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Implicit pragmatic phenomena in headlines of Hungarian health-related fake news

Abstract: Fake news is often designed with clickbait headlines to reach a wide readership. The current work focuses on implicit pragmatic phenomena in fake news headlines, namely implicit arguments, implicit contents in speech acts, and implicatures, in order to add to the findings of earlier research on the topic. It provides a corpus-based analysis of Hungarian health-related fake news headlines. It concludes that (i) implicit arguments in headlines create an information gap and are only used as tools of manipulation to generate clicks; (ii) the intended perlocutionary effect of the headlines that appear as speech acts with incomplete propositional content or implicit illocutionary force is not the effective transfer of information but rather to evoke emotions manipulatively; (iii) the goal of the unfair use of implicatures may be to avoid responsibility. This study reveals that the special combination of explicit and implicit content in fake news headlines can create or widen an information gap, manipulate readers by generating psychological effects, convey false information, and stimulate peripheral processing.

Keywords: clickbait headlines; fake news; Hungarian; implicitness

Összefoglaló: Az álhírek gyakran kattintásvadász címeikkel csalogatják az olvasókat. Jelen tanulmány három implicit pragmatikai jelenség korpuszalapú vizsgálatát nyújtja magyar nyelvű, egészségüggyel kapcsolatos álhírek címeiben: implicit argumentumokat, implicit tartalmakat a címekben mint beszédaktusokban, valamint implikatúrákat elemez. A kutatás következtetései az alábbiak: (i) az implicit argumentumok információs űrt hoznak létre a címben, és manipulatív céllal használják őket a kattintások számának növelésére; (ii) hiányos propozíciós tartalmú vagy implicit illokúciós erejű beszédaktusokként megjelenő címek szándékolt perlokúciós hatása nem a hatékony információközlés, hanem a manipulatív célú érzelemkeltés; (iii) az implikatúrák nem fair használatának célja gyakran a felelősség elkerülése. Jelen tanulmány feltárja, hogy az explicit és implicit tartalmak speciális kombinálásának célja lehet az álhírek címeiben információs űr generálása vagy szélesítése, az olvasók manipulálása pszichológiai hatások kiváltásával, hamis információ közvetítése, valamint a perifériás feldolgozás stimulálása.

Kulcsszavak: kattintásvadász címek; álhírek; magyar; implicitség

1 Introduction

Fake news spreads on digital platforms about 10 times faster than real news (Krekó 2021), causing serious harm in various areas (e.g., health, democracy, gender equality, and security; United Nations (2023)). The number of clicks on headlines has a considerable influence on the spread of fake news. Although a clickbait headline is not a definitive criterion for fake news, it is reasonable to assume that the proportion of clickbait headlines is higher for fake news than real news.[1] Because of their importance, special attention has been devoted to the role of fake

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[1] It can be difficult for readers to differentiate between fake and real news on the basis of their headlines, especially because, in addition to clickbait, sensationalism is also spreading in real news headlines (see Molek-Kozakowska 2013). Both real and fake news can have a clickbait and/or sensationalist headline.

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news headlines (see, e.g., Blom and Hansen 2015; Scott 2021). In addition to clickbait and arousing curiosity by creating an information gap, they also open the door to the transmission of fabricated information (Blom and Hansen 2015; Loewenstein 1994; Scott 2021). In identifying fake news, including headlines, previous research has focused on the search for overt linguistic elements, such as pronouns, forward referencing devices, superlatives, definite referring expressions, and intensifiers (Scott 2021). However, false information is frequently transmitted with implicit pragmatic content that seems to be a challenge to identify because it does not have explicitly available forms (Németh T. et al. 2022).

The present paper focuses on implicit content by examining three implicit pragmatic phenomena in Hungarian health-related fake news headlines: (i) implicit arguments (implicit subjects and objects), (ii) implicit content in speech acts (incomplete propositional content and implicit illocutionary force), and (iii) implicatures (both conventional and conversational). A qualitative analysis was carried out on 1,000 fake news headlines taken from our MedCollect corpus of Hungarian fake and real news texts on health issues. This corpus contains 2,206 publicly available online health-related articles, of which 1,448 are fake news and 758 are real news from the period between 2007 and 2023. The articles were manually collected from a total of 179 different portals, and the credibility of the news was determined by members of the research group, with the involvement of healthcare experts in problematic cases. The 1,000 fake news titles were selected for this study by random sampling.

The paper is organized as follows. In Section 2, we start our analysis with the study of implicit arguments in fake news headlines. In Section 3, we continue the investigation of fake news headlines with an examination of implicit content in speech acts. Then, in Section 4, we focus on implicatures that occur in fake news headlines. Finally, Section 5 summarizes our results and presents our conclusions.

2 Implicit arguments in Hungarian health-related fake news headlines

The first implicit pragmatic phenomenon that we intend to analyze in fake news headlines is the occurrence of implicit arguments. Implicit arguments are arguments "involved in the lexical-semantic representations of verbs but which are lexically unrealized and whose implicit presence in utterances is attested by lexical-semantic, grammatical, discourse, and/or pragmatic evidence" (Németh T. 2019: 67). In Hungarian language use, there are three typical ways in which implicit verbal arguments occur (Németh T. 2019: 74). The implicit occurrence of an argument is licensed by either (i) the lexical-semantic representation of a verb (e.g., *János iszik [folyadék]* 'János is drinking [liquid]'); (ii) the immediate utterance context (e.g., *A ló megállt a pataknál és ivott [vizet]* 'The horse stopped at the stream and drank [water]'); or (iii) the extended context (e.g., A: *Kérsz vizet?* 'Would you like some water?' B: *Már ittam [vizet]* 'I've already had some [water]'). Implicit arguments that can be identified in the first two manners typically do not occur as a device in clickbait in Hungarian fake news headlines because there is no creation of an information gap in these two cases. The implicit arguments used in manners (i) and (ii) can easily be identified through the lexical-semantic representation of the verbs and the immediate utterance context, respectively; that is, there is no need to click and read the article since the headline as an utterance by itself provides the relevant interpretation of the missing argument.

In Hungarian fake news headlines implicit arguments occur in the third manner when the immediate utterance context requires an extension from the article. Consider (1).[2]

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2 Relevant words in the examples are glossed following the Leipzig Glossing Rules. Abbreviations used: 2/3 second/third person; DEF definite conjugation of transitive verb; INDEF indefinite conjugation of transitive verb; IMP imperative or subjunctive mood; PL plural; PVB preverb; SG singular.

(1)   *28 nap alatt* [∅]**S**   *eltünteti*   *a ráncok 98%-át és legalább 15 évvel* [∅]**S**
                                PVB.remove.DEF.3SG
        fiatalítja   *az arcot és a nyakat – megerősítve független klinikai vizsgálatokkal.*
        rejuvenate.DEF.3SG
        '[It] removes 98 % of wrinkles in 28 days and rejuvenates the face and neck by at least 15 years – as
        confirmed by independent clinical tests.'

In (1), the subject argument of the verbs *eltüntet* 'remove' and *fiatalít* 'rejuvenate' is left implicit in the headline; therefore, the reader does not know what removes wrinkles and rejuvenates the face and neck. It is only possible to reveal the missing information by clicking on the headline and extending its immediate utterance context with the information from the subsequent discourse, that is, the body of the article. The implicit subject in (1) acts as a zero cataphor, whose reference can be identified with words *módszer* 'method,' *formula* 'formula,' and *krém* 'cream,' which are found in the text of the article. By containing the implicit subject in (1), the headline creates an information gap and arouses curiosity, thus compelling the reader to click and read the article. In addition, the headline manipulates the reader to click by generating unfounded, false expectations and referring to an authority (clinical tests).

    Similarly, in (2) the implicit object argument can only be recovered after clicking on the headline and reading the article itself.

(2)   *Csakis így*   **fogyaszd**   [∅]**S**$_i$ [∅]**O**$_j$! *A Te konyhádban is biztosan van belőle,*
                    consume.IMP.DEF.2SG
        sokan   **imádják**   [∅]**O**$_j$, *de agyvelőgyulladást*   **okozhat**   [∅]**S**$_j$!
                    love.DEF.3PL   cause.INDEF.3SG
        'This is the only way you should consume [it]! You definitely have [some] in your kitchen, many people
        love [it], but [it] can cause encephalitis!'

In (2), the subject and direct object arguments of the verb *fogyaszt* 'consume,' the direct object argument of the verb *imád* 'love,' and the subject argument of the verb *okoz* 'cause' are left implicit. The implicit subject of the verb *fogyaszt* 'consume' refers to the reader as an addressee. It can easily be identified with the help of the verbal conjugation. However, the implicit direct object arguments of the verbs *fogyaszt* 'consume' and *imád* 'love' and the implicit subject argument of the verb *okoz* 'cause', which are co-referential, cannot be recovered if the reader only considers the immediate utterance context. They need to click on the headline and extend the headline context with information from the body of the article. The implicit direct object arguments and the second implicit subject argument in (2) act as zero cataphors. They are co-referential with the noun *tej* 'milk' in the article. Like (1), (2) creates an information gap by using implicit direct object arguments and arouses curiosity that compels the reader to click and read the article. As to manipulative strategies, the headline warns against an unknown product expressed by the implicit argument and evokes fear at the same time.

    In the next section, we examine implicit content in fake news headlines considered as speech acts.

3 Implicit content in speech acts

In analyzing implicit content in fake news headlines considered as speech acts, we focus on the following questions: (i) what kind of speech acts do they perform?; (ii) how can the illocutionary force in them be identified?; and (iii) what manipulative strategies can be identified? In his analysis of the general structure of illocutionary acts, Searle (1969: 29–33) makes a distinction between the illocutionary force of utterances and the proposition they express. Both parts of speech acts can have explicit indicators, but they can also be left – partially or fully – implicit. In our analysis, we concentrate on two main types of implicitness in fake news headlines: when they occur with incomplete propositional content or with implicit illocutionary force. These kinds of implicitness are often used for manipulation, combined with explicit content in a special way.

As to their function, news headlines perform assertive speech acts: they provide information for potential readers. In other words, their propositional content is conveyed to enrich addressees' knowledge, that is, to inform them of the content of the article. Normally, headlines are characterized by an appropriate degree of informativeness to help readers decide whether they consider the text relevant or worth reading. However, fake news headlines often do not fit this pattern of illocutionary force and informativeness, offering too little or too much information, with a manipulative intent. On the one hand, too little information creates an information gap, which, according to Loewenstein (1994: 87), results in an unsettling sense of a lack of information, that is, curiosity. On the other hand, the more we learn about a thing, the more our curiosity grows: when we have too much information, we feel how much we still do not know. Fake news headlines specifically combine explicit information with implicitness to create and arouse curiosity and urge readers to click.

Headlines with implicit arguments, which were considered in Section 2, can be interpreted in speech act theory as speech acts with incomplete propositional content. The way information is presented in these incomplete sentences is often very specific, and their illocutionary force is vague. The headline for the text that advertises a cream in example (1) shows a special way of presenting information; that is, the subject is left implicit. Meanwhile, information about the unknown subject, normally presented in the body of the article, appears in the headline. In other words, this type of fake news headline shows the opposite combination of implicit and explicit information than informative headlines for real news would. These "anticipated" pieces of information often refer to benefits for the reader, so these headlines remind the reader of promises and manipulatively evoke the psychological state associated with them – that is, hope – which usually turns out to be unfounded.

The illocutionary force does not always remain vague. In our corpus of Hungarian fake news headlines, we have found some headlines that contain IFIDs[3] conventionally used for performing directives, for example, *érdemes* 'worthwhile,' *jobb* 'better' (for advice or proposals), *nem szabad* 'not allowed' (for prohibitions or advice), and *kell* 'have to' (for orders, commands, or proposals). Furthermore, the use of the imperative mood is also a conventional device for every kind of directive in Hungarian. These all aid the reader in determining the illocutionary force of utterances, but, combined with an information gap, they are used in fake news headlines for manipulation. Consider (3).

(3)   ***Vigyázz***, *tovább tart a megfázás, ha így fújod az orrod!*
         '(Be) careful, the cold lasts longer if you blow your nose that way!'

The headline in (3) contains the word *vigyázz* '(be) careful,' an imperative verbal form, which is a linguistic device conventionally used for warnings and indirect threats in Hungarian. Thus, it provides a clue to the identification of the illocutionary force, so the function of the utterance is explicit. It is a straightforward warning, but the source of danger is left implicit. We understand that there is a way we should not blow our nose because it may have negative consequences. However, we only learn how after clicking. The adverb *így* 'that way,' which is used as a forward referencing device, creates an information gap. The incomplete propositional content combined with the explicit illocutionary force of warning is a manipulative strategy that appeal to emotions, thus evoking fear.

Some headlines contain sentiment expressions to generate emotional effects. These include, for example, *borzalmas* 'gruesome,' *hihetetlen* 'unbelievable,' and *csodálatos* 'wonderful.' They express a speaker's evaluation. Therefore, if they occur as independent utterances, they can be considered expressive speech acts, such as the second utterance in (4).

(4)   *Ez történik, ha homlokodra babérlevelet teszel!* ***Elképesztő****!*
         'That's what happens when you put a bay leaf on your forehead. Amazing!'

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3 IFIDs (illocutionary force indicating devices) are linguistic elements conventionally used to indicate that an utterance has a certain illocutionary force (Searle 1969: 30–31).

The sentiment word *elképesztő* 'amazing' appears as an independent utterance with incomplete propositional content, with the subject to which the evaluation 'amazing' refers being left implicit. It refers back to the first utterance, which is also incomplete because the cataphorically used demonstrative pronoun *ez* 'that' can only be identified after clicking. The manipulative clickbait strategy here lies in combining an information gap with a sentiment expression, thus influencing the reader at an emotional level to divert information processing to the peripheral route. The peripheral route of influencing, in contrast to the central route, is not based on the thoughtful consideration of the information, but on non-content and surface features, such as an attractive cue in the context (Petty and Cacioppo 1986: 125).

The unfair use of presuppositions is often seen in fake news headlines. This manipulative strategy can also serve to widen the information gap. Within the present framework of speech act theory, we consider cases where IFIDs are combined with this phenomenon. Consider example (5).

(5) *Amiről szinte senki nem tud – **Ezért** tegyél hagymát a nyakadra!*
      'What almost no one knows about – That's why you should put some onion on your neck.'

The content of the imperative structure 'you should put some onion on your neck,' expressed by an imperative verbal form in Hungarian (*tegyél* 'put'), is presupposed in (5). The information structure, however, is unusual. Presuppositions normally represent well-known background information, but the presupposition in (5) is about surprising new content (i.e., putting some onion on one's neck). Moreover, the cataphorically used pronoun *ezért* 'that's why' suggests that there is even a good reason for it. The reader may thus feel left behind and ignorant, causing them to compensate for their lack of information by clicking. The function of presuppositions used in this way is to strengthen the power of the imperative and spark addressees' curiosity, drawing their attention to information which is unfairly presented as well known because it is actually new. This manipulative usage represents an argumentative fallacy called "unfair use of presuppositions" to "force the partner to accept an untruth or unproved argument" without taking responsibility for it (Árvay 2007: 48).

Finally, there are two relevant aspects of perlocution to be discussed within the framework of speech act theory. The first issue concerns predictions of perlocutionary effects in some fake news headlines, which can bring about emotional manipulation. Consider the headline in (6).

(6) *Dr. Lenkei megmondta: A kemoterápia méreg! – **Meg fogsz lepődni**, de ezt ajánlja helyette!*
      'Dr. Lenkei said, "Chemotherapy is poison!" – It'll surprise you, but this is what he recommends instead!'

Gábor Lenkei is a physician and was a prominent vaccine skeptic in Hungary during the COVID-19 pandemic. The first part of the headline in (6) is a statement that can be interpreted as a warning of the dangers of chemotherapy from an authority figure. The second part predicts his recommendation, which can only be learned about after clicking. However, the headline foreshadows the reader's emotional response: "It'll surprise you." This is a description of the perlocutionary effect that is in store for the reader after clicking and reading the recommendation. Headlines of this type are very common for fake news; they effectively use the manipulative strategy of appealing to emotions.

Both fake and real news headlines have perlocutionary effects. However, while ordinary informative headlines change the recipients' information state (they learn what content to expect and decide whether to click or not), designers of clickbait fake news headlines manipulatively attempt to influence information processing, favoring the peripheral route. In fake news headlines, essential parts are missing with regard to the content of the article. At the same time, they contain information that is explicitly expressed and is suitable for manipulating the reader's emotions by evoking the illocutionary force of certain kinds of speech acts (e.g., promises, warnings, and threats). These emotions connected to illocutionary act types (e.g., hope based on promises or fear based on warnings or threats) successfully elicit clicks from readers.

It can be concluded that the intended perlocutionary effect of fake news headlines is not the effective transfer of information but the evoking of emotions in the reader and thus to encourage as many clicks and shares as possible. Curiosity and other emotional effects are generated by an adequate mix of implicitness and explicitness with a manipulative intention to trigger peripheral processing of information.

4 Implicatures in fake news headlines

Implicature is the third type of implicit pragmatic phenomenon on which we focus in the present paper. Implicature is the part of speaker's meaning that is not said, only implicated (Grice 1975). Although there are types of implicature (conventional and generalized conversational ones) that are related to explicitly available linguistic forms, it is always a challenge to identify implicatures. Moreover, generalized and particularized conversational implicatures are cancelable. Consequently, conveying information as a conversational implicature may allow the communicator to avoid responsibility. For this reason, it may be an effective device for transmitting manipulative information, and one can assume that fake news headlines will often contain this phenomenon.

There are cases when the conventional meaning of the words in an utterance determines suggested meaning; these are conventional implicatures. In Grice's (1975: 44–45) example *He is an Englishman; he is, therefore, brave*, the word *therefore* induces the conventional implicature "his bravery follows from his being an Englishman." Kiefer (1983: 303) remarks that since conventional implicatures are related to linguistic elements and are usually undeniable, the concept of conventional implicature is very close to the concept of presupposition. However, since conventional implicatures usually do not satisfy all of the criteria for presuppositions, the class of conventional implicatures is wider than that of presuppositions. Consider the fake news headline in (7).

(7)   *Ez a növény **még** a fokhagymánál **is** hatásosabb – Csökkenti a vérnyomást és csodát művel a vércukorral!*
        'This plant is even more effective than garlic – It lowers blood pressure and works magic on blood sugar!'

In example (7), the structure *még … is* 'even' induces the conventional implicature that "garlic is very effective." This implicit content can also be regarded as a presupposition. The explicitly said content of the headline is that this plant is more effective than garlic. If garlic is very effective and this plant is more effective than garlic, then it is extremely effective. This inference can make readers curious and encourages them to click to learn what this particular plant is.

Generalized conversational implicature (GCI) is similar to the conventional kind inasmuch as GCIs also involve a linguistic form that induces suggested meaning. However, while conventional implicature is related to the conventional meaning, GCI is always generated in the context of the utterance. The presence of a GCI is not connected to special circumstances; that is, the use of a certain linguistic form normally carries a certain suggested meaning (Grice 1975: 56). There are linguistic devices in Hungarian that may be used to express a chronological order, such as *és* 'and,' *amíg … nem* 'until,' *mikor* 'when,' and *azután* 'then.' These elements can be used to suggest that there is a cause-effect relation between two events in addition to their chronological order. Consider (8).

(8)   *Édesanyám nagyon nehezen gyógyult ki a megfázásból, de **mikor** elkészítette ezt az italt, másnapra eltűnt a betegség! Alig hittük el!*
        'My mother had a hard time recovering from a cold. But when she made this drink, her illness was gone by the next day! We could hardly believe it!'

In example (8), the time adverbial conjunction *mikor* 'when' connects the events of making the drink and the disappearance of the illness as a cause and effect; that is, the mother has recovered from her cold because of the drink. The manipulative strategy that may be realized by the misleading use of this GCI is to create false expectations and encourage the reader to click and try the drink.

The third type of implicature is particularized conversational implicature (PCI), which is not related to linguistic elements. It emerges in a particular context. The manipulative strategy served by the PCI in (9) is to evoke fear in the reader.

(9)   *Moderna vakcina injekciós üvegben apró fekete anyagot találtak.*
        'Tiny black substance found in Moderna vaccine vial.'

Since the 'tiny black substance' allows the reader to associate a harmful material in this specific context and the verb *találtak* '(has been) found' suggests that this material is normally not an ingredient in the vaccine, the content implicated manipulatively in example (9) is that the Moderna vaccine is not reliable and may contain a harmful substance. This PCI thus raises doubts in the reader about the Moderna vaccine and suggests that they reject it.

To sum up, it is clear that the misleading use of implicatures in fake news headlines serves to avoid responsibility for transmitting manipulative information. The underlying manipulative strategy in the use of implicatures may be to make the subject more attractive by creating unfounded expectations or to evoke fear in the reader. The function of these intended psychological effects is to generate clicks.

5 Summary and conclusions

Previous research on the role of headlines in fake news has devoted little attention to languages other than English. The present study has examined Hungarian fake news headlines to widen the scope of the investigation of fake news. The main results of our qualitative analysis are the following. First, implicit arguments in Hungarian fake news headlines require a context extension from the body of the article; they are used as a manipulative strategy to generate clicks. Second, some headlines perform speech acts with incomplete propositional content, while others do so with implicit illocutionary force; the information gap and a special combination of explicit and implicit content trigger psychological effects (e.g., fear, hope, or curiosity) to attract clicks. Third, the misleading use of implicatures may occur in fake news headlines to avoid responsibility. As for the possibility of generalization of our results, it can be assumed that while the findings on implicit arguments are language-specific, our results on speech acts and implicatures are more generalizable.

To sum up, considering these three types of implicitness, we have revealed that implicit phenomena in Hungarian fake news headlines serve two main functions. The first is to withhold information by using incomplete propositions, implicit arguments, cataphors, or vague illocutionary force. The aim of withholding information is to arouse curiosity by creating or widening an information gap and to generate psychological effects, such as unfounded expectations or fear. The second function is to convey information manipulatively with the use of implicit phenomena that force agreement; for example, implicatures or the unfair use of presuppositions. The intent is to avoid responsibility for conveying false information and to generate psychological effects. Fake news headlines with these manipulative strategies based on implicitness compel readers to click and encourage peripheral processing of information.

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