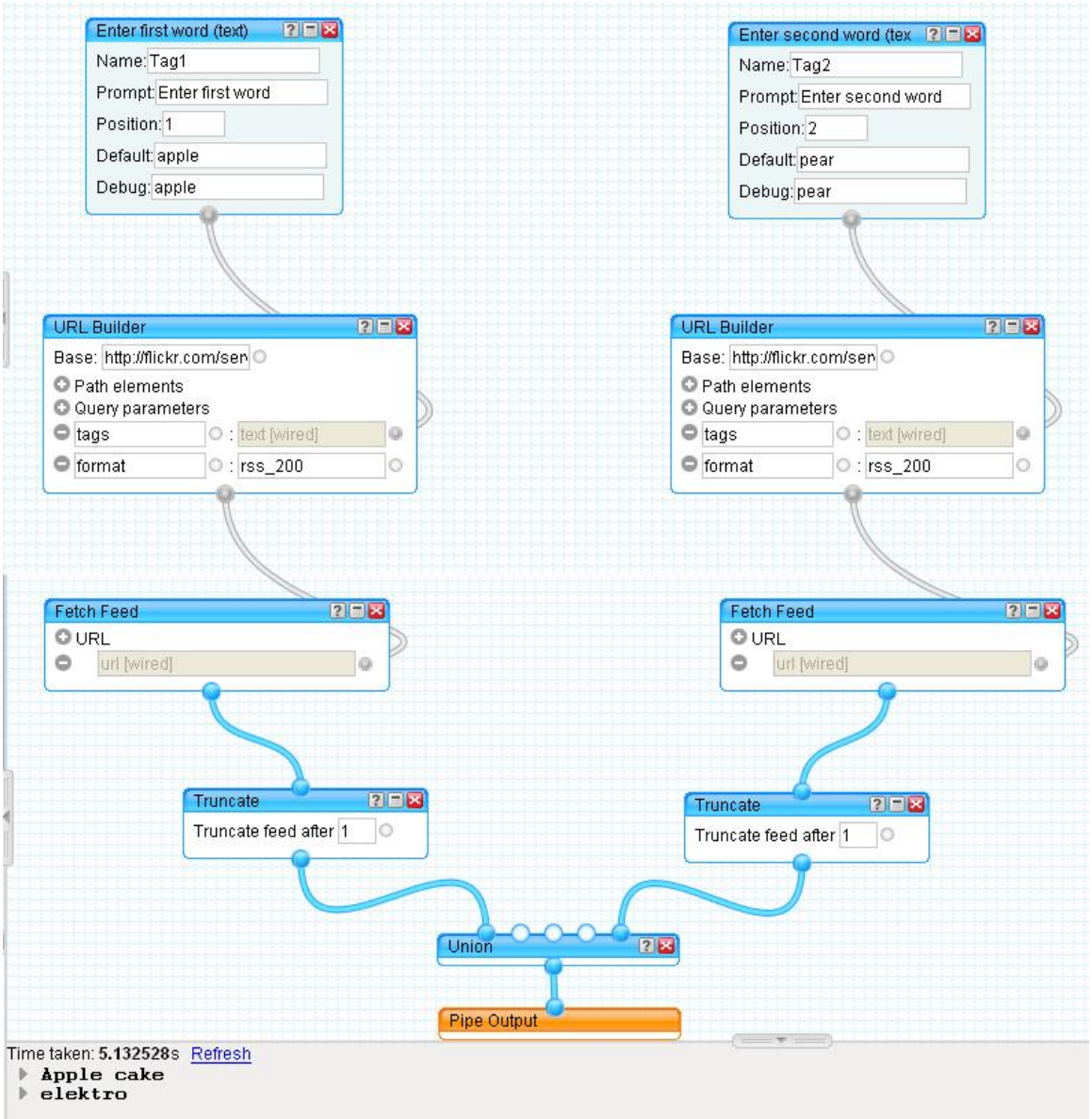

Figure 30: Development view for TAG 2 Hardwired

This development is only a slight amendment to the previous Pipe, and a test to see how multiple input boxes functioned.

The output is shown below, together with the input boxes to ‘configure’ the Pipe. The

order of the text input boxes is set by the Position value in the User Input modules.

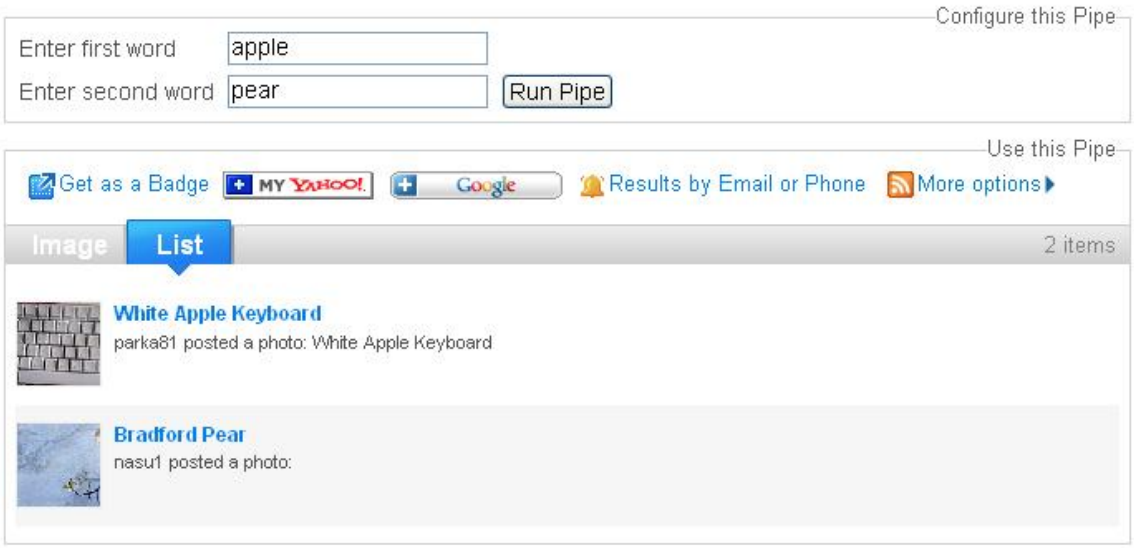

Figure 31: list view for Tag 2 Hardwired

4.2.6 TAG 2 Hardwired with REGEX

http://pipes.yahoo.com/katedavies/hardwired_regex

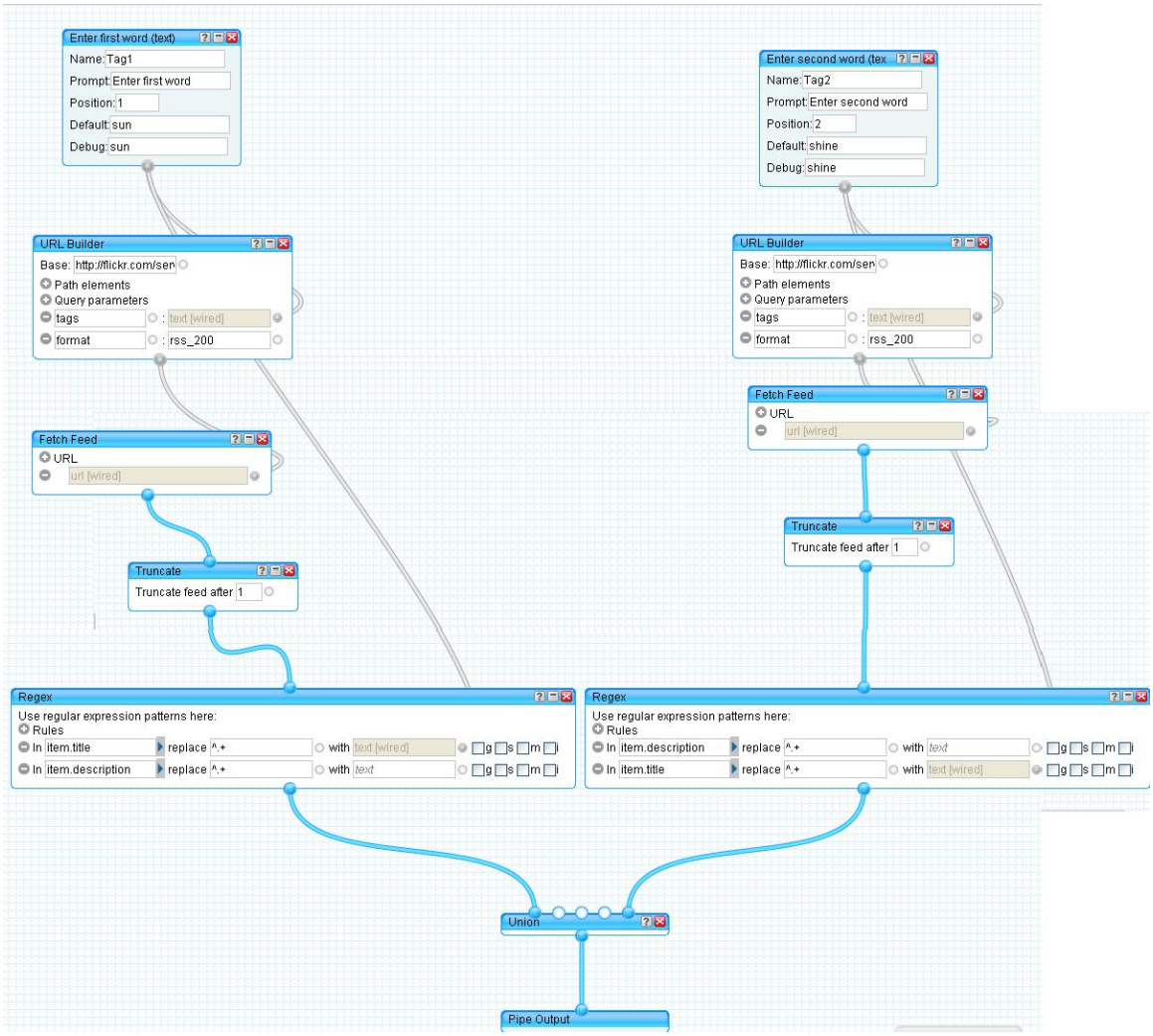

Figure 32: Development view of TAG 2 Hardwired with Regex

The objective of this Pipe development was to regulate the output of the Pipe, stripping the unwanted output of the photograph title and the poster information, which is standard output with the feed. To do this, the Regex module was used, which makes use of PERL expressions. The photo title was replaced entirely with the inputted tag word, using the statement *"item.title replace ^.+ with text [wired]".* This instructed the Regex module to replace anything in the item title of the feed item, with the wired input from the User Input module. This linked the photo to the association of the inputted word, and the rest of the description *(item.description)* was replaced with a blank input.

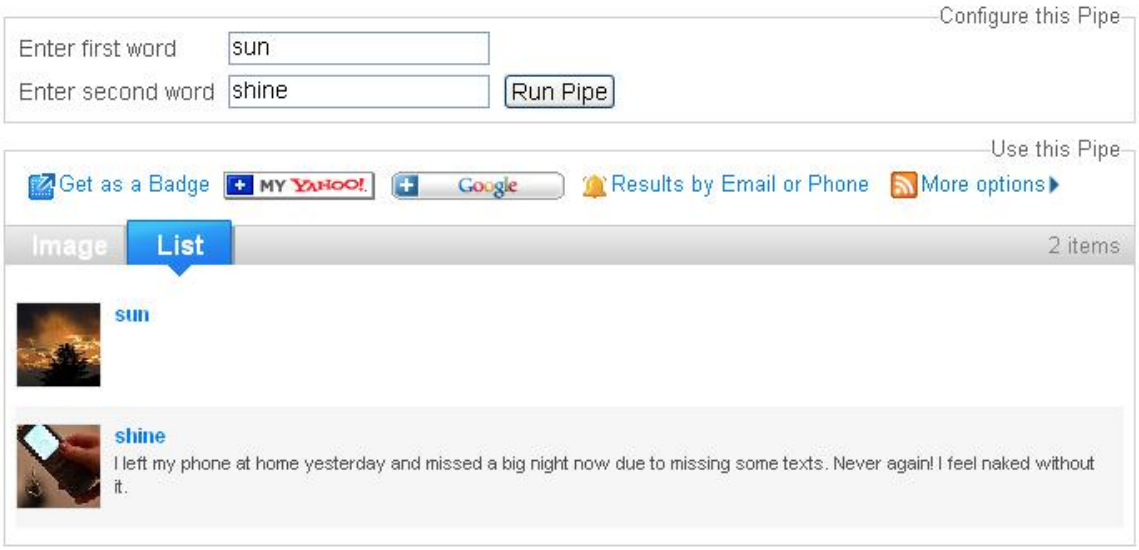

Figure 33: List output for TAG 2 Hardwired with Regex

Although this was a success in replacing the title of the photograph with the inputted keyword, the description replacement was not so successful. In some cases, for example the word sun pictured in figure 33, the description was removed, but with others, such as shine, the description still was outputted.

Using the Regex module, the output was further controlled to attempt to prevent this, but despite turning all output types off, and then gradually turning them back on, the occasional description would appear amongst the output.

Further development would clearly have to focus on tracking down and manipulating the output further, and also accepting the input more intelligently than two input boxes. However, the erroneous captions in returned results was not as significant an issue as implementing more intelligent querying.

4.2.7 Y! Image Search

http://pipes.yahoo.com/katedavies/yimgsrc

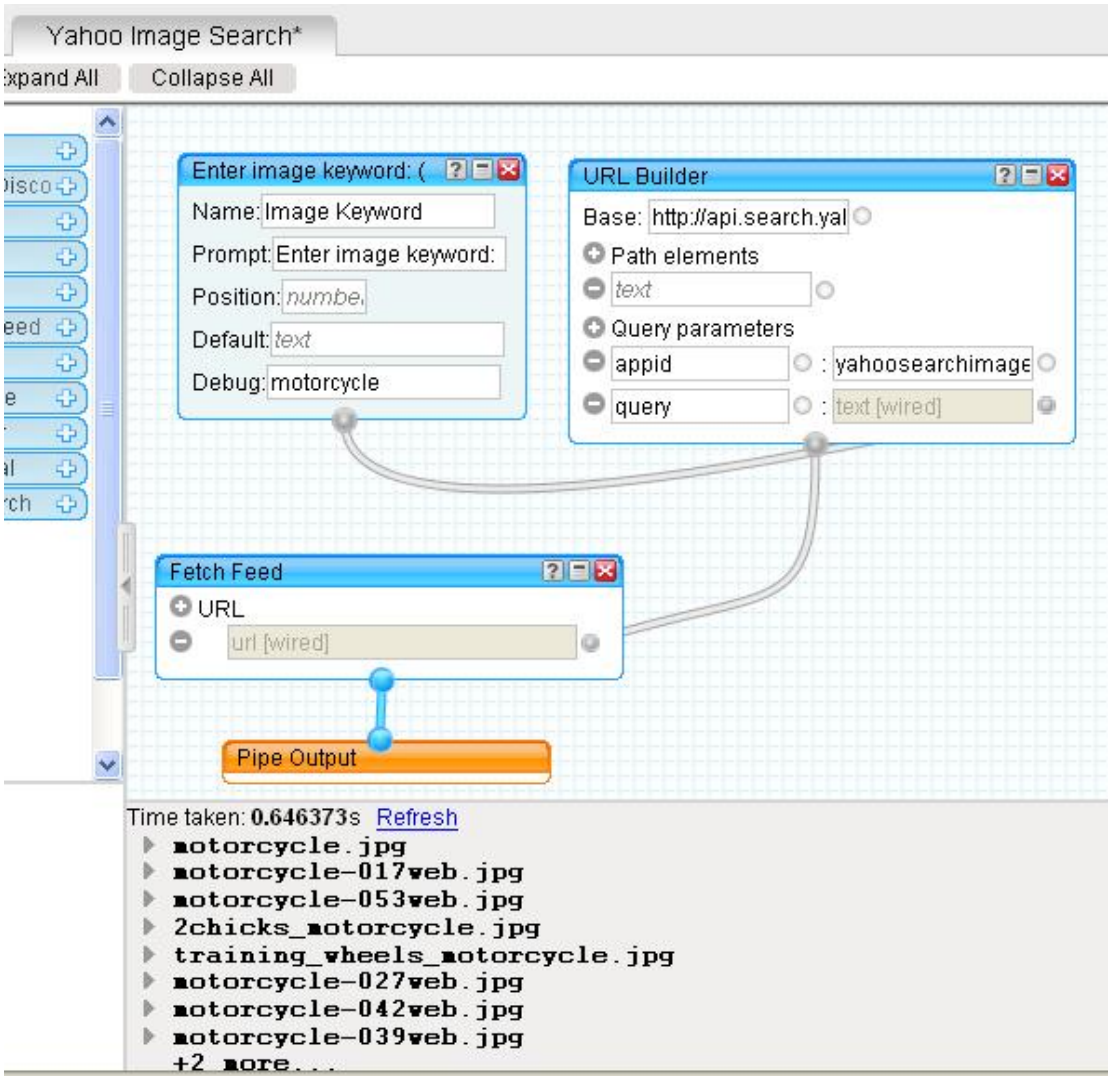

Figure 34: Development view of Yahoo Image Search

As an alternative to Flickr's image search, research was carried out into implementing the Yahoo or Y! image search API. This was a short development investigation early on in the development, to observe the difference in output to using the Flickr API.

The figure 34 shows the first attempt at implementing this as a Pipe. It ran into errors at output, despite the debugging appearing to output correctly in the development screen. After inserting a correct Yahoo Developer ID, the Pipe did output, the Pipe in figure 34 is shown using the default Yahoo Developer ID.

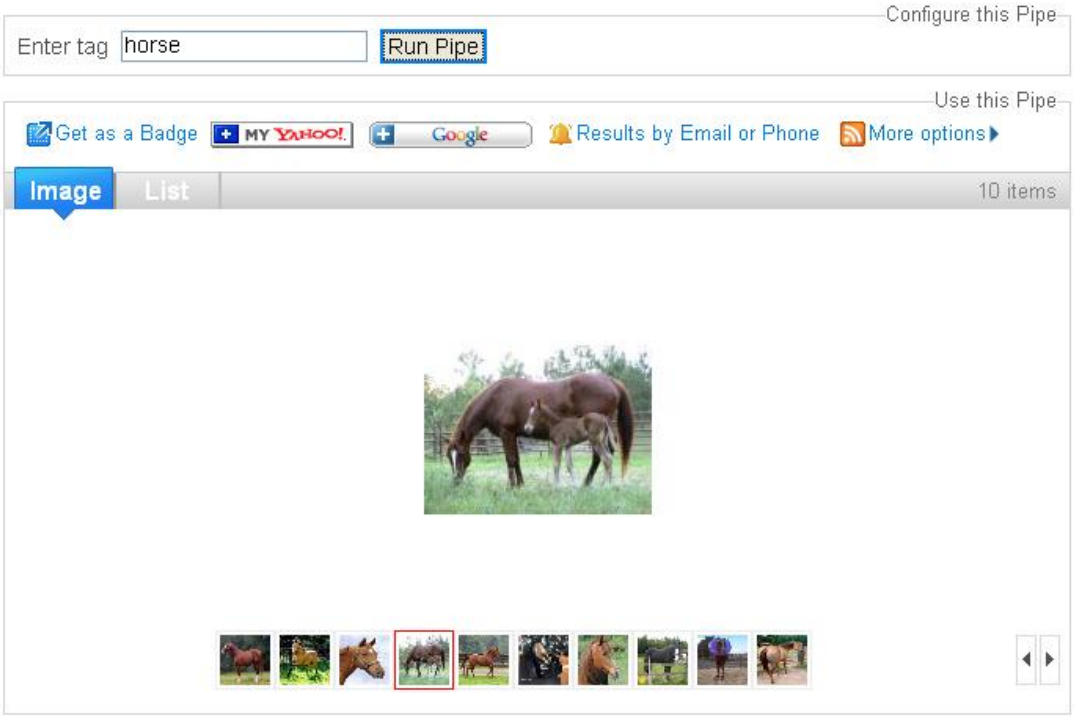

Figure 35: image output for Yahoo Image Search

In figure 35, one tag is inputted (horse) and a series of images meta-tagged with the same tag are outputted as a filmstrip in the Pipe output viewer.

Although Yahoo Image Search does output media that is potentially usable within the application, there is more of a problem relating to copyright (detailed in Chapter 2) as it is far more likely a search engine for the greater Internet will aggregate copyrighted material, than Flickr, where the results can be filtered according to license.

Conclusions from this development investigation were that Yahoo Image Search is a viable alternative to Flickr, and can be implemented successfully within the Pipes system. However, for this early development the focus will be on Flickr.

4.2.8 Term Extraction Attempt 1

http://pipes.yahoo.com/katedavies/termext1

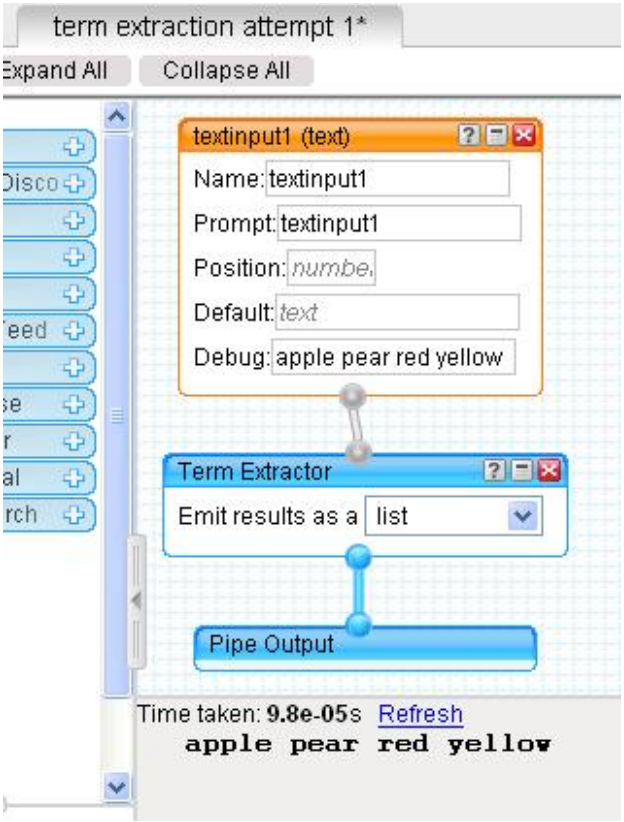

Figure 36: Development view for Term Extraction Attempt 1

This first attempt into creating a Pipe using the Term Extractor module proved that it was more temperamental and less straight-forwards than expected. As can be seen figure 36, the Term Extractor module could not extract terms successfully from a series of test input in the User Input module. Instead, it simply outputted what was inputted, because it could not process input in this format.

In addition, a trial using an XML feed was tested, though the Pipe was overwritten later, hence the lack of development figure associated. The following XML was trialled as input for the Fetch Feed module:

```
  <?xml version="1.0" encoding="utf-8" ?>
- <rss version="2.0">
- <channel>
  <title>The title of my RSS 2.0 Feed</title>
```

```
  <link>http://www.example.com/</link>
  <description>This is my rss 2 feed description</description>
  <lastBuildDate>Mon, 17 Mar 2008 14:20:00 GMT</lastBuildDate>
  <language>en-us</language>
- <item>
  <title>Apple</title>
  <link>http://example.com/item/123</link>
  <guid>http://example.com/item/123</guid>
  <pubDate>Mon, 17 Mar 2008 14:21:00 GMT</pubDate>
  <description>Richard of York gave battle in vain. Father
    Christmas is a funny man. Horses and clouds</description>
    </item>
- <item>
  <title>Bannana</title>
  <link>http://example.com/item/123</link>
  <guid>http://example.com/item/123</guid>
  <pubDate>Mon, 17 Mar 2008 14:22:00 GMT</pubDate>
  <description>Lithium sword is very flexible</description>
    </item>
- <item>
  <title>Pear</title>
  <link>http://example.com/item/123</link>
  <guid>http://example.com/item/123</guid>
  <pubDate>Mon, 17 Mar 2008 14:23:00 GMT</pubDate>
  <description>XML feeds are mighty annoying</description>
    </item>
    </channel>
    </rss>
```

The XML was not correctly parsed with the Pipe at this point of development. The reason for attempting was to interface with the very first trial implementations using PHP and HTML, during technology investigations. It was investigated whether that entering the text on another web page, and sending it to the Pipe as XML would be viable. The investigation showed it was unnecessary, when further development was performed on input styles with Pipes.

4.2.9 Token

http://pipes.yahoo.com/katedavies/token

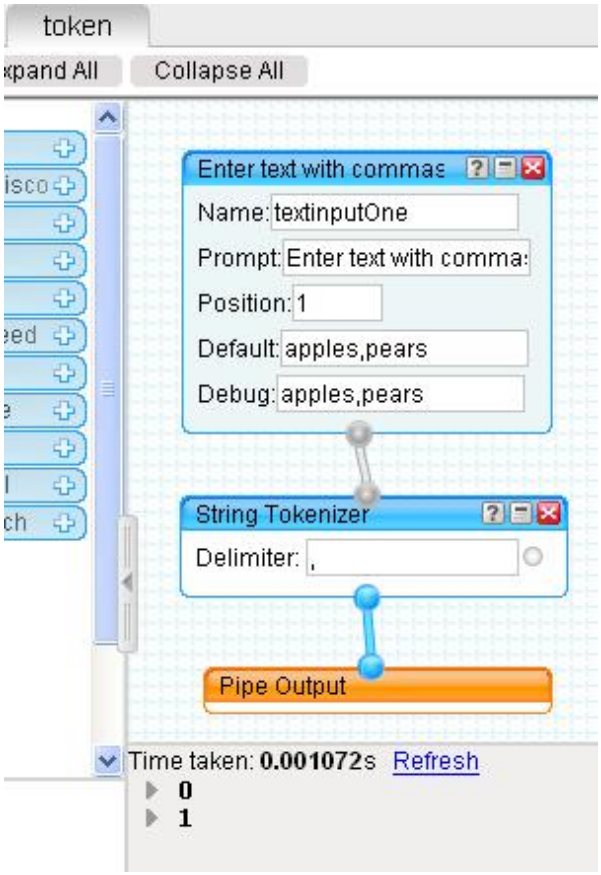

Figure 37: Development view of Token

The strategy for the Token Pipe, was to correctly parse longer user input through use of tokenization. A comma was used as a delimiter. It was found that the User Input module does not automatically output a string. Unfortunately, that connection was not made at this point in development. For this reason, the Token Pipe did not function as intended, and gave errors instead of output.

The intended output would have been single tag words, much like if the user had inputted them into examples such as the Tag, Tag 2 Pipes. The context would be lost, and the term extraction would be bypassed, but the need for multiple input boxes, would have been solved.

4.2.10 Try with Token

http://pipes.yahoo.com/katedavies/tokentry

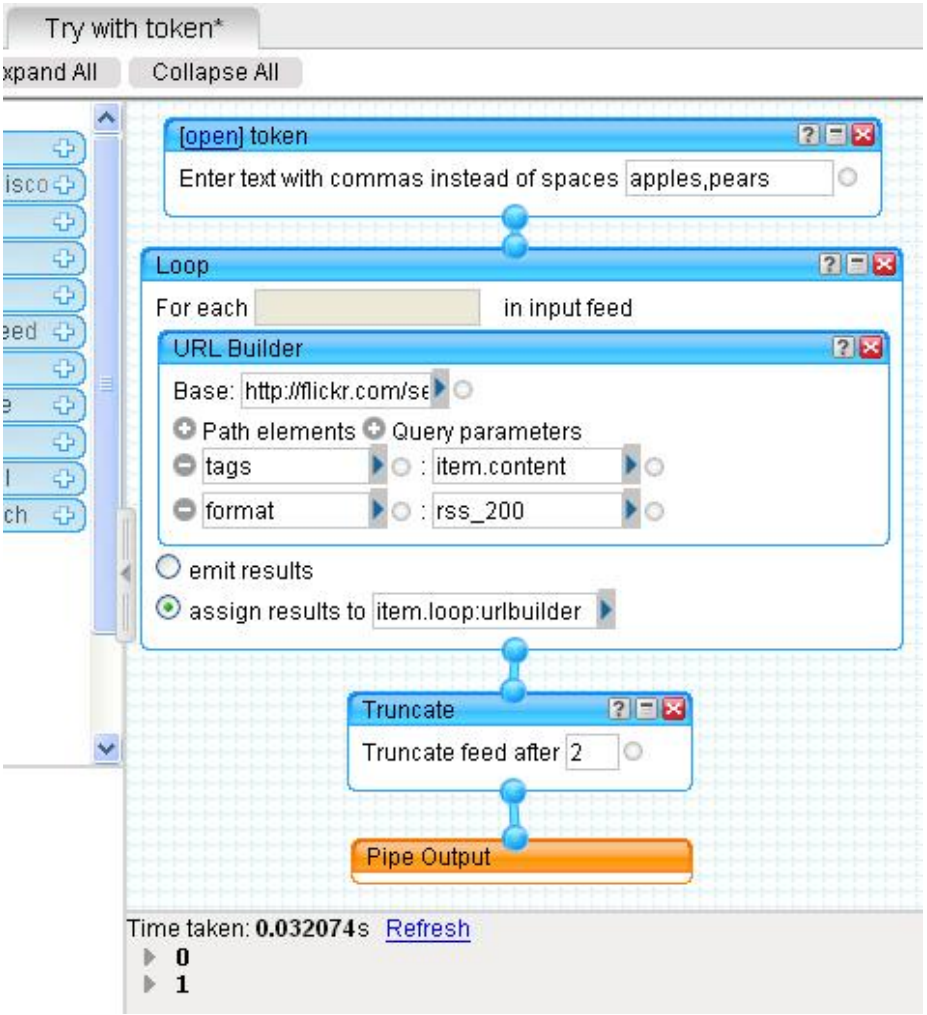

Figure 38: Development view of Try with Token

As an extension to the first token development, a loop was used to see whether the tokenization could be implemented successfully. Instead, the test showed that this was an incorrect implementation. In this Pipe, a custom module is shown, labelled ‘token’ at the very start of the Pipe.

4.2.11 String Builder Term Extraction

http://pipes.yahoo.com/katedavies/stringtermext

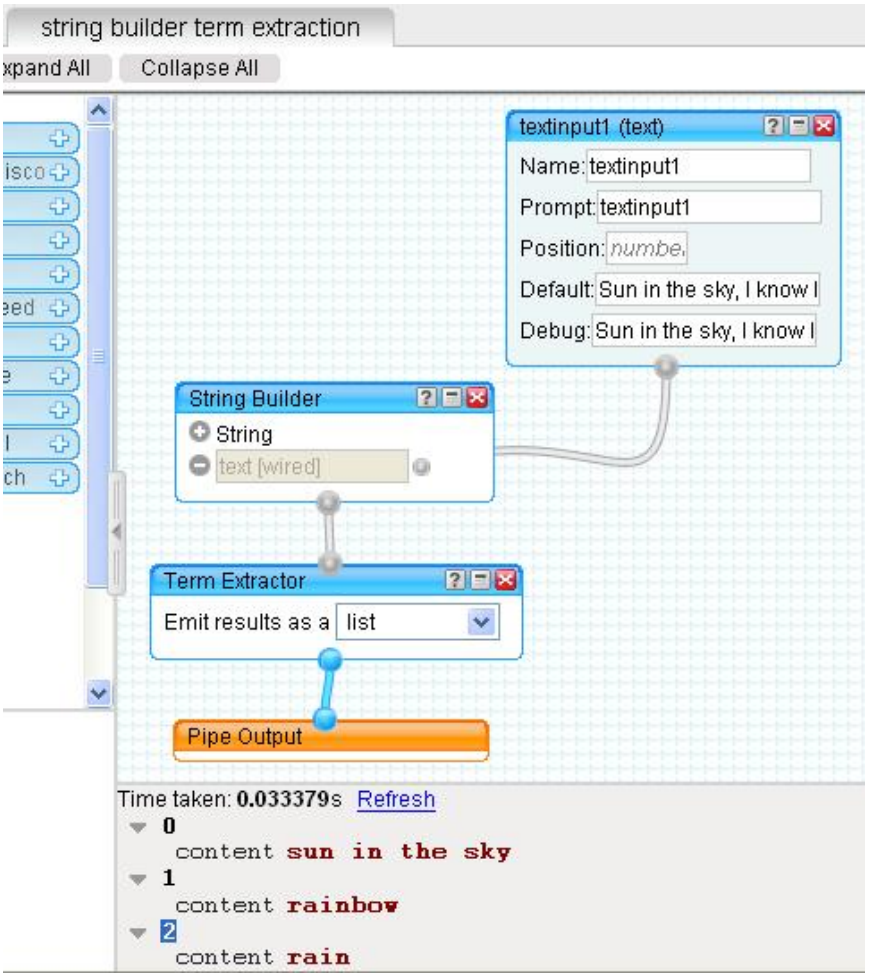

Figure 39: Development view of String Builder Term Extraction

Within Pipes, the Term Extraction module will not accept input straight from the User Text input module. However, it will accept input when it is built into a string. This Pipe was an investigation into the types of input the Term Extractor module would accept, and manipulating user input to meet the expectations.

Unfortunately, this Pipe does not output any visible results as it stands, apart from when debugged in development mode.

4.2.12 Token TEST

http://pipes.yahoo.com/katedavies/tokentest

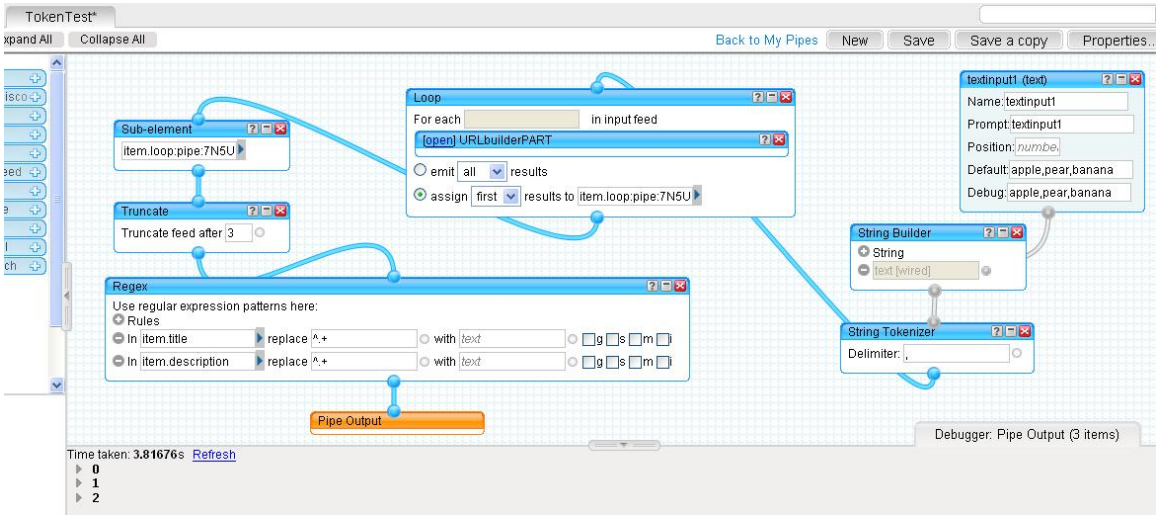

Figure 40: Development view of Token TEST

Development into tokenising user input was tested with other components from development, but unfortunately the test failed, with unusual output. It had been expected that the inclusion of the String Builder module would solve earlier tokenisation problems, but the Pipe still failed.

Since tokenisation was not a very suitable or intelligent method to break up user input into query input, (and ideally it should be passed through the term extraction module) tokenisation was shelved in this development from this point forward.

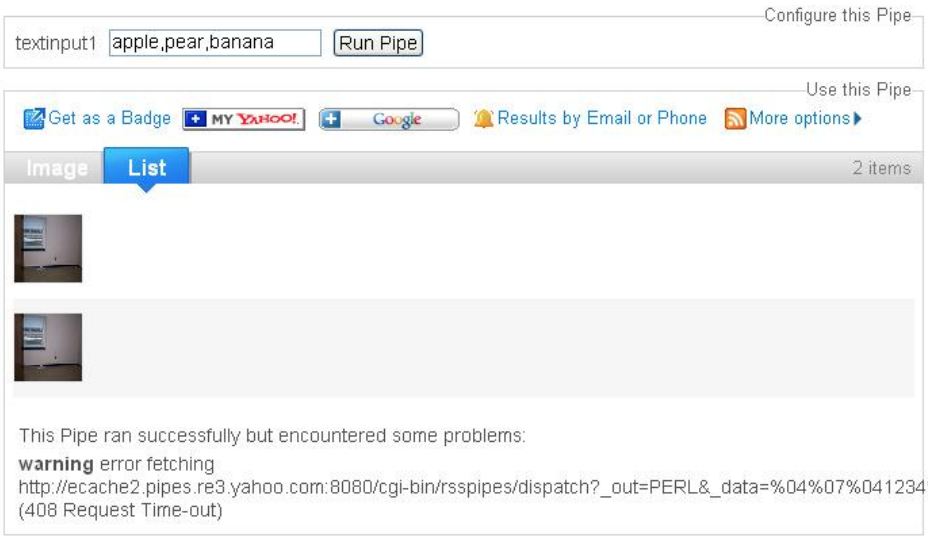

Figure 41: list output for Token TEST

4.3 Final Prototype #1

4.3.1 Version 1

http://pipes.yahoo.com/katedavies/tensun

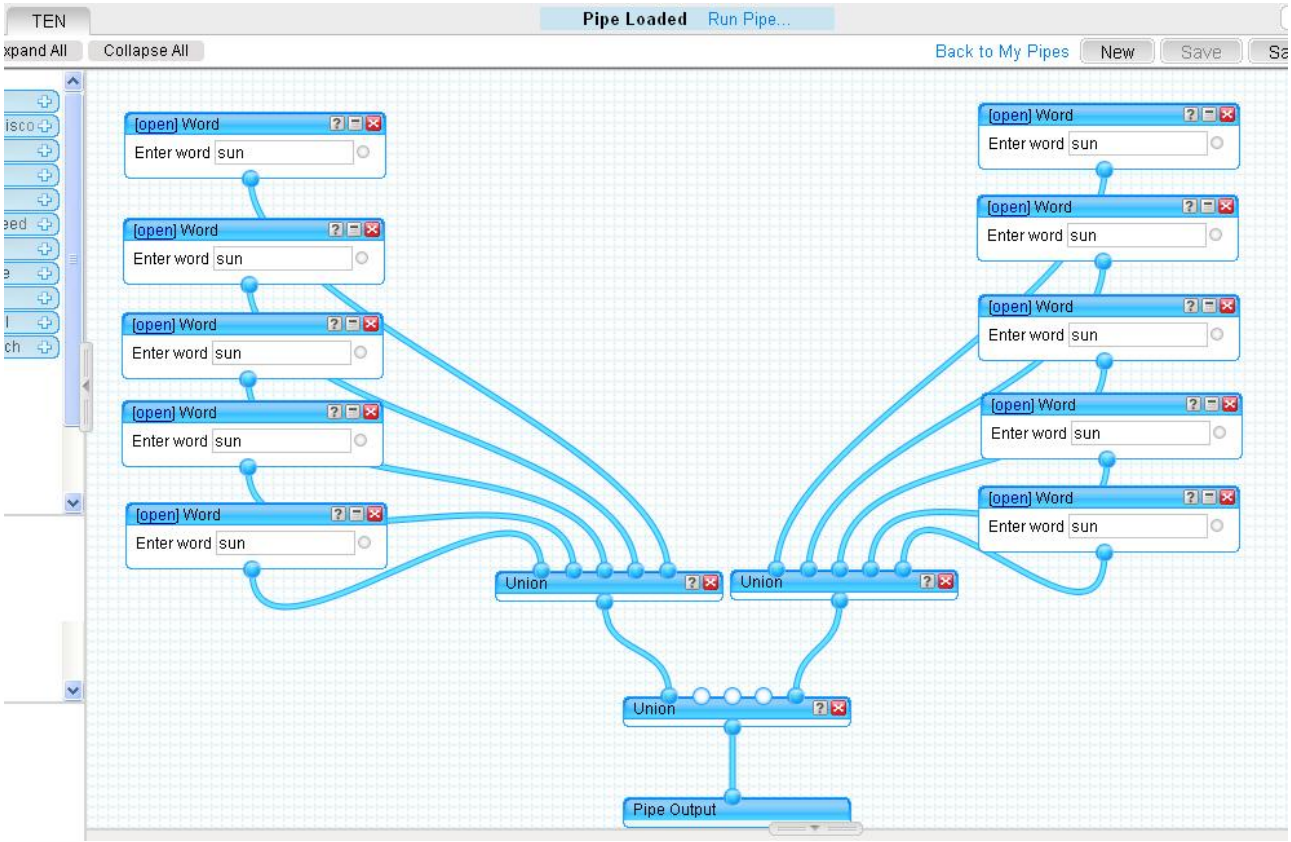

Figure 42: Final prototype, Version 1 in development view

The first final prototype, ready for testing began as a Pipe named Ten, but more fondly known as the 'octopus' due to its shape. Each of the legs are a compacted Pipe, forming a module in their own right. The problem encountered with this Pipe was that when run, no input boxes were displayed. This was disappointing, due to how simplistic the compacted Pipe appears in figure 42.

In addition, the connection order to the Union module is incorrect, as the Pipe words should feed into the Union module from top to bottom, left to right, as it does on the right hand side. Suspecting that the custom Pipe might not function correctly when compacted to a module, the next implementation of the final prototype was begun.

4.3.2 Version 2

http://pipes.yahoo.com/katedavies/wordplural

The second version of the final prototype was extremely long-winded, and due to its size, it was simply too cumbersome to screenshot in its entirety. It is based on the Pipe in 4.2.6 for with input, and use of Regex. Groups of five of these manually created Pipes feed into a Union, and then into another Union, cascading the results.

The reason for creating this version was to ensure there was a prototype ready for testing. However, during the development of this version, a solution for the first version was encountered, which created the third version.

4.3.3 Version 3

http://pipes.yahoo.com/katedavies/10inputs

The third version of the first prototype for testing is an improvement on version one. The initial ‘octopus’ layout was solved, by adding new text input boxes for the start of each Pipe, forcing the Pipe to show ten input boxes when the Pipe was run. This enabled the Pipe to be changed and experimented with more freely than the fixed input in version one. A source screenshot is shown overleaf in figure 43.

In retrospect, the first version, with the test statement coded in would have been a better presentation for the testing. However, it would have shown an incomplete viewing of the final prototype, which was aimed to allow changing input to be entered by the user. For this reason, version three was selected as the first test prototype.

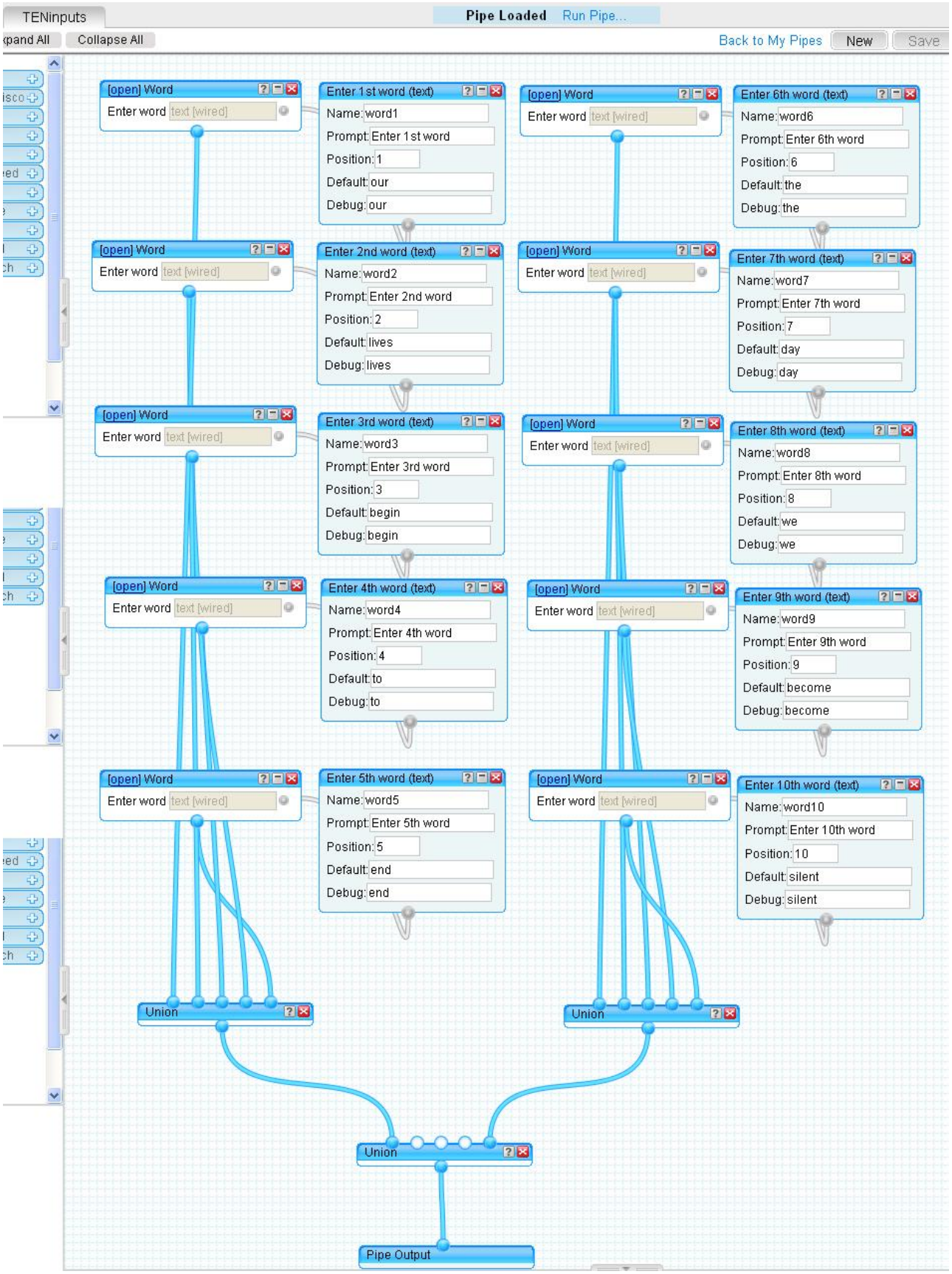

Figure 43: Final test prototype, in development view.

4.4 Prototype #2

http://pipes.yahoo.com/katedavies/10inputs

A second prototype neared completion, but due to time constraints, had to be abandoned to give adequate time for testing. This second prototype uses content analysis to intelligently review entered text, and pick out key phrases. The factor that prevented its completion was designing output that would incorporate the whole media text, and display the remixed material at the right intervals. In its present state, the second prototype displays a list of the extracted terms as a list, and does not interface quite correctly with the Flickr request.

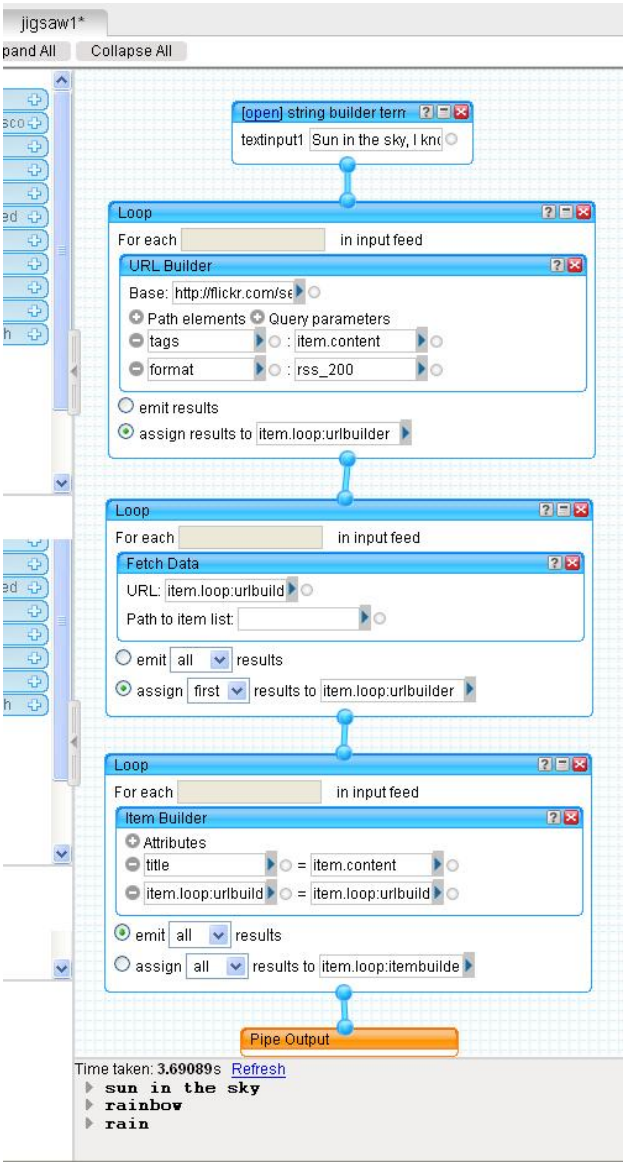

Figure 44: Second test prototype, still in development, shown in development view.

The string builder accepts an extended statement, which it builds as a string. A string is

an acceptable input for the Term Extraction module, which then outputs the extracted terms in a list.

Each of the terms is then inputted into the URL builder for Flickr, and then reassembled as a new feed in the second loop. In the third loop (still in development) the attempt is to output only certain content for the feed.

Chapter 5

Testing

5.1 Focus

The initial purpose of the remix application was to enhance or provide a differing experience to the user in comparison to reading the story as unillustrated text. This would be demonstrated using an application using more intelligent term extraction. As the development of the more intelligent system not been reached to a suitable level for testing, a less intelligent application will be tested in its place, potentially causing drawbacks to the quality of test results. The focus of the testing was maintained, but the expectations were reduced in the designer's view. For the purposes of the project, the testing should be focused on being ready to test a second prototype to compare results between the two prototypes, to show a change in the intelligence of the remix application, and hopefully prove an increase in positive experience.

One key focus of the user testing must quite clearly test changing experience. A subfocus of this focus would be to what extent, or whether the remix actually detract or distract from the experience in comparison to the plain text. The second focus to be tested would be the presentation of the remix material, and the preference of the testers.

To focus this, the following hypotheses were considered:

1. **HYP1** The remix provides a differing experience to plain text.
2. **HYP2** The remix enhances the interpretation of the media text.
3. **HYP3** The list view is the preferred viewing style of the application.
4. **HYP4** Tag context produces frequent irrelevant output.

5.2 Design of Test

To design an adequate test, the three hypotheses were considered in turn, and discussion took place to find appropriate methods for collecting evidence to answer the evidence. What is clear, is that the type of data to be collected is qualitative.

5.2.1 HYP1: The remix provides a differing experience to plain text

A suitable media test was required to test this hypothesis. Due to the restraints of the prototype, a ten word statement was the maximum length for testing at this time, though in retrospect, this was a sensible limit, as a longer media text would have further increased the difficulty at quantifying the data collected.

The statement chosen was “Our lives begin to end the day we become silent.” The statement is truncated from “our lives begin to end the day we become silent about things that matter” which is a quote of Martin Luther King. It is a powerful statement which can be interpreted in different ways. The reasons for choosing this statement were the differing interpretations, and also because the statement was not too descriptive. A statement that was a description would be far more likely to correspond with common Flickr tag words, and produce output which was both predictable and unimaginative. The statement chosen challenges the reader to consider their interpretation, which is further discussed in hypothesis 2, and therefore will be easier to judge the differing experience when applied with a remix application, as the output would be far wider or unexpected.

5.2.2 HYP2: The remix enhances the interpretation of the media text

It was judged that the most effective way of proving or disproving this hypothesis was to ask the test sample to consider their interpretations pre-remix and post-remix. Therefore, they should be asked to provide their interpretation of the statement as a simple text statement prior to viewing the remix. This also assists with hypothesis 1.

Following exposure to the remix, the test subjects would be asked if the remix had enhanced or changed their interpretation of the media text. It is expected that the enhancement may not be to the same heights as a more intelligent prototype would create.

5.2.3 HYP3: The image view is the preferred viewing style of the application

The test application produced two output views. By default it displays the image view. Alternative outputs are available, as illustrated below.

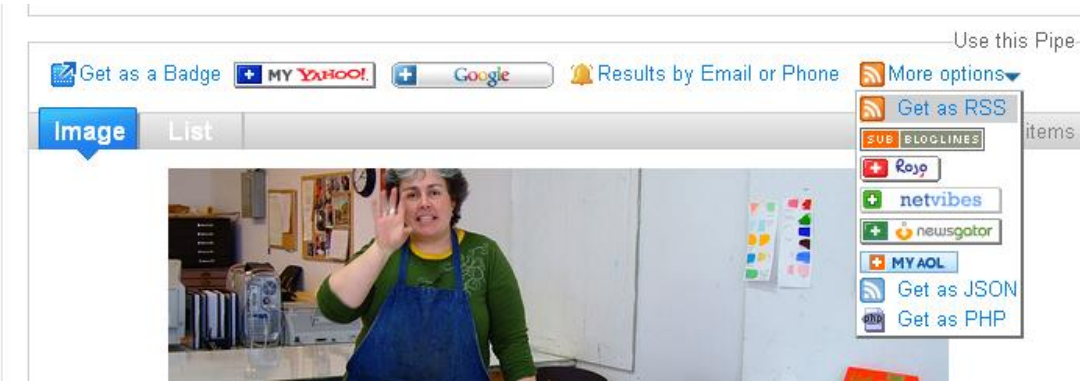

Figure 45: Alternative outputs of a Yahoo! Pipe.

The first, the image view, displays an enlargement of a photograph, followed by smaller thumbnails in a film strip beneath. When clicked, the enlargement would swap to the selected photograph, and the word the photograph represented would be visible on mouse over. The second, the list view, displays a list of thumbnail photographs with the associated word beside.

5.2.4 HYP4: Tag context produces frequent irrelevant output

This hypothesis is a precursor to extending the project to where it was originally intended to reach. As discussed in the literature review, the process of outputting a photo result for every word in a statement will potentially return output which lacks context to the overall statement. This is due to words having multiple meanings, and additionally, words that are conjunctions such as “to”, “and”, “it” would output erroneous content. This testing prototype would be better compared to the more intelligent second prototype, which works with phrases and keywords rather than individual words, retaining the context.

5.3 Pilot Questionnaire

Four questions were constructed to test the hypotheses. These were presented as a questionnaire, using the SurveyMonkey[3] online system. Five subjects agreed to be pilot testers of the questionnaire, and gave additional feedback about the questionnaire

[3] www.surveymonkey.com

structure and clarity to enable review, as detailed in Review of Pilot.

The questionnaire was carried out remotely, across the Internet, with support via instant messenger application, which allowed questions and queries to be fed back and noted during the testing. The nature of the application assisted this remote testing, as the application is hosted online and publically accessible. A lack of supervisor presence may potentially decrease influence the tester may have, or any possibility of the testers skewing results intentionally by bias.

Below, the pilot questionnaire structure has been detailed for better illustration of the process and its review.

5.3.1 Introduction

The first page of the pilot questionnaire introduced the context of the questionnaire and research, before stating the conditions that testers must agree to, before taking part. This was in accordance with the ethics guidelines set out by Hull University (see appendix).

> TITLE OF STUDY: WEB STORYTELLING
> Name of researcher: KATE DAVIES
>
> This is a pilot questionnaire relating to my dissertation research topic of web storytelling. The questionnaire will consist of four main questions, and will require written responses and evaluation to a scale. To answer the questions, participants will be asked to access an online web application, which will produce photographic output. The output is not guaranteed to be safe for viewing by minors, as it is not controlled by the researcher. That said, during preliminary testing and development, no output was witnessed to be offensive.
>
> Responses will be kept and analysed electronically, but will not be used to personally identify participants or disclosed to third party at any point. The data will exclusively be used for this research.
>
> If you wish to ask questions relating to the nature of this research, please direct

them to k.d.davies@2005.hull.ac.uk

- I confirm that I have understood the nature of the above study and have had the opportunity to ask questions.
- I understand that the researchers will interview me, and my responses will be stored on a computer for analysis.
- The purpose of the interview is to gain my views about web storytelling and remix applications.
- I confirm that I am 18 years or over.
- I understand that the results of all the interviews will be used for research purposes and may be reported in academic journals and in conference proceedings.
- I understand that in the research report and in other publications, I will remain fully anonymous and any information I provide will not be made public in any form that could reveal my identity to an outside party.
- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, in which event my participation in the research study will immediately cease and any information obtained from me will not be used.
- I agree to take part in the above study.

  If you understand and accept all the above, you may proceed with the questionnaire.

5.3.2 Word Interpretation

1. "Our lives begin to end the day we become silent."

Please explain your initial interpretation of the above statement, based on the words alone.

[Text entry box]

Testing: HYP1, HYP2

5.3.3 Navigate to Application

You are now required to view the online application in a new browser window, or a new tag, whichever you prefer. The URL for this is: http://pipes.yahoo.com/katedavies/10inputs

Please keep the questionnaire window open throughout.

Please do not edit the input already entered into the application.

When you have loaded the application, please proceed to the second question.

5.3.4 Remix Application: Image View

Please answer the following question, while viewing the application with 'Image View' selected. This view is indicated by the menu beneath the input boxes, and displays a large photo followed by a filmstrip of thumbnails beneath.

The photos can be scrolled through by clicking on them, and the title can be seen by hovering over the enlarged photo.

2. The application extracts photographs from Flickr, according to the statement entered. Using the image view, give a brief description of each photo relating to each word of the statement.

[list of words and text boxes for entry]

Testing: HYP4.

3. Please rate the image relevance to your interpretation of the word. 1 being not relevant, and 5 being very relevant.

(For example, if the entered word was 'cow' and the application outputted a picture of a cow, the relevance would be 5 (very relevant), or if it outputted the picture of an armchair, the relevance would be 1 (not relevant))

[List of words, and rating scale at the side, in the form of radio buttons.]

Testing: HYP4

5.3.5 Remix Application: List View

Please answer the following question while viewing the application in the view list setting. This is changed by clicking the word 'list' in the menu beneath the input boxes. This should change the view to a list of words and thumbnail photographs.

4. Compare the image and list views of the application's output. Which do you find more aesthetically pleasing, or interesting to view?

Please justify your reasons.

[input text box]

Testing: HYP3

5.3.6 Interpretation Change

This is the final question of the pilot questionnaire.

5. Please state if the application has changed your interpretation of the statement:

"Our lives begin to end the day we become silent"

[Y / N]

Testing: HYP2

6. If yes, please explain how the application changed your interpretation of the statement:

"Our lives begin to end the day we become silent."

[Input text box]

Testing: HYP2

5.4 Review of Pilot

5.4.1 Unclear Instructions

One pilot tester encountered difficulties with the instructions for the second question, when using the application. However, they reread the instructions a few times and understood the task better after. It was noted to review and structure the language in the question instructions better, and attempt to implement text formatting to make the instructions stand out.

Due to the limitation of the questionnaire format, the formatting was limited to plain text only. No image instructions or formatting could be applied. As a compromise, the instructions were rewritten, and more exact descriptions were given of how to perform the tasks.

5.4.2 Providing Photo Output and Qualifying Relevance for Conjunctions

Another pilot tester queried why output was produced for conjunctions. It was explained that this was to test hypothesis 4. To add this sort of in-depth explanation during the questionnaire would over clutter the already difficult tasks. The pilot tester confirmed that perhaps a concluding statement at the close of the questionnaire, explaining the application reasoning would be useful. Although potentially erroneous, this was considered for a suitable debrief of test subjects.

In response, the final page of the questionnaire was revised to reflect the concluding debrief suggested, and invited testers to ‘play with the application’ if they were curious. Several testers have left feedback about the amusing and coincidental results they have achieved from inputting the own phrases into the prototype, which suggests that following immersion in the application, a better experience is achieved.

5.4.3 Qualifying Relevance

A third pilot tester queried how best to qualify relevance with the values 2, 3 and 4. After a discussion it was suggested that an intermediary example of how an output can partially qualify relevance would be a useful addition to the explanation of how to quantify this question.

In response, an intermediate example was given of a cow print armchair. See the following section for how this was stated.

5.5 Formal Questionnaire

Below is the revised questionnaire format, with the views and suggestions of the five pilot testers taken into account, and the questions amended on reflection of their inputted responses.

5.5.1 Introduction

TITLE OF STUDY: WEB STORYTELLING
NAME OF RESEARCHER: KATE DAVIES

>> Context
This is a research questionnaire relating to my dissertation research topic of web storytelling.

The questionnaire will consist of four main questions, and will require written responses and evaluation to a scale.

To answer the questions, participants will be asked to access an online web application, which will produce photographic output. The output is not guaranteed to be safe for viewing by minors, as it is not controlled by the researcher. That said, during preliminary testing and development, no output was witnessed to be offensive.

>>Data collection
Responses will be kept and analysed electronically, but will not be used to personally identify participants or disclosed to third party at any point. The data will exclusively be used for this research.

>>Questions?
If you wish to ask questions relating to the nature of this research, please direct them to k.d.davies@2005.hull.ac.uk

>>CONSENT CONDITIONS

By undertaking this questionnaire:

- I confirm that I have understood the nature of the above study and have had the opportunity to ask questions.
- I understand that the researchers will interview me, and my responses will be stored on a computer for analysis
- The purpose of the questionnaire is to gain my views about web storytelling and remix applications.
- I confirm that I am 18 years or over.
- I understand that the results of all the questionnaires will be used for research purposes and may be reported in academic journals and in conference proceedings.
- I understand that in the research report and in other publications, I will remain fully anonymous and any information I provide will not be made public in any form that could reveal my identity to an outside party.

- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, in which event my participation in the research study will immediately cease and any information obtained from me will not be used.
- I agree to take part in the above study.

If you understand and accept all the above, you may proceed with the questionnaire.

5.5.2 Word Interpretation

1. "Our lives begin to end the day we become silent."

Please explain your initial interpretation of the above statement, based on the words alone.

Detail any images this statement triggers in your mind.

[Text entry box]

Testing: HYP1, HYP2

5.5.3 Navigate to Application

>> Important instructions

Keep the questionnaire window open throughout, please do not close the questionnaire

1. You are now required to view the online application in a new browser window, or a new tab, whichever you prefer.

2. Please navigate to:
http://pipes.yahoo.com/katedavies/10inputs

3. DO NOT edit the input already entered into the application.

4. When you have loaded the application, please proceed to the second question.

5.5.4 Remix Application: Image View

Please answer the following question, while viewing the application with 'Image View' selected.

This view is indicated by the menu beneath the input boxes, and the words "Get this as a badge". It displays a large photo followed by a filmstrip of thumbnails beneath.

The photos can be scrolled through by clicking on them, and the title can be seen by hovering over the enlarged photo.

2. The application extracts photographs from Flickr, according to the statement entered. Using the image view, give a brief description of each photo relating to each word of the statement.

[list of words and text boxes for entry]

Testing: HYP4

3. Please rate the image relevance to your interpretation of the word. 1 being not relevant, and 5 being very relevant.

For example, if the entered word was 'cow':
Output is a cow, relevance would be 5
Output is an armchair, relevance would be 1
Output is a cowprint armchair, relevance 2, 3 or even 4

[list of words, and rating scale at the side, in the form of radio buttons]

Testing: HYP4

5.5.5 Remix Application: List View

Please answer the following question while viewing the application in the view list setting.

This is selected by clicking the word 'list' in the menu beneath the input boxes, and "Get this as a badge". This should change the view to a list of words and thumbnail photographs, which you can scroll down through

4. Compare the image and list views of the application's output. Which do you find more aesthetically pleasing, or interesting to view?

Please justify your reasons.

[input text box]

Testing: HYP3

5.5.6 Interpretation Change

This is the final section of the questionnaire, and focuses on whether the application has changed your interpretation of the statement. Please answer truthfully and impartially.

5. Please state if the application has changed your interpretation of the statement:

"Our lives begin to end the day we become silent"

[Y / N]

Testing: HYP1, HYP2

6. If yes, please explain how the application changed your interpretation of the statement:

"Our lives begin to end the day we become silent."

[input text box]

Testing: (HYP1) HYP2

5.5.7 Finish

Thank you for participating in this pilot questionnaire.

Please feel free to play with the application, entering your own words. To change the words, enter new ones and click 'run pipe'.

This is the first of two prototypes for my final year project (dissertation). Unfortunately the second prototype has not reached a stage for testing, but would have produced similar output based on more intelligent term extraction than single words.

If you have any queries or further comments, please email them to k.d.davies@2005.hull.ac.uk

5.6 Additional Feedback

The test sample were encouraged to enter their own words into the test prototype after they had completed the questionnaire, which provided some additional feedback through comments. A handful of the testers reported to have changed the words, and some of their more significant comments were noted.

5.6.1 Better Results Using Less Abstract Words

This comment relates back to hypothesis 4, and the choice of the statement used for testing. Conjunctions were already perceived to be a difficulty for this prototype, and this would have become clearer if the testing had been able to incorporate and compare against the more intelligent version. The purpose of the test was not to prove that if nouns and adjectives were entered in abundance, that the most relevant photographs would be presented.

5.6.2 Pleasing and Comical Output

One of the more interested testers experimented with song lyrics as input. This relates back to the discussion of the Astronaut application in chapter 3, where predefined song words are used as tags to query Flickr. The tester was both pleased and amused to find that the test prototype outputted a photograph of Arsenal football club when the word ‘winning’ was inputted.

5.6.3 Images Unavailable

It was discovered in analysing the results (discussed in depth in the next chapter), that occasionally the images did not display in the prototype, instead, displaying a Flickr placer image. Unfortunately, the output is at the mercy of Flickr provision, and it can only be presumed that the image retrieved was not retrievable due to deletion or Flickr hosting problems. This is in contrast to if entered text does not retrieve a result, where the photograph is simply skipped, and not even shown.

5.6.4 Duplicate Images

Though not reported by any tester during the test process, duplicate images have been experienced outside of testing. This is predictably due to user tagging. For example, if the same photograph is shown for the conjunctions ‘to’ and ‘we’ it is because a Flickr user has tagged their photo with both these tags. By clicking on the image in question, and viewing the tags, it appeared that the owner of the photograph had entered a sentence into the tag input, which had been accepted as single word tags, including the words ‘to’ and ‘we’.

5.6.5 Questionnaire too Difficult

It was accepted that the questionnaire posed some thought provoking and seemingly unusual questions to those who did not know the full extent of the research prior to testing, although the project is explained briefly. This was identified in the pilot, and the instructions in particular were revised to make them simpler. However, the claim that the questions were too difficult was curious, as the majority of the test subjects provided results that were in direct response to the question, whereas a small minority appeared to have misinterpreted or misread the question, possibly in their haste.

Chapter 6

Analysis of Results

6.1 The Test Sample

The test sample consisted of 39 respondents, over a 48 hour period. Not all 39 respondents completed the test, and the breakdown was as follows:

- 39 completed question 1
- 29 completed question 2, though 6 were discarded as incorrect interpretations of the question, bringing the number to 23.
- 29 completed question 3
- 23 completed question 4
- 25 completed question 5

The raw results from the test questionnaire can be found in Appendix A.

6.2 HYP 1 & 2

HYP1: The Remix Provides a Differing Experience to Plain Text

HYP2: The Remix Enhances the Interpretation of the Media Text

These two hypotheses were tested by question 1 (*Explain your initial interpretation of the above statement, based on the words alone*.), question 5 (*State if the application has changed your interpretation of the statement.*) with qualification from question 6 (*If yes, please explain how the application changed your interpretation*).

The responses to question 1 were analysed qualitatively to identify key themes and word usage of the perceived interpretation of the statement, based on the plain text presentation. 39 respondents produced frequency as follows:

Theme	Frequency	Percentage	Theme	Frequency	Percentage
Death	14	35.90	**Martin Luther King**	1	2.56
Communication	14	35.90	**Zip**	1	2.56
Silence	11	28.21	**Fight**	1	2.56
People	5	12.82	**Empty**	1	2.56
Disability	3	7.69	**Veil**	1	2.56
Mouth	2	5.13	**Religion**	1	2.56
Oppression	2	5.13	**3 Wise Monkeys**	1	2.56
Gag	2	5.13	**Dementia**	1	2.56
Grave	2	5.13	**Coffin**	1	2.56
Birth	2	5.13	**White**	1	2.56
Expression	2	5.13	**Silver**	1	2.56
Protest	1	2.56	**Flight**	1	2.56
Nelson Mandela	1	2.56	**Nighttime**	1	2.56

Figure 46: Analysis of imagery and descriptive words returned in response to Q1.

The highest three terms were also included in the statement, but the majority show that the interpretation of the statement was negative. The statement expressed as text was very closed, plain, and without embellishment, relying on the respondent's imagination entirely. Only one of the 39 respondents correctly identified the source of the quote, suggesting that the majority interpreted the statement purely on the statement alone,

rather than the context they knew it belonged to.

Question five queried whether the remix had changed the interpretation of the text, an indication of whether the remix experience was significant for the respondents. 26 responded to this question. 73% decided the remix did not change their interpretation, and 27% responded that it had. The reasons for the change were given as:

- *None of the images were what I conceived when I first read the statement*.
- *The images put the statement more in the context of our relationships with others, particularly romantically. This was a part of my original interpretation, but is a larger part following the images being generated.*
- *If you don't stand up for what you believe in... i.e. stop wars... we might actually die*. (The respondent originally interpreted the statement as about 'fulfilling life')
- *The photos have given a more positive outlook on the phrase, even though most were not relevant. I now focus on the living and live part of the phrase rather than the silent/death/wordless part of the phrase.*

The other respondents reported that they had misread the original statement, causing their misinterpretation, and that the graphical output had assisted them in reading the words, and understanding them as a whole.

In answering hypothesis 1, the data collected does not give a clear enough result either way to prove or disprove. Reading a plain text statement is physically different to reading a plain text statement accompanied by photographs. Referring back to Nodelman's (2000) comparison of illustrated books to semiology, he describes the objects and metaphors in the story and illustrations as having "two different signs … in two different sign systems."

However, the results, particularly from question 5 would suggest that the respondents did not find the experience significantly different at all. This may be because the question was querying for a change in *interpretation* which is a little deeper than the more generalised *experience.* For this reason, hypothesis 1 can neither be proved nor

disproved by the data, though the data collected does suggest that a significantly changing experience is not achieved. Further research would be required to answer the hypothesis with any accuracy.

Hypothesis 2 appears to be untrue in the majority of respondents, with 73% stating that the remix did not change their interpretation of the statement. However, the 27% for which this did occur for, report that the hypothesis is correct. The overall dataset would stand to disprove the second hypothesis, though it could be reasoned that the choice of input statement did not lend itself to additional interpretation by the majority. To further clarify the results, a larger sample set, with multiple statements would need to be applied. In addition, a more sophisticated prototype could potentially yield more of an enhancement to interpretation, than the one tested.

6.3 HYP 3: The Image View is the Preferred Viewing Style of the Application

Hypothesis 3 was tested by question four, (*Compare the image and list views of the application's output. Which do you find more aesthetically pleasing, or interesting to view?*) which required respondents to view the application using the image and list views. 23 responded to the question, 70% preferred the image view, as opposed to 30% who preferred the list view. Though, the explanations for the choices showed that the reasons behind choosing these settings were for a variety of reasons.

	Pros	**Cons**
Image View	• See images more clearly • View photos one by one • Photos can be enjoyed alone, to make own interpretations on • Less distracting • Can choose to read descriptions later • Flows naturally	• Automated progression is too controlling and cannot be stopped. • Automated progression is too fast.
List View	• Clarity • Can click on thumbnails to view picture • Can read image descriptions • Easier to follow the link between each image and its associated word • Can view in own time • Whole phrase viewed together allows the mind to link up and create a story • Can control the output • Context is better understood.	• Thumbnails are too small • Not all the photos have descriptions • Text is unnecessary • Description distracts.

Figure 47: Pros and Cons of the two types of output view of the test Pipe.

A number of the respondents discussed that the view preferred would depend on what they wanted to get out of the application, though the majority preferred the image view, as expected. The results therefore prove hypothesis 3.

6.4 HYP 4: Tag Context Produces Frequent Irrelevant Output

The fourth and final hypothesis is based on the data returned from questions 2 and 3. Question 2 was posed to check the context of the photograph being analyzed for relevance. The remix would change over time, producing different photos. Although it did not progress as far as remixing afresh on each viewing, it did change gradually. To use fixed images would have potentially dictated the outcome of the hypothesis test, which is why the images were allowed to remix during the test (in definition, the application would have ceased to be a remix if the photos were static!)

Words	Average Relevance Score	Mode Score	Percentage With Score
OUR	3.00	1	27.59%
LIVES	3.21	3 4	34.48% 34.48%
BEGIN	2.97	4	34.48%
TO	1.55	1	62.07%
END	2.21	1	41.38%
THE	2.07	1	55.17%
DAY	2.62	1	37.93%
WE	2.93	1	31.03%
BECOME	2.07	1	41.38%
SILENT	3.07	4	24.14%

Figure 48: Table showing an analysis of relevance scoring

The majority of the words received a remix relevance of 1, which was expected. This is shown by the centre column where the mode score is listed for each of the words. The mode score is the score most applied to the photographs which were returned for the tag. When cross referenced with the percentage who selected his mode score, the conjunctions of to and the can be seen as the two most lowly rated words for relevance. The reasons for this are as discussed previously – they are conjunctions, rather than nouns or adjectives, and are therefore more difficult to signify with a photograph, short

of the photograph being of the word itself.

On the reverse, the noun lives scored highly in relevance. This was more often displayed by a photograph of pigeons flying in a square or plaza, with children. Although many respondents expressed their dislike of pigeons, they did rate the image of flight, movement and children as relevant to the word lives. This is reflected in the keyword analysis performed for hypotheses 1 and 2, where the words *people, flight,* and *birth* were found in responses. A correlation of these to the imagery in the photograph shows that the respondents did expect this type of image, and therefore found it very relevant.

From the data above, it can be said that the low rating of the majority of the statement proves hypothesis 4: tag context produces frequent irrelevant output. This would have been further proved by the testing of the second application prototype, but with the first set of data alone, a conclusion can be drawn, that could quite probably be reproduced with the same application, using a coherent statement.

Chapter 7

Further Research

7.1 Semiotics

A more thorough investigation into Bathes' theory of semiotics would be beneficial for progression with this research.

> Barthes believed that the significant semiotic systems of a culture lock in the status quo. The mythology that surrounds a society's crucial signs displays the world as it is today – however chaotic and unjust – as *natural, inevitable,* and *eternal*. The function of myth is to bless the mess.
>
> (Griffin, 2003)

Whether the creation of a remix is breaking the natural cycle of cultural semiotics, is unclear without further research into the theory. Certainly, semiotics has an important role in how we interpret the world around us, and the signs and symbols, a practise learnt from childhood, observing adults, experienced in the practise. To those well experienced, or interested in seeking the signs and signifiers, such a remix would be a pleasure, whereas to those who prefer to look at life more literally, they may take nothing from it. Cross culture, a whole host of semiotic linking could change.

7.2 Content Analysis Testing

The largest part of the research which could not be carried out was the comparison of tag queried results in the remix, to results returned following content analysis, the more intelligent filtering of text.

A second application, making use of content analysis ran into problems when formatting the output. The Pipes process differed to that of the tested prototype, and it was found that the output was not quite as simple as the solution previously used. Had the time limits been boundless, and the developer's experience with Pipes been far better, the application may have got to testing, but in reality, it is still in development.

Further research in this field, would be to refine the content analysis system, ensuring

that it is intelligent, and well timed to the rhythm of the words, providing a better experience than the first prototype, with its one word, one tag system.

7.3 Experience Testing

The testing carried out was not sufficient enough to fully test the first two hypotheses, in particular the first: the remix provides a differing experience to plain text. More in depth experience testing, most probably coupled with the further research into semiotics would be required to adequately prove or disprove the hypothesis.

In addition, better or more varied experience testing related to what sort of experience a user would wish to receive from a remix such as this would be useful as further

7.4 Additional Output

Following on from Jung, and his two flash remixes of First Snow and Astronaut additional output could be considered. Not only would words and photographs be output, but perhaps video or even spoken words and music. It is possible to implement speech, though the natural flow of the words would be dependent on the quality of the speech synthesis implemented. For speech, the application would also have to be intelligent towards the phrasing and rhythms of words, particularly with poetry.

Chapter 8

Personal Reflection

Although a lot of enjoyment has come out of this project, equally a lot of frustration has also prevailed. There is such a wealth of material that could be discussed within the literature review, and beyond, about experience, semiotics, and cultural interpretation, which the second chapter of this report feels almost to be just scratching the surface in some ways. The literature review process was intriguing, and eye-opening. Barthes' theory of semiotics changed the outlook on how we see and interpret the world around us, as signs and signifiers.

Progression of the development took a lot longer than was anticipated, and eventually had to be restricted, so as not to adversely impact on the rest of the research. As such, the tested application is not as advanced as it would have been hoped to be, but it is adequate to test, and does fulfil some of the design aims. In retrospect, development should have begun a little earlier, and the selected technology prevailed. Pipes still presented adequate challenges, despite its contrasting style to traditional coding. The application required lateral thinking, and multiple strategies to provide a solution to the problem. If the problem were to be approached again with the current experience and familiarity with Pipes, then the project would almost certainly have had a fully working second prototype for testing.

The difficulties with the development did have an affect on the research testing, where it was hoped that testing could be conducted to a deeper and more extensive extent, but was restricted by the fact the second prototype was not available for testing. This was disappointing, but it is hoped that the essence of what the second prototype was to achieve is clear from the report and the discussion surrounding testing. In addition to testing a second prototype, further research and consideration to semiotics would be included in questionnaires and also interviews.

Chapter 9
Conclusion

The initial aim of this research project was to create and test a remix application which tells a story using mixed media. What has been created is a prototype which remixes an inputted media text to output the media text with accompanying images to give a different experience, and in some cases, change the viewer's interpretation of the text.

Through this paper, there has been discussion of semiotics, illustrated literature, folksonomies, tagging, content extraction and the law and ethical aspects which surround remixing. This research formed the basis for the development of the application, and the eventual testing and evaluation of the experience generated by it.

Human testing data was used to attempt to prove or disprove four hypotheses, and achieved in part, to do so, though it was observed that for some hypotheses, more testing would be required to more accurately prove or disprove the hypothesis. This further testing suggestion and also further study was then detailed.

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Figures

Figure 1: Cumul.us http://www.cumul.us [Accessed 11 November 2007]

Figure 2: Digg Arc http://labs.digg.com/arc/ [Accessed 11 November 2007]

Figure 9: Getty Images Available: http://www.gettyimages.com [Accessed 11 November 2007]

Figure 10: Flickr photograph by Bewdlerian Available: http://www.flickr.com/photos/wrowlands/2270730581/ [Accessed 12 April 2008]

Figure 11: Flick photograph by Limbo Poet Available: http://www.flickr.com/photos/44639455@N00/1231859405/ [Accessed 12 April 2008]

Figure 17: PlotShot Available: http://www.plotshot.com/ [Accessed 12 April 2008]

Figure 18: First Snow Available: http://avoision.com/experiments/firstSnow/ [Accessed 13 April 2008]

Figure 19: Astronaut Available: http://www.avoision.com/experiments/astronaut/ [Accessed 3 February 2008]

Figure 45: Yahoo! Pipe Outputs Available: http://pipes.yahoo.com/katedavies/10inputs [Accessed 9 April 2008]

Appendices

Appendix A

This appendix contains the raw data from the test questionnaire.

Respondent	Q1 "Our lives begin to end the day we become silent." Please explain your initial interpretation of the above statement, based on the words alone. Detail any images this statement triggers in your mind.
1	Death, and silence. That we should speak out to live.
2	This could go on for pages, so I'll simplify my initial thoughts into two statements: 1) The symbolic - when we allow ourselves to stagnate, we cease to fulfil our potential. Or, to quote the Dylan lyric, "He not busy being born is busy dying". 2) The literal - the day we stop asserting ourselves is the day someone else will step in to do it for us, which could be the first step on a slippery slope.
3	Human beings need to communicate, it is what makes us human
4	This statement to me, means that if we stay silent over matters that mean a great deal to us then we will regret it and find our lives not worth living. images that come to mind are protesters, nelson mandela and a big mouth with a zip on it.
5	Image: Martin Luther King (can't help it) and civil rights activists on a march. Interpretation: If we forsake the right to express ourselves freely and fail to stand up for the things we believe in, we start to lose our sense of self. And without a sense of being, life becomes mechanical and one exists without truly living.
6	death is inevitable
7	Life ends when you die
8	we live to talk/communicate
9	The day we stop trying to advance and evolve, the day we stop fighting to survive, is the day we begin to die out...
10	Empty streets in a city with no sound - film images on mute.
11	Once we stop to speak about what matters to us, we cannot fully live our lives.
12	Communication is important. If we do not talk to each other then we're not really living
13	We lose our humanity when we succumb to external oppressive forces and stop standing up for ourselves. Images: veil, religion, oppressed women, gags etc
14	The moment we are silent, i.e don't speak out about things, we become less alive than when we are outspoke about our views. I "see" boring people who have no opinion on anything important and never speak up for themselves.
15	That talking, or communicating, is the most important and intrinsic value of human existence. That life without communication is as near to death as makes no odds
16	Hard to understand statement brings to mind the image of someone no longer able to speak or make sound
17	silent is death
18	The only time we start to die is the moment where we start becoming just like everyone else in the world - silent and unwilling to speak up.
19	a grave, 3 wise monkeys, a person with duct tape across their mouth
20	It is important to actively participate in life rather than just let things happen. I am reminded of film noir type images due to the similar quote, 'without passion you're already dead' from such a context.

21	This statement triggers the idea of a person with dementia - becoming silent can be the beginning of the end.
22	We're noisy during life but when we die we're silent. Babies. Grave/graveyard. Coffin
23	Morbid
24	Basically, to me it says that if we are silent - not silent as in 'not talking', but as in not communicating in any way, shape, or form - we are little more than inanimate objects taking up space. Interestingly, it makes me think of Margaret Haddix's book Among the Hidden, and specifically the line "I'd rather die on my feet than live on my knees."
25	that without being able to express yourself, you become nothing.
26	That through our outspokeness our lives make an impact and carry meaning. Without the abiliy to communicate we cannot express ourselves and therefore in a sense we do not exist to others. Images triggered - expanses of white and silver
27	It started off quite positively until I got to the word 'end'.... I think it means that people who have an unfulfilled life might as well not have a life at all.
28	Morbidly, I thought of death since one is truly silent when one is dead.
29	Once we relinquish our right to communicate, we might as well give up our right to life. Even people who can't speak can communicate.
30	Pesumably either death or lack of communication - but it excludes people who are dumb and use other methods to communicate, so I wouldn't agree with it. Only image generated was of disabled using sign language.
31	We're born, we live, we fly and then... we die.
32	At First Glance it is jibberish. but it Brings a images of night time or evening and Retrospect.
33	If we have no words to communicate to others or ourselves then there doesn't appear to be a reason to be around. This person is saying communication through our voices is the most important.
34	Initial thoughts are of life and the deeds we do in our time and the people we influence and touch are remebered and spoken of and outlives the day of our death. It also echos of a futility to stave off the inevitable.
35	lack of self-expression starts the decline in human faculties
36	Empty vessels make most noise' 'Silence is golden' 'People can be more intelligent when they choose to say nothing.'
37	They do? Who said that? I don't think so (though it's impossible to judge for sure, not knowing the exact context). Life is there to be viewed. What about being seen but not heard? What about mute people? Are you saying the day that we become literally silent, or the day that our minds refuse to communicate with the world anymore? Argh. Too vague. Too many possibilities!
38	This initially conjours up images of Death, but after a second read, makes me think of a world without free speech/one under communist rule.
39	when we die

Respondent	Q2 Using the image view, give a brief description of each photo relating to each word of the statement: OUR
1	two girls playing hockey
2	Three people in chef uniforms
3	team will win
4	Three chefs smiling
5	Chefs smiling. Posed picture.
6	
7	
8	three chefs
9	
10	
11	A chef and his team in front of their ("our") restaurant
12	
13	group of people, family
14	two chefs and a cook
15	
16	picture of a man, he's blurred out in red to the left
17	we
18	happy wedding
19	a couple leaving the church at the end of their wedding ceremony
20	wedding scene
21	
22	Our wedding ceremony
23	
24	bride and groom walking down the aisle
25	two people together
26	the wedding belongs to the happy couple
27	our love for each other
28	two people being married
29	Wedding
30	an oriental child, smiling, in a busy street setting
31	kid at disney land
32	our seems to be about a holiday
33	
34	pride - the little boy with his best shirt on having the time of his life
35	Child
36	intelligent black man
37	our incredibly bad attempt at shaving?
38	There is a medium close up of a black man wearing a white t-shirt, against a white wall. He has his right hand slighty clenched held up at shoulder height. His face is in semi-profile
39	

Respondent	Q2 Using the image view, give a brief description of each photo relating to each word of the statement: LIVES
1	photo of a plaza with birds flying away
2	Children feeding birds in a park
3	Together
4	boy running through pigeons
5	Freedom of childhood characterised by birds scattering and flying as a child runs towards them.
6	
7	
8	children in a park
9	
10	
11	A young girl on a bench feeding some birds, with a young boy in the background chasing the birds, showing the contrast between the two lives (a reference to a calm and a busy life)
12	
13	child with pigeons
14	child in park with pigeons… I hate pigeons :@
15	
16	picture of girl surrounded by pigeons, each and everyone of their lives are important
17	People
18	a person's a person no matter how small
19	b & w image of a girl sat on a bench surrounded by flying birds
20	children and pigeons, black and white
21	
22	childrens lives are full of simple fun - like chasing pigeons
23	
24	a child sitting on a bench surrounded by birds and another child chasing more of the birds
25	young life, full of fun
26	children and pigeons enjoying their lives
27	the pigeons are frightened for their lives as the boy runs to get the girls
28	girl and pigeons
29	pigeons - urgh! And little girl
30	black and white photograph of children, pigeons, in a town square
31	kid chasing pigeons
32	the photo shows that Lives of children
33	
34	free flight and the static - permenance in motion. Life
35	Birds
36	feeding pigeons in the park
37	a connection of two different types of lives
38	A black and white photo of a girl feeding pigeons on a bench. A young boy behind her is running foward, scaring the pigoens into flight. The angle is semi-side on.

39	

Respondent	Q2 Using the image view, give a brief description of each photo relating to each word of the statement: BEGIN
1	woman standing by a table with paints
2	Woman with paints out on a table. Looks like a children's school art class rather than painting in the fine art sense
3	to create something
4	painting with rollers
5	Linoelum blocks lined up with ink slabs
6	
7	
8	printing blocks
9	
10	
11	An artist and her tools begin to start her next project
12	
13	painting and decorating woman
14	Woman with various paints
15	
16	picture of woman with paints, the beginning of painting
17	start
18	possibility
19	a lady has various rollers in front of her with different colours on like she is about to start a new project
20	painting class
21	
22	begin by choosing the colour of the paint
23	
24	a lady with a number of paintbrushes and samples laid out before her
25	the beginning of an instruction
26	a creative process about to start
27	beginning to get mucky
28	woman with colours
29	woman with paint
30	techer/tutor in a classroom/studio using paint rollers as an illustration
31	female painter
32	a painter setting up some paint
33	
34	a blank canvas and your approach to colouring your world
35	paint
36	teacher starting a painting lesson
37	paint swatches - the beginning of a project?
38	A photo of a middle aged lady with one hand up. She has a blue apron on, and is standing behind a table with blocks of paint and rollers upon it
39	

Respondent	Q2 Using the image view, give a brief description of each photo relating to each word of the statement: TO
1	collage of photos of people
2	A collage of different images
3	Melt
4	lots of different pictures
5	collage of photos
6	
7	
8	collage of photos
9	
10	
11	a collage of different photos
12	
13	montage of lots of images of friends
14	Wall of 30 'thumbnail' photographs of young people
15	
16	picture of two people dancing
17	for
18	do it
19	a lady and man sitting kissing, and it looks like block is looking down her dress
20	painted historical romantic scene
21	
22	to passionately embrace
23	
24	historical romance cover
25	to do something, to love
26	I don't see a connection
27	to love and to hold
28	romantic couple
29	mills and boon book cover
30	idealised romantic 'book cover' illustration of a man and woman on a sofa in an edwardian setting
31	some old art print
32	the picture is of 2 victorian lovers
33	
34	prevocative - no there yet but the expectation in the air
35	kiss
36	live rock band on stage
37	a rock band, and the word "to"
38	This is a semi side on photo of an alternative band playing live at 'Urban Moto Music 2008'
39	

Respondent	Q2 Using the image view, give a brief description of each photo relating to each word of the statement: END
1	train with graffiti on the side
2	A wall covered in graffiti
3	of the line
4	big finished graffiti wall
5	Graffiti wall at dusk
6	
7	
8	graffiti covered wall
9	
10	
11	a graffiti-ed wall of a building symbolising the end of its 'life'
12	
13	graffiti wall
14	a wall of graffiti at night time
15	
16	a guy pointing to sky
17	finish
18	falling up
19	it’s a very cool picture - there is a guy stood on the top of a rock pointing off into the sky which ias an interesting shade of pink
20	pointing figure against pink sky
21	
22	the end of a spikey stem; a black rose
23	
24	man in a coat
25	the end of a life cycle almost
26	the end of an era, the end of a happy time
27	just before the end of a rose's life
28	black rose
29	grinning man
30	surreal picture of a man and repetitions of his bodyparts
31	wacky vector art
32	seems to be a whited out face that has a cross in it
33	
34	A donut has no end or beginning, a tool twisted
35	belt
36	there's a light at the end of the tunnel
37	the end of a tunnel. Bright light also symbolises the start of eternal life
38	A young girl in holding her knees together slightly. The photo is slightly out of focus and has the words 'til my heartaches end' and an author's name written across it in yello writing.
39	

Respondent	Q2 Using the image view, give a brief description of each photo relating to each word of the statement: THE
1	A bottle of alcohol
2	A beach scence, focusing mainly on a man
3	hidden face
4	man with sweat coming off his head
5	Emaciated man with bound arm and brown skin
6	
7	
8	asian man on beach
9	
10	
11	A man washin in a river
12	
13	starving african
14	A dark skinned man in a foreign country… possibly India. He is topless.
15	
16	blurry image
17	is
18	confusion
19	this ia picture of some wood arranged in a fence infront of this there is a very green plant
20	garden shed
21	
22	the fast car
23	
24	close up on a rock singer with microphone
25	the total embodiment of what is all around you
26	A singer on the way up, becoming important in the music world
27	the lights in the trees
28	silver car
29	Yarr! 'tis a pirate!
30	cartoon of a pirate head
31	sky scrapers
32	picture of a tower block
33	
34	sensory perception creates a reaction / emotion and having no idea of how to mask your reaction
35	painting
36	an empty stadium
37	numbers representing "something" as in "the"
38	Two men some distance apart from each other apparently in discussion. Both are in suits in front of a large window and a table with a small lamp.
39	

Respondent	Q2 Using the image view, give a brief description of each photo relating to each word of the statement: DAY
1	chicken in the sunshine
2	A bed of flowers - tulips or poppies, I think
3	is beginning
4	girl with sun shining behind her
5	Brunette girl standing before a man-made waterfall
6	
7	
8	this photo is currently available
9	
10	
11	photo currently unavailable - but description says it is of a botanical garden
12	
13	"This photo is currently unavailable"
14	Photo not available
15	
16	wrapped up building
17	time
18	a home run
19	a lilac and white mothers day card with a cheesy sentiment on the front
20	minimalist mother's day card
21	
22	a day at the hair and nail studio
23	
24	a white guy and a hispanic guy, sitting next to each other and smiling
25	the end of someones days
26	enjoying the day, two friends
27	woman looking down at the graves in the day
28	steffie's nail salon
29	dinnertime, looking guilty
30	two young men talking in a room. One holding a drink, other one leaning one hand on the wall
31	drama performer
32	an event happening at school
33	
34	being present - this moment, right here, right now
35	Baseball
36	a beautiful exotic flower
37	does this flower only bloom in the daylight?
38	A shot from inside a house looking through a window. There are 3 houses and two palm trees and a grey sky.
39	

Respondent	Q2 Using the image view, give a brief description of each photo relating to each word of the statement: WE
1	a couple about to kiss
2	A kissing couple
3	love to kiss
4	couple kissing
5	Man kissing a smiling woman
6	
7	
8	happy couple
9	
10	
11	a couple kissing showing that they don't refer to themselves as 'I' but as 'we'.
12	
13	couple kissing
14	a couple kissing playfully
15	
16	two people kissing, we are kissing
17	Us
18	Together
19	a girlfriend and boyfriend sharing a kiss ahh! The girl is wearing a yellow t-shirt and looks like she was caught off guard
20	kissing couple
21	
22	we got stuck in the snow in our car
23	
24	some sort of service truck helping a motorist stranded by snow
25	friends together
26	working together, people achieving something important
27	we are travel buddies
28	car snowed in
29	artic expedition got stuck
30	red bicycle on its side on the pavement with the words "what else?" in the bottom left hand corner
31	band setup (stage rig)
32	a band called hot rocket
33	
34	reaching out to those outside ourselves and a bond created
35	Guy
36	putting on strange rubber clothes
37	what?
38	A meduim closeup of a man's (the features seem male) mid/lower section. His hand is clasping at the zip area of his leather jacket.
39	

Respondent	Q2 Using the image view, give a brief description of each photo relating to each word of the statement: BECOME
1	two people with their heads together
2	Two young people maing the 'peace' or 'victory' sign with their fingers
3	what you are
4	two people giving the peace sign with their fingers
5	Two unattractive asians flashing peace signs
6	
7	
8	two asians doing peace/victory signs
9	
10	
11	Two people giving the 'peace' sign
12	
13	couple doing peace sign
14	two young chinese/japanese people doing the peace sign
15	
16	two people making hand signals
17	Change
18	Asian
19	a girl and guy looking into the camera the girl has rectangle framed glasses and they are both signing a peace sign, the guy has his tongue stuck out
20	friends making 'victory' gesture
21	
22	become a hippy student and made the peace again
23	
24	two Asian teens smiling/making funny faces and giving the victory sign with their fingers
25	become friends
26	becoming connected as friends, understanding each other
27	we've just become friends
28	two teenagers
29	boy and girl do peace sign at camera
30	asiatic couple giving "V" signs in a café setting
31	two oriental people doing peace or number two sign
32	two people doing v-signs
33	
34	freedom of creation and self expression
35	Peace
36	two friends on camera
37	becoming stupid?
38	A photo of two asian (presumably Japanese or of Japanese origin judging from the 'peace' sign they're both making) teenagers. One male and one female
39	

Respondent	Q2 Using the image view, give a brief description of each photo relating to each word of the statement: SILENT
1	a woman, alone, contemplating
2	A middle aged woman. Looks distracted and pensive
3	Pensive
4	couple kissing
5	Bespectacled woman deep in thought
6	
7	
8	middle aged lady looking thoughtful
9	
10	
11	A solemn-looking woman with her lips tightly shut
12	
13	miserable looking older lady
14	an old woman with glasses looking thoughtful
15	
16	poster depicting different words
17	Death
18	just words
19	a picture paints a thousand words. Ok there isn't a thousand words on the picture, but they are in black and in a bold typeface to show their importance.
20	pro (I think) Iraq war poster
21	
22	the silent page of writing
23	
24	black and white shot of a girl
25	the opposite of silence here
26	wanting to say something but not being able to
27	might as well be a silent poster because I can't read it
28	a lot of words
29	girl in hoodie
30	woman's head and hand. Black patterned head covering, large hoop earrings, smiling.
31	3d model of a female polygon character
32	an animated character from a game
33	
34	the creation of space for a conversation to occur… or not
35	Boobs
36	a sad and lonely young girl
37	literally, vocally silent, cos her mouth is closed?
38	Digital art of a female computer game like character on a bleak background and swirly plant like textures overlaying. You can only see up to the mouth/nose section of the character
39	

3. Please rate the image relevance to your interpretation of the word. 1 being not relevant, and 5 being very relevant.

For example, if the entered word was 'cow':

Output is a cow, relevance would be 5

Output is an armchair, relevance would be 1

Output is a cowprint armchair, relevance 2, 3 or even 4

Respondent	OUR	LIVES	BEGIN	TO	END	THE	DAY	WE	BECOME	SILENT
1	4	4	5	1	1	3	5	5	3	5
2	4	3	2	1	1	1	4	4	3	4
3	3	3	4	2	3	4	1	5	2	3
4	3	3	4	1	2	1	5	5	2	3
5	3	5	2	1	4	1	3	3	1	4
6										
7										
8	2	3	1	1	3	1	1	3	1	3
9										
10										
11	4	3	4	1	3	1	1	5	2	2
12										
13	4	2	1	1	2	1	1	4	3	2
14	3	4	4	1	4	1	1	4	3	4
15										
16	1	4	2	3	2	1	2	3	1	3
17	1	2	2	3	2	3	3	2	2	1
18	5	1	1	1	1	1	4	1	4	1
19	5	5	3	2	4	3	1	1	3	5
20	5	4	2	4	2	2	5	5	2	2
21										

22	5	4	5	2	1	3	1	3	1	2
23										
24	4	4	4	1	1	3	4	4	1	4
25	5	4	3	2	4	5	2	3	1	1
26	2	3	4	1	3	2	4	4	3	4
27	5	3	4	1	1	3	1	5	3	1
28	2	1	3	3	4	5	2	1	4	5
29	4	3	3	2	1	2	4	4	3	5
30	1	3	1	1	1	1	1	1	1	1
31	1	1	1	1	1	1	1	1	2	2
32	4	4	4	2	3	1	4	2	1	5
33										
34	3	4	4	2	1	4	2	3	1	4
35	1	1	1	1	1	1	1	1	1	1
36	1	5	5	1	5	1	4	1	4	5
37	1	3	3	1	1	3	3	1	1	3
38	1	4	4	1	2	1	5	1	1	4
39										

4. Compare the image and list views of the application's output. Which do you find more aesthetically pleasing, or interesting to view? Please justify your reasons.

Respondent	PREF	REASONS
1	Image	can see the photos more clearly than in the thumbnails, and it also progesses through the photos one by one.
2	Image	Image is probably more aesthetically pleasing as the photos are more visible than in the List view, but overall I prefer List for clarity. You can always click on thumbnails to enlarge them if need be, and I don't like the automated flick-through on Image.
3	Image	Picture can be seen more clearly and enjoyed alone to make your own interpretation. In list view not all pics have descriptions so it is not worth viewing the list really.
4		
5	Image	It is less distracting and leaves the images open to interpretation.
6		
7		
8	list	it is easier to follow which image goes with which word in the list,and i can look at the pictures in my own time as they were going too fast on the image view.
9		
10		
11	image	you can look first at the photo and decide on your own interpretation before choosing to read the description.
12		
13	list	Aesthetically - image. More to look at, flow nicely together. Useful - list - you can see the whole phrase together and pick links you wouldnt see normally. your mind makes up a story to link the images together
14	list	I prefer the 'List' view, as the 'Image' view kept changing when i did not want it to, thus ruining the aestheticness of the page. In the 'List' view I have more control
15		
16	list	the list, it shows a list of the descriptions which could have created a story depentdant on images, in this case it didnt work this way
17		
18	image	The image setting is more aesthetically pleasing, just because it gives you a bigger view of the photo (also without the comments made by people), though I have to say it goes through them too fast...probably not your fault.

19	image	The image view is more interesting since it allows proper viewing of the information, rather than unclear thumbnails with dull or missing text. The slide show feels like being led through the images.
20		
21		
22	image	The thumbnail pictures are too small to see so the other is better.
23		
24	list	I enjoy the image view better, because I can actually see what the image is. On the other hand, I dislike that it switches between pictures without me advancing it - in that, I prefer the list view.
25	image	the image view, because you can see more detail in the images. and because the text is not necessary.
26		
27		
28	image	The first one because I'm not sure what the list view is supposed to mean, if there IS any meaning.
29	image	In order to see the image in full, image is a better view. But if you want information about the image, list is better.
30	image	Image, as I can't see the detail in the list view.
31	image	the image version is way more wicked cool, due to the factor the images are bigger easier to see... and interactive (sort of) in a slide show manner.
32		
33		
34	image	I prefer the image views as the images are better able to be seen, the descrition written does nothing for what the image may invoke in the viewer.
35	list	list...we can see what they mean in context i.e. baseball opening day
36	image	I prefer the image view because the pictures close up seem to have a lot more resonance with the initial words than their actual captions- not that they all have captions but I think that's probably my fault :-\
37	image	You can hardly see what the pictures are supposed to be. I think you'd only like the list view if you were into minimalism. I'm into LOOKING at pictures, so I prefer the "image' view, I think; it's more aesthetically pleasing AND more interesting.
38	list	The image view moves horizontally and any descriptions are shown only when you scroll over the photo. I prefer the list view as I do not like the automatic slideshow. It is also easier to digest the images this way.
39		

5. Please state if the application has changed your interpretation of the statement: "Our lives begin to end the day we become silent"

6. If yes, please explain how the application changed your interpretation

Respondent	CHANGE	REASON
1	No	
2	No	
3	No	
4		
5	no	
6		
7		
8	no	
9		
10		
11	no	
12		
13	no	
14	no	
15		
16	no	
17	no	
18	no	
19	yes	None of the images were what I concieved when i first read the statement.
20	yes	The images put the statement more in the context of our relationships with others, particularly romantically. This was a part of my original interpretation, but is a larger part following the images being generated.
21		
22	no	
23		

24	no	
25	no	
26		
27	yes	if you don't stand up for what you believe in... i.e. stop wars... we might actually die.
28	no	
29	yes	
30	no	
31	no	
32	yes	Its made me think of night time in the game World of Warcraft, and Children playing it
33		
34	no	
35	no	
36	yes	Truthfully, I read the statement as "Our lives begin when we become silent." - so yes, it certainly means more now that I've read it properly
37	no	
38	yes	The photos have given a more positive outlook on the phrase, even though most were not relevant. I now focus on the living and live part of the phrase rather than the silent/death/wordless part of the phrase.
39		