科研经验分享

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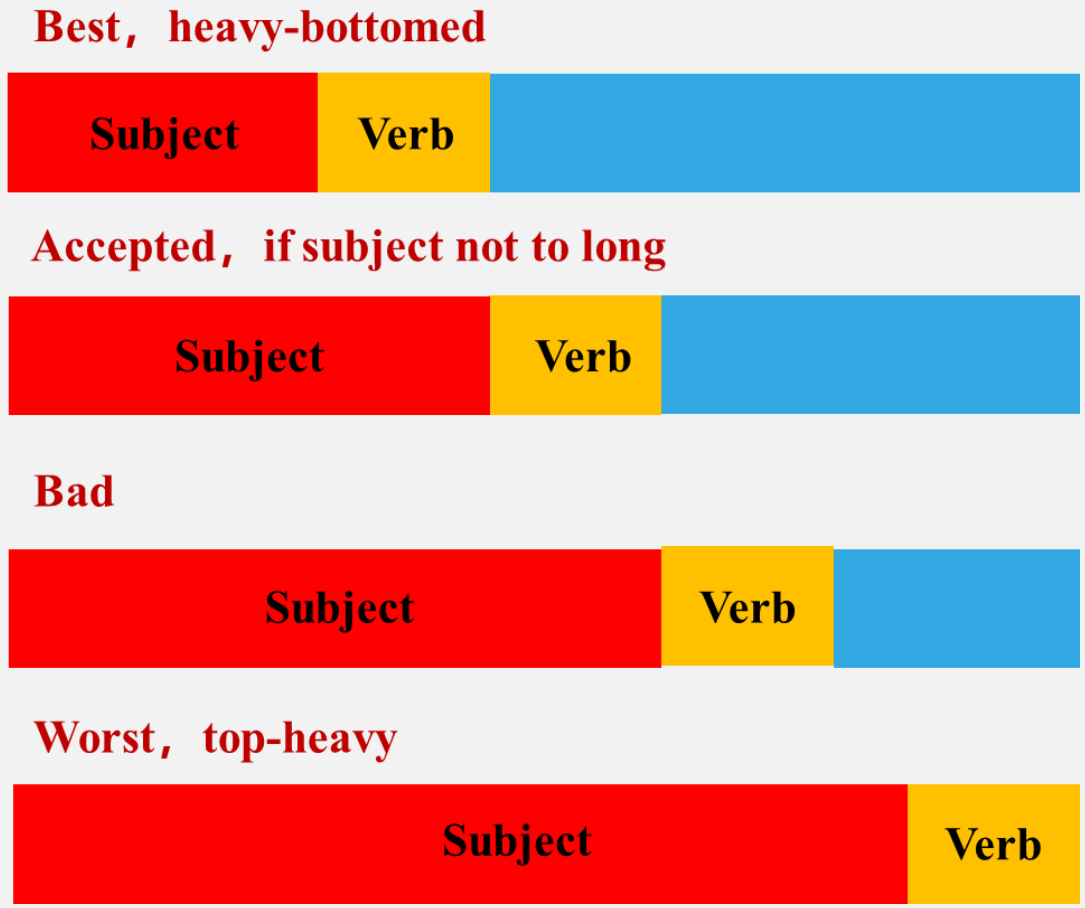
科研写作交流

1、句子结构

原则：避免头重脚轻，一般而言，可以通过确保主要动词相对接近句子的开始，使读者很快能理解表达的重点。

研究表明，阅读时在短时间内大脑可以记住7 ± 2个词。 如下面句子的主要问题是，当读者已经超过7 ± 2限制时，读者仍然没有获取的最重要的信息。

These advanced ferrochromium and stainless steel production processes at the Pyykki Steelworks in Northern Ostrobothnia were introduced in 2003.



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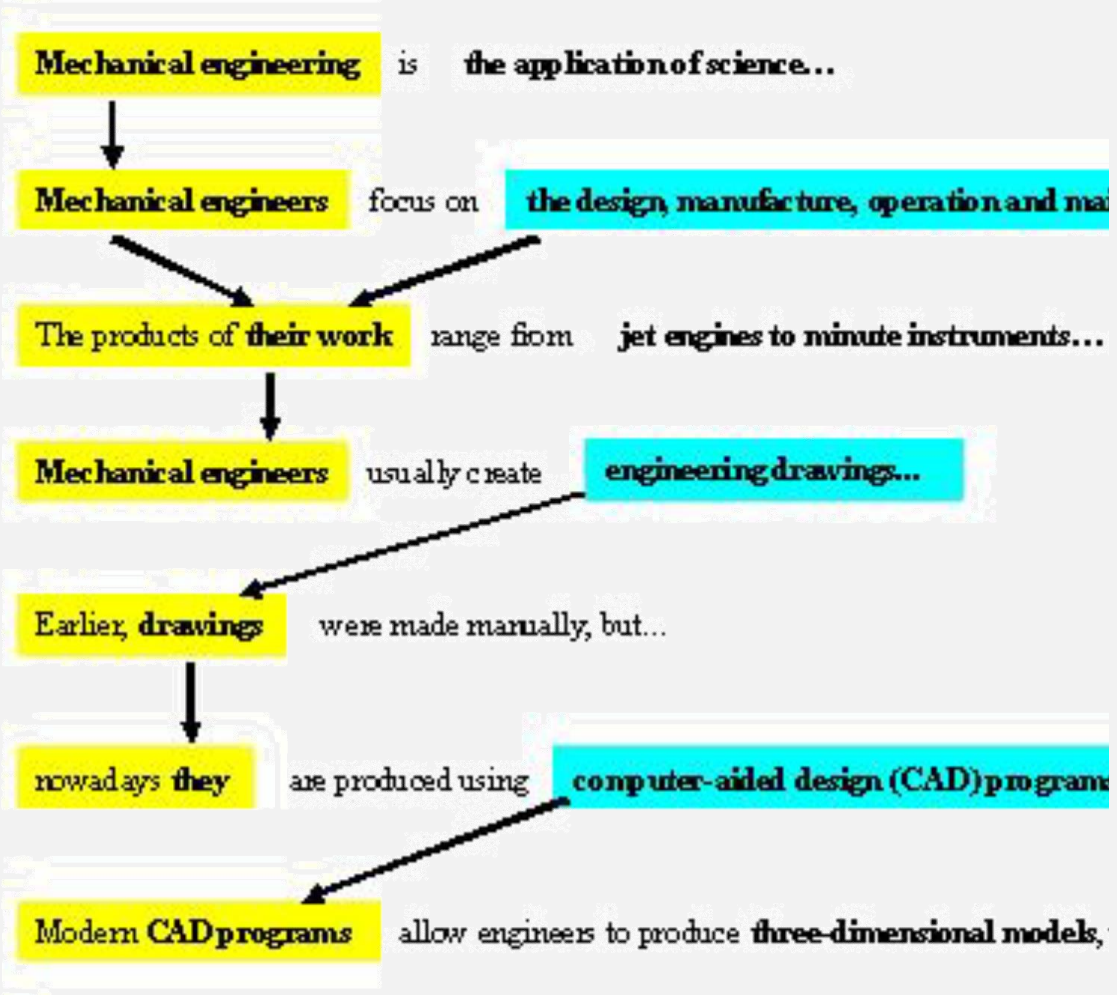
2、段落逻辑结构

原则：在引入新概念之前，句子应该从前文已提及的内容，或者在大家都比较熟悉的内容开始

Mechanical engineering is the application of science to the creation of useful devices to meet the needs of society. **Mechanical engineers** focus on the design, manufacture, operation and maintenance of a wide variety of machinery. **The products of their work** range from jet engines to minute instruments for use in medicine. **Mechanical engineers** usually create engineering drawings of the devices which are to be produced. Before the late 20th century, **drawings** were usually made manually, but the widespread use of computers has now enabled the creation of drawings and designs using computer-aided design (CAD) programs**. Modern CAD programs** allow engineers to produce three-dimensional models, which can be used directly in the manufacture of the devices depicted.



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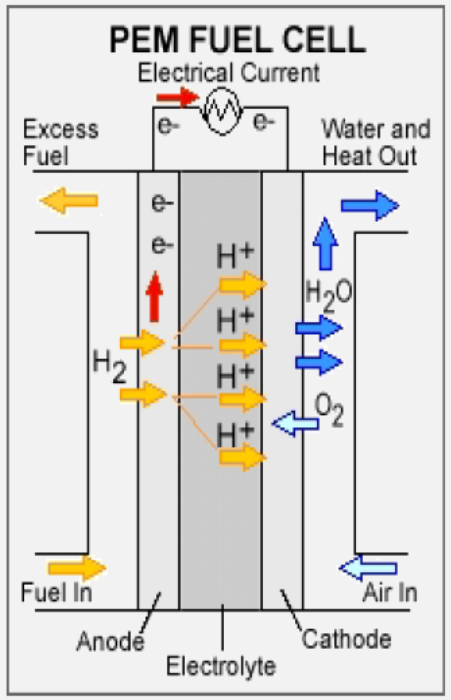
3、段落逻辑结构



[1]A proton exchange membrane (PEM) fuel cell transforms the chemical energy liberated during the electrochemical reaction of hydrogen and oxygen into electrical energy, as opposed to the direct combustion of hydrogen and oxygen gases to produce thermal energy. [2]A stream of hydrogen is delivered to the anode side of the membrane electrode assembly (MEA). [3]At the anode side, it is catalytically split into protons and electrons. [4]The newly formed protons permeate through the polymer electrolyte membrane to the cathode side. [5]The electrons travel along an external load circuit to the cathode side of the MEA, thus creating the current output of the fuel cell. [6]Meanwhile, a stream of oxygen is delivered to the cathode side of the MEA. [7]At the cathode side, oxygen molecules react with the protons permeating through the polymer electrolyte membrane and the electrons arriving through the external circuit to form water molecules.

[1]…(PEM) fuel cell… the electrochemical reaction of **hydrogen** and **oxygen** …

[2]A stream of **hydrogen** is delivered to **the anode side** …

[3]At the **anode** side, the **hydrogen** is catalytically split into **protons** and **electrons**.

[4]The newly formed **protons** permeate …to the **cathode** side.

[5]The **electrons** travel … to the cathode side of the MEA…

[6]Meanwhile, a stream of **oxygen** is delivered to **the cathode side** of the MEA.

[7]At the **cathode** side, **oxygen** molecules react with the protons …to form water molecules.

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4、如何进行结构描述（空间顺序）

1).定义（它是什么？）
2).目的（它的功能是什么？）
3).外观（它看起来像什么？）
　　部件位置
　　尺寸（高度，宽度，重量，长度，深度，　厚度）
　　材料
　　数量
　　颜色
　　形状（设计，图案，纹理）
4).功能（它如何工作？）
5).组成（它的主要部分是什么？）详细识别和描述每个部分。如果需要，为每个部件提供机制描述。

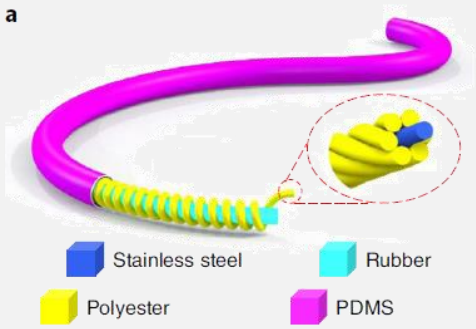

Fig. 3). The inset to Fig. 2a shows an enlarged view of the inner structure of the conductive yarn (for more structural characterizations, including scanning electron microscope images of different magnifications, see Supplementary Fig. 4). This coiled structural design ensures that the yarn-based stretchable sensing unit maintains decent electrical conductivity even under extreme stretching, guaranteeing the excellent robustness of the sensing units. Different levels of axial tensile strain for both the PDMS sleeve and the coiled conductive yarn bring about a constant change in contact area between the two during stretch–release cycles. As a result, an electrical potential builds up due to the electron affinity difference between the two materials (PDMS has a strong ability to grab electrons, whereas polyester tends to lose them upon physical contact between the two, as schematically shown in Fig. 2b). A detailed

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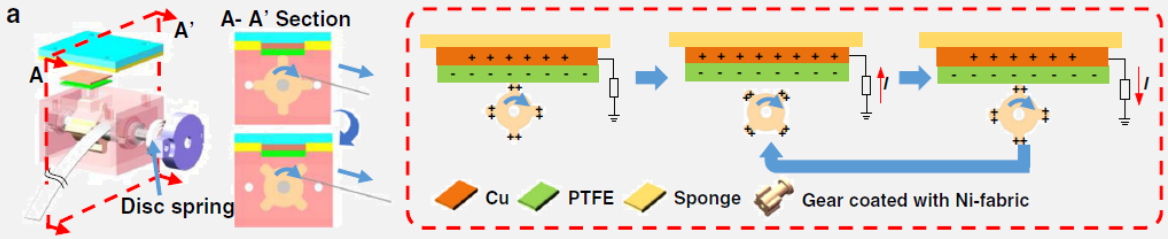
5、如何进行过程描述（时间顺序）

不同于结构描述，通常过程描述按照时间顺序是一步一步进行

1). 定义（它是什么？）
2). 目的（它的功能是什么？）
3). 位置及时的位置（它何时何地发生？）
4). 代理人（谁或什么来执行？）
5). 操作工作？）
6). 它的主要规则（它如何步骤是什么?



PTFE layer tends to attract electrons that can be retained on its surface due to the difference of electron affinity, while the Ni-fabric layer tends to lose the electrons, thus producing tribo-electric static charges on the contact surface. Then, as the gear is driven to rotate by the stretching soft strip, the intermittent contacts between PTFE layer and gear's teeth will result in the continuous alternating of electrical potential between Cu electrode and the ground, driving electron flow and generating the cyclic output peaks. To explore the performance of L-TENG sensor in various stretching situations, a programmable linear stepper motor as shown in Supplementary Fig. 3 is applied to control strip's motion and the open-circuit tests can be seen in Supplementary Movie 1. The maximum stretchable length of the strip is 60 mm, which is limited by the disc spring mounted on the rotation shaft that provides recovery force, so the L-TENG

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6、情况-问题-解决方案-讨论

1).情况

目前的情况是什么?

主题有什么的相关性内容?

为什么这个主题重要?

2).问题

目的是解决什么问题?

为什么这是一个问题?

解决方案的标准（要求）是什么?

3).解决方案

其他人提前尝试过哪些解决方案?

你解决方案是什么?

4).讨论

如何知道自己的解决方案是一个好的解决方案?
(通过参数上一些对比)

Signed languages are conveyed by the hands, face and body, and are primarily perceived visually[1]. Through the signed mode, the language is accessible at the optimal level through the visual sense. However, without prior knowledge of sign language, it is difficult for non-signers to receive and understand this conversational medium. This creates a communication barrier between signers and non-signers[2]. Wearable electronics[3–17] have a number of attractive features, including their light weight, low cost, high flexibility and conformability, and could offer a technological solution to this communication barrier in the form of wearable sign language translation devices.

system to implement sign-to-speech translation. Our system offers good mechanical and chemical durability, high sensitivity, quick response time and excellent stretchability. To illustrate the capabilities of the wearable sign-to-speech translation system, a total of 660 sign language hand gestures based on American Sign Language (ASL) were acquired and successfully analysed with the assistance of a machine-learning algorithm. The system has a high recognition rate of 98.63% and a short recognition time of less than 1 s.

学汇百川 德济四海

Thank you!