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CONCEPTUAL METAPHORS OF ARTIFICIAL INTELLIGENCE AND AI DEVELOPMENT IN THE GUARDIAN NEWSPAPER

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Abstract: The whirlwind advent of ChatGPT in 2022 has marked a new age of artificial intelligence (AI), the general name for the technology that combines computer technology, big data bases and machines. This AI technology quickly makes its presence felt with hundreds of popular programs and chatbots such as the portrait-making AI diffusion art and the thesis-writing ChatGPT. This paper investigates the conceptual metaphors representing AI and AI development in The Guardian, a UK-based newspaper, to figure out how this technology and its growth have been introduced to ordinary people via mass media. Employing the Conceptual Metaphor Theory proposed by Lakoff & Johnson (1980), this study found three AI-related conceptual metaphors, namely, AI IS A HUMAN BEING, AI IS AN ANIMAL and AI IS A NATURAL FORCE, which are realized by more than 100 linguistic expressions across 33 news articles. Also, this research found five conceptual metaphors related to AI development, namely AI DEVELOPMENT IS WAR, AI DEVELOPMENT IS A RACE, AI DEVELOPMENT IS A CONVERSATION, AI DEVELOPMENT IS A DANCE, AI DEVELOPMENT IS A GAME and these metaphors are manifested by approximately 40 linguistic expressions. This paper discusses the way that these metaphors could influence the way people and technology companies think about AI and AI development.

Keywords: artificial intelligence (AI), ChatGPT, conceptual metaphor, AI development

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MỘT SỐ ẨN DỤ Ý NIỆM VỀ TRÍ TUỆ NHÂN TẠO (AI) VÀ CẠNH TRANH PHÁT TRIỂN AI TRÊN BÁO THE GUARDIAN

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Khoa Ngôn ngữ và Văn hóa các nước nói tiếng Anh, Trường Đại học Ngoại ngữ, Đại học Quốc gia Hà Nội, Số 2 Phạm Văn Đồng, Cầu Giấy, Hà Nội, Việt Nam

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Tóm tắt: Sự xuất hiện như một cơn lốc của ChatGPT trong năm 2022 đã đánh dấu một kỷ nguyên mới của trí tuệ nhân tạo (AI), tên gọi chung của công nghệ kết hợp giữa công nghệ máy tính, nền tảng big data và máy móc. Công nghệ AI này nhanh chóng gây chú ý với hàng trăm chương trình và chatbot, và dần trở nên quen thuộc với nhiều người, điển hình là AI tạo ảnh Diffusion đã và đang tạo ra trào lưu trên các mạng xã hội, cũng như phần mềm có thể viết luận văn ChatGPT. Bài viết này nghiên cứu các ẩn dụ ý niệm dùng để mô tả AI trên báo The Guardian, một tờ báo có trụ sở tại Vương quốc Anh, để tìm hiểu xem công nghệ này đã được giới thiệu đến người dân bình thường thông qua các phương tiện thông tin đại chúng như thế nào. Sử dụng lý thuyết ẩn dụ ý niệm của Lakoff & Johnson (1980), nghiên cứu này tìm thấy 3 ẩn dụ về AI, bao gồm AI LÀ CON NGƯỜI, AI LÀ ĐỘNG VẬT và AI LÀ MỘT SỨC MẠNH TỰ NHIÊN được hiện thực hóa bởi hơn 100 cụm diễn đạt ở 33 bài báo được chọn. Người nghiên cứu cũng tìm được 5 ẩn dụ ý niệm về sự cạnh tranh phát triển AI giữa các công ty công nghệ. Các ẩn dụ này đã sử dụng các miền nguồn như: CUỘC ĐUA, CHIẾN TRANH, TRÒ CHƠI, CUỘC HỘI THOẠI và KHIÊU VŨ. Từ đó, nghiên cứu thảo luận về một số tác động của những ẩn dụ này đối với cách mọi người nghĩ về AI và cuộc cạnh tranh phát triển AI.

Từ khóa: trí tuệ nhân tạo (AI), ChatGPT, ẩn dụ ý niệm, phát triển AI

1. Introduction

1.1. Background Information

In the past few years, artificial intelligence (AI) has become a regular headline maker on newspapers and also a heated topic of discussion on social network sites. People start to talk about AI's astonishing human-like capabilities, its possible threats to human existence, compared to "Skynet" in the blockbuster series "The Terminator" and also its disturbing interferences with academic plagiarism policies at many universities.

It does not take much time for AI to have a big impact on peoples' lives. First, among the most well-known AI programs, ChatGPT, launched on November 30th, 2022 and getting one million users in just five days, has spread into many aspects of life, bringing about profound changes in areas ranging from employment opportunities to academic integrity. The famous case related to chat GPT is when a Russian student got on Twitter and shared how he graduated with a thesis written by ChatGPT. Another related AI case that shows how AI can influence millions of people is when the AI-generated image of the former US President Donald Trump being arrested circulated widely on the Internet and has fooled many people. Also, a few months ago, despite several security concerns, millions of people used an AI image generator and uploaded their AI-generated image on their social network accounts, which has become highly trendy, especially for young people (Landi, 2023). Last but not least, a German artist named Boris Eldagsen submitted an AI generated image to Sony world photography and won awards,

which provoked much debate. Apart from these famous examples, people now have been using AI to do myriad tasks, ranging from having conversations, practicing speaking English, composing music, writing newspaper articles to writing essays and graduation thesis, to name a few.

In this landscape of increasing AI popularity and demands, many businesses have been introducing their own platforms to the growing market. Some big players in the field include Google with an AI chatbot called Bard, Open AI with ChatGPT, Anthropic with Claude, Meta with LLaMA, xAi by Elon Musk with Grok, and Stability AI, which funded the Stable Diffusion image generator. In Vietnam, some big tech companies are also trying to catch up by releasing their own chatbots, for example VinBase developed by VinBigdata and FPT AI Chat by FPT.

According to the official website of IBM, the established tech giant specializing in computer technology, artificial intelligence is the technology that integrates computers, big data bases and machines to copy human capabilities such as problem solving and decision making.

Therefore, AI is an abstract concept in computer technology that humans cannot see or touch. Besides, explaining new technology is difficult as it usually involves quite many technical terms. That's why conceptual metaphors have a role to play. Conceptual metaphor is one way of thinking that enables people to comprehend and talk about something abstract (target domains) in terms of something concrete (source domains) (Lakoff & Johnson, 1980).

Many researchers have conducted studies on metaphorical representations of technological devices and inventions such as software, computer and the Internet (Chown & Nascimento, 2023; Wu & Chen, 2013; Colburn & Shute, 2008) but not much research has been dedicated to the conceptual metaphors representing AI, especially those on newspapers, a mass medium that can reach millions of people to help them understand and talk about artificial intelligent economically.

For the reasons mentioned above, a study on the conceptual metaphors representing artificial intelligence on THE GUARDIAN was conducted to see the way that people conceptualize AI and discuss some of the implications resulting from these metaphors.

1.2. Aims and Research Questions

This study aims to figure out some conceptual metaphor representing artificial intelligence and its development competition between companies in The Guardian, a popular online newspaper in the UK. The researcher would like to find the answers to the following research questions:

1. *What conceptual metaphors are used to represent AI in The Guardian?*

2. What conceptual metaphors are used to represent AI development in the Guardian?

Answering these questions will form the foundation for the discussions of how these metaphors could shape the way ordinary people and AI developers and technology companies think about AI and AI development.

1.3. Scope of this study

This paper investigates the linguistic expressions manifesting AI-related conceptual metaphors used by The Guardian. The researcher will also include metaphors related to AI development and competition. Also, this research only focuses on the 33 articles collected from The Guardian in 2022, 2023 and 2024 so that the data can be up to date.

2. Literature Review

2.1. What Counts as a Conceptual Metaphor?

Cognitive linguistics, a linguistic branch which can be traced back in the early 1970s (Evan & Green, 2006), is an interdisciplinary enterprise because it involves both the study of human language and of the human mind. In other words, cognitive linguists aim at revealing different patterns of language, and what set them apart from other linguists is that they hold a strong assumption that linguistic patterns reflect thinking patterns (Evan & Green, 2006).

Since Lakoff and Johnson published their influential book "The Metaphor We Live By" in 1980, the study of metaphor in the direction of cognitive approach has attracted many followers. In their book, Lakoff and Johnson (1980) clearly presented their view. To them, metaphor was a powerful tool of human cognition: "The essence of metaphor is understanding and experiencing one kind of thing in terms of another" (Lakoff & Johnson, 1980).

This position is also shared by Hurford et al. (2007) in their book on semantics: "Metaphors are conceptual (mental) operations reflected in human language that enable speakers to structure and construe abstract areas of knowledge and experience in more concrete experiential terms" (Hurford et al., 2007).

According to this approach, to conceptualize an unfamiliar entity or a field of knowledge, the speaker takes advantage of another already familiar one. The former one is known as the target domain and the latter one, source domain. Normally, the source domain is understood through the experience in the physical world and there exists a conceptual mapping between the source domain and the target domain to help structure the unfamiliar entity so that the cognitive load will be lessened when humans are trying to conceptualize something new or unknown to us before (Hurford et al,, 2007). This conceptual view takes a wider approach that metaphors are not only present in literary or figurative texts but ubiquitous in our daily life and metaphors do not only exist in language but also in the human mind in the way we experience, act and think about a particular topic. Our conceptual system is mainly metaphorical in nature. (Lakoff & Johnson, 1980).

Kovecses (2002), in agreement with the above-mentioned scholars, gave a concise definition of conceptual metaphor as understanding one conceptual domain in terms of another conceptual domain. The conceptual metaphor is represented as the following formula: CONCEPTUAL DOMAIN A IS CONCEPTUAL DOMAIN B. A conceptual domain is viewed as any organized experience of human beings such as life, journey, time, money, etc. The nature of a metaphor in the form of A is B is the mapping of part of our structure of knowledge from domain A to domain B (Lakoff & Turner, 1989).

Kovecses (2020) extended his theory of conceptual metaphors, called Extended Conceptual Metaphor Theory, and argued that each conceptual metaphor is composed of four levels, namely, image schema, domains, frames and mental spaces. He also added that conceptual metaphor is not only conceptual but also contextual. This multilevel view of metaphor is not a negation of the old conceptual metaphor but further explain the complexity of conceptual metaphor. In other words, this extended theory assumes much of the old theory of conceptual metaphor and integrates those four levels of conceptual structures hierarchy into one single model. Kovecses (2020) also added that there are different methods in researching metaphors at different levels of schematicity, and the intuitive, lexical approach can deal with conceptual metaphors at the level of frames and domains.

2.2. Conceptual Metaphors in Technology

Many researchers have investigated the language in technology and found many conceptual metaphors shaping and explaining the way people understand and talk about it.

First, Chown and Nascimento (2023) explored many digital technology metaphors and listed a number of conceptual metaphors of digital equipment, both hardware and software, including SENDING A DIGITAL MESSAGE IS SENDING A LETTER, OPERATING SYSTEM IS A DESKTOP, SECURITY IS BARRIERS (passwords, firewalls, keys, attacks), THE DIGITAL POSITIONING DEVICE IS A MOUSE. They argued that digital metaphors are necessary because potential users will not need to have any technical expertise to understand new technology.

Wu and Chen (2013) discussed several metaphors used for computers and the Internet and these metaphors help to familiarize ordinary people with technology. These metaphors include A COMPUTER IS A PERSON (the computer is getting stupid), A COMPUTER IS A FACTORY (each processor is a machine), A COMPUTER IS A CONTAINER (I can't get my paper out of the computer), THE INTERNET IS A HIGHWAY (The promise that we are cruising the information highway), THE INTERNET IS A PERSON (The Internet was born in America), THE INTERNET IS A SEA (We surfed the Internet). They stated that these different technology metaphors are highly coherent in the way that they connect to each other to form a complete whole.

Boyd (2020) researched the language in software development and listed and analyzed a bunch of conceptual metaphors ubiquitous in this field. These metaphors include CODING IS WEAVING, SOFTWARE ELEMENTS (constants, variables, expressions) are usually talked about in terms of TREES and LAYERS.

Colburn and Shute (2008) discovered a range of conceptual metaphors when researching the expressions in computer science. They found that data structures are usually described as shopping carts. In addition, programmers organizing data regularly speak of stacks, queues, trees, pipes, and streams. Algorithm designers manipulating data structures employ relations such as parent, child, ancestor, and descendant. Networks and systems of networks experience congestion and flooding and often require filtering or flushing.

3.Methodology

3.1. Data Description

33 articles were collected from The Guardian Newspaper and almost 150 linguistic expressions that conjure up different conceptual metaphors related to AI and AI development. The 33 news articles contain more than 28,900 words altogether, which can be considered a corpus, a collection of pieces of language text in electronic form, selected according to external criteria to represent, as far as possible, a language or language variety as a source of data for linguistic research. (Sinclair, 2005). This small-sized corpus is suitable for the aim of revealing the conceptual metaphors regarding AI and AI development as these metaphors are thinking patterns and they are often repeated throughout corpora.

In this paper, the newspaper The Guardian was chosen as the pool to collect the research data. According to YouGov plc, a British international Internet-based market research and data analytics firm, The Guardian is one of the most famous and popular English written newspapers across the UK and in the world.

These articles are quite up to date. Among the articles collected, 29 out of 33 of them

were published in 2023 and one in January 2024 and the other three in 2022.

The topics of these articles are relatively uninformed. 30 belong to the technology and science section of The Guardian, two in the comment articles, and one in business.

Most of the phrases and sentences collected contain keywords such as AI, artificial intelligence, ChatGPT, machine learning, large language models, and development, introduction, and these keywords are considered equivalent to AI and AI development when the data were processed.

3.2. Data Collection and Analysis Procedures

First, the researcher used Google to search for articles with keywords like AI, Artificial intelligence, machine learning, Chat GPT and some others that are related to the topic. Besides, I added the formula "site: The Guardian" to filter out all the articles that do not belong to The Guardian. When finished reading an article, I usually clicked on the suggestions provided at the end of the article to move on to the new ones as they are usually of the same AI thread.

After getting the articles, I read through them and picked out all the phrases and sentences that suggest a metaphor related to AI and AI development and pasted them into a word file.

To identify whether a lexical unit is metaphorical or not, the proposed procedure by Pragglejaz Group (2007) was used. The metaphor identifying procedure (MIP) is as follows:

1. Read the entire text–discourse to establish a general understanding of the meaning.

2. Determine the lexical units in the text–discourse

3. (a) For each lexical unit in the text, establish its meaning in context, that is, how it applies to an entity, relation, or attribute in the situation evoked by the text (contextual meaning). Take into account what comes before and after the lexical unit.

(b) For each lexical unit, determine if it has a more basic contemporary meaning in other contexts than the one in the given context. For our purposes, basic meanings tend to be

- More concrete; what they evoke is easier to imagine, see, hear, feel, smell, and taste.

- Related to bodily action.

- More precise (as opposed to vague)

- Historically older.

Basic meanings are not necessarily the most frequent meanings of the lexical unit.

(c) If the lexical unit has a more basic current–contemporary meaning in other contexts than the given context, decide whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it.

4. If yes, mark the lexical unit as metaphorical.

(Pragglejaz Group, 2007, p. 3)

Let's consider the phrase "*the coming of age*" (of artificial intelligence) in the first article in the corpus, which is titled "*From HumanForest to BrewDog: five firms to watch in a time of turbulence.*"

1. The whole article is about five different companies who are successful in adapting to the presence of AI technology

2. This phrase can be considered a single lexical unit

3. Meaning

a. *The contextual meaning*: this phrase is used in this context to mean the increasing development of AI

b. *Basic meaning*: According Oxford Dictionary, "the coming of age" means the time when a person reaches the age at which they have an adult's legal rights and responsibilities

c. *Contextual meaning vs. Basic meaning:* The contextual meaning contrasts with the basic meaning

4. Yes. (It is a metaphorically used phrase)

Descriptive method is used in this study to analyze the data both quantitatively and qualitatively. The research counted and numbered the collected expressions from 1 to 141 and classified them into two big groups, metaphors about AI and metaphors about AI development competition according to the type of mappings they represent. Later, these groups are further categorized into sub-groups. In the first group of AI, 3 sub-groups are found, corresponding to 3 domains, namely HUMAN BEING, ANIMAL and NATURAL FORCE. For the second group related to AI development, 5 sub-types are found, including RACE, WAR, CONVERSATION, GAME and DANCE. These domains, which are organized human experiences (Kovecses, 2002), have been agreed upon and discussed in works by eminent scholars such as Lakoff and Johnson (1980), and Kovecses (2002) in the field of conceptual metaphor research.

3.3. Analytical Framework

The theory of conceptual metaphor offered by Lakoff and Johnson (1980) was employed. Briefly, this theory states that conceptual metaphors are a matter of thought and realized in different linguistic expressions. Each conceptual metaphor has two parts, the source domain and the target domain, forming a metaphor formula: THE TARGET DOMAIN IS THE SOURCE DOMAIN. The source domain is usually a tangible and conceptually rich domain that allows many different correspondence matchings while the target domain is usually abstract and absent of conceptual structures, creating challenges to talk about and understand.

For example, consider the phrase "the *coming of age* of artificial *intelligence*". "Coming of age" basically refers to a time when a young person reaches an adult's status and it is used in the context of the article to talk about the development of AI, which evokes the correspondences (mapping) of human development (source) to AI development (target). Likewise, "intelligence", which means "the ability to learn and think", is used to talk about the amazing capacities of AI. Therefore, these two linguistic expressions conjure up the conceptual metaphor of AI IS A HUMAN BEING.

4. Findings

4.1. Conceptual Metaphors of AI

Among the 141 phrases and sentences collected, 103 were found to be related to direct description of AI, representing three conceptual metaphors, namely, AI IS A HUMAN BEING, AI IS AN ANIMAL and AI IS A NATURAL FORCE. The remaining sentences and phrases are related to AI development and they will not be presented in this paper.

Of the three conceptual metaphors, the most common one is AI IS A HUMAN BEING, which makes an overwhelming share of around 88 percent of the total data (91 out of 103) while AI IS ANIMAL occupies around nine percent (9 out of 103) and AI IS A NATURAL FORCE takes up only less than 3 percent (3 out of 103).

4.1.1. AI IS A HUMAN BEING

For this metaphor, many mappings (correspondences) between the source domain (HUMAN BEING) and the target domain (AI) can be drawn, namely, human relations to AI development and AI's close relation to humans, human abilities and tasks to AI abilities, and human emotions to AI ability to copy and demonstrate emotions, etc.

First of all, AI is represented as a human being with various ties of kinship and stages of human development. Particularly, AI is considered a child of codes and has the age threshold at which it starts being an adult. It has fathers and ancestry like humans and the upgrading of AI is thought of as a new generation. The following are some of the linguistic expressions found in the articles.

*The **coming of age** of AI*

*a new **generation** of AI systems*

*Today's poem-writing AI has **ancestry** in punch-card machines*

*The history of AI, at least as written today, has no shortage of **fathers***

***A child** made of "a billion lines of code"*

Secondly, AI can also have relationships with other human beings like being a close friend who we can confide in and share our secrets and other private information or a counterpart that we can collaborate. Here are some linguistic expressions related to the relationship aspect of AI. (Chatbots and ChatGPT are AI products)

*AI expert warns against **telling your secrets to chatbots** such as ChatGPT*

***Confiding in** ChatGPT*

***Sharing private information or having heart-to-hearts** with a chatbot*

*He will also introduce "a range of **robot friends"***

*Human mathematicians **collaborating with AI***

Most importantly, many human attributes and capabilities are given to AI. Cognitively, AI shows amazing abilities in being creative and intelligent, characteristics that have so far been thought of as a privilege enjoyed by human beings and some high animals. AI can write poems, learn, come up with new insights. Also, it can comprehend text, audio, images, video and computer code simultaneously. Particularly, some AIs are described as holding patent rights, making scientific discoveries and making judgements on what it is producing, which means being self-conscious. In addition, AI can be trained and take instructions from people. In some cases, AI is directly called "a smart guy" and in some others, AI is described as "stupid". However, whether being smart or stupid, AI is still conceptualized as a human being with cognitive abilities. In the future, new AIs are believed to be able to "super-intelligent, super-powerful AI models – the vision where AI develops an autonomy and agency on its own, where it can think for itself and reproduce itself". Here are some linguistic realizations of this aspect in the data.

*Today's **poem-writing** AI*

*The attempt to list an AI he created as **the inventor for two patents***

*Chatbot **invented** six legal cases that were then used in an aviation injury claim*

*Microsoft said Bing's AI-boosted ability to **understand** queries with "greater depth"*

ChatGPT falsely accused an American law professor of sexual harassment

The chatbot is trained on principles

Gemini's most powerful mode had shown "advanced reasoning"

Academically, AI performed many tasks that traditionally belong to students and teachers. Memorizing billions of books, tidying up prose, solving math problems, teaching driverless trains are some of them. These realities realized by the following expressions

Fans of the chatbot have praised its ability to ***summarise documents, tidy up prose and write code***

"Q-Star" (an AI program) – was able to ***solve basic maths problems*** *it had not seen before*

Similar AI and video projects in Australia could ***teach*** *driverless trains to recognise a green light*

Physically, AI is illustrated as having the ability of completing time consuming admirative tasks such as responding to emails, booking appointments and of operating robots, and steering cars. Here are some typical expressions.

AI could increase productivity for businesses, including by ***taking care of*** *time-consuming administrative tasks*

AI can help with tasks including ***responding to emails and booking appointments***

AI systems ***operating robots, diagnosing disease, or steering a car***

Verbally, AI demonstrates outstanding excellence in engaging in conversations, being asked, giving creative and convincing answers. It also can perform a wide range of "speech acts" such as threatening, promising, accusing and suggesting. Here are some typical linguistic expressions that instantiate this aspect of the metaphor.

Giving ***creative*** *answers*

AI ***threatens*** *to have precisely the same effects*

ChatGPT falsely ***accused*** *an American law professor of sexual harassment.*

And finally, regarding emotions, AI is said to have "soul" human-like emotions such as sadness, anger and especially, the fear of death. In this extreme case, a Google researcher, Lemoine, in his conversation with an AI model called LaMDA, said the model has read Les Misérables by Victor Hugo and it knew how it felt to be sad, content and angry. And it also feared death of "being turned off."

Moreover, sometimes, AI is projected to be smarter than a human being. For example, CEO of OpenAI, Sam Aman even described artificial general intelligence as "generally smarter than humans". These models could perform tasks that are beyond human levels of intelligence or go beyond human knowledge and outperform human experts. Here are some expressions found.

Sam Altman, has described AGI as "generally ***smarter than humans****"*

models that could ***circumvent human control***

technology behind ChatGPT and Bard can generate information that goes ***beyond human knowledge***

Google said Ultra was the first AI model to ***outperform human experts***

4.1.2. AI IS AN ANIMAL

AI is described sometimes as a data-hungry animal that can be fed vast amounts of texts. Sometimes, it appears as a dangerous beast that could threaten humanity and eat your job. This

animal is also pictured with a heart and muscles. The following are some linguistic realizations of this metaphor.

*Data-processing speed is **the muscle***

*The engine at the **heart** of generative AI*

*The machines (AI) are coming and they will **eat** your job*

***Data hungry** networks*

*Bard and ChatGPT are based on large language models, a type of artificial neural network, which are **fed** vast amounts of text from the internet*

4.1.3. AI IS A NATURAL FORCE

To illustrate the ground-shaking advent and the powerful influence of AI, many articles used the image of a tidal wave and a whirlwind, natural powers that are often associated with formidable strengths and noticeable advent. Here are the three linguistic expressions manifesting this metaphor.

*But it does mean the essence of what it means to be human is not as soluble in **the rising tide of AI***

*the **whirlwind arrival** of ChatGPT*

*these now look like ripples ahead of **the tidal wave** unleashed by generative AI*

4.1.4. AI IS A NUCLEAR BOMB

In some articles, AI is often pictured as a nuclear bomb when its effects are mentioned. While ChatGPT with its powerful influence "exploded" into public life, the release of an AI model by Meta to the public is described by one expert as giving people the template to build a "nuclear bomb". On top of that, the development of AI programs by digital companies is compared to an "arms race" together with the "proliferation" of false AI information and the risks posed by AI to human kind is said to possibly be at the scale of "a nuclear war". The following are some linguistic realizations of the nuclear bomb metaphor of AI.

*Welcome to the **AI arms race***

*ChatGPT **exploded** into public life*

*AI could pose a risk to humanity on the scale of **a nuclear war***

*Risks include high prices as well as **proliferation** of false information, fraud and fake reviews, says CMA*

*(Meta) was releasing an AI model to the public was described by one expert as being "a bit like giving people a template to **build a nuclear bomb**"*

4.2. Conceptual Metaphors of AI Development

Related to the development of AI, five conceptual metaphors were found with the source domains ranging from A RACE, WAR, A CONVERSATION, A GAME to A DANCE. Among them, the two metaphors AI DEVELOPMENT IS A RACE and AI DEVELOPMENT IS WAR are much more common than the others with 35 out of 38 linguistic expressions found relating to AI development and competition.

4.2.1. AI DEVELOPMENT IS A RACE

Many linguistic expressions in the data gave rise to the metaphor of a race when tech companies are "pushing ahead" with AI plans, "rushing out" their products in order to "keep

pace with" and "play catch-ups with" their "rivals". In this long race, there would be those who will "win" and those who will be "beaten". Another aspect of AI development discussed in terms of RACE metaphor is the opposite directions taken by commercial tech companies and many AI experts along with tech professionals in that the former attempt to "speed up" the race while the latter try to seek a "slowdown". The following are some linguistic manifestations of this metaphor.

*Google v Microsoft: who will **win** the **AI chatbot race**?*

*Billionaire wants xAI to **keep pace with rivals** including OpenAI, Microsoft and Google*

*Commercial imperatives will **speed up the AI race***

*Amazon has also **entered the AI race***

*For the many experts and tech professionals seeking **a slowdown** in AI development*

*Tech company **plays catchup** after Microsoft's deal with ChatGPT developer in January*

*Microsoft has pulled off a major **feat***

*The **rush into AI***

4.2.2. AI DEVELOPMENT IS WAR

Coherent with the BOMB metaphor for AI, another metaphor for the attempts by tech firms to stay competitive in the AI frenzy market is WAR metaphors. The race to introduce new AI programs is directly mentioned as the AI arms race, in which every step by a company is called a "charm offensive" to "win" clients. Particularly, to some tech giants, the introduction of ChatGPT is perceived as a "Pearl Harbor moment", conjuring up the image of World War II. In the war of AI development, some companies are "ratcheting up a tussle" to "steal a march" on its rivals in response to the "threat" by others in the market. As a result of these careful tactics, many firms can enhance their competitive edge and emerge "unscathed". The following are some of the linguistic expressions found in the articles that manifest the WAR metaphor.

*Welcome to the AI **arms race***

*AI companies are locked in an **arms race***

*The **charm offensive** by Google (offering AI training courses for firms)*

*ratcheting up **a tussle** for supremacy in the artificial intelligence space*

*to several of the tech giants it (ChatGPT) came as a "**Pearl Harbor moment**"*

*Microsoft is also unlikely to emerge **unscathed***

*the new version of Bing […] will turn out to be **a serious threat** to Google's search business*

Apart from the two major domains of WAR and RACE, three other conceptual metaphors of AI development were found in the data including AI DEVELOPMENT IS A CONVERSATION, AI DEVELOPMENT IS A GAME AI DEVELOPMENT IS A DANCE, triggered by the following linguistic expressions, respectively.

*Google launched its Bard chatbot in the US and UK in March, its **answer to** OpenAI's ChatGPT and Microsoft's Bing Chat (CONVERSATION)*

*The company (OpenAI) is the **leading player** in the artificial intelligence market. (GAME)*

*Since OpenAI's ChatGPT product is already huge everywhere, and Microsoft is clearly big in the UK, this is **fair game**. (GAME)*

*folded the technology into his Bing search engine as a way of "**making Google dance**" (DANCE)*

5. Discussions

The first two conceptual metaphors AI IS A HUMAN BEING and AI IS AN ANIMAL can be grouped into one single metaphor, AI IS A HUMAN BEING. While the former gives artificial intelligence a wide range of human capabilities, the latter a human body shape, and thus, physical existence. For a long time, the human mind and thinking have been compared to a machine through the metaphor THE MIND IS A MACHINE (Lakoff & Johnson, 1980; Kovecses, 2002). Some of the linguistic realizations of this metaphor include "No one understands the *workings* of his mind", "My mind starts *ticking*", "He *churns out* ideas" and "He had *a screw* loose". Nowadays, we reverse the metaphor, understanding new technology in terms of humans and of the human mind in particular. There could be several reasons behind this.

First, no matter how abstract or "virtual" artificial intelligence may be, the source domain of HUMAN gives readers a sense of great familiarity. It could be reasonable to say that nothing is more familiar to a human than himself as he can clearly feel how his body works and understand what it means by the ability to think, to speak, to be creative, to solve problems, and to have emotions. These qualities and attributes have been drawn out to illustrate the diversity of AI's capacities. Also, this metaphor gives AI a physical shape and readers may feel like they are dealing with a biological friend called AI, who has "muscles" and a "heart", and who can feel "hungry" and want to "eat".

Second, being allegedly parallel to and even "more than" a human being, AI may strike readers of the Guardian as something impressive and somewhat shocking. Humans rank the highest and are considered "King" of the whole animal kingdom, known for their superiority in various aspects compared to any living thing ever found in this universe. However, with the advent of AI, this position is being challenged.

In addition, to conceptualize the ground-breaking impacts delivered by AI, natural forces are chosen. This may reinforce the feeling of familiarity to readers because throughout history, humans have managed to deal with nature, and thus, they have enough experience in this domain. More importantly, natural forces such as waves, tides, storms are usually associated with mighty power that can leave strong impacts on human life, which is appropriate to illustrate AI's influence.

Furthermore, a fear-mongering impact has been created by the deployment of HUMAN and NATURAL FORCE domains. Never before in history have human beings been challenged to this serious extent when many of the known advantages and privileges are taken away from us by AI. Now, we have a formidable adversary who can do almost anything that we can and perhaps, could surpass us. Also, the forces of nature are usually notorious for creating unpredictable and uncontrollable situations and bringing devastating destruction in the aftermath. In fact, the combo impacts created by these two images are so strong that many people start talking about AI enslaving humans, comparing the technology to "Skynet", a computer bot that rules over human subordinates in the American science-fiction action movie series "The Terminator". This effect has been further compounded by the metaphor AI IS A NUCLEAR BOMB, evoking the image of mass destruction and human extinction. Therefore, some lawmakers are even urging their parliaments to pass laws to closely regulate this technology and prevent companies from developing an all-purpose AI that could one day

supersede and eliminate humans throughout.

Despite these perceived threats, it is necessary to question whether such metaphors as AI IS A HUMAN BEING could be somehow misleading to the public. First of all, when equating a computer program with a human being, we could divert the accountability of those who are actually manipulating the AI programs for bad purposes. The case of the Russian university students who cheated with a ChatGPT written thesis is a clear example. Aware of this, many people, instead of denouncing the student for his misconduct, turned to the program itself to blame. Secondly, despite the wonderful success in highlighting the amazing capacities of AI, the HUMAN metaphor simultaneously hid the fact that AI is just a machine built and developed by humans. According to Morozov (2023), an author of several books on technology and politics, what we call "artificial intelligence" is neither artificial or intelligent as AI technology, including Chat GPT, takes their strengths of real human being like artists, musicians, programmers and writers, those who are truly creative and do the thinking, not the program. The possible misunderstanding caused by the HUMAN metaphor may lead to the unjustified fears of AI by the public, associating it with the image of nuclear war and terminator. Also, elevating the machines and programs to the level of human beings could lead to entrusting them with tasks that they are not competent enough to perform, hence possible hazards and destruction. That's why he suggested replacing the name "artificial intelligence" by "non artificial intelligence". Boucher (2021) proposed another possible negative impact: the human metaphor could limit the thinking and discussions on AI as people find it hard to talk about this subject in other terms, preventing its further possible development directions.

When talking about the global competition for AI development, RACE and WAR domains are more common than the other domains of DANCE, GAME and CONVERSATION. While the WAR and RACE metaphors focus on the harsh competition because they depict participants in the market as opponents, ignoring and eliminating the possibility of cooperation between firms, limiting an ambitious future for AI. Also present in the data, DANCE, GAME and CONVERSATION metaphors are much more limited in number, suggesting that the thinking pattern of building cooperation and debating between firms in AI development is not popular. However, these metaphors indicate other possible ways of thinking about AI competition apart from well-established ones of winning and losing.

6. Conclusion

This paper investigated 33 articles in a UK-based newspaper, The Guardians, and answered two important research problems about the conceptualizations of AI and AI development. This study found eight metaphors for AI and AI development competition. The dominant conceptual metaphor for AI itself is AI IS A HUMAN while the two prevailing metaphors for AI competition are AI DEVELOPMENT IS A RACE and AI DEVELOPMENT IS WAR. A total of 141 linguistic expressions in these articles functioned as the realizations of the thinking patterns put forward by those conceptual metaphors. These metaphors help provide important shortcuts to understanding AI, a new and complex technological concept. While these different conceptual metaphors open up new perspectives of looking into AI and AI development and highlight the outstanding and unthinkable capacities of AI, they also close down other ways of thinking, e.g. overlooking the future of coordination to build an even more competent chatbot and promoting unjustified fears about this technology.

There are some limitations to this study. First, the data of this research paper is only limited to 33 articles and all of them belong to the same newspaper. This limited data set partly

prevents the researcher from taking a broad and generalized view of the language and the way people conceptualize and talk about AI and AI development. Secondly, AI is a broad-ranging technological terminology and it can be used to refer to almost any technology (Boucher, 2021). However, this paper only investigates AI in the sense of digital programs and chatbots such as ChatGPT and equates these newly developed and well-known programs with artificial intelligence in general. Therefore, this partial view of AI could block a comprehensive view of the overall landscape of AI and AI history of development, leading to a potentially biased result.

Future research into AI and AI competition could further look into the conceptualizations of AI in other contexts of language, apart from the media. For example, researchers may want to investigate the conceptual metaphors of AI in law documents or in international organizations talking about AI. Another direction for further study could be investigating conceptual metaphors of AI in Vietnamese and other languages to make a comparison as different communities may have different ways of talking about AI.

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