**CONTENT OF THE LECTURES**

**1. Linguistic and psychological foundations of abstract and annotation.**

An abstract is a brief summary, generally from 100 to 200 words, of the contents of a document such as a research paper, journal article, thesis, review, conference proceeding, and other academic or legal document. The primary purpose of an abstract is to facilitate a selection of documents. A reader can grasp the essential points of the document without reading a full document. A reader can decide what to read and what not to read. Abstracts thus expedite the process of selection and saves time. An abstract, together with index, is a key finding aid of information in today's overabundance of information.

Scientific literature takes widespread advantage of the abstract as the abbreviated style of choice in order to aptly communicate complex research. In science, an abstract may act as a stand-alone entity in lieu of the paper as well. As such, an abstract is used by many organizations as the basis for selecting research that is proposed for presentation in the form of a poster, podium/lecture, or workshop presentation at an academic conference. Most literature database search engines index abstracts only as opposed to providing the entire text of the paper. Full-texts of scientific papers must often be purchased because of copyright and/or publisher fees, and therefore the abstract is a significant selling point for the reprint or electronic version of the full-text.

Abstracts are not public domain or open-source unless stated by the publisher. Therefore, abstracts are afforded protections under copyright law in many states just as any other form of written speech is protected. However, publishers of scientific articles invariably make abstracts publicly available, even when the article itself is protected by a toll barrier. For example, articles in the biomedical literature are available publicly from MEDLINE which is accessible through PubMed. It is a common misconception that the abstracts in MEDLINE provide sufficient information for medical practitioners, students, scholars and patients. The abstract can convey the main results and conclusions of a scientific article but the full text article must be consulted for details of the methodology, the full experimental results, and a critical discussion of the interpretations and conclusions. Consulting the abstract alone is inadequate for scholarship and may lead to inappropriate medical decisions.

Abstract length varies by discipline and publisher requirements. Typical length ranges from 100 to 500 words, but very rarely more than a page. An abstract may or may not have the section title of "abstract" explicitly listed as an antecedent to content, however, they are typically sectioned logically as an overview of what appears in the paper (e.g. any one of the following: Background, Introduction, Objectives, Methods, Results, Conclusions).

In journal articles, research papers, published patent applications and patents, an abstract is a short summary placed prior to the introduction, often set apart from the body of the text, sometimes with different line justification (as a block or pull quote) from the rest of the article.

An abstract allows one to sift through copious amounts of papers for ones in which the researcher can have more confidence that they will be relevant to his research. Abstracts help one decide which papers might be relevant to his or her own research. Once papers are chosen based on the abstract, they must be read carefully to be evaluated for relevance. It is commonly surmised that one must not base reference citations on the abstract alone, but the entire merits of a paper.

Example

Example taken from the Journal of Biology, Volume 3, Issue 2. The electronic version of this article is listed as Open Access as of March 30, 2005, and can be found online.[5]

The hydrodynamics of dolphin drafting

by Daniel Weihs, Faculty of Aerospace Engineering, Technion, Israel Institute of Technology, Haifa 32000, Israel.

Abstract:

Background

Drafting in cetaceans is defined as the transfer of forces between individuals without actual physical contact between them. This behavior has long been surmised to explain how young dolphin calves keep up with their rapidly moving mothers. It has recently been observed that a significant number of calves become permanently separated from their mothers during chases by tuna vessels. A study of the hydrodynamics of drafting, initiated in the hope of understanding the mechanisms causing the separation of mothers and calves during fishing-related activities, is reported here.

Results

Quantitative results are shown for the forces and moments around a pair of unequally sized dolphin-like slender bodies. These include two major effects. First, the so-called Bernoulli suction, which stems from the fact that the local pressure drops in areas of high speed, results in an attractive force between mother and calf. Second is the displacement effect, in which the motion of the mother causes the water in front to move forwards and radially outwards, and water behind the body to move forwards to replace the animal's mass. Thus, the calf can gain a 'free ride' in the forward-moving areas. Utilizing these effects, the neonate can gain up to 90% of the thrust needed to move alongside the mother at speeds of up to 2.4 m/s. A comparison with observations of eastern spinner dolphins (Stenella longirostris) is presented, showing savings of up to 60% in the thrust that calves require if they are to keep up with their mothers.

Conclusions

A theoretical analysis, backed by observations of free-swimming dolphin schools, indicates that hydrodynamic interactions with mothers play an important role in enabling dolphin calves to keep up with rapidly moving adult school members.

**2. Information. Types of informative abstract and ways of disclosure of the contents of texts**

There are mainly two types of abstracts—indicative (descriptive) and informative. Indicative abstracts describe only a metadata (data about the data) of a document, which includes the key research components such as purpose, scope, and research methodology. Indicative abstract simply describes what kind of research or writing the document is about and it does not contain any material content of the document such as conclusions. Informative abstracts, on the other hand, explain both material contents as well as its metadata. Other types of abstracts include critical abstracts which are "condensed critical reviews".[1] A critical abstract is an evaluative summary of the document and the abstractor describes the strength and weakness of the paper often comparing with other works in the field.

Authors are often asked to submit abstracts when they submit research papers. Abstractors are required to have both a professional training and general knowledge about the subject area.

Abstracts are also an important element for indexing. Indexers and search engines use abstract to find metadata of the contents the document for the purpose of compiling indexes.

Indicative Abstract and Informative Abstract

An abstract is not only a brief summary of a document but it also must be an "accurate representation of the contents of a document."[2] To create an abstract, an abstractor or a writer needs to identify two kinds of information about the document, metadata (data about the data) and the essence of its informative contents. Metadata is a description of what kind of information it is, which includes the purpose, scope, and research methodology. Informative contents are material contents of the document, which includes conclusions, suggestions, and recommendations. Depending on which information it contains, an abstract can be classified into two types: indicative (or descriptive) abstract and informative abstract.[3]

Indicative abstracts contain only metadata of the document and does not include informative contents. Whereas, informative abstract includes both metadata and informative contents. While indicative abstract is short in length and common in abstraction services, author produced abstracts such as those of thesis, journal essays, and articles are usually informative ones.

Example

Indicative abstract

Telephone interviews were conducted in 1985 with 655 Americans sampled probabilistically. Opinions are expressed on whether: (1) the establishment of a Palestinian state is essential for peace in the region; (2) U.S. aid to Israel and to Egypt should be reduced; (3) the U.S. should (a) participate in a peace conference that includes the PLO,(b) favor neither Israel nor the Arab nations, (c) maintain friendly relations with both. Respondents indicated whether or not they had sufficient information concerning various national groups in the region.[1]

**Informative abstract**

Telephone interviews conducted in 1985 with 655 Americans, sampled probabilistically, brought these results: most (54-56%) think U.S. aid to Israel and Egypt should be reduced; most (65%) favor U.S. participation in a peace conference that includes the PLO; more than 80% consider it important that the U.S. should maintain friendly relations with both Israel and the Arab countries; 70% believe that the U.S. should favor neither side; most (55%) think that the establishment of a Palestinian state is essential to peace in the region. The Israelis are the best known of the national groups and the Syrians the least known. The Arab-Israeli situation is second only to the conflict in Central America among the most serious international problems faced by the U.S.[4]

**Critical abstract**

A critical abstract is a critical evaluation of the document. An abstractor evaluates the document and often compares it with other works on the same subject. Critical abstract is a "condensed critical review."[1]

**Other types of abstract**

A modular abstract is a full content description of a document, consisting of five components: Citation, Annotation, Indicative abstract, Informative abstract, and Critical abstract. An abstracting service can use it for various purposes and needs.

**Length of abstracts**

An abstract is generally between 100 and 200 words. Some are, however, longer than 200 words and some are shorter than 100 words. In Indexing and Abstracting in Theory and Practise, W.L. Lancaster lists seven factors that affect the length of an abstract.[2]

The length of the document

The complexity of the subject matter

The diversity of the subject matter

The importance of the item to the organization preparing the abstract

The accessibility of the subject matter. If the item is a rare material and is not easily accessible, the abstract tends to be longer.

Cost of abstracting

Purpose

**3. Abstract and text activity (syntax, functional, communicative, informative text structure)**

Text becomes the object of attention not only of stylists, literature experts and bibliographers, but also of linguists, psychologists, cybernetics. The problem comes to the text of one of the first places in linguistics, in which a new direction - text linguistics, has set itself the task, according to R. Harverga, "find text-forming regularities inherent in all texts." What is meant by the text? From a wide range of definitions is enough to give some to show how different approaches can be the authors of the formulation of the concept.

1. Text - is a sign of having some internal structure. Text - a quadruple dictionary U, multiple locations M, a set of relations on the set φ Ө and display multiple locations in the dictionary. Symbolically this is written as follows: T = <U, M, φ. . ., Ө>. So treat the text advocates formal approach to the definition.

2. The text appears as the product of a special kind of intellectual and meaningful activity, designed to organize semantic information to communicate. So the text is interpreted by representatives of humanitarian wing.

The wording of text are not comparable, because they are the elements of the various systems, but even if we consider the existing definition of "text" in the framework of a single system (logical, semantic, grammatical, etc.), then there will find a variety of definitions.

**4.** **Lexical-semantic compression of texts (suppression, compression, compensation)**

Main methods of text compression preserving the information three:

1. Substitution. In any connected text, be it a work of art, scientific work or a note in the paper, there is a common theme and a variety of subjects and objects of thought which are featured for many paragraphs, pages, chapters, the book, the article notes. These semantic components are repeatedly mentioned in the speech, engaging in all new due to newly introduced into the language of meaning units. Connectivity text requires repeating the same semantic units.

2. Ptosis. Ptosis can be anaphoric and neanaforicheskim. Anaphoric omission - is the omission of segments of speech, which has just been made ​​in the immediate context.

3. Combination - a phenomenon in which two or more sentences of identical elements are superimposed on each other, forming a condensed structure. Combining always anaforichno: merger suggestions that are identical terms impossible.

**5. Logical principle of evaluation of text abstract of scientific literature**

Any text is the result of the speech act, expressing certain mental processes, of which perhaps the most important place is thinking. Since the study of the natural connections of the logic involved in thinking, so far, and use logical criteria should be part of a common set of regulatory requirements for any text. Application of logical principles for the evaluation of text (ie, the study of text from its logical correctness) is particularly important for referencing the scientific literature. Thought to follow certain rules of logic in constructing the text is even more important if we take into account the fact that the essay in some cases addressed to the mass consumer. Conscious mastery of logical principles for assistant helps develop skills composite text-depending on the structural and functional features. Selecting the preferred methods of reasoning, elimination and refinement of obscure forms, the use of classification rules, the comparative evaluation of complex structures, with different logical connections - that's a small part of the problems that are directly related to logic, and at the same time related to the methodology of "constructing the text."

**Lecture 2. Secondary documents and ways of their creation.**

Secondary sources are works of synthesis and interpretation based upon primary sources and the work of other authors. They may take a variety of forms. The authors of secondary sources develop their interpretations and narratives of events based on primary sources, that is, documents and other evidence created by participants or eyewitnesses. Frequently, they also take advantage of the work of other historians by using other secondary sources. For example, the author of the history textbook which you use in school probably did not use too many primary sources. Instead, textbook authors usually rely on secondary sources written by other historians. Given the wide range of topics covered by a typical textbook, textbook authors could not possibly find and use all the relevant primary sources themselves.

Here are some examples of secondary sources.

REFERENCE BOOKS: Reference books are good starting points for basic information about your topic, but they are only that. They should not be included in your bibliography. Look for general information in: encyclopedias, special historical dictionaries, and historical atlases. General encyclopedias such as World Book can provide you with basic information, while subject encyclopedias such as the Encyclopedia of the North American Colonies provide a bit more detailed information. Encyclopedia articles often have bibliographies which can direct you to some of the major secondary sources for a topic.

Biographical dictionaries are compilations of biographies of people selected because of their fame, accomplishments, membership in a particular group, or some other distinguishing characteristic. Each person's entry is a succinct summary of his or her life, often written by an expert.

Atlases are compilations of maps. Maps created at the time of an event—such as battlefield maps created at the time of a battle—are primary sources, but maps created later, such as those tracing the migrations of Indian tribes, are secondary sources.

POPULAR PERIODICAL LITERATURE: Popular magazines, indexed in the Readers' Guide to Periodical Literature, can give you ideas for and some general information about particular topics. Many magazines and newspapers publish articles dealing with individuals or historical issues. For example, in the mid-1990s many U.S. newspapers and magazines wrote about Nelson Mandela, whose political activism helped revolutionize South African society by ending apartheid, and who became president of South Africa in 1994 after spending 28 years in prison for his politics. Starting a project on apartheid, you might begin here, and get ideas for interesting topics about the events that led to this revolution.

HISTORY TEXTBOOKS: Yes, really! Your textbook can be a great place to get ideas for topics and find out about the general context of your topic. If you're interested in the invention of the telescope as it revolutionized astronomy, first do some background reading on the scientific revolution as a whole, perhaps in a general textbook on European history. This will help you understand how your topic fits in with the "big picture."

GENERAL HISTORICAL WORKS AND MONOGRAPHS: Move from the general to the specific. A book on the history of astronomy will provide more detail than a general text on European history. Try a keyword search at a larger library and you'll find dozens, if not hundreds, of books on the history of astronomy and related sciences. Another way to find secondary sources on your topic is to check the notes and bibliographies of books you've already found. And sometimes you might be able to find an entire book which is a bibliography on your topic; these books will be in the reference section, especially at university libraries.

Monographs are full-length books dealing with a relatively narrow topic and typically are intended for people with some background in the subject. Monographs typically rely on primary sources and are well-documented, with numerous citations.

JOURNAL ARTICLES: Historians don't always write books. Smaller essays on specific topics can be found in scholarly journals. These are periodicals similar to magazines, only they are specifically focused on history topics. Academic journals can usually be found at college and university libraries, and there are often indexes to help you find an article on a specific topic. Or just peruse some of these journals to see what kinds of questions professional historians are asking about your topic.

**Lecture 3. Language and style of the scientific literature.**

The main function of the scientific literature: rational cognition and linguistic presentation of the dynamics of thinking. Other communicative tasks. Inner differentiation and the formation of the sub-styles and genres of the scientific style used in different fields of science, characterized by different manners of scientific presentation. Sub-styles and genres: scientific style proper \ thesis, abstract of thesis, monograph, article, report, abstract of a report...\ popular scientific \ an article, annotations, review, etc.).”Sub-languages” of scientific styles: law, political, medical, economic, technical, computer, linguistic, etc. Types of presentation: description and argumentation ( deduction, induction). Different degree of polemics. Popularization of the scientific text. The addressee factor.

Peculiarities of scientific communication: planned, prepared delayed in time communication (except for lectures and reports). Style-forming features: great role of tradition in the use of language means, objective and non-categorical presentation, specific means of expression, a certain extent of emphasis, restrictions in the use of intensification, evaluation, emotional language means, absence of imagery.

Language means of the scientific style:

• lexical means - highly specialized scientific terminology, terminological groups, revealing the conceptual systems of the scientific style, the peculiarities of the use of terms in scientific speech, the use of nouns and verbs in abstract meanings, special reference words, scientific phraseology - clichés, stereotyped and hackneyed word combinations and idioms, priority of neutral vocabulary, limitations in the use of emotional- evaluative and expressive vocabulary and phraseology, absence of non-literary vocabulary and phraseology ( slang words, vulgarisms, obscene words) , peculiarities in word- building (standard suffixes and prefixes, mainly of Greek and Latin origin – tele-, morpho, philo- -ism, etc.), peculiarities in the scarce use of imagery (usually trite and hackneyed, the priority of the functions of intensification and decoration, non-systematic, narrow contextual character, absence of rich associations, schematic and generalized character);

• grammatical means: nominal character ( the predominance of nouns over verbs) in the use of parts of speech, the use of prepositional “of-phrases” to substitute the genitive case, transposition of the classes of nouns, wide use of the Passive Voice, Indefinite Tenses, specialization of pronouns in demonstrative and intensification functions, numerous conjunctions revealing the logical order of the text as well as double conjunctions ( not merely... but also, whether ... or both... and, as...as), adverbs of logical connectuin ;

• syntactical means: priority of full, logically correct, regular syntactical models, the syntax of simple sentence in the scientific speech - extensive use of extended two-member sentence, priority in the use of compound sentences, extensive use of secondary predicative constructions ( Complex Object, Participial and Gerundial Constructions), wide use of conjunctions and denominative prepositions, concise expression of syntactical connection in word combinations, sentences, groups of sentences, absolute priority of declarative sentences in the use of communicative types of sentences;

• composition of scientific text as an explication of the stages of cognition and productive thinking, the usual model is presented by the following scheme - a problem situation, idea, hypothesis, proof, conclusion, compositional speech forms of discussion, argumentation and description, conclusion, types of narration, wide-spread co-referential repetition as a specific method of text development.

Functional restrictions: strong objections to the use of non-literary vocabulary, scarce use of emotional and intensification units of vocabulary and phraseology, and stylistic devices (metaphors, metonymies, etc.), absence of the second person form and corresponding personal pronouns, scarce use of “I-speaking”, limited use of incomplete and non-declarative, and one-member sentences.

**Lecture 4. Types of secondary documents in the field of document service.**

A secondary source is a document or recording that relates or discusses information originally presented elsewhere.

Examples of some secondary sources are: books, newspapers, pamphlets and encyclopaedias.

Secondary sources involve generalization, analysis, synthesis, interpretation, or evaluation of the original information.

Secondary sources are invaluable to sociologists, but they have to be used with caution. Their reliability and validity are open to question, and often they do not provide exact information required by a sociologist.

Secondary sources are research reports that use primary data to solve research problems, written for scholarly and professional audiences. Researchers read them to keep up with their field and use what they read to frame problems of their own by disputing other researchers' conclusions or questioning their methods.

Sociologists often use secondary sources for practical reasons. They can save time and money and they may provide access to historical data that cannot be produced using primary research because the events concerned took place before current members of society were born.

A vast range of stats are produced by the government. In recent years the government statistical service (produced in 1941) has coordinated the production of government statistics, but the production of large scale statistical data goes back at least to 1801, when the first census was conducted.

Sociologists interested in demography have used statistical data from the census and elsewhere to examine a wide range of topics, which include birth and death rates, marriage and fertility patterns, and divorce.

Sociologists who study deviance have used official crime and suicide statistics.

The many official economic statistics are of interest to sociologists concerned with work.

John Scott has provided some useful guidelines for evaluating secondary sources which he calls documents. The criteria can be applied to all secondary sources, including existing sociological research. They offer systematic ways of trying to ensure that researchers use secondary sources with as much care as they employ in producing primary data.

Scott identifies four criteria:

1) Authenticity - there are two aspects of authenticity soundness and authorship. Scott says a sound document is one which is complete and reliable (ensuring all the pages are there, no misprints and if it is a copy of an original it should be a reliable copy without errors. Authorship concerns who wrote the document. Many documents are not actually produced by those to whom they are attributed. For example letters signed by Prime Minister may have been written by civil servants and might reveal little about the prime ministers own views.

2) Credibility - this issue relates to the amount of distortion in a document. Any distortion may be related to sincerity or accuracy. In a sincere document the author genuinely believes what they write. This is not always the case as the author may hope to gain advantage from deceiving readers.

3) Representativeness - a researcher must be aware of how typical or untypical the documents being used are in order to assign limits to any conclusions drawn. Two factors that may limit the possibility of using representative documents are survival and availability. Many documents do not survive because they are not stored, and others deteriorate with age and become unusable. Other documents are deliberately withheld from researchers and the public gaze, and therefore do not become available.

4) Meaning - this concerns the ability of the researcher to understand the document for example the document may be written in a foreign language or written in old fashioned language or handwriting or vocabulary which is difficult to comprehend.

**Lecture 5. Analysis of the abstract in comparison with other types of secondary texts.**

In characterizing abstracting from an educational point of view, it is important, on the one hand, to identify common feature of all the text associated with the analytic-synthetic processing of information, on the other hand - to set specific features abstract, make it a special kind of text. The closest the abstract and summary synopsis.

There are several different definitions outline contained in the works L.M.Kuznetsovoy, VI Gor'kov, ON Model [62, 63, 64] to characterize this type of text with varying degrees of completeness. Thus, in the definition given L.M.Kuznetsovoy, synopsis characterized as a kind of analytical and synthetic processing of information related to the sphere of information activities, which aims - to identify, organize, and generalization (with possible critical assessment), the most relevant information first-hand and written fixation it in a form intended for publication secondary document, which delivered its compiler from recurring reference to the very original source [62, p. 9]. According to this definition, note taking is an independent form of the analytic-synthetic processing of information.

Following A.A.Veyze, we believe that the types of work such as making a logical plan tezirovaniya, note-taking should not be considered the result of semantic clotting source, ie types of summary text along with the abstract and the abstract, but rather a form of work, the operations as a part in the processing of text when referencing "[65, p. 70].

**10. Abstract model of the formation of linguistic skills for the students of linguistic specialties**

The model consists of three stages. In the first stage (approximately), followed by M. Lyakhovitskii [3], we believe that training should start with abstracting familiar with the basic types of informative clotting means disclosure of the contents of texts and essays models built with different compression of the original text. Second (training) stage model of learning is abstracted from the original source predreferativnogo analysis, abstracting postreferativnogo analysis phase and a secondary text editing.

The main purpose of the analysis is to determine predreferativnogo functional-semantic structure of the text, and therefore is to introduce the primary source of information and understanding of the whole. We focus on the viewing and reading it as a subspecies of the leading elements of reading, prior abstracted, as we consider the hallmark of this type of reading deductive (global) approach to the text. The principle of the deductive approach to the text is to move from the general to the specific, from general semantic organization of the text and its overall communicative sense to analyze all the smaller its business units, down to the individual proposals. The idea of ​​a hierarchical structure of the text goes back to N. Zhinkin and successfully developed a number of other researchers (IA Winter, LP Doblaev, TM Dridze, VD Tunkel, AE-Vendeland Babaylova etc.). At the same time, as mentioned earlier in Section 1, we consider the thesis of SK Folomkina about the importance of a change in strategy in a mature reader, and proceed from the fact that different phase referencing provided different types and subtypes of reading. Learning objectives of this phase are mainly presentational and educational in nature, take into account the structural features of text segments that exceed supply.

**Gists for making scientific presentations**

There are many good references regarding how to give an effective talk — that is, a technical presentation, whether at a conference, to your research group, or as an invited speaker at another university or research laboratory. This page cannot replace them, but it does briefly note a few problems that I very frequently see in talks.

Get feedback by giving a [practice talk](https://homes.cs.washington.edu/~mernst/advice/giving-talk.html#practice-talk)! One of the most effective ways to improve your work is to see the reactions of others and get their ideas and advice.

Think about the presentations you attend (or have attended in the past), especially if they are similar in some way to yours. What was boring about the other presentations? What was interesting about them? What did you take away from the presentation? What could you have told someone about the topic, 30 minutes after the end of the presentation?

**The content**

Before you start preparing a talk, you need to know your goal and know your audience. You will have to customize your presentation to its purpose. Even if you have previously created a talk for another venue, you may have to make a new one, particularly if you have done more work in the meanwhile.

The goal of a talk you give to your *research group* is to get feedback to help you improve your research and your understanding of it, so you should plan for a very interactive style, with lots of questions throughout. In a *conference talk*, questions during the talk are extremely unlikely, and you have much less time; your chief goal is to get people to read the paper or ask questions afterward. In a seminar or *invited talk* at a university, you want to encourage questions, you have more time, and you should plan to give more of the big picture.

The goal of a talk is similar to the goal of a [technical paper](https://homes.cs.washington.edu/~mernst/advice/write-technical-paper.html), so you should also read and follow my [advice](https://homes.cs.washington.edu/~mernst/advice/write-technical-paper.html) about writing a technical paper. In either case, you have done some research, and you need to convince the audience of 3 things: the problem is **worthwhile** (it is a real problem, and a solution would be useful), the problem it is **hard** (not already solved, and there are not other ways to achieve equally good results), and that you have **solved** it. If any of these three pieces is missing, your talk is much less likely to be a success. So be sure to provide motivation for your work, provide background about the problem, and supply sufficient technical details and experimental results.

When you give a talk, ask yourself, “What are the key points that my audience should take away from the talk?” Then, elide everything that does not support those points. If you try to say too much (a tempting mistake), then your main points won't strike home and you will have wasted everyone's time. In particular, *do not* try to include all the details from a technical paper that describes your work; different levels of detail and a different presentation style are appropriate for each. Never paste PDF of a table from a paper to slides. Reformat the table to be more readable and to remove information that is not essential. The talk audience does not have as much time to comprehend the details as a paper reader does.

A good way to determine what your talk should say is to explain your ideas verbally to someone who does not already understand them. Do this before you have tried to create slides (you may use a blank whiteboard, but that often is not necessary). You may need to do this a few times before you find the most effective way to present your material. Notice what points you made and in what order, and organize the talk around that. Slides should not be a crutch that constrains you talk, but they should support the talk you want to give.

Do not try to fit too much material in a talk. About one slide per minute is a good pace (if lots of your slides are animations that take only moments to present, you can have more slides). Remember what your key points are, and focus on those. Don't present more information than your audience can grasp; for example, often intuitions and an explanation of the approach are more valuable than the gory details of a proof. If you try to fit the entire technical content of a paper into a talk, you will rush, with the result that the audience may come away understanding nothing. It's better to think of the talk as an advertisement for the paper that gives the key ideas, intuitions, and results, and that makes the audience eager to read your paper or to talk with you to learn more. That does not mean holding back important details — merely omitting less important ones. You may also find yourself omitting entire portions of the research that do not directly contribute to the main point you are trying to make in your talk.

Just as there should be no extra slides, there should be no missing slides. As a rule, you shouldn't speak for more than a minute or so without having new information appear. If you have an important point to make, then have a slide to support it. (Very few people can mesmerize an audience on a technical topic, and leave the audience with a deep understanding of the key points, without any visual props. Unfortunately, you are probably not one of them, at least not yet.) As a particularly egregious example, do not discuss a user interface without presenting a picture of it — perhaps multiple ones. As another example, you should not dwell on the title slide for very long, but should present a picture relevant to the problem you are solving, to make the motivation for your work concrete.

**The slides**

**Slide titles.** Use descriptive slide titles. Do not use the same title on multiple slides (except perhaps when the slides constitute an animation or build). Choose a descriptive title that helps the audience to appreciate what the specific contribution of this slide is. If you can't figure that out, it suggests that you have not done a good job of understanding and organizing your own material.

**Introduction.** Start your talk with motivation and examples — and have lots of motivation and examples throughout. For the very beginning of your talk, you need to convince the audience that this talk is worth paying attention to: it is solving an important and comprehensible problem. Your first slide should be an example of the problem you are solving, or some other motivation.

**Outline slides.** Never start your talk with an outline slide. (That's boring, and it's too early for the audience to understand the talk structure yet.) Outline slides can be useful, especially in a talk that runs longer than 30 minutes, because they helps the audience to regain its bearings and to keep in mind your argument structure. Present an outline slide (with the current current section indicated via color, font, and/or an arrow) at the beginning of each major section of the talk, other than the introductory, motivational section.

**Conclusion.** The last slide should be a contributions or conclusions slide, reminding the audience of the take-home message of the talk. Do not end the talk with future work, or with a slide that says “questions” or “thank you” or “the end” or merely gives your email address. And, leave your contributions slide up after you finish the talk (while you are answering questions). One way to think about this rule is: What do you want to be the last thing that the audience sees (or that it sees while you field questions)?

**Builds.** When a subsequent slide adds material to a previous one (or in some other way just slightly changes the previous slide; this is sometimes called a “build”), all common elements must remain in *exactly* the same position. A good way to check this is to quickly transition back and forth between the two slides several times. If you see any jitter, then correct the slide layout to remove it. You may need to leave extra space on an early slide to accommodate text or figures to be inserted later; even though that space may look a little unnatural, it is better than the alternative. If there is any jitter, the audience will know that something is different, but will be uneasy about exactly what has changed (the human eye is good at detecting the change but only good at localizing changes when those changes are small and the changes are smooth). You want the audience to have confidence that most parts of the slide have not changed, and the only effective way to do that is not to change those parts whatsoever. You should also consider emphasizing (say, with color or highlighting) what has been added on each slide.

**Keep slides uncluttered.** Don't put too much text (or other material) on a slide. When a new slide goes up, the audience will turn its attention to comprehending that slide. If the audience has to read a lot of text, they will tune you out, probably missing something important. This is one reason the diagrams must be simple and clear, and the text must be telegraphic. As a rule of thumb, 3 lines of text for a bullet point is always too much, and 2 full lines is usually too much. Shorten the text, or break it into pieces (say, subbullet points) so that the audience can skim it without having to ignore you for too long.

Do not read your slides word-for-word. Reading your slides verbatim is very boring and will cause the audience to tune out. You are also guaranteed to go too fast for some audience members and too slow for others, compared to their natural reading speed, thus irritating many people. If you find yourself reading your slides, then there is probably too much text on your slides. The slides should be an outline, not a transcript. That is, your slides should give just the main points, and you can supply more detail verbally. It's fine to use the slides as a crutch to help you remember all the main points and the order in which you want to present them. However, if you need prompting to remember the extra details, then you do not have sufficient command of your material and need to practice your talk more before giving it publicly.

Just as you should not read text verbatim, you should not read diagrams verbatim. When discussing the architecture of a system, don't just read the names of the components or give low-level details about the interfaces between them. Rather, explain whatever is important, interesting, or novel about your decomposition; or discuss how the parts work together to achieve some goal that clients of the system care about; or use other techniques to give high-level understanding of the system rather than merely presenting a mass of low-level details.

(It's possible to overdo the practice of limiting what information appears on each slide, and you do want to have enough material to support you if there are questions or to show that the simplified model you presented verbally is an accurate generalization. But the mistake of including too much information is far more common.)

**Text.** Keep fonts large and easy to read from the back of the room. If something isn't important enough for your audience to be able to read, then it probably does not belong on your slides.

Use a sans-serif font for your slides. (Serifed fonts are best for reading on paper, but sans-serif fonts are easier to read on a screen.) PowerPoint's “Courier New” font is very light (its strokes are very thin). If you use it, always make it bold, then use color or underlining for emphasis where necessary.

**Figures.** Make effective use of figures. Avoid a presentation that is just text. Such a presentation misses important opportunities to convey information. It is also is wearying to the audience.

Images and visualizations are extremely helpful to your audience. Include diagrams to show how your system works or is put together. Never include generic images, such as clip art, that don't relate directly to your talk. For example, if you have a slide about security, don't use the image of a padlock. As another example, when describing the problem your work solves, don't use an image of a person sitting at a computer looking frustrated. Just as good pictures and text are better than text alone, text alone is better than text plus bad pictures.

When you include a diagram on a slide, ensure that its background is the same color as that of the slide. For example, if your slides have a black background, then do not paste in a diagram with a white background, which is visually distracting, hard to read, and unattractive. You should invert the diagram so it matches the slide (which may require redrawing the diagram), or invert the slide background (e.g., use a white slide background) to match the diagrams.

Do not use eye candy such as transition effects, design elements that appear on every slide, or multi-color backgrounds. At best, you will distract the audience from the technical material that you are presenting. At worst, you will alienate the audience by giving them the impression that you are more interested in graphical glitz than in content. Your slides can be attractive and compelling without being fancy. Make sure that each element on the slides contributes to your message; if it does not, then remove it.

**Color.** About 5% of American males are color-blind, so augment color with other emphasis where possible.

**The presentation skills and how to male good presentations at conferences**

Seminars and conferences offer alternative means of dissemination of research results. But they are by no means substitute for publications in scientific journals. This is because, barring a few prestigious ones, most conferences do not have strong peerreview systems. People know that, and that is why conference presentations are not treated in equal footing with journal papers when Institute authorities take stock of one’s research output. The main utility of a conference presentation is that it offers a chance of directly exposing your work before people who may be working on similar or related areas. It offers possibility of discussion which are often invaluable in generating new ideas. Such discussions often lead to new avenues of research, sometimes even new collaborations. Some conferences ask the intending participants to submit full papers; but most often one has to submit an abstract (or a relatively longer ‘extended abstract’). Where full papers are submitted, these are normally published in the Conference Proceedings. Nowadays most conference proceedings are distributed in electronic format in CDs or USB sticks and one can also search and download papers from the conference website. These papers are to be treated as publications, in the sense that the same content cannot be sent to a journal for publication (it will amount to self-plagiarism). So one has to be careful in choosing the subject matter for presentation in a conference. Sometimes researchers present in conferences when a piece of work is still not mature enough for communication to a journal. The aim is to sound the idea among peers and to get feedback. They then finish the work by taking into account the comments received in the conference. In such cases one has to ensure that there is significant amount of new material in the journal paper, and that the text is freshly written (chunks of text should not be copied and pasted from the earlier paper). Some conferences allow one to present a work that has already been published in a journal, for better dissemination. In such presentations it is a good idea to include the new work that has been done on that problem after publication of the journal paper—so that there is some new material in the conference presentation that is not available in the published paper.

Barring the field of mathematics where ‘chalk-and-talk’ is still the primary mode of presentation, nowadays all conference presentations are accompanied by slides prepared with LATEX, Powerpoint, or similar software. These visual material should be very carefully prepared to convey the key ideas effectively. Note the following issues when preparing the slides.

1. Before starting to prepare the slides, get an idea of the audience to be expected. Are they specialists in your area of work, or are coming from different specializations? What background can you expect in the audience? Prepare the presentation with the typical person in the audience in mind.

2. Typical conference presentations are of 15-20 minute duration. Seminar talks may be for 30-40 minutes. And invited talks in Universities and Institutes are typically for an hour. Prepare one slide per minute of presentation time. If you prepare too many slides, you will not be able to go through all of them. If you prepare too few slides, you will have to display a single slide for too long a time, resulting in visual boredom.

3. The first slide should contain the title of the presentation, the authors’ names and their affiliations. Except for very short presentations where time is at premium, the second slide should give a plan of the talk—so that the audience can anticipate what is coming.

4. Describe the background knowledge briefly so that your work is put in perspective. Clearly present the question whose answer you are seeking through this work. Present the hypotheses, and your method of testing each hypothesis. Present your results in such a way that the audience can themselves reach the same conclusions that you will present in the last slide.

5. Say it in pictures. Images can add interest and support the content. Graphs convey data better than tables. Most slides should be dominated by images, with very few words. You should not type in everything that you want to say. You are there to explain, and the slides should assist your explanation.

6. Focus on the key points by writing them in bullets. Try to limit yourself to no more than about 4-5 major bullets per slide. Do not write blocks of text (nobody reads them). A good idea is to adopt what is known as the 6×6 rule: no more than about 6 lines of text per slide with 6 words per line.

7. Each slide should convey one main idea. 8. Try to compose each slide in an aesthetically pleasing way. Do not mix different fonts in a single slide. Normally sans serif fonts look better in slides. Use this font in 24 pt size for better legibility. Use highlighting and colour sparingly, where you really intend to emphasize something. Do not fill the slides completely with images and text; allow some white spaces.

9. In the projection the colours may not look the same as in your computer’s monitor. So choose high contrast colours, so that lines that are intended to be in different colours are distinguishable even if the colour-fidelity of the projector is not good.

10. The whole set of slides should follow the same basic design. Use design templates for consistency.

11. Special effects in slide transitions tend to distract the audience away from what you are trying to convey. Limit the use of these.

12. Do not get lost in the details. Downplay the specifics, and emphasize the important issues of your work. You may keep a couple of slides after the last “Thank You” slide, which you can display only if there are questions demanding the specifics.

13. Plan the slides in such a way that you do not have to go back and forth while delivering the talk. While explaining a slide if you need to refer to a picture or an equation that appeared a few slides before, put that picture or equation again in the current slide. That eases the presentation.

The art of delivering a talk at a conference Even if the slides are well prepared, the success of the enterprise depends on how you present it. Here are some recommendations on the style of presentation. 1. Smile when you start your talk. This is important, because it reduces your nervousness and allows you to connect with your audience. During the presentation, adopt a conversational tone. Do not read slides. Talk to the audience; make eye contact with them A peculiar habit of most Indians is to start a talk with the word ‘So’. Remember, the word ‘so’ comes in sequel of something already said. Make it a conscious habit not to start a talk with ‘So’.

3. Especially in international conferences, everyone in the audience may not be familiar with your style of English pronunciation. So speak clearly, slowly, and loud enough so that those seated at the back of the room can hear it.

4. Do not try to tell them everything that you have done. This is not possible within the time allowed. Try to arouse interest in your work so that the members of the audience read your papers. So focus on the key issues, convey the “big picture”, and spell out the take-home message.

5. Utilize the question-and-answer time as an opportunity for further engagement with the audience. While answering a question, do not deviate from the topic into things that were not asked. If you do not have an answer, admit it.

6. If you are challenged or attacked, respond courteously. Do not lose your composure. Thank the questioner for having raised the point, and answer the question as best you can. If you realize that you have really done a mistake, do not try to defend it. Every PhD student should try to make at least one conference presentation within the period of doctoral research. This experience is valuable.

Poster presentation Most scientific conferences and workshops offer scope of poster presentation. This medium of exposition of one’s research work has its own advantages. In an oral presentation one gets a fixed amount of time to discuss one’s work and this window of interaction is the same for all members of the audience. One cannot personalize the interaction depending on the interest of individual listeners. But in a poster session one can go to great lengths of interaction if someone is really interested in details of the work, while confining the interaction to brief expositions for those only interested in knowing ‘what it is all about’.

When giving a presentation, never point at your laptop screen, which the audience cannot see. Amazingly, I have seen *many* people do this! Using a laser pointer is fine, but the laser pointer tends to shake, especially if you are nervous, and can be distracting. I prefer to use my hand, because the talk is more dynamic if I stride to the screen and use my whole arm; the pointing is also harder for the audience to miss. You must touch the screen physically, or come within an inch of it. If you do not touch the screen, most people will just look at the shadow of your finger, which will not be the part of the slide that you are trying to indicate.

If you find yourself suffering a nervous tic, such as saying “um” in the middle of every sentence, then practice more, including in front of audiences whom you do not know well.

If you get flustered, don't panic. One approach is to stop and regroup; taking a drink of water is a good way to cover this, so you should have water on hand even if you don't suffer from dry throat. Another approach is to just skip over that material; the audience is unlikely to know that you skipped something.

Think about your goal in giving the talk. When presenting to your own research group, be sure to leave lots of time for discussion and feedback at the end, and to present the material in a way that invites interaction after and perhaps during the talk. (When presenting to your own group, you can perhaps give a bit less introductory material, though it's hard to go wrong with intro material. It should go quickly for that audience; you ensure that everyone is using terms the same way; and it's always good to practice giving the motivation, context, background, and big ideas.)

For computer science conferences, the typical dress code is “business casual”. (For men, this is a dress shirt with slacks or jeans. For women, I am not qualified to give advice.) Some people dress more formally, some more casually. The most important thing is that you are comfortable with your clothing; if you are not, your discomfort will lead to a worse presentation.

**Answering questions**

Answering questions from the audience is very hard! Even after you become very proficient at giving a talk, it will probably take you quite a bit longer to become good at answering questions. So, don't feel bad if that part does not go perfectly, but do work on improving it.

Just as you practice your talk, practice answering questions — both the ones that you can predict, and also unpredictable ones. Giving practice talks to people who are willing to ask such questions can be very helpful.

When an audience member asks a question, it is a good idea to repeat the question, asking the questioner whether you have understood it, before answering the question. This has three benefits.

* You ensure that you have understood the question. When thinking under pressure, it can be far too easy to jump to conclusions, and it is bad to answer a question different than the one that was asked. A related benefit is that you get to frame the question in your own words or from your own viewpoint.
* You give yourself a few moments to think about your answer.
* If the audience member does not have a microphone, the rest of the audience may not have been able to hear the question clearly.

Be willing to answer a question with “no” or “I don't know”. You will get into more trouble if you try to blather on or to make up an answer on the fly.

**In-class presentations**

For an in-class presentation, you will be judged on how well other people understand the material at the end of the class, not on how well you understand the material at the beginning of the class. (You do need to understand the material, but that is not the main point.)

When you present someone else's paper in class, you should cover not only the technical details (people generally do a good job of this), but also what is novel and why others didn't do it before. That is just as important but very often overlooked. Focus on what is important about the paper, not just on what is easy to explain or to give an example for.

Know what your main point is, and don't get bogged down in easier-to-understand but less interesting details. Try not to bring up a topic until you are ready to discuss it in detail — don't bring it up multiple times.

Encourage questions — it's the best way to deepen understanding — and be able to answer them. If other students wrote questions in a reading summary, be responsive to them. When you ask a question, don't assume the answer in the form of your question. For example, don't ask, “Was there anything novel in the paper, or not?” but “What was novel in the paper?” It can be very effective to ask a question that reveals understanding of a subtle or easy-to-misunderstand point (but an important one!) in the paper, because this will lead the audience members to reflect both on the paper and on the way they read and understood it. Don't be too abstruse, and don't get bogged down in unimportant details just to show your mastery of them.

Augment your talking with visuals on the board or slides. Either is fine. The board may encourage more interaction (and it slows you down in a beneficial way), but does require pre-planning; don't just go up and start drawing. Most people find comfort in having pre-prepared slides, and slides can be a good choice because they can be more legible and detailed, can include animations, etc. Don't waste a huge amount of time on elaborate slide decks, though; that is not the point. Examples are often very helpful.

# Oral Presentation Structure

Like scientific papers, oral presentations at a conference or internal seminar are for sharing your research work with other scientists. They, too, must convince the audience that the research presented is important, valid, and relevant to them. To this end, oral presentations — like papers — must emphasize both the *motivation* for the work and the *outcome* of it, and they must present just enough evidence to establish the validity of this outcome. Also like papers, they must aim to inform, not impress.

In contrast, presentations differ from papers in at least three ways: They are more localized in space and time, they impose a sequence and rhythm to the audience, and they normally include some level of interaction. These three differences affect the selection of a presentation's content.

Unless they are recorded or broadcast, presentations have a more clearly defined audience than papers: They address "the people in the room," here and now. The audience might still be diverse, but less so than for papers. Papers can be forwarded in unpredictable ways and may be read many years from now, so they should be lasting and largely self-contained. In contrast, presentations can have more specific purposes. For example, a presentation at a conference normally aims to present recent advances, whereas a presentation at a Ph.D. symposium aims to inform other Ph.D. students (in other fields) of one student's line of research.

Whereas papers can be read in any order and at the reader's own pace, presentations impose both the sequence and the rhythm of content on their audience. They are therefore harder to follow and should be much more selective in what they contain. The idea is not to say out loud everything that is already written in the proceedings paper or dissertation. Written documents are for convincing with detailed evidence; oral presentations, on the other hand, are for convincing with delivery — both verbal and nonverbal.

Finally, presentations normally include interaction in the form of questions and answers. This is a great opportunity to provide whatever additional information the audience desires. For fear of omitting something important, most speakers try to say too much in their presentations. A better approach is to be selective in the presentation itself and to allow enough time for questions and answers and, of course, to prepare well by anticipating the questions the audience might have.

As a consequence, and even more strongly than papers, presentations can usefully break the chronology typically used for reporting research. Instead of presenting everything that was done in the order in which it was done, a presentation should focus on getting a main message across in theorem-proof fashion — that is, by stating this message early and then presenting evidence to support it. Identifying this main message early in the preparation process is the key to being selective in your presentation. For example, when reporting on materials and methods, include only those details you think will help convince the audience of your main message — usually little, and sometimes nothing at all.

## The opening

In its intent and structure, the opening of an oral presentation is similar to the *Introduction* of a scientific paper, which provides the *context*, *need*, *task*, and *object of the document*, with three main differences:

* The *context* as such is best replaced by an *attention getter*, which is a way to both get everyone's attention fast and link the topic with what the audience already knows (this link provides a more audience-specific form of context).
* The *object of the document* is here best called the *preview*because it outlines the body of the presentation. Still, the aim of this element is unchanged — namely, preparing the audience for the structure of the body.
* The opening of a presentation can best state the presentation's *main message*, just before the preview. The main message is the one sentence you want your audience to remember, if they remember only one. It is your main conclusion, perhaps stated in slightly less technical detail than at the end of your presentation.

In other words, include the following five items in your opening: *attention getter*, *need*, *task*, *main message*, and *preview*.

## The body

To make your body's structure easy to remember, for both you as a speaker and your audience, think of it as a tree (or hierarchy) rather than a chain. Identify two, three, four, or a maximum of five statements you can make to support your main message: These are your main points. Next, think of two to five statements to support each main point: These are your subpoints. Together, these main points and subpoints represent about as much detail as your audience can absorb in a single oral presentation.

Even if you think of your presentation's body as a tree, you will still deliver the body as a sequence in time — unavoidably, one of your main points will come first, one will come second, and so on. Organize your main points and subpoints into a logical sequence, and reveal this sequence and its logic to your audience with transitions between points and between subpoints. As a rule, place your strongest arguments first and last, and place any weaker arguments between these stronger ones.

## The closing

After supporting your main message with evidence in the body, wrap up your oral presentation in three steps: a *review*, a *conclusion*, and a *close*. First, review the main points in your body to help the audience remember them and to prepare the audience for your conclusion. Next, conclude by restating your main message (in more detail now that the audience has heard the body) and complementing it with any other interpretations of your findings. Finally, close the presentation by indicating elegantly and unambiguously to your audience that these are your last words

**Practice talks**

Always give a practice talk before you present in front of an audience. Even if you have read over your slides and think you know how the talk will go, when you speak out loud your ideas are likely to come out in a different or less clear way. (This is true about [writing](https://homes.cs.washington.edu/~mernst/advice/write-technical-paper.html), too: even if you know what you want to say, it takes several revisions to figure out the best way to say it.) In fact, you should practice the talk to yourself — speaking out loud in front of a mirror, for example — before you give your first practice talk. In such a practice session, you must say every word you intend to in the actual talk, not skipping over any parts.

It can be a good idea to keep your practice talk audience relatively small — certainly fewer than 10 people. In a large group, many people won't bother to speak up. If the pool of potential attendees is larger than 10, you can give multiple practice talks, since the best feedback is given by someone who has not seen the talk (or even the material) before. Giving multiple practice talks is essential for high-profile talks such as conference talks and interview talks. Avoid a small audience of people you don't trust, who might be unanimous in a wrong opinion; getting a balance of opinions will help you avoid making too many mistakes in any one direction.

Consider videotaping yourself to see how you come across to others. This information can be a bit traumatic, but it is invaluable in helping you to improve.

When giving a practice talk, number your slides (say, in the corner), even if you don't intend to include slide numbers in your final presentation.

When giving a practice talk, it is very helpful to distribute hardcopy slides (remember to include slide numbers) so that others can easily annotate them and return them to you at the end of the talk. (Also, the audience will spend less time trying to describe what slide their comment applies to, and more time writing the comment and paying attention to you.) For non-practice talks, you generally shouldn't give out hardcopy slides, as they will tempt the audience to pay attention to the piece of paper instead of to you.

Go to other people's practice talks. This is good citizenship, and cultivating these obligations is a good way to ensure that you have an audience at your practice talk. Furthermore, attending others' talks can teach you a lot about good and bad talks — both from observing the speaker and thinking about how the talk can be better (or is already excellent), and from comparing the the feedback of audience members to your own opinions and observations. This does not just apply to practice talks: you should continually perform such introspective self-assessment.