

INFO5993/4990

CS Research Methods: Writing the annotated bibliography

Learning Hub

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THE UNIVERSITY OF
SYDNEY



Learning Outcomes

At the end of this workshop, you will be able to:

- understand what an annotated bibliography is and isn't
- understand the purpose and structure of an annotated bibliography
- read critically and take relevant notes
- demonstrate an understanding of evaluative language
- use functional language for an annotated bibliography

Assignment 1: Setting the Research Context

Tasks:




1. Develop a list of the **main research groups** working in your research topic. Briefly **justify** your selection.

Identify your research topic at the beginning of your response. [5 marks]


2. Develop a list of **top** conferences and journals in your research area ... for the purposes of this assignment, you need to provide between 8-12 conferences or journals. Your list **must include a range of both conferences and journals**. **Justify** your **selection** using a range of ranking systems and metrics such as CORE, ERA, SCOPUS, Web of Science, Scimago, or other relevant evidence. [10 marks]

Your Assignment: Setting the Research Context

Tasks:

- 
3. **Identify two exemplary papers** in **your research area**. For each of these papers, explain in detail why you think each one is exemplary (methodology evaluation, writing style, structure, etc.) Think about the papers you could use as a model for your proposed research project. [10 marks]
 4. **Identify two research questions** that have not been answered/addressed appropriately or at all in the field of research study... Also, explain how you have developed your research questions. [10 marks]

Your Assignment: Setting the Research Context



5. Provide **an annotated bibliography** of **core relevant articles and books** that are potentially very relevant to the research problems/questions that you have identified in the previous task (about 5 per research problem/question). Your annotated bibliography needs to contain the following for **each identified source**:

- (i) **A summary** and **evaluation** of the content of the publication; and
- (ii) An **explanation** of how its content is **relevant** to the research problem/question(s)

[25 marks]

What are the **main criteria** for choosing your sources for this assignment?

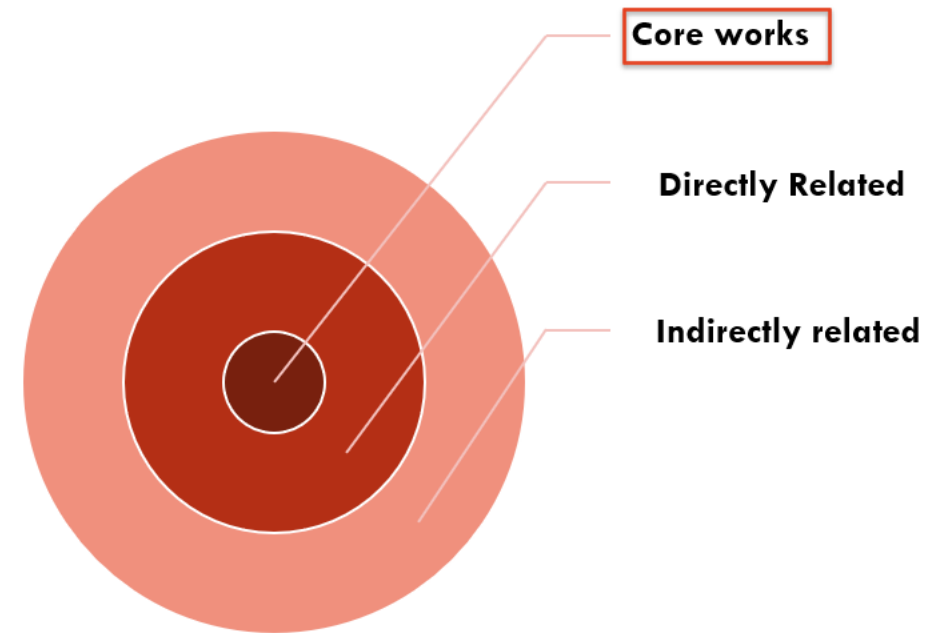
Core works

Tip! Remember – begin with bottom-up rather than top-down searching!

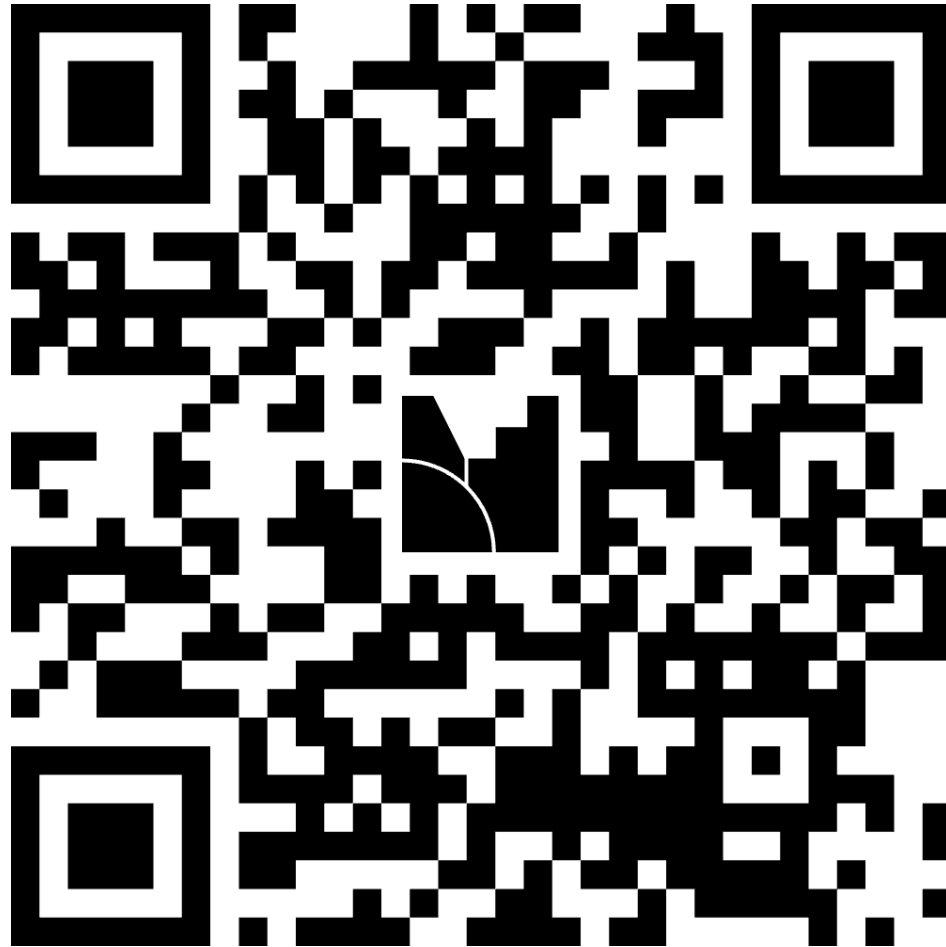
Your work will be mainly related to a very small number of specific topic areas, issues or even authors.

A good way of getting clear about your research problem is to start by basing it very clearly on **one issue or area** related to your topic.

You may even begin with **one author** and approach the problem as a "reaction" to their work.



Discussion: So what is an annotated bibliography?



Go to **menti.com** and use the code **8575 1085**

What is an annotated bibliography?

1. A **list** of citations organised as a normal reference list or bibliography
2. Each source should be chosen with your **purpose** in mind
3. After each citation, you need to provide an **annotation** (note about a source)
4. An annotation consists of a concise **summary, evaluation and reflection** (relevance, accuracy, quality) of each source
5. The annotation should be a **single paragraph**, approximately 150 to 200 words in length.

Resende, M.G.C., Ribeiro, C.C., 2003. Greedy randomized adaptive search procedures. In Glover, F., Kochenberger, G. (eds) *Handbook of Metaheuristics*. Kluwer Academic Publishers, Dordrecht, MA, pp. 219–249.

In this chapter, the authors describe the basic components of GRASP as well as successful implementation techniques and parameter tuning strategies. Enhanced or alternative solution construction mechanisms and techniques to speed up the search are also described. These include reactive GRASP, cost perturbations, bias functions, memory and learning, local search on partially constructed solutions, hashing, and filtering. The authors also discuss implementation strategies of memory-based intensification and post-optimization techniques using path-relinking, hybridizations with other metaheuristics, and parallelization strategies. Applications are also reviewed.

Resende, M.G.C., Ribeiro, C.C., 2005a. Parallel greedy randomized adaptive search procedures. In Alba, E. (ed.) *Parallel Metaheuristics: A new class of algorithms*. John Wiley and Sons, New York, pp. 315–346.

In this chapter, the authors survey parallel implementations of GRASP. They describe simple strategies to implement independent parallel GRASP heuristics and more complex cooperative schemes using a pool of elite solutions to intensify the search process. Some applications of independent and cooperative parallelizations are presented.

Resende, M.G.C., Ribeiro, C.C., 2005b. GRASP with path-relinking: recent advances and applications. In Ibaraki, T., Nonobe, K., Yagiura, M. (eds) *Metaheuristics: Progress as Real Problem Solvers*. Springer, Berlin, pp. 29–63.

Several recent applications of GRASP with path relinking are reviewed. Path-relinking adds a memory mechanism to GRASP by providing an intensification strategy that explores trajectories connecting GRASP solutions and elite solutions previously produced during the search. This paper reviews recent advances and applications of GRASP with path-relinking and discusses extensions of this strategy. In particular, parallel implementations and applications of path relinking with other metaheuristics are addressed.

Resende, M.G.C., González Velarde, J.L., 2003. GRASP: Procedimientos de búsqueda miope aleatorizado y adaptativo. *Inteligencia Artificial* 19, 61–76.

Here, the authors describe the basic components of GRASP as well as successful implementation techniques and parameter tuning strategies. In Spanish.

Resende, M.G.C., Ribeiro, C.C., 2008. Greedy randomized adaptive search procedures: advances and applications. In Gendreau, M., Potvin, J.Y. (eds) *Handbook of Metaheuristics* (2nd edn.). Springer, Berlin.

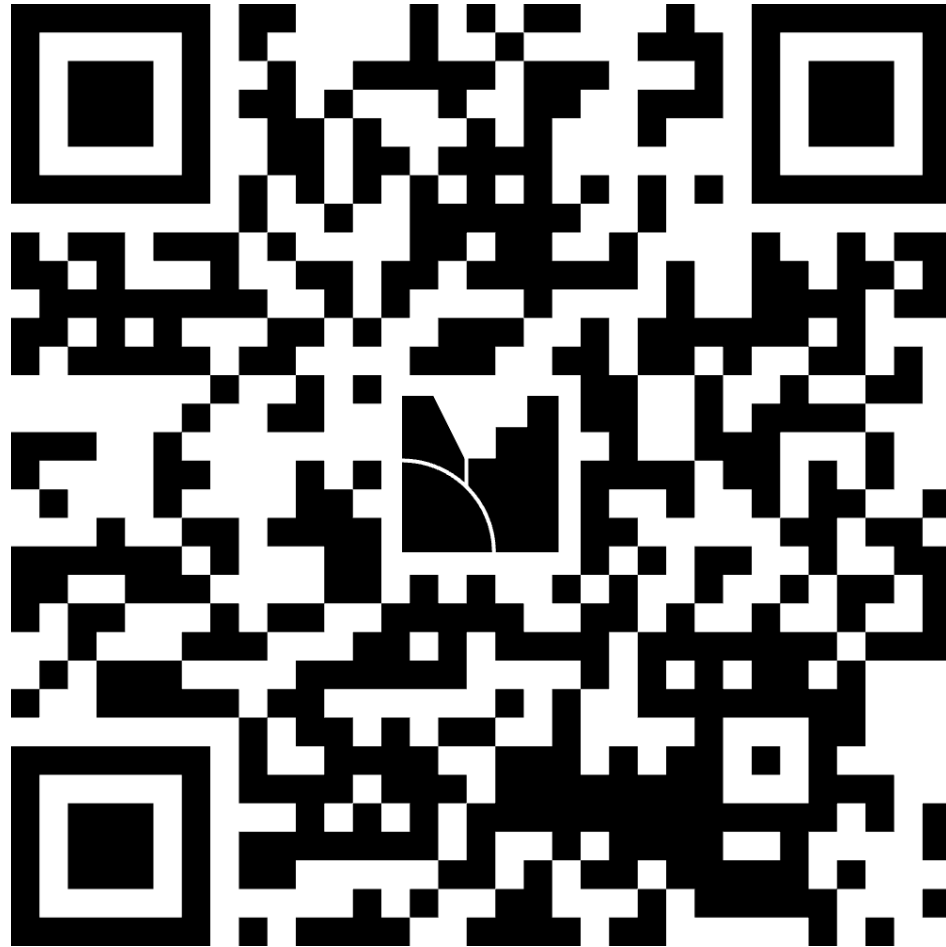
This chapter gives an overview of GRASP. Besides describing the basic building blocks of a GRASP, it covers enhancements to the basic procedure, including reactive GRASP, hybrid GRASP, and intensification strategies. Hybridizations with other metaheuristics are also reviewed. To appear.

Resende, M.G.C., 2008. Metaheuristic hybridization with GRASP. In Chen, Z.-L., Raghavan, S. (eds) *TutORials in Operations Research*. Institute for Management Science and Operational Research.

What an annotated bibliography is NOT

A bibliography or reference list	An abstract	A literature review
<ul style="list-style-type: none">➤ Organised list of sources WITHOUT notes (annotations)➤ Usually not a standalone piece of writing - found at end of research paper, book chapter, book.	<ul style="list-style-type: none">➤ 1-2 paragraph summary of main sections of a publication, incl. key problem, research question(s), methods, findings, implications.	<ul style="list-style-type: none">➤ A unified narrative that contextualises, summarizes, evaluates and synthesises scholarship on a given topic.➤ Organisation often determined by nature of research problem.

Discussion: Why should I write an annotated bibliography? Why is it useful to do?



Go to **menti.com** and use the code **8575 1085**

Why should I write an annotated bibliography?

You will:

1. gain an **overview** of your topic area or research problem, including any debates or differences in the field of study;
2. identify what you think are the **'core' sources or key texts** for your topic area or research problem;
3. begin to see **connections** between the various sources

Why should I write an annotated bibliography?

You will:

4. be able to clarify how these sources are **relevant** to your topic area or research problem(s) by
 - stating what aspects are **useful** for your research
 - explaining **how** they are useful and **why**;
5. develop critical thinking by providing an **overall evaluation** of each source, commenting on strengths and weaknesses/limitations – THINK: **significance, relevance, accuracy, quality, credibility or connections.**



This will help you to write your literature review

How should I read and take notes for my assignment?



<https://11.wp.com/objectivesecured.com.au/wp-content/uploads/2018/10/information-overload-pile.jpg?ssl=1>



What strategies do you already use to read efficiently and effectively?

How should I prepare to read actively and take notes for my assignment?

What is my reading purpose?



How should I prepare to read actively and take notes for my assignment?

Strategies	Why?	Possible ways to write about this in my notes
Read the title of the article or chapter	Provides the general focus	<i>The focus of this article is...</i> <i>In this article, the authors focus on ...</i> <i>This article is about ...</i>
Read the abstract (if there is one)	Provides an overview of the whole paper (aims, methods, results)	
Read the introduction (usually the first section of the article)	Provides the aims of the paper and more information about the focus	<i>The aim of this paper is ...</i>

How should I prepare to read actively and take notes for my assignment?

Strategies	Why?	Possible ways to write about this in my notes
Read the main headings	Identifies the main issues	<i>The main areas covered in this paper are ...</i>
Read each topic sentence	Provides details about the main issues	A key issue raised in this paper is... A central theme discussed in this paper is...
Read the conclusion	Identifies the results - recommendations - implications	<i>The authors conclude that...</i> <i>The results of this research have implications for...</i>

Critical reading

Note down:

- any **questions or observations** you have on the text (*usefulness? connection to other sources? reliability? audience? authors' background? unique features? Strengths / weaknesses?*)
- any thoughts on the **relevance** of the text to your research question / problem.
- **connections** with other publications? Does it build on, confirm or refute previous research?

Create an analysis grid for your annotated bibliography to see connections

Topic area: Digital systems to support research in the humanities

Author/ year	Aim/topic	Method	Outcomes	Questions / Observations
Rimmer, J. et. al. 2008	humanities scholars use of physical and digital information resources	interview	digital resources convenient but lose physical context	
Warwick, C. et. al. 2009	documentation practices for humanities digital resources	case study	documentation important for accessibility especially for novice users	
Marcial, L. & Hemminger, B. 2010	evaluative framework for scientific data repositories	web survey	institutional repositories could advance digital humanities	
White, H. 2010	scientists' personal information management practices	field study	data stores need to be tailored to disciplines	
Juola, P. 2007	projects for the digital humanities	literature survey	summary of possible research in the field of digital humanities	

Structure of an annotation

Part 1 Description

- **Citation** details (same format as it would be in reference list)
- A short statement outlining the **main focus or purpose** of the work and the author's **viewpoint**
- A short **summary** of the method, theory, research findings or argument

Part 2 Evaluation & Reflection

- Consideration of the **strengths / limitations** (depth, breadth, accuracy, credibility, currency, usefulness)
- Consideration of its **relevance & significance** to your research topic

Structure of an annotation

J. Rimmer, C. Warwick, A. Blandford, J. Gow, and G. Buchanan, “An examination of the physical and the digital qualities of humanities research,” *Inf Process Manag.*, vol. 44, no. 3, pp. 1374–1392, Oct 2007.

Citation in IEEE style

The authors report on findings from interviews with humanities scholars on their use of physical and digital information resources. While virtually all respondents are in agreement about the convenience of digital resources, the loss of physical “context” seems to mean different things to different people, ranging from the purely aesthetic (e.g. the excitement of handling ancient texts) to the serendipitous (e.g. having one’s interest sparked by physically co-located or otherwise similar resources). The surveyed researchers also demonstrate an awareness of the changing demand for information literacy skills, with mixed opinions on the subject. The tone the authors take is ultimately almost one of sentimentality, with their participants agreeing that digital resources are more reliable, presenting fewer difficulties in resource description and access, but in many cases less pleasurable to actually use. This suggests that the humanities community is aware of the advantages of migrating away from physical resources, but will do so with some regret. Although this article highlights the attachment of humanities scholars to traditional research practices, it does not explore how digital systems could support these practices. (180 words)

Annotation (1 paragraph)

Structure of an annotation

Part 1

The authors **report on findings** from **interviews with humanities scholars** on their **use of physical and digital information resources**.

Research problem,
Aim, Method

While virtually all respondents **are in agreement** about the **convenience of digital resources**, the **loss of physical “context”** seems to mean different things to different people, ranging from the purely aesthetic (e.g. the excitement of handling ancient texts) to the serendipitous (e.g. having one’s interest sparked by physically co-located or otherwise similar resources). The surveyed researchers also demonstrate **an awareness of the changing demand for information literacy skills**, with mixed opinions on the subject.

Summary of
findings

Structure of an annotation

Part 2

Research Question: What kinds of traditional research practices in the humanities could be supported and enhanced by digital systems?

The tone the authors take is ultimately almost one of sentimentality, with their participants agreeing that digital resources are more reliable, presenting fewer difficulties in resource description and access, but in many cases less pleasurable to actually use. This suggests that the humanities community is aware of the advantages of migrating away from physical resources, but will do so with some regret.

Evaluation

Although this article highlights the attachment of humanities scholars to traditional research practices, it does not explore how digital systems could support these practices.

Relating article to your
research problem or
question






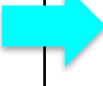
Structure of an annotation

Activity 1. On the handout (pp. 4-5), you will find examples of two annotated references. Divide each into its structural parts.







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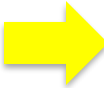
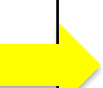
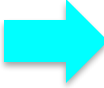

Example 1

Annotation	Structural parts
 J. Bonneau, M. Just, and G. Matthews, “What’s in a name? evaluating statistical attacks on personal knowledge questions,” in <i>Financial Cryptography and Data Security</i> , ser. <i>Lecture Notes in Computer Science</i> , R. Sion, Ed., Berlin / Heidelberg, Germany: Springer, 2010, pp. 98-113.	 Citation
 The authors attempt to evaluate the risk to account security posed by attacks on personal knowledge questions used as a backup measure for password loss. Several types of attacks are identified .	 Introduction/ Aim
 Mathematical models are constructed for describing the challenge-response structure of the personal knowledge questions as well as models for calculating the odds of an attacker correctly guessing an answer. Data sources for correctly guessing answers are identified , as well as other information that could reduce the set of likely answers. Combating the ease of guessing answers by rejecting those which are statistically probable is suggested as a counter-measure.	 Summary (method and outcomes)

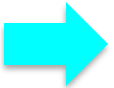
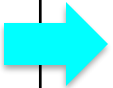
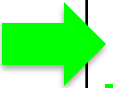
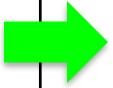

Example 1

Annotation	Structural parts
<p data-bbox="122 297 1842 435"> However the issues this may pose for users, for example, providing a very small set of possible questions, are not addressed.</p> <p data-bbox="122 675 1854 892"> Since this article provides not only an analysis of vulnerability in account security, but also methods to prevent it, it is useful for understanding methods of computer crime and tactics to prevent it.</p>	<p data-bbox="2046 297 2423 511"> Evaluation (by annotation writer)</p> <p data-bbox="2068 675 2402 811"> Relevance to own research</p>

Example 2

Annotation	Structural parts
 P. Juola, P. “Killer Applications in Digital Humanities,” <i>Lit Linguist Comput.</i> , vol. 23, no. 1, pp. 73-83, Feb. 2007.	 Citation
 This article serves as a response to recent surveys of non-digital humanists who have proven unmoved by research into digital methods of analyses, and ignorant of what the digital humanities can do to expand their horizons to their disciplinary benefactors.	 Introduction/ Aim (& evaluation)
 The author begins with the troubling evidence of what he calls the “rock-bottom” (p.75) impact factor of <i>Computers and the Humanities</i> , the field’s longest-running journal. Although this metric hardly spells doom on its own (and the author notes this in a somewhat self-defeating fashion, worrying about the significance of participation in the digital humanities by prestigious research universities), it does indicate that digital humanities content is not often reused....	 Summary (with some evaluation)

Example 2

Annotation	Structural parts
 ...The article then highlights several projects that the author believes may become “killer applications” (i.e. individual implementations, theories, or methodologies that drive the adoption of the entire field) for the digital humanities, selling the whole of the field single-handedly.	 Summary (with some evaluation)
 While it is not at all clear that this “killer application” philosophy is suitable to academic research, nor to the digital humanities in particular, the article nevertheless provides an accurate summary of promising research avenues in this field.	 Evaluation (by annotation writer)  Relevance to own research

Language of evaluation

Resource	Description and Example
1. Evaluative vocabulary	Words that can be interpreted as positive or negative “non-digital humanists unmoved by research into digital methods of analyses, and ignorant of ...“
2. Intensifiers	Intensify the meaning of words, making the meaning stronger or weaker “ somewhat self-defeating”
3. Modality	Words which express degrees of certainty, frequency or obligation “The article then highlights several projects that the author believes may become “killer applications”

Language of evaluation

Resource	Description and Example
4. Attribution	<p>Attributing or projecting claims to outside authorities in a specific or general way</p> <p>“Lewis claims that...”</p> <p>“recent surveys of non-digital humanists ...”</p>
5. Endorsement	<p>Attributing claims with more or less support or certainty</p> <p>“the author notes ...”</p>
6. Comparison	<p>Language to introduce similar ideas or results in order to support the writer’s evaluation.</p> <p>“Similar to other articles in the field, this article”</p>

Language of evaluation

Resource	Description and Example
7. Contrast	<p>Language to introduce contrasting ideas</p> <p>“This article serves as a response This article is in contrast to ...”</p>
8. Concession	<p>Resources which allow the writer to acknowledge strengths as well as weaknesses</p> <p>“While it is not at all clear that this “killer application” philosophy is suitable to academic research ... the article nevertheless ...”</p>

Focus on the language of evaluation

comparison
/ contrast

attribution

This article serves **as a response** to **recent surveys** of non-digital humanists who have proven **unmoved** by research into digital methods of analyses, and **ignorant** of what the digital humanities **can do** to **expand their horizons** to their disciplinary benefactors. The author begins with the **troubling** evidence of what he **calls** the **“rock-bottom”** (p.75) impact factor of Computers and the Humanities, the field’s longest-running journal.

evaluative
language

endorsement

modality

Focus on the language of evaluation

Although this metric **hardly** spells **doom** on its own (and the author **notes** this in a **somewhat self-defeating** fashion, **worrying** about the **significance** of participation in the digital humanities by **prestigious** research universities), it does **indicate** that digital humanities content is not **often reused**. The article then **highlights** several projects that the author **believes may** become “**killer** applications” (i.e., individual implementations, theories, or methodologies that drive the adoption of the entire field) for the digital humanities, **selling** the whole of the field **single-handedly**.

intensifiers

**evaluative
language**

endorsement

concession

modality

Focus on the language of evaluation

concession

intensifiers

evaluative
language

While it is not **at all** **clear** that this “**killer** application” philosophy is **suitable** to academic research, nor to the digital humanities in particular, the article **nevertheless** provides an **accurate** summary of **promising** research avenues in this field.

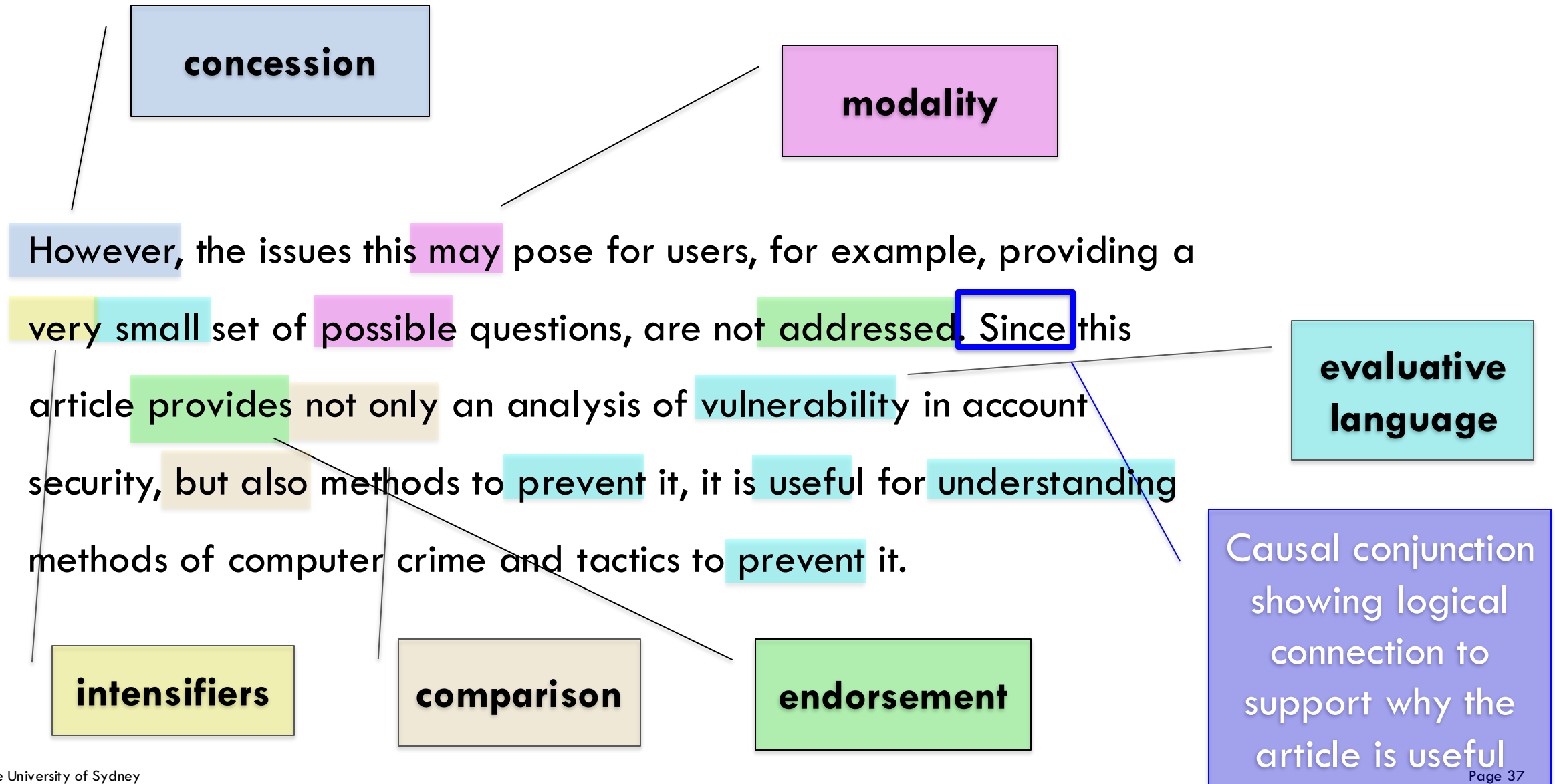
Focus on the language of evaluation

Activity 2. On the handout (p. 7), highlight the evaluative language in the extract. Focus on **EVALUATIVE WORDS** and **MODALITY**. After this, can you find other examples of evaluative language?

Activity 2: Focus on the language of evaluation

However, the issues this may pose for users, for example, providing a very small set of possible questions, are not addressed. Since this article provides not only an analysis of vulnerability in account security, but also methods to prevent it, it is useful for understanding methods of computer crime and tactics to prevent it.

Activity 2: Focus on the language of evaluation



Language for Sentence Beginnings

Descriptive component	
Introduction (Aim, Purpose, Author's viewpoint)	<p>This article reports on ...</p> <p>In this article, the authors report on ...</p> <p>This article serves as ...</p> <p>The author's purpose is to ...</p>
Summary of the method, theory, research findings or argument	<div><p>The article highlights several projects ...</p><p>The author identifies key concepts ...</p><p>The research focuses on ...</p><p>The main ideas / arguments ...</p></div> <div><p>The author begins....</p><p>These concepts include</p><p>Finally, the article concludes ...</p></div> <div><p>General</p><p>Specific</p></div>

Language for Sentence Beginnings

Evaluative component	
<p>Consideration of the strengths / limitations</p>	<p>While it is not clear ... the article nevertheless provides an accurate summary ...</p> <p>The main limitation of this text is ...</p> <p>The authors provide a strong theoretical base ...</p> <p>There is a lack of supporting evidence ...</p>
<p>Reflection on the relevance and significance of the text to your research question / problem</p>	<p>This article is particularly pertinent to ...</p> <p>In particular, this article will assist ...</p> <p>This article is relevant to ...</p> <p>Although the article is useful for the limitations of its research base ...</p>

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