English Vocabulary Classification Based on Deep Learning

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Abstract: A large number of words in the English language are derived from Greek myths, which can be roughly divided into seven categories: basic vocabulary, psychological vocabulary, astronomical vocabulary, geological vocabulary, biological vocabulary, fixed phrases and idioms, modern trademarks and advertising language. Based on deep learning, this paper conducts a classification study of English vocabulary. By introducing Greek myths, we can further master and use English vocabulary and appreciate the charm of English culture more.

Keywords: deep learning, English vocabulary, categories

1. Introduction

Greek mythology has not only reflected the social life of ancient Greece but also served as the basis of Western culture. It has a profound influence on the social life of British and American countries, especially the English language [1-2]. Greek mythology has always been one of the essential materials of British and American literature. Under the influence and infiltration of literary works, myths have become an integral part of Western social thought [3]. The vocabulary derived from or related to Greek mythology has been integrated into English language [4] and occupied a vital position in the English vocabulary system. In this paper, based on deep learning theory, machine learning is performed on Greek mythological samples for classification research on English vocabulary.

2. Vocabulary classification based on deep learning

The Greek mythology vocabulary that has entered English can be divided into seven categories from the perspective of its use and field: basic vocabulary, psychological vocabulary, astronomical vocabulary,
geographic vocabulary, biological vocabulary, fixed phrases and idioms, modern trademarks and advertising language [5].

Vocabulary classification based on deep learning is shown in Figure 1, and the training process of samples is shown in Figure 2.

![Figure 1](image1.png)

**Figure 1.** Research on English vocabulary classification based on deep learning

![Figure 2](image2.png)

**Figure 2.** Sample training process

The classification formula is shown in formula (1):

$$Loss = -\sum_{i} a_i \cdot \ln(x_i)$$  \hspace{1cm} (1)

Where $a$ is the expected output (1 for positive samples and 0 for negative samples), and $x$ is the actual
output of the network.

2.1. Basic vocabulary

In a language, the basic vocabulary is the most crucial thing in a language vocabulary. For historical reasons, the basic vocabulary in English comes from a wide range, and Greek mythology is one of its relevant sources. The profound influence of Greek myth on Western society was mainly realized through the spread and penetration of ancient Greek literature. After Greek myths were introduced to the United Kingdom by many translations, they had a profound impact on English literature. Massive words derived from Greek myths were infiltrated into the English language due to literary works and became a basic vocabulary used frequently in daily life. [6].

Times have described Nixon's visit to China as the "Nixon's odyssey to China" in the 1972 "Ice-breaking" journey of Sino-US relations. Odyssey refers to Odysseus in Greek mythology. After countless hardships and long trips after the Trojan War, he finally returned to his hometown. In the above sentence, "Odyssey" is a metaphor for a long trip to normalize Sino-US relations. "The cultural connotation of the word chaos is derived from the myth of Chaos in Greek mythology. Chaos is one sample of deep learning, and the derived adjective "chaotic" means "chaotic and completely disordered".

Atlas: A giant god in Greek mythology who was punished at the end of the world for betraying Zeus. In the 16th century, geographers used the Atlas top sky map as the front illustration of a map book. Later generations followed suit, and atlas also has the meaning of a map, atlas, and a person with a heavy load.

2.2. Psychological Vocabulary

The stories in Greek mythology have a significant influence on modern psychology. Many psychological phenomena can almost be found and proven in Greek mythology. Therefore, Greek mythology has widely borrowed Greek mythological stories as psychological terms.

Psyche is a beautiful princess, and many people like him. This caused the jealousy of Aphrodite, the god of love. She instructed her son Eros to punish Psyche and make him fall in love with an ugly, but Eros fell in love with Psyche at first sight. In love with Psyche. The root psyche means soul, spirit, is one of the samples of deep learning. Cognate words are also psychoanalyst, psychology, and psychodrama.

Oedipus complex is the Oedipus complex (Oedipus's father-in-law married to his mother). Freud used to indicate that his son was right: a father who was hostile and had an affection for his mother.

Freud created the Electra Complex. That is, the Electra complex (Electra complex) corresponds to the Oedipus complex to describe girls' excessive attachment to their fathers and corresponding hostility.
to their mothers.

Narcissus is a beautiful boy, who died from watching his reflection in the water every day. The gods pity him and turn him into a Narcissus. Psychiatrists call NAECLSSISM narcissistic.

2.3. Astronomical Vocabulary

Greek mythology is itself a story about the gods. The gods are closely related to natural phenomena such as the stars, rain, and fog in the sky. Hence, astronomical vocabulary is mostly derived from Greek mythology and has established a system of its own.

The names of the planets in the solar system are almost all related to Greek mythology and Roman mythology. Planet Mercury and the myth "the god of commerce" and. "God of travel", Mercury is the fastest-moving planet on the planet, so it is similar to the god in mythology, so it was named Mercury. Venus in English means Venus-"Venus" is a symbol of the goddess of love and beauty. The ancient Greeks called it Aphrodite, and in Roman mythology, it was called Venus, so Venus is also called "Venus". As Mars looks blood-red in the night sky, it is named after the mythical war god Mars (or Ares corresponding to Greek mythology). Mars has two small satellites: Phobos and Deimos, which are named after Ares' sons, another sample of deep learning.

2.4. Geographical Vocabulary

The influence of Greek myths radiates to every level of Western civilization. Expand the world map and you will find that many world place names are derived from Greek mythology.

Europe (Europa) is also often called Europa in poetry, which is derived from Europa, a god of peasants in Greek mythology. Europa was a lady of remarkable beauty. She was kidnapped by Zeus, who turned into a white bull. Since then, the continent hosting her has been called Eumpa, hence the name of Europe.

After Atrias failed against Zeus, Zeus ordered him to stand in the place where the heavens and the earth meet in the West and carry the sky with his shoulders. Later, his body became a mountain, which is the famous Atlas Mountains in Africa (Arias Mountains).

The Aegean Sea is named after a tragic story in Greek mythology. The prince Tisius was trying to save his people. Self-recommendation for the sacrifices of a monster. The prince agreed with his father before the trip that if he could kill the monsters, the returning ship would hang self sails. On the way back, the oracle instructed the prince to give up his love, or he would be punished by God. He had to leave the beautiful princess who had helped him on the deserted remote island and left sadly. The prince, immersed in pain, forgot his agreement with his father, and the ship sailed back with a black sail. When
Aegean, the king of Athens who stood on the shore, saw the black sails approaching in the distance, could not accept the reality of losing his son and plunged into the sea. To commemorate this king who loves his people like a child and loves his son, the people call this area the "Aegean Sea" (the Aegean Sea).

The Dardanelles Strait, formerly known as Hellespont Strait, is also related to Greek mythology. Helle is a young man in mythology. He and his brother were abused by their stepmother, and their father was encouraged by another to kill them. A golden retriever came to the rescue in an emergency, and the two flew away. Helle crashed into the air and died. That sea is therefore called the Sea of Helle. Hellespont is named after it.

Also, French people believe that the capital Paris is named after the Troy prince Paris in Greek mythology.

2.5. Biological vocabulary

Adas is a powerful god in Greek mythology. Against the Lord God Zeus was punished for hard labor, holding the sky with his head and shoulders. Now borrowed to represent the atlas in human anatomy. Because the sacrum, the first cervical spine, plays a vital role in maintaining head movement.

After being born, Achilles was soaked in the river by the mother. Except for the heel, he couldn't penetrate the gun but finally died of an arrow in the heel during the Trojan War, which became the name of the Achilles’ tendon.

In medicine, morphine is a narcotic analgesic that has analgesic and hypnotic effects. This word is derived from the name of Morpheus, the dream god in Greek mythology, as the ancient Greeks believed that sleep helps people relieve pain.

Flora is the flower god in ancient Greek mythology. Flowers bloomed where she and her husband, Zephyr, walked by. Flora is used as a root that indicates plants. The words to the source are floral (floral, botanical), florist (florist), flourish (prosperous, flourishing).

2.6. Advertising and trademark

The commercial slogan "Trust the Midas touch" of the famous Midas auto repair company in the United States is based on the story of King Midas's point-turning into gold in Greek mythology. King Midas' finger can turn anything touched into gold. "Midas touch" in modern English usually refers to a person blessed with wealth, who can succeed in whatever he/she does. The slogan of Midas Company tells consumers vividly that if they believe in their service, as long as they move their fingers, the car will be in good hands.
The goddess Nick in Greek mythology often has wings with impressive speed. She not only symbolizes the victory of the war but also represents many areas of Greek daily life, especially the success of competitive sports. Nike designer Jeff Johnson thought of the goddess of victory when naming a new product in 1971, and a famous sports brand was born.

2.7. Idioms

Greek mythology consists of two parts. One is the deeds of the gods, and the other is the legend of the hero on earth. Colorful stories and legends. It leaves a lot of fixed phrases and idioms in English.

Pile Pelion on Ossa embodies Greek mythology. The sea god Poseidon has two grandsons, Otus and Ephialthes, collectively known as Aloidea. To ascend to heaven to court Hem and the hunting goddess Artemis, they tried to slay Pelion to Ossa. However, before they got started, they were killed by Apollo, and the plan was not fulfilled. Later generations used the term “pile Pelion on Ossa” to indicate “add difficulty to difficulty” or “higher and higher”. This phrase is also known as heap Pelion on Ossa.

Procrustean bed is also derived from a classic Greek myth. According to legend, there is a large robber named Procrustes near Prothus. He opened a black shop on the roadside, forcing passengers to lie on iron beds. Where those with short legs slept in long beds, he pulled the legs to make them as long as the bed. Where those with long legs slept in long beds, he cut off their legs to make them the same length as the bed. As a result, the term Procrusteanbed is created, which refers to “things that are compelling to follow”, “a system (or policy) that seeks consensus”, and “forcing people to follow”, equivalent to the Chinese idiom “cut one's feet to fit the shoes”.

“Cleanse the Augean stable (s)” is related to Hercules. It is said that the bullpen of an ancient Greek king (Augeas) has not been cleaned for 30 years. Therefore, the feces piled up like a mountain, and the stench was smoky. The Greek hero Hercules came to the river nearby and washed away the dung for many years in only one day and cleaned the cowshed. Hence, later generations used the term Augean stable (s) metaphor to indicate a “corrupt (place)” or “dirty (place)”, and used the term cleanse the Augean stable (s) to indicate “Remove dirt” or “Eliminate the defects thoroughly”.

3. Conclusion

The influence of Greek mythology on English vocabulary is profound and comprehensive. Learning Greek myths can strengthen the understanding of the cultural background of English vocabulary, which allows the English learners to master and use English vocabulary further, improve the English level, and truly appreciate the charm of English from a cultural level.
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