

Graduate School of Systems and Information Engineering

Introductory Technical Writing

Essential skills for
academic writing

0AL0000

Topic 3: Information structure

Instructor: Neil Millar

Paragraphs

1. What is a paragraph?

Paragraph:

a distinct section of a piece of writing, usually dealing with a single theme and indicated by a new line...

4. What is the normal length of a paragraph?

Introductory Technical Writing

Paper for RANLP-2013 Proceedings

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This document has been adapted from the instructions for ACL-2010 proceedings, by Ivelina Nikolova. Instructions for those proceedings were in turn based on the formats of earlier ACL and EACL Conference proceedings. Those versions were written by several persons, including John Chen, Henry S. Thompson and Donald Walker. The following instructions are directed to authors who want to submit a paper for review to RANLP-2013. All authors are required to adhere to these specifications. Authors are required to provide a Portable Document Format (PDF) version of their papers. The proceedings will be printed on A4 paper. Authors from countries in which access to word-processing systems is limited should contact the publication chair Ivelina Nikolova (iva@lml.bas.bg) or (ranlp2013@lml.bas.bg) as soon as possible. Manuscripts must be in two-column format. Exceptions to the two-column format include the title, authors' names and complete addresses, which must be centered at the top of the first page, and any full-width figures or tables (see the guidelines in Subsection 3.5). Type single-spaced. Start all pages directly under the top margin. See the guidelines later regarding formatting the first page. The paper should be printed single-sided and its length should not exceed the maximum page limit described in Section 5. RANLP-2013 provides this description in L^AT_EX2e ([ranlp2013.tex](#)) and PDF format ([ranlp2013.pdf](#)), along with the L^AT_EX2e style file used to format it ([ranlp2013.sty](#)) and an ACL bibliography style ([acl.bst](#)). These files are all available at <http://lml.bas.bg/ranlp2013/submissions>. A Microsoft Word template file ([ranlp2013.dot](#)) is also available at the same URL. We strongly recommend the use of these style files, which have been appropriately tailored for the RANLP-2013

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How would you feel
reading this?

Paragraphs

1. What is a paragraph?

Topic sentence:

the sentence in an expository paragraph which summarizes the main idea of that paragraph. It is usually the first sentence in a paragraph.

3. Is there a standard structure for paragraphs?
4. What is the normal length of a paragraph?

Introductory Technical Writing

Stress corrosion cracking

Stress corrosion cracking is the growth of crack formation in a corrosive environment.

Paragraph 1

Maecenas libero, aliquam nec, amet wisi. Tempor nec, quis dis sed, commodo eros vitae. Suspendisse fringilla ut, diam justo, tristique imperdiet enim. Non sed interdum, nam gravida pede. Aliquam cum, eros ante, suspendisse hac eget.

More details about the SCC.

Certain materials are particularly susceptible to stress corrosion cracking.

Paragraph 2

libero, magnam ac, felis ultricies. Nunc at, nunc neque convallis, mauris dapibus et. Duis eros, erat. Non sed interdum, nam gravida pede. Aliquam cum, eros ante, suspendisse hac eget. Ultricies volutpat dui. Viverra habitasse nibh, et luctus tincidunt. Vitae condimentum tincidunt.

Which materials?

Stress corrosion cracking can be a serious issue in several industries.

Paragraph 3

>Lorem ipsum dolor sit amet, tempus integer, iaculis nisl. Tortor euismod felis, magna suscipit, vel ultricies volutpat dui. Viverra habitasse nibh, et luctus tincidunt. Vitae condimentum tincidunt, sed interdum, nam gravida pede. Aliquam cum, eros ante, suspendisse hac eget.

Which industries?
What 'issues' does it cause?

Techniques for the prevention of stress corrosion cracking represent an important area of research.

Paragraph 4

Elit eget. Rutrum ut sodales, nonummy sit nec. Non ante. Ullamcorper eros, volutpat metus est. Consequat in at, aenean pretium, totam in massa. Maecenas aliquam nec, amet wisi. Tempor nec, quis dis sed, commodo eros vitae.

Methods for prevention...

Where prevention is not possible, early identification is important.

Paragraph 5

>Lorem ipsum dolor sit amet, tempus integer, iaculis nisl. Tortor euismod felis, magna suscipit, vel ultricies volutpat dui. Viverra habitasse nibh, et luctus tincidunt. Vitae condimentum tincidunt, sed interdum, nam gravida pede. Aliquam cum, eros ante, suspendisse hac eget.

Methods for identification...

Paragraphs

1. What is a paragraph?
2. Why are they important?
3. Is there a standard structure for paragraphs?
4. What is the normal length of a paragraph?

Task 1: Paragraphs – exploration task

1. Which is the topic sentence? Which sentences are not relevant to the topic?
2. Place the sentences in the correct order to make a paragraph.

1. When a person feels sad, he/she is feeling blue.
2. A person turns red with embarrassment, white with fear, green with envy and purple with rage.
3. It is interesting that English has many colour-word idioms to describe anger, jealousy and fear but does not have any to describe happiness, contentment or peace.
4. In English, there are several idioms with colour words that describe emotions.
5. A person in a black mood feels even worse; he /she is either angry or depressed.
6. For example, a thing can be described as black and white when it is obvious and clear.
7. To say someone has a yellow streak down their back means they are cowardly.
8. The idiom “to wear one’s heart on one’s sleeve” means to allow others to see your emotions or feelings.

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Task 1: Paragraphs – exploration task

1. Which is the topic sentence? Which sentences are not relevant to the topic?
2. Place the sentences in the correct order to make a paragraph.

Controlling ideas – direction that paragraph will take

[4] In English, there are several idioms with **colour words** that describe **emotions**. [1] When a person feels **sad**, he/she is feeling **blue**. [5] A person in a **black** mood feels **even worse**; he /she is either **angry** or **depressed**. [2] A person turns **red** with **embarrassment**, **white** with **fear**, **green** with **envy** and **purple** with **rage**. [3] It is interesting that English has many **colour-word** idioms to describe **anger**, **jealousy** and **fear** but does not have any to describe **happiness**, **contentment** or **peace**.

1. 'Given' versus 'New' information

- A well-developed paragraph
 - Logical connections between sentences
 - Smooth flow that is easy to follow

→ Important to structure information in read friendly way

- But, structure can differ across languages ...

Introductory Technical Writing

Task 2: Exploration – Given vs. New

Look at the two sets paragraphs below and decide which one is easiest to read. Why is it easier to read?

Text 1A

Food additives are substances that are added to food to improve shelf-life, appearance and flavour. Vinegar and salt are two substances which have been added to food for centuries. Modern food processing has led to the use of many more additives, both natural and artificial.

Text 1B

Food additives are substances that are added to food to improve shelf-life, appearance and flavour. Two substances which have been added to food for centuries are vinegar and salt. Many more additives, both natural and artificial, are now used in modern food processing.

Text 2A

Geckos, harmless tropical lizards, are extremely fascinating and extraordinary animals. They have very sticky feet that cling to virtually any surface. This characteristic makes it possible for them to rapidly run up vertical walls and along the undersides of horizontal surfaces. In fact, a gecko can support its body mass with a single toe! The secret to this remarkable ability is the presence of an extremely large number of microscopically small hairs on each of their toe pads. When these hairs come into contact with a surface, weak forces of attraction (i.e. van der Waals forces) are established between hair molecules and molecules on the surface. The fact that these hairs are so small and so numerous explains why the gecko grips surfaces so tightly. To release its grip, the gecko simply curls up its toes, and peels the hairs away from the surface.

Text 2B

Geckos, harmless tropical lizards, are extremely fascinating and extraordinary animals. They have very sticky feet that cling to virtually any surface. They are able to rapidly run up vertical walls and along the undersides of horizontal surfaces, thanks to this characteristic. In fact, a gecko can support its body mass with a single toe! The presence of an extremely large number of microscopically small hairs on each of their toe pads is the secret to this remarkable ability. Weak forces of attraction (i.e. van der Waals forces) are established between hair molecules and molecules on the surface when these hairs come into contact with a surface. The fact that these hairs are so small and so numerous explains why the gecko grips surfaces so tightly. The gecko simply curls up its toes, and peels the hairs away from the surface to release its grip.

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1. 'Given' versus 'New' information

- **Given information** - information that is assumed or supplied by the writer (i.e. reader already has it – 'old information')
- **New information** – information presented for the first time
- In English, it is common for ...sentences to first refer back to the theme of previous sentence and **then** add new information.
 - ... place the new information at the end of the sentence (end focus)
- Often need to select grammatical structure that allows this – e.g. active voice vs. passive voice

1. 'Given' versus 'New' information

Poor flow of information:

- Every Tuesday, Samantha takes her dog to the dog park near her house. The city of San José maintains the dog park in an effort to promote healthy lifestyles. The city sustains several dog parks where pet owners can exercise alongside their dogs.

Better flow of information

- Every Tuesday, Samantha takes her dog to the dog park near her house. The dog park is maintained in an effort to promote healthy lifestyles in the city of San José. The city sustains several dog parks where pet owners can exercise alongside their dogs.

1. 'Given' versus 'New' information

Poor flow of information:

1A: Food additives are substances that are added to food to improve shelf-life, appearance and flavour. Vinegar and salt are two substances which have been added to food for centuries. Modern food processing has led to the use of many more additives, both natural and artificial.

Good flow of information

1B: Food additives are substances that are added to food to improve shelf-life, appearance and flavour. Two substances which have been added to food for centuries are vinegar and salt. Many more additives, both natural and artificial, are now used in modern food processing.

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Geckos, harmless tropical lizards, are extremely fascinating and extraordinary animals. They have very sticky feet that cling to virtually any surface. This characteristic makes it possible for them to rapidly run up vertical walls and along the undersides of horizontal surfaces. In fact, a gecko can support its body mass with a single toe! The secret to this remarkable ability is the presence of an extremely large number of microscopically small hairs on each of their toe pads. When these hairs come into contact with a surface, weak forces of attraction (i.e. van der Waals forces) are established between hair molecules and molecules on the surface. The fact that these hairs are so small and so numerous explains why the gecko grips surfaces so tightly. To release its grip, the gecko simply curls up its toes, and peels the hairs away from the surface.

Text 2B

Geckos, harmless tropical lizards, are extremely fascinating and extraordinary animals. They have very sticky feet that cling to virtually any surface. They are able to rapidly run up vertical walls and along the undersides of horizontal surfaces, thanks to this characteristic. In fact, a gecko can support its body mass with a single toe! The presence of an extremely large number of microscopically small hairs on each of their toe pads is the secret to this remarkable ability. Weak forces of attraction (i.e. van der Waals forces) are established between hair molecules and molecules on the surface when these hairs come into contact with a surface. The fact that these hairs are so small and so numerous explains why the gecko grips surfaces so tightly. The gecko simply curls up its toes, and peels the hairs away from the surface to release its grip.

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Task 2: Exploration – Given vs. New

Look back at the text 2 A and underline the words/phrases which link back to information already given.

Text 1A

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Look back at the text 2 A and underline the words/phrases which link back to information already given.

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Task 2: Exploration – Given vs. New

Look back at the text 2 A and underline the words/phrases which link back to information already given.

Text 2A

Geckos, harmless tropical lizards, are extremely fascinating and extraordinary animals. **They** have very sticky feet that cling to virtually any surface. This characteristic makes it possible for them to rapidly run up vertical walls and along the undersides of horizontal surfaces. In fact, a gecko can support its body mass with a single toe! The secret to this remarkable ability is the presence of an extremely large number of microscopically small hairs on each of their toe pads. When these hairs come into contact with a surface, weak forces of attraction (i.e. van der Waals forces) are established between hair molecules and molecules on the surface. The fact that these hairs are so small and so numerous explains why the gecko grips surfaces so tightly. To release its grip, the gecko simply curls up its toes, and peels the hairs away from the surface.

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Task 3: Practice exercise

Rewrite these short texts to reflect the given-new structure exemplified above.

(1)

Cereals are one of the most important staple foods. Wheat, rye, barley, oats, maize, rice, millet and sorghum are the major cereals of the world.

Cereals are one of the most important staple foods. The major **cereals** of the world are wheat, rye, barley, oats, maize, rice, millet and sorghum.

Task 3: Practice exercise

Rewrite these short texts to reflect the given-new structure exemplified above.

(2)

Beer is a fermented alcoholic beverage.
Malt and hops are the main ingredients of
beer.

Beer is a fermented alcoholic beverage. **The
main ingredients of beer** are malt and hops.

Task 3: Practice exercise

Rewrite these short texts to reflect the given-new structure exemplified above.

(3)

A ligament is a resilient but flexible band of tissue that holds two or more bones together at a moveable joint. Movement of bones at a joint is restrained by ligaments and therefore they are important in preventing dislocation.

A ligament is a resilient but flexible band of tissue that holds two or more bones together at a moveable joint. **Ligaments** restrain movement of bones at a joint and are therefore important in preventing dislocation.

Task 3: Practice exercise

Rewrite these short texts to reflect the given-new structure exemplified above.

(4)

Chalk is a very fine-grained white rock composed of the fossilised skeletal remains of marine plankton and consisting largely of calcium carbonate. Toothpaste and cosmetics use chalk. Calcium sulphate is used to make blackboard 'chalk', which, is therefore, not the same thing.

Chalk is a very fine-grained white rock composed of the fossilised skeletal remains of marine plankton and consisting largely of calcium carbonate. **Chalk** is used to make toothpaste and cosmetics. **It** is not the same thing as blackboard 'chalk', which is actually made from calcium sulphate.

Pattern 1

The Theme of the first sentence is picked up again in the Theme of the second sentence, and so on.

Paragraph (with Theme in bold)	Theme - New pattern
First year students appear overall to be quite well-informed about AIDS.	THEME → NEW ↓
Their awareness is significantly higher than among students even 2-3 years ago.	THEME → NEW ↓
Their behaviour, however, is quite disconcerting.	THEME → NEW ↓
A number of them, while aware of the risk of AIDS, still continue to engage in high-risk sexual behaviour.	THEME → NEW

Introductory Technical Writing

Pattern 2

The new information of the second sentence becomes the Theme of the next sentence, and so on.

Paragraph (with Theme in bold)	Theme - New pattern
Since 1880 the global temperature has risen by 0.4c.	THEME → NEW ↓
If the global temperature were to increase by 5c the polar caps would start to melt.	THEME → NEW ↙
The melting of the polar ice caps would lead to an increase in the water levels.	THEME → NEW ↙
If the water levels were to increase	THEME → NEW

2. General and specific information

- Sentences in a paragraph must be logically ordered
- Often a linear structure: **general** → **specific** pattern
 - First sentence a general 'umbrella' statement (i.e. covering the rest of the paragraph) – 'topic sentence'.
 - Following sentences expand by providing support – e.g. *explanation* or *exemplification*.

Introductory Technical Writing

Task 4: Exploration – General to specific

Look at how the paragraphs below are introduced and developed. Match each sentence with a description of its function in the paragraph, making particular note of the topic sentence in each and subsequent links.

Text A

[1] Infectious diseases remain a major threat to global animal and human health. [2] Recent examples include the 2002 Foot and Mouth Disease outbreak in the UK, the 2003 global epidemic of SARS and the threat of an influenza pandemic. [3] The control of infectious diseases in animals and humans is a problem that needs to be addressed by scientists, veterinarians, healthcare workers, economists, social scientists and policy makers.

Text B

[1] Unless a patient needing an organ has an identical twin, there will always be immunological differences between the patient and the transplanted organ. [2] These differences are immediately recognised by the recipient's immune system, and, depending on how closely the donor and recipient were matched, cause a reaction intended to destroy the transplanted organ. [3] Consequently, transplant patients are placed on drug regimens designed to lessen the immune response against the organ to prevent rejection. [4] These drugs reduce the chances of rejection by diminishing the patients' overall immune capability. [5] However, this causes the patient to be more susceptible to infection.

Text C

[1] The Capsicum family includes a wide variety of peppers ranging from the large sweet peppers to the fiery chilli peppers. [2] Chilli peppers derive their hotness from capsaicin and dihydrocapsaicin (members of the capsaicinoid family), and restaurants specializing in 'hot' foods owe much to these molecules of nature. [3] They work by interacting with the same receptors in your mouth that sense heat. [4] Excessive amounts of capsaicin are toxic because capsaicin prevents the production of certain neurotransmitters and affects the function of neuroproteins in the brain. [5] At high enough concentrations, capsaicin destroys 'substance P' in the nervous system. [6] This effect has now been harnessed for medical use: 'substance P' is associated with the pain suffered by people with, for example, arthritis and inflammatory bowel disease, and application of a cream containing capsaicin results in pain relief.

Text A

[1] Infectious diseases remain a major threat to global animal and human health.

(b) introduces the threat of infectious diseases

[2] Recent examples include the 2002 Foot and Mouth Disease outbreak in the UK, the 2003 global epidemic of SARS and the threat of an influenza pandemic.

(a) gives examples

[3] The control of infectious diseases in animals and humans is a problem that needs to be addressed by scientists, veterinarians, healthcare workers, economists, social scientists and policy makers.

(c) states the need for problem to be addressed

Text B

[1] Unless a patient needing an organ has an identical twin, there will always be **immunological differences** between the patient and the transplanted organ.

(e) introduces the issue of immunological differences in organ transplant patients

[2] **These differences** are immediately recognised by the recipient's immune system, and, depending on how closely the donor and recipient were matched, cause a reaction intended to destroy the transplanted organ.

(a) states the problem

[3] **Consequently, transplant patients** are placed on drug regimens designed to lessen the immune response against the organ to prevent rejection.

(c) introduces the current solution to the problem (drugs)

[4] **These drugs** reduce the chances of rejection by diminishing the patients' *overall* immune capability.

(d) explains how the drugs work

[5] However, **this causes** the patient to be more susceptible to infection.

(b) explains the negative side effects of the drugs

Text C

[1] The *Capsicum* family includes a wide variety of peppers ranging from the large sweet peppers to the fiery chilli peppers.

(b) introduces the capsicum family

[2] **Chilli peppers derive their hotness** from capsaicin and dihydrocapsaicin (members of the capsaicinoid family), and restaurants specializing in 'hot' foods owe much to these molecules of nature.

(a) explains the source of chilli heat

[3] **They** work by interacting with the same receptors in your mouth that sense heat.

(f) explains how the 'heat' molecules produce heat

[4] **Excessive amounts of capsaicin** are toxic because capsaicin prevents the production of certain neurotransmitters and affects the function of neuroproteins in the brain.

(c) explains the toxic nature of one 'heat' molecule - capsaicin

[5] **At high enough concentrations**, capsaicin destroys 'substance P' in the nervous system.

(e) explains the effects of capsaicin

[6] **This effect** has now been harnessed for medical use: 'substance P' is associated with the pain suffered by people with, for example, arthritis and inflammatory bowel disease, and application of a cream containing capsaicin results in pain relief.

(d) gives examples of medical uses of capsaicin

Task 5: Practice

Put the sentences below in order to form a well-developed paragraph. Take care to identify the topic sentence.

- a)** More efficient fluorescent lighting has since been developed, but suffers from flicker and colour purity issues.
- b)** They are already used in traffic lights and even in museums to illuminate paintings.
- c)** Lighting has not changed much since the light bulb was invented by Edison and others close to a hundred years ago.
- d)** LEDs exhibit tremendous brightness, consume little power, come in different colors, and emit little or no heat.
- e)** Recently, solid state light-emitting diodes (LEDs) have come on the market and are poised to revolutionise the lighting industry.

Text A

(c) Lighting has not changed much since the light bulb was invented by Edison and others close to a hundred years ago.

(a) More efficient fluorescent lighting has since been developed, but suffers from flicker and colour purity issues.

(e) Recently, solid state light-emitting diodes (LEDs) have come on the market and are poised to revolutionise the lighting industry.

(d) LEDs exhibit tremendous brightness, consume little power, come in different colors, and emit little or no heat.

(b) They are already used in traffic lights and even in museums to illuminate paintings.

Summary

- The importance of paragraphs.
- Information structure
 - ‘Old’ information at the start of the sentence
‘new’ information at the end.
 - Texts often follow a general → specific flow of information.