Typical features of academic English

Academic English differs from **general English** in a number of respects. It is important to be able to distinguish a **formal (academic) style** from an **informal style** and to understand that what may be acceptable in spoken language may not be appropriate in writing a paper/ thesis/project/formal letter, etc.

In academic writing the writer´s **approach** to the topic is **objective** (rather than subjective), **intellectual** (rather than emotional), and **rational** (rather than polemical). His/her **tone** is **serious** (not conversational), **impersonal** (not personal), and **formal** (not informal).

Examples of various **levels of formality:**

Prior to the discovery of America, potatoes were not consumed in Europe.
Before America was discovered, potatoes were not eaten in Europe.
Before they discovered America, Europeans didn´t eat potatoes.

Typical features of academic English include:

1. Precision, clarity and sentence structure that is easy to understand, i.e.

- no sentences that stretch over a whole long paragraph and only confuse the reader/listener (good advice: try to read your sentence aloud to find out whether it is easily comprehensible or not),
- no unnecessary words that only prolong the sentence and make it bombastic *(e.g. we analysed the data , NOT: we performed an analysis of the data)*

2. Terminology closely connected with a particular scientific discipline

e.g. *dielectrics, NC machines, fission*

3. Subtechnical vocabulary, i. e. words and phrases common to academic writing in general

e.g. *analyse, compute, compare, differ*

4. Words of Latin and Greek origin

e.g. focus, phenomenon

5. No words/phrases common in informal English

e.g. *you know, you see, a little bit, a lot of, like I said*

6. Full forms of words instead of contracted forms

e.g*. is not* instead of *isn´t, has not* instead of *hasn´t*

7. Limited use of phrasal verbs, use of formal and prepositional verbs

e.g. *constitute* instead of *make up, compensate* instead of *make up for; differ from, result in*

8. Less usual prepositions

e.g. in addition to, unlike, despite

9. Passive constructions instead of I, you

e.g. *the data were analysed*
instead of: *I analysed the data*
a rise in consumption can be expected
instead of: *you can expect a rise in consumption*

Notes:

- **We** is sometimes used for variety or emphasizing that it was the author(s) who ….:
  Although the method generally used for this purpose is the xx method, we used the method developed in our laboratory.
- **An active construction** is used where **the passive construction** is rather **clumsy**:
  This paper shows why and under what conditions computer support for workshop schedules is necessary.
  instead of: *In this paper it is shown …*

10. Infinitive constructions, –ing and –ed forms replacing long phrases and clauses

The experiment was repeated five times to obtain convincing results
instead of: *… so that convincing results might be obtained*
Comparing the two expressions we can find that …
instead of: *When we compare …*
The results obtained do not agree with …
instead of: *the results which were obtained/the results we obtained …*

11. Constructions expressing cause/reason, result/effect, purpose, contrast, similarity, etc.

Example of the cause – result relationship:
A causes/is the cause of/gives rise to/produces … B
B results from/is the result of/is due to … B

12. Hedging , i.e. use of modal verbs (may, might, could, would …) and some other words and phrases to avoid a definite statement

Example of definite statement:
Industrialization is viewed as a superior way of life.
Example of hedged statement:
Industrialization tends to/may be viewed as …..

13. Appropriate punctuation, i.e. use of commas, colons, semicolons, inverted commas. Inappropriate use of punctuation may change the meaning or make the text difficult to read.

My friend who has just returned from his study stay abroad wants to join our project.
(implies that you have more friends and one of them has just returned)
My friend, who has just returned from his study stay abroad, ……
(implies that you have one friend)

When all the students left the lab was locked for the evening.
(you have to read the sentence twice to understand that "the lab"
is not the object of "left" but the subject of the clause "was locked …")
Appropriate punctuation:
When all the students left, the lab was locked …..

EXERCISES

I. Read the following extracts quickly.
a) Try to identify the type of source.
Select from: i) a magazine for the general public
ii) an advertisement
iii) a scientific paper
iv) a novel
v) a catalogue
vi) a specialist magazine
vii) a non-fiction book of witticisms
b) Give a brief description of the character of the text and illustrate it with examples.
c) Rate their degree of formality (least formal: 1 to most formal: 4).

1. Body-Powered Devices
Everything we do generates power – about one watt per breath, 70 watts per step. This year, Michael McAlpine of Princeton University and colleagues figured out how to turn locomotion into power by embedding **piezoelectric crystals** into a flexible, biocompatible rubberlike material that, when bent, allows the crystals to produce energy. Put the crystals in shoes, say, or implant them directly into the body and they could produce enough power to charge personal electronics or internal medical devices. Elsewhere, telecommunications provider Orange introduced a prototype of **Orange Power Wellies** – rubber boots that convert heat into current. Campers at Britain´s Glastonbury Festival were the first to demo the footwear. (With the current model, it takes 12 hours of walking to charge a cell phone for an hour). Of course, if you assemble enough people in a tight space, they don´t even need to move to generate energy: in Paris, engineers have captured the warmth generated by bodies on the Métro subway to heat a public-housing project on Rue Beaubourg. By 2011, the **Métro heating system** will cut carbon dioxide emissions from the housing project´s heating system by a third.

2.
This paper presents the recognition performance obtainable, for both monochromatic and chromatic images, from Single Layer Networks (SLNs) of trixel N-Tuple (NT) nodes and SLNs of trixel Min/Max (MM) nodes.
The general concepts of the trixel N-Tuple (TNT) and trixel Min/Max (TMM) techniques for the recognition of coloured images are briefly outlined. For comparative purposes, some results from implementation in 1991 are also included.
From the presented results, it is concluded that, for the recognition of images with different coloured backgrounds, both the TNT and TMM networks provide greatly improved confidence levels. However, it should be noted that the documented results relate to near-identical images on different coloured backgrounds and not to different images with

variations in intensity, hue and saturation. Therefore, further work is required to ascertain benchmarks where the use of colour-encoded images provides a definite improvement in recognition confidence levels compared with either monochrome or single-bit binary encoded images. Also, it is essential that future systems must incorporate appropriate automatic thresholding facilities where the video chain characteristics are accurately defined.

3.

One of the first steps in any new energy management program is to identify how much energy each facility within the company consumes. The old adage “you can´t manage what you can´t measure“ is true. For larger plants, the specific energy should be determined for various process areas and major plant utilities. Smaller facilities should at least know the specific energy for the entire plant on a production unit basis. This information needs to be compiled into a central data repository and made available to plant and corporate personnel. CalPortland has developed a comprehensive SharePoint Intranet Web site that provides such a forum. Energy managers or plant administrative personnel can enter their fuel and electricity consumption and costs into a central database on the site. An energy dashboard displays a year-to-date energy consumption for each facility as well as the total company consumption number.

4.

Murphy´s law of research

Enough research will tend to support your theory.

Maier´s law

If the facts do not conform to the theory, they must be disposed of.

Corollaries:

1. The bigger the theory, the better.
2. The experiment may be considered a success if no more than 50 percent of the observed measurements must be discarded to obtain a correspondence with the theory.

Williams and Holland´s law

If enough data are collected, anything may be proven by statistical methods.

Rule of accuracy

When working toward the solution of a problem, it always helps if you know the answer.

Young´s law

All great discoveries are made by mistake.

Felson´s law

To steal ideas from one person is plagiarism; to steal from many is research.

Finagle´s rule

Teamwork is essential. It allows you to blame someone else.

Lerman´s law of technology

Any technical problem can be overcome given enough time and money.

Lerman´s corollary:

You are never given enough time and money.

Law of unreliability

To err is human, but to really foul things up requires a computer.

Handy guide to modern science

1. If it´s green or it wriggles, it´s biology.
2. If it stinks, it´s chemistry.
3. If it doesn´t work, it´s physics.

Cerf´s extensions to the handy guide to modern science

4. If it´s incomprehensible, it´s mathematics.

5. If it doesn´t make sense, it´s either economics or psychology.

Bitton´s postulate on state-of-the-art electronics

If you understand it, it´s obsolete.

Meredith´s law for grad school survival

Never let your professor know that you exist.

Vile´s law for educators

No one is listening until you make a mistake.

5.

Engineers have four basic options when it comes to joining two materials together: spot welding, mechanical fasteners (rivets), double-sided tapes, and liquid adhesives. Welding and rivets are often the most popular fastening methods because they provide instant gratification: after the weld or rivet gun has done its job, the two objects are joined. Double-sided tapes also don't require curing time, but do require surface preparation. Liquid adhesives require additional time for curing, which often keeps engineers from using them. However, the other methods also have hidden costs and time requirements that can change your calculations, making adhesives a more possible solution.

6.

As research into semi-solid processing of steels has been focused on thixoforming, the vast potential of other new processes for creating unconventional microstructures has been neglected. Current semi-solid processing of steel typically leads to polyhedral austenite particles embedded in various forms of carbide networks. Oversaturation of the solid solution with carbon provides a relatively effective stabilization of austenite. Interventions in the evolution of such metastable microstructures may induce various transformations of this microstructure component. It can produce a very interesting final microstructure, mechanical properties and other properties.

7.

The machine was making a strange humming sound as the door slid open. As his eyes adjusted to the light, he could see that he was not alone. There, sitting huddled in a corner of the laboratory was a small creature. ”It wasn’t me! I didn’t do it”, it squeaked at him. The apparatus was all over the place; twisted tubes and broken glass everywhere. But the machine was still working. Lights were blinking on and off, but the monitors were showing that everything was functioning normally. Apart from the small creature, there was one other thing which was odd. There was a large round hole in the floor where his desk had once been.

8.

Remember the Knight Rider car? The one declaring "scanner indicating danger ahead", "your reflexes are slow" or "I shall activate a turbo-boost"? A similarly futuristic car might hit the road sooner than you think, according to Klaus Draeger, BMW's head of research and development. Many cars are already connected to computer systems, making drivers' and passengers' lives both more comfortable and safer. But until now they have mainly been receiving information, so as yet they are not really engaging in dialogues, Mr. Draeger says. BMW's Connected Drive concept, currently on show at the Geneva motor show, aims to change that.

II. Can you recognize formal academic writing? Write F (formal) and I (informal) next to each of the following sentences. Say why you think so.

1. I showed that his arguments didn't hold water. …….
2. I wonder why he put up with those terrible conditions for so long. …….
3. Five more tests will be necessary before the experiments can be concluded. …….
4. It is possible to consider these results from a different viewpoint. …….
5. It has been proved that the arguments so far are without foundation. …….
6. He'll have to do a couple more tests before he can stop the experiment. …….
7. It is not clear why such terrible conditions were tolerated for so long. …….
8. We'll finish the job next year. …….
9. If we don't get a move on with our research, we'll lose our grant. …….
10. As mentioned above, the experiments were carried out at room temperature. …….
11. Please await instructions before dispatching items. …….
12. Don´t send anything off until you´re told to do so. …….

III. Compare the two versions (informal and formal) of the same text and list the differences. The numbers in the brackets indicate where to look for them (e.g. the first four differences can be found in the first sentence).

Informal version

1. (1,2,3,4) We usually reckon that joining stuff together with things like bolts, rivets and screws, is pretty quick. 2. (5,6) But all mechanical methods of assembly cost loads of money, needing labour to drill holes and insert fasteners. 3. (7,8,9,10) Manufacturers have got to keep a big list of fasteners on hand, and joining stuff together with fasteners takes ages. 4. (11) Fasteners don't spread load over the full area of attachment. 5. (12) What they do is, they concentrate stress at the fastener site. 6. (13,14) This concentrated stress often ends up in substrate failure a little bit above the fastener hole or failure of the fastener itself. 7. (15) Fasteners and thermal joining can cause joint failure and may have a tough job resisting stresses caused by flex or vibration. 8. (16) Try it out for yourself. 9. (17) Push sideways on a bonded joint and a bolted joint made of two strips of sheet metal. 10. (18,19) In the bonded joint, the stress on the leading edge is a bit higher than in the middle, but the overall force is spread across the entire bond area, spreading out the load. 11. (20) In fact, in a lot of cases, this can lead to "necking" or stretching of the substrate. 12. In the bolted joint, all the force is concentrated on the bolt. 13. (21,22) This concentration of stress makes the joint fail at about half the final strength of the bonded assembly. 14. (23) The holes drilled for fasteners can create leak paths too —a starting point for corrosion.

Original formal version

1. (1,2,3,4) Assembly with fasteners, such as bolts, rivets and screws, is also considered to be immediate. 2. (5,6) However, all mechanical methods of assembly are expensive, requiring labour to drill holes and insert fasteners. 3. (7,8,9,10) Manufacturers must keep an extensive inventory of fasteners on hand, and assembly with fasteners is time-consuming. 4. (11) Fasteners do not distribute load over the full area of attachment. 5. (12) Rather*, they concentrate stress at the fastener site. 6. (13,14) This concentrated stress often* results *in substrate failure just above the fastener hole or failure of the fastener itself. 7. (15) Both fasteners and thermal joining can cause premature joint failure and may have difficulty withstanding stresses caused by flex or vibration. 8. (16) You can test this for yourself.*

9. (17) Apply shear force to a bonded joint and a bolted joint consisting of two strips of sheet metal. 10. (18,19) In the bonded joint, the leading edge has slightly elevated stress than the middle, but the overall force is distributed across the entire bond area, spreading out the load. 11. (20) In fact, in many cases, this can lead to "necking" or stretching of the substrate. 12. In the bolted joint, all the force is concentrated on the bolt. 13. (21,22) This concentration of stress leads to failure of the joint at approximately half the final strength of the bonded assembly. 14. (23) In addition, the holes drilled for fasteners can create leak paths—a starting point for corrosion.

(Based on "Adhesive Bonding: The Hidden Costs of Instant Assembly" by Tom Buckley, March 31, 2011 http://www.assemblymag.com/Articles/Feature_Article/BNP_GUID_9-5-2006_A_10000000000001024381)

Formal	
Sentence 1	**Informal**
(1) assembly	joining stuff together
(2) (Assembly) is considered to be ……..	……
(3) ……	……
(4) ……	……
Sentence 2	
(5) ……	……
(6) ……	……
Sentence 3	
(7) ……	……
(8) ……	……
(9) ……	……
(10) ……	……
Sentence 4	
(11) ……	……
Sentence 5	
(12) ……	……
Sentences 6	
(13) ……	……
(14) ……	……
Sentence 7	
(15) ……	……
Sentence 8	
(16) ……	……
Sentence 9	
(17) ……	……
Sentence 10	
(18) ……	……
(19) ……	……
Sentence 11	
(20) ……	……
Sentence 12	

Sentence 13

(21) …… ……..

(22) …… ……

Sentence 14

(23) …… ……..

IV. This exercise gives you practice in formulating straightforward, concise and easy to understand sentences. Avoid all superfluous words that only confuse the reader/listener.

Example:

It is possible to perform verifications of the output through a special optical multimeter.

It is possible to verify the output using a special optical multimeter.

A special optical multimeter is used to verify the output.

1. We perform development in the area of electronic equipment.

……

2. It is planned that this laboratory should be equipped with a thermal camera.

……

3. We are engaged in measuring and testing of accumulators.

……

4. We perform testing activities in the field of electromagnetic compatibility.

……

5. Implementation of ISO9000 will ensure that all preset parameters are again reproducible and this therefore provides a high quality and reliability.

……

6. We perform testing of low voltage switchgear.

……

7. The accurate measuring of impurities is enabled by the contaminometer which the laboratory is equipped with.

……

8. This software in our laboratory enables us to perform designs and simulations of circuits.

……

9. Among the laboratory equipment are instruments enabling to measure electric resistance.

……

10. (The headline of the paragraph is : Process Management)

In the area of process management we offer services and perform activities relative to modelling, analysis and optimization of industrial processes.

……