

## Memes as an inconspicuous tool in information warfare

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Memes, in the form of images, phrases or short videos, are an important and inconspicuous source of information in the Internet age. Their simplicity and popularity make them a potential tool in information warfare, capable of producing certain effects in society. The article presents memes as information weapons, analyzing the process of their creation and distribution. Reference is made to Richard Dawkins' memes theory and the theory of reflexive control to explain how memes can influence the decisions and perceptions of audiences. The example of the "Disaster Girl" meme and its variations were presented, illustrating the ability of memes to replicate and evolve. A classification of memes in terms of the information they convey was made, pointing out their potential to shape public opinion and emphasizing the subjective nature of their reception.

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### 1. Introduction

Information warfare is one of the most serious challenges to the broader security of citizens and states. The main factor enabling the development of this phenomenon is the ubiquitous Internet – the most popular, and often the only source of information for a large part of society. The Internet, which is both a treasure trove of knowledge and a space full of disinformation, has become a field of information warfare in which, willingly or unwillingly, every user is involved.

There are many methods, techniques and tools used in information warfare, and discussing them requires the introduction of certain theoretical foundations, assumptions and their justification, which leads to attempts to systematize this phenomenon in the form of various taxonomies. However, regardless of the proposed divisions and classifications, a particularly important element of information warfare conducted on the Internet is the seemingly innocuous concept of memes – commonly associated with "funny pictures from the Internet". In this article, we will introduce memes as information weapons and analyze the process of their creation, using examples present in the web space.

### 2. Memes as information weapon

Richard Dawkins, in his definition of memes, defines them as "units of cultural transmission" – they can be melodies, ideas, fashionable phrases, fashions of clothing, ways of producing objects, which, like genes, clone, mutate and undergo a process of selection [1]. This definition perfectly captures the nature of modern memes, which, although associated mainly with "funny pictures from the Internet" function as effective carriers of information and emotion, especially in the social media space. Portals such as Facebook, Twitter and Instagram have become the main channels for the spread of memes, and the scale of their influence is constantly growing. Memes, sent between users, often have a real impact on public opinion, which is particularly evident during election campaigns, when they are a tool for shaping moods and political preferences.

To understand why memes pose a potential threat, it is worth looking at the theory of disinformation, formulated by Vladimir Volkoff. In his research, Volkoff breaks down the disinformation process into the various roles played by the parties involved [2], [3]:

- Client – the person or group of people who benefit from disinformation;

- Agent of Influence – an entity executing the commissioned disinformation process;
- Theme – the motive that is the hallmark of disinformation;
- Supports – events that are the “fuel” for the disinformation process;
- Transmitters – media with some connection to the agent of influence;
- Resonators – media unrelated to both the principal and the agent of influence, unwittingly propagating information disorders;
- Target group – a person or group being the target of the disinformation.

Although Volkoff originally developed his theory with disinformation activities in mind, it can also be applied in the context of neutral or reliable information, or “anti-disinformation”. This is because the mechanism of information distribution remains the same, regardless of content – both true and manipulated information are subject to the rules of spreading and transformation. Disinformation, however, often spreads faster due to the deliberate amplification of the emotional message, which makes it more viral. Memes, being simple and clear forms of communication, quickly go through the various stages of this process, facilitating the spread of information in this form.

Today, researchers are trying to model the process of spreading information, including memes, in social networks. One of the most successful models describing this phenomenon is the Scale-Free Network model. Rafał Kasprzyk’s research indicates that in this type of network information does not fade away, regardless of its “virality” which distinguishes it from other network models [4]. Scale-free networks are characterized by a large number of connections between nodes with varying degrees of centrality, which means that information, once introduced, can circulate for a long time, influencing an ever-widening audience.

Memes, while often appearing to be just funny pictures, can actually have a significant impact on the way audiences perceive reality. To understand how memes can shape public opinions and attitudes, it is worth looking at one of the advanced theories in information operations - reflexive control theory. This theory describes how a controlling individual (or group) can influence the decisions and actions of another individual using specifically targeted information impulses. Reflexive control is a form of communication in which the controlling object (the sender) sends informational impulses to the controlled object (the receiver), eliciting specific

responses in it [5]. Within the framework of this theory, reflection means the ability to build a model of the other party's thinking and behavior. In the context of memes, the “controlling object” can be the creator or author of an information campaign, while the “controlled object” is the recipient of the meme, who reacts to the content of the message.

The first step in the process of reflexive control is to build an accurate model of the person or group we want to control. This model is based on understanding the values, beliefs and emotions of the recipient. In the case of memes, their creators often target audiences with certain characteristics or attitudes, using humor, irony or absurdity to attract attention. Then, having developed a model of the recipient, the sender can predict how a certain content (impulse) will be received and what reaction it will elicit. If the recipient model is precise enough, the meme creator can adjust the message accordingly to produce the desired emotional or cognitive effect. In this way, it is possible not only to shape the recipient's reaction, but also to control his perception of certain issues, which makes memes an effective tool for social influence [2].

Then, having developed a model of the recipient, the sender can predict how a certain content (impulse) will be received and what reaction it will elicit. If the recipient model is precise enough, the meme creator can adjust the message accordingly to produce the desired emotional or cognitive effect. For a meme to gain popularity and successfully take root online, it must be simple, catchy and easy to remember.

Meme creators often use humor or elements that put the recipient in a positive mood, which promotes the assimilation of the message. American psychologist Robert Zajonc pointed out that in the cognitive process, thoughts and emotions are inextricably linked. “There are no thoughts free of feelings,” Zajonc noted, emphasizing that emotions are the basis of every cognitive decision [6].

Memes that put the recipient in a positive mood can significantly increase the chance of accepting the content being communicated, especially if it is new to the recipient. Humor, acting on emotions, enhances the cognitive process and lowers natural criticism, so that the information contained in memes is more easily found by recipients and assimilated by them. As a result, memes not only inform, but also influence views and attitudes, subtly shaping the way audiences perceive reality.

Due to their simplicity and emotional impact, memes can become a powerful tool for

reflexive control. A well-planned meme that attracts attention and arouses emotions is able not only to provide entertainment, but also to influence the thinking of the audience, reinforcing certain attitudes or ideas. In this way, memes shape fragments of the audience's reality, which, through their further dissemination, gain a wider and more lasting impact on society.

### 3. Memes life cycle

Memes, although today mainly associated with “funny pictures from the Internet,” existed long before the advent of social media platforms and instant messaging.

In their traditional forms, they were an element of local culture, recognized only in limited communities. In those days, a meme could be a characteristic gesture, a way of saying hello, or local sayings and slogans that constituted a recognizable code within a particular group. They were symbols passed on by word of mouth or through daily interactions, but their reach was limited to a specific environment, which greatly limited their impact.

The development of the Internet has opened up new possibilities for memes. Social networks, instant messaging and the global availability of online content have enabled their wide diffusion and transition to an international scale. Thanks to these tools, memes have gained a reach that allows them to reach audiences around the world. Along with global reach, the nature of memes has also changed – instead of local symbols that only a select few understood, they have become images, phrases or ideas instantly recognizable to millions of people regardless of where they live. The Internet has transformed memes from local symbols to pop culture icons that can express both humor and deeper ideas, and sometimes even serve as a tool of persuasion in various political or social contexts.

As defined by Richard Dawkins, memes are units of cultural transmission that are characterized by simplicity and high susceptibility to replication and transformation. This simplicity promotes the rapid spread of memes, which easily adapt to different contexts, carrying new meanings. Often numerous versions and variations are created from one original image or idea, forming so-called “meme families” – groups of memes that share a common theme, but differ in detail, style or message.

An example of such a family is the popular *disaster girl meme*. The first copy of this family (Figure 1), shows a girl standing in front of a burning building with an enigmatic smile.



Fig. 1. Disaster girl meme – original  
Source: <https://knowyourmeme.com/memes/disaster-girl>

This image quickly gained recognition and became the basis for numerous reworkings and reinterpretations, in which the girl symbolizes various crisis situations, as if she were their informal “initiator” or “observer.” Each successive version of the meme retains the original image, but adds new contexts and meanings, making “disaster girl” a prime example of the meme's ability to adapt and evolve in the digital ecosystem. After the photo was published online, its popularity skyrocketed, mainly due to the girl's facial expression, which appears disturbingly calm and even ironic in the face of the dramatic scene of the burning building in the background. This contrast between the facial expression and the situation made the picture immediately attract the attention of Internet users, becoming the inspiration for numerous interpretations and alterations.

The popularity of the original photo was sustained by creating modifications of it, in which new stories and contexts were added – examples of such alterations (Figures 2–5).

Each of these variations depicts the “disaster girl” in different situations, where she remains indifferent or “responsible” for the disaster, giving room for humorous and satirical interpretations. Thanks to the popularity of the first photo, its modified versions have also been popular, making it a permanent fixture in online pop culture.

This process perfectly illustrates Richard Dawkins' memetic theory, according to which memes, as simple, modifiable vehicles of cultural transmission, are easily transformed and replicated. The original version of the photo, like a “primordial gene,” inspired numerous copies and variations, each of which was likely to gain its own popularity and unique meaning in public perception.



Fig. 2. Disaster girl meme – Just as I planned  
Source: <https://knowyourmeme.com/memes/disaster>



Fig. 3. Disaster girl meme – spider  
Source: <https://www.refinery29.com/en-us/2016/07/116732/who-is-disaster-girl-meme>



Fig. 4. Disaster girl meme – covid  
Source: <https://imgflip.com/meme/Disaster-Girl?page=236>

Memes, like genes, can not only replicate themselves, but also mutate and merge among

themselves, creating entirely new forms. Figure 6 is an example of such a hybrid, combining elements of the memes “Roll Safe” and “Disaster Girl,” which promotes their popularity and multi-layered message. Such combinations expand the reach of the meme, attracting both audiences of one motif and the other, and creating new, often amusing contexts.



Fig. 5. Disaster girl meme – error  
Source: <https://www.dicionariopopular.com/disaster-girl-garota-desastre>



Fig. 6. Disaster girl meme and roll safe  
Source: <https://imgflip.com/i/3yhgyo>

A meme can be technically defined by the following characteristics, among others:

- **Form** (e.g., image, phrase, video),
- **Content** (information contained in the meme),
- **Topic** (specific events e.g. war in Ukraine, COVID pandemic),
- **Origin** (the family from which the meme originated, e.g. “disaster girl”).

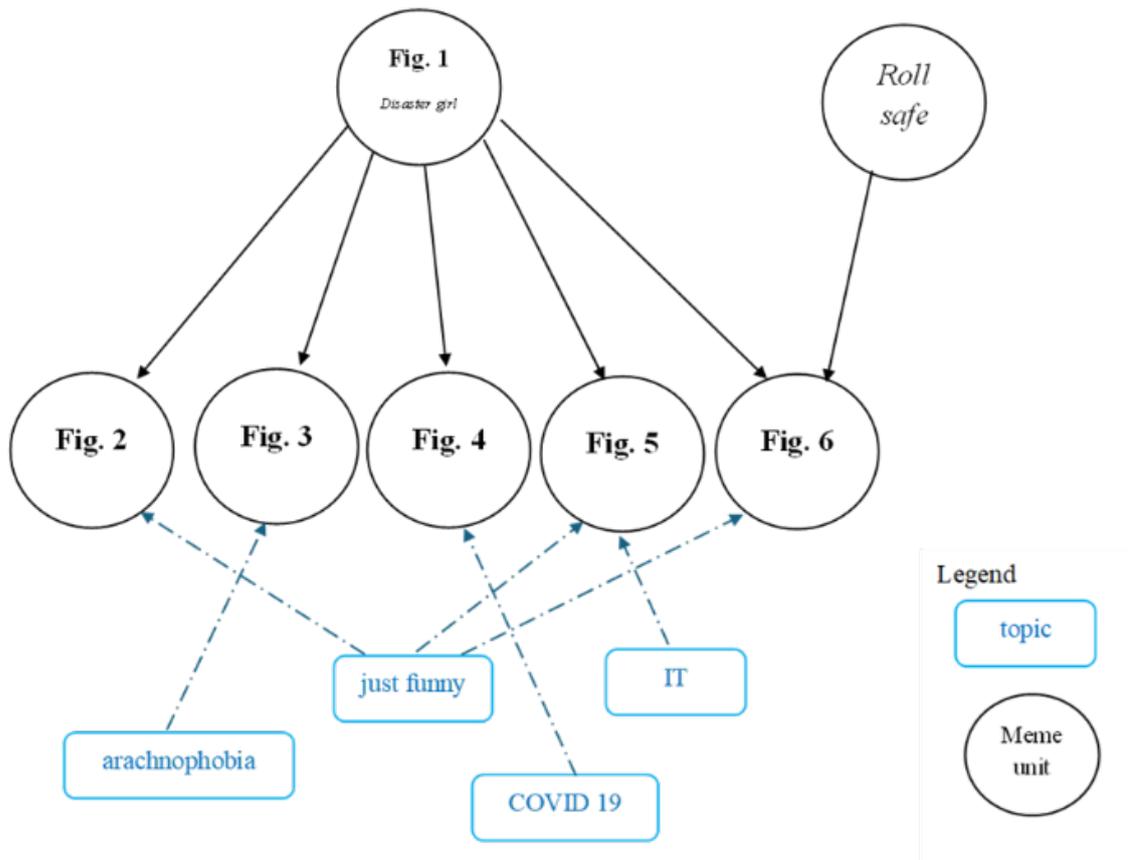


Fig. 7. Example memes tree  
Source: own

The origin of such a meme, technically it is easy to represent with a tree, where in the root there is a native meme (most often a cultural phenomenon) and in the leaves its already variants carrying, specific content, with a thematic category. The family of memes, therefore, can be represented in the form of a graph, with two types of vertices. The first determines the specific units of memes, and the second determines the topic to which it belongs. The arcs in this graph denote the relationship with the subject or original phenomenon. An example of such a tree was based on Figures 1–6 is shown in Figure 7.

#### 4. Memes in information classification

Almost every meme carries some kind of information and has a central theme. However, not everyone has a strictly informational purpose, and sometimes this purpose is harmless or irrelevant to the recipient. It all depends on the type of content being conveyed. For example, it is difficult to find a specific purpose in the meme shown in image 2. The information conveyed by

memes can be divided into suggestive and non-suggestive. The former carry the intention of influencing the recipient, while the latter are devoid of such a goal. The role of memes classified as non-suggestive is often marginal and does not require deeper analysis. In the case of suggestive memes, however, it is worth paying more attention to them. The key issue is to determine the veracity of the information being conveyed. The information contained in a meme can be true (information) or false (disinformation). Regardless of which group the content belongs to, its essence and intent can be analyzed.

Another division among information (and disinformation) is the classification into constructive and destructive content. Constructive information has a positive effect and brings something new to the discussion. Destructive information, on the other hand, has the opposite effect – it aims to undermine certain views. It is worth noting that this division is independent of the veracity of the information. We can encounter both constructive disinformation and destructive information. It may seem that such a division is unnatural, since

constructiveness is associated with something positive, like true information, and destructiveness with something negative, like disinformation. However, it should be remembered that constructiveness and destructiveness of information are subjective—their reception can vary depending on the person they reach.

We will use empirical evidence as an example, in which we will present an analysis of a specific cultural unit.

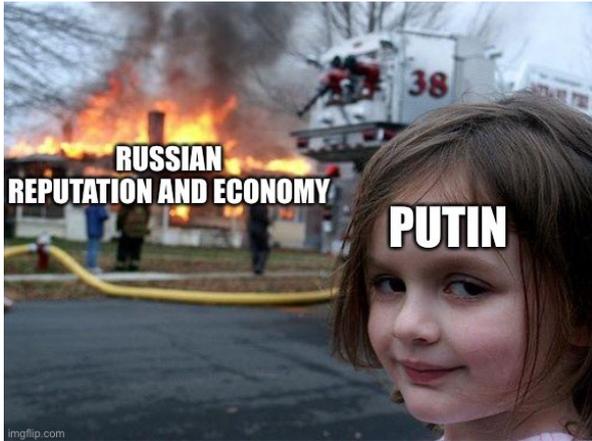


Fig. 8. Meme to analyse

Source: <https://imgflip.com/meme/Disaster-Girl>

First of all, it is necessary to examine the target audience to which the meme is directed. In this particular case, it can be inferred that the recipients are opponents of the Russian president's policies. Next, it is important to determine who distributes such an image. Assuming that it is also distributed by opponents of the Russian president's policies, the image can be summarized as follows:

- **Recipients:** Opponents of the Russian president's policies;
- **Distributor:** Opponents of the Russian president's policies;
- **Informational Purpose:** To ridicule the Russian president's actions;
- **Type:** Constructive.

The type of information conveyed by a meme is strictly dependent on the audience among whom it spreads. If the person influenced by the meme shares the views of its distributor, the meme is constructive for him. It reassures her that her worldview is correct and logical.

However, when the meme reaches a different audience, for example, supporters of the Russian president's policies, its classification changes:

- **Recipients:** Supporters of the Russian president's policies;

- **Distributor:** Opponents of the Russian president's policies;
- **Informational Purpose:** To ridicule the Russian president's actions;
- **Type:** Destructive.

A target group that has a different model of the world around them may perceive such a meme in a destructive way. Encountering information that contradicts one's own beliefs can cause resistance, and changing an established worldview is much more difficult than initially forming or confirming it. Therefore, such a meme may not be immediately successful in changing the recipient's thinking.

The only way to modify the existing model of the world in the human mind is to properly select signals that gradually change its point of view—which alludes to the theory of reflexive control. Such a meme can be one of these signals and, in combination with other stimuli, can influence the recipient's perception of the world [8].

The last audience this meme may encounter is people who are neutrally disposed to the Russian president's policies:

- **Recipients:** People who are neutral on the Russian president's policies;
- **Distributor:** Opponents of the Russian president's policies;
- **Informational Purpose:** To ridicule the Russian president's actions;
- **Type:** Constructive.

In this case, the type of information is constructive. Opponents of the Russian president's policies can gain a new ally by shaping a piece of his world model in a way that is consistent with their own beliefs. For a person for whom this is the first information encountered in the context of the Russian president's policies, the meme can create a positive mood through the effect of humor. This, in turn, increases the likelihood—according to the “Feeling and thinking” principle—that the recipient will accept the information as true and incorporate it into his or her worldview.

The humor contained in a meme plays a key role in influencing the emotions of the recipient. Positive emotions can facilitate the assimilation of new content and promote its acceptance. In this way, a meme not only informs, but also influences feelings, which can be an effective strategy in persuading neutral people.

According to the theory of reflexive control, a change in worldview occurs through gradual and deliberate influences on an individual's perception. Such a meme can be one of many signals that, when combined, can change the

recipient's perception of reality. This is a long-term process, requiring consistent delivery of stimuli that influence reflection and reinterpretation of existing beliefs.

Other type of classification is to classify disinformation type which is hidden into meme. First widely known divide, **classify by origin** genesis. There is 3 levels of disinformation [7]:

- **Mis-information:** this type of information results from cognitive errors, inaccuracies in the message or confusion in the communication process. Although not intentionally misleading, it can lead to misunderstandings and misinterpretations. An example is inaccurate information provided by the media about an event;
- **Mal-information:** is information that is intended to cause harm, such as by slandering individuals or institutions. It may be true, but is presented in a way that is intended to cause harm, such as by being taken out of context or reported in a biased manner.
- **Dis-information:** this is the most malignant type of information pathology. Dis-information involves deliberate misrepresentation, often through sophisticated manipulation techniques. It aims to achieve specific benefits, such as political, economic or social, at the expense of the recipient of the information. Modern digital tools, such as artificial intelligence algorithms and deepfake technologies, make it possible to create highly convincing disinformation that is difficult to distinguish from the truth.

The second type of classification depends on the harmfulness of the disinformation. There is a seven-level **category** for the **damage** of disinformation [8]:

1. **Satire or parody:** this is a type of pathology that is not constructed to cause harm, but can be used to cause harm.
2. **False connection:** this is a type of pathology that is commonly referred to by the term “click-bait”. It involves the intentional positioning of headlines and images that are unrelated to the content, or are shaped in a manipulated way designed to increase the interest and reach of the content.
3. **Misleading content:** information that is misleading to the purpose of qualifying an issue or person.
4. **False context:** information with true content shown within a false context.
5. **Imposter content:** false information given credence wrongly by real sources, e.g. an

existing author, an institution with authority on the subject.

6. **Manipulated content:** true content is deliberately intermingled with false content to form harmful content hard to distinguish from discrediting.
7. **Fabricated content:** content whose content is completely falsified.

Let's try classify some examples. Very popular fight of memes happening during presidential campaigns in USA. First use of this usage of memes was noticed during first campaign of Trump election in 2016.



Fig. 9. Trum vs Clinton

Source: [https://humorinamerica.wordpress.com/wp-content/uploads/2016/09/debbranco20160926\\_low.jpg?w=584](https://humorinamerica.wordpress.com/wp-content/uploads/2016/09/debbranco20160926_low.jpg?w=584)

Categories:

- **Origin classification:** mal-information – shows Clinton as rapid and off topic;
- **Damage category:** 1. Satire or parody – a picture presenting a ridiculous image.



Fig. 10. Trum vs Haris

Source: [https://www.mundodeportivo.com/us/files/image\\_948\\_465/uploads/2024/09/11/66e1310cc2f77.png](https://www.mundodeportivo.com/us/files/image_948_465/uploads/2024/09/11/66e1310cc2f77.png)

Categories:

- **Origin classification:** hard to estimate – there is no additional context to estimate,
- **Damage category:** 1. Satire or parody – picture showing a caricature,



Fig. 11. UN reaction

Source: <https://imgeng.jagran.com/images/2024/10/02/article/image/israel-iran-war--1727851602576.webp>

- **Origin classification:** mal-information – creating social anxiety about incoming WW3,
- **Damage category:** 2. False connection – creating meme to gain virality.

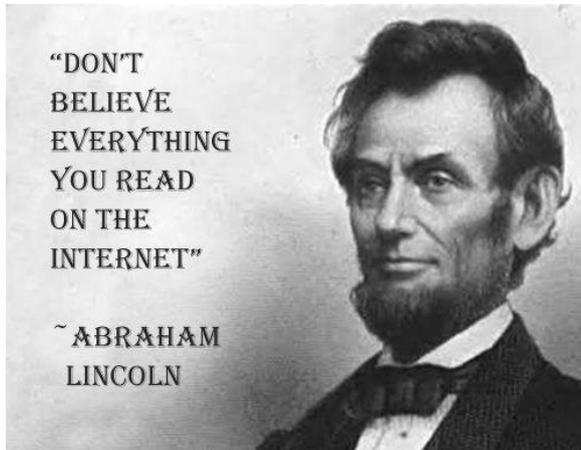


Fig. 12. UN reaction

Source: <https://i.kym-cdn.com/photos/images/newsfeed/001/201/185/19b.jpg>

- **Origin classification:** dis-information – fully manipulated content to accomplish specified effect (but harmless in this case),
- **Damage category:** 5. imposter content – using Abraham Lincoln authority, whose does not ever coexist with Internet.

Last example (Figure 12) is obviously funny version of “imposter content” but this type of information can be easily used with other personalities.

## 5. Conclusion

Memes as a form of communication have gained importance as a tool in the information warfare. They can have a real impact on audiences, shaping their opinions and emotions. The use of memes as an information weapon was clearly evident during election campaigns, such as in the US in 2016, and is likely still used in various contexts today. Memes are used to both inform and manipulate, combining humor with subtle messages, making them an effective tool of influence.

The disinformation contained in memes can range from satire to completely fabricated content, and is often targeted at specific audiences. Due to their emotional impact and ease of sharing, memes become a powerful medium that can both reinforce audiences' beliefs and challenge their existing views.

The best way to defend against misinformation in memes is to be aware of their role as a vehicle for information and a potential tool for manipulation. By taking a critical approach to the content of memes, analyzing their context and the intention behind their distribution, it is possible to minimize the risk of being influenced by false or manipulated messages. Media education and reflective consumption of online content are key to reducing the effectiveness of disinformation carried by memes.

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## **Memy jako niepozorne narzędzie w wojnie informacyjnej**

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Memy, w formie obrazów, fraz lub krótkich filmów, są ważnym i niepozornym źródłem informacji w erze Internetu. Ich prostota i popularność czynią z nich potencjalne narzędzie wojny informacyjnej, zdolne do wywoływania określonych efektów w społeczeństwie. Artykuł przedstawia memy jako broń informacyjną, analizując proces ich tworzenia i dystrybucji. Odniesiono się do teorii memów Richarda Dawkinsa i teorii kontroli refleksyjnej, aby wyjaśnić, w jaki sposób memy mogą wpływać na decyzje i postrzeganie odbiorców. Przedstawiono przykład memu „Disaster Girl” i jego odmian, ilustrując zdolność memów do replikacji i ewolucji. Dokonano klasyfikacji memów pod względem przekazywanych przez nie informacji, wskazując na ich potencjał do kształtowania opinii publicznej i podkreślając subiektywny charakter ich odbioru.

**Słowa kluczowe:** teoria memów, dezinformacja, wojna informacyjna.