

An Account of Humor in Covid-19 Internet Memes from the Perspective of Cognitive Relevance: A Contrastive Case Study

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Abstract: In response to Covid-19 pandemic, online humor proliferated across social media platforms as a vital coping mechanism in dealing with the unendurable pandemic-related restrictions through creating a sense of bonding in the face of this calamity regardless of geographical area, nationality, ethnicity, or socio-political affiliations. This research is a cross-lingual case study of internet screenshot memes on Covid-19 in both Arabic and English languages. It explores differences and/or similarities in establishing cognitive relevance and instigating humorous incongruity. The paper uses a three-dimensional theoretical framework that integrates Relevance Theory (RT), as a communication theory in the field of cognitive cyber-pragmatics, with the theories of Intertextuality and Incongruity in humor. Qualitative descriptive analysis revealed a consensus to regard the mass reaction to the pandemic as exaggerated, to use an interplay of intertextuality and incongruity to achieve the rhetorical purpose of critically satirizing such reactions by instigating laughter at one's silliness. The analysis demonstrated that humorous incongruity springs from the opposing scripts between the content of IMs and the social context surrounding the pandemic as well as a marked similarity in the sources used for establishing cognitive relevance such as background knowledge and logical and lexical information reflecting RT principles.

Keywords: cognitive cyber pragmatics, humor, Incongruity Theory, internet screenshot memes, Intertextuality Theory, Relevance Theory

1. Introduction

The overarching aim of this study is to investigate the hypothesis that there are no differences in Covid-19-themed internet memes (IMs) produced in the Arabic and English languages in relation to the sources of cognitive relevance and humorous incongruity by unraveling the differences and/or similarities in the verbal and non-verbal discourse of a purposefully selected IMs.

In 2020, the outbreak of the respiratory Covid-19 disease, known as the Coronavirus, drove world governments to enforce unprecedented measures such as quarantine, social distancing, face masks and lockdowns to contain the spread of this deadly virus. These measures took their toll on the psychological wellbeing and the cognitive and behavioral processes of the global population causing psychiatric difficulties and previously existing psychological problems, of which anxiety is the most prominent, to escalate to alarming levels (Akram, Irvine, Allen, Stevenson, Ellis and Drabble 2021). During the pandemic, digital culture, which builds on the "interaction between human and computer", played a major role in people's lives

and established social media as “the primary form of interacting with other human beings” (Wiggins 2019: 21). Social media enjoyed prominence in those critical times due to its ability to “provide valuable peer, social and emotional support for the general public and patients” (Msugheter 2020). Its participatory nature enables its users to freely express their opinion and actively participate in the creation and propagation of its content, thereby facilitating dissemination of information.

Historically, the term “meme” was invented in 1967 by Richard Dawkins to refer to a unit of cultural information spread by imitation. From the Dawkinsian perspective, memes, examples of which are slogans, catch phrases or fashions, function as a “cultural corollary” to the biological gene. Accordingly, memes are vehicles for the ideas they inject into people’s minds, which endure through replication and imitation. The relatively new genre of IM established itself as the artifact of the contemporary digital “pop culture” and an integral component of social media endowing it with its participatory nature thanks to the IMs’ communicative role that cannot be overlooked (Wiggins 2019). Meme recipients who can process intertextual memes and are familiar with ‘important,’ ‘central,’ or currently ‘fashionable’ intertexts are identified “as ‘educated’ and ‘literate’ ‘netcitizens’” (Tsakona and Chovanec 2020). In vernacular discourse, IMs have come to refer to “all mediated content that spreads virally online” exhibiting “common characteristics of content, form, and/or stance” (Shifman 2014: 14).

IMs come in different forms, mainly, macro image, screenshot memes, GIFs, hashtags, and video memes. Their production stage starts with the unaltered multimedia messages that are widely distributed beyond online spaces such as movie trailers. When altered, these messages develop into emergent memes, which through rapid alteration, imitation and viral spread become the fully developed IMs (Wiggins 2019). Their content can be inspired by whatever message or notion has value to a certain culture or group including facial expressions, songs, pictures, movie scenes, or cultural stereotypes.

IMs popularity is attributed to many factors. First, they mark a “departure from previous forms of media that were largely dominated by print” and that is motivated by a desire for “personalization, user-generated content, algorithmic news feeds, and a fear of missing out” (Wiggins 2019: 8-23). Second, IMs are adaptable to alterations and reappropriations to a myriad of communicative needs and reflections of everyday life, thus offering immediate responses to current social or political events (Vasquez and Aslan 2021). Third, their “capacity to propose or counter a discursive argument through visual and verbal interplay” (Wiggins 2019: 1) endows them with a “subversive nature” that further adds to their popularity (Huntington 2013). Fourth, IMs play a multilayered sociocultural role. They are venues for self-expression, identity construction, and strengthening group affiliation; moreover, the reactions they ignite to real-world events, such as joy, excitement, anger, and rage (Wiggins 2019), “play a role in the users’ identity shaping and self-awareness” (Yus 2018b). This role is exhibited through the netcitizens’ simple acts of liking, deleting, or sharing the meme. Created by a minority on social networks, to be consumed by the masses, IMs are either ephemeral as they can be instantly deleted by individual users or long-lasting since

some survive as icons. Their unique nature lies in enabling any user to develop a meme and thus democratizing meme creation and distribution processes (Cancelas-Ouviña 2021). Finally, the user-generated content of IMs provides relief from the pressures of social taboos and fears, reproduces and transforms the social system, aids in cultural understanding by functioning as popular cultural references, and highlights ways for community building (Sanchez 2020). According to Shifman, memes can influence “the mentalities, forms of behavior and actions of social groups” (2013: 365). IMs are not only “a perfectly truncated genre of communication for online audiences, both real and imagined”, but they can also “guide and alter the dynamics of human culture” (Wiggins 2019: 33-40).

In addition to the above, humor and intertextuality are two prominent factors endorsing the influence of the IMs. On one hand, humor plays a positive role in enhancing group bonding and affiliation in today’s high-stress world (Laineste and Voolaid 2016). Interestingly, IMs can also serve as vehicles to dark humor through “desensitization” of serious issues (Sanchez 2020: 9). On the other hand, intertextuality, or reliance on different referents, specifically to humorous popular texts that depend partly on national cultural memory and partly on global cultural influences, is “of particular importance to memes’ spread” (Huntington 2013).

Motivated by their virality and ubiquity as the lingua franca of online communication and their unique aim that extends beyond inciting internet humor to become a form of “appropriation and resistance to dominant media messages”, IMs became the subject of abundant research (Huntington 2013: 3; Nissenbaum and Shifman 2018). Different perspectives were adopted in researching this new genre such as the systemic perspective which investigates IMs as a system of signs representing a uniform movement in predetermined paths to cater for the netcitizens’ expectations (Cannizzaro 2016 as cited in Zollinger 2021); the pragmatics perspective which concluded that *the constative* (for the expression of emotions) and *the directive* (for questioning issues) are the two main illocutionary acts by IMs (Nita, Setiawan and Lestari 2021); the multimodal pragmatics perspective which focuses on exploring the integration of semiotic resources for the interpretation and the construction of meaning (Mahfouz 2021); the generic perspective which foregrounds studying IMs’ adherence to a template of specific generic rules (Dancygier and Vandelanotte 2017); finally, the cognitive perspective which studies the use of metaphors and metonymies in IMs (Younes and Alkakhaineh 2022; Elyamany 2023). Nevertheless, there is a dearth of contrastive research across different languages on IMs as a genre marked by complex communication affordances in delivering meaning and creating humor.

This study comes as a response to Vlachaki’s plea for conducting research on “the manifestation of humor in computer-mediated discourse” by “weaving together semiotic and cognitive approaches” (2020 abstract). Accordingly, the study analyzes Covid-19-themed screenshot memes from a cognitive cyber-pragmatics perspective. This perspective extends the focus of pragmatics from “the study of meaning-in-context” to unpacking the cognitive principles and the inner working mechanisms involved in the production and the construal of meaning-in-context in forms of internet-mediated communication (Lachmann 2008; Yus

2018a). Because cognitive relevance is the primary factor in identifying a meme as humorous (Vlachaki 2020), Relevance Theory (referred to as RT), a key theory in cognitive cyber-pragmatics, forms the backbone of the theoretical background of this study for the investigation of the verbal and non-verbal sources of cognitive relevance and humorous incongruity in the sample. The following section is a review of the theoretical background to this research.

1. Theoretical background

As previously stated, humor, intertextuality and cognitive relevance were found to be the primary factors in identifying IMs as humorous and the main contributors to their fecundity (Vlachaki 2020). Therefore, this study uses a three-dimensional theoretical framework that integrates Relevance Theory as a communication theory in the field of cognitive cyber-pragmatics with Incongruity Theory in humor and the theory of Intertextuality.

2.1 Relevance theory (RT)

This section summarizes the core theoretical assumptions of RT, an ostensive-inferential cognitive theory developed by Sperber and Wilson in 1986, and spotlights the role of relevance in understanding humor and visuals. According to this theory, attaining successful communication depends on several factors:

1. Having an optimally relevant message which relates to the receiver's goals, interests, and context, thus proving worthy of attention and of exerting processing effort.
2. Being cognitively rewarding by creating a positive effect on the addressee's cognitive environment, balancing this effect with the exerted mental effort, and positively correlating the communicative content with the amount of information shared by the interlocutors.
3. Ensuring that the communicative and informative intentions of the speakers are well manifested. Therefore, the audience needs to be alerted to the speakers' intention through an overt, ostensive, and deliberate, rather than accidental, communicative behavior. Speakers are expected to use the most relevant medium to communicate their primary intention, which manifests a certain set of assumptions (Sperber and Wilson 1995).
4. Acknowledging that "human cognition tends to be geared to the maximization of relevance" (Sperber and Wilson 1995: 260). Ostensive communicative behavior is guided by the two principles of relevance: the Cognitive Principle, which claims that humans are goal-directed and collaborate in attaining the goals of their communicative behavior, and the Communicative Principle, which assumes that "every act of overt communication communicates a presumption of its own optimal relevance". The speaker is expected to spare no effort to avoid misunderstandings, and to actively help the audience recognize the intended interpretation. Clearly, it is in the speaker's interest to ensure the absence of any alternative line of interpretation, which is more

accessible to the audience than the intended one, “since such an interpretation is likely to lead him astray” (Sperber and Wilson 1997: 10).

From the perspective of RT, interpreting meaning is the outcome of an inferential ‘sensemaking’ process rather than simply being a decoding process. The sensemaking process aims to “fill the gap between (a) what the communicator intends to convey and what is actually coded in speaking or in writing and (b) between what is coded and eventually interpreted” (Yus 2018b:1). The outcomes of this process are the result of a division of labor between the speakers and the audience. The sensemaking process starts by referring to context to construct a mental representation of the speaker’s intended meaning. Context includes the audience’s cognitive environment, which extends beyond information from previous utterances and the immediate context of the communicative event to include “all the information accessible to the person either from perception, memory or by inference” (Yu 2014: 86; Chłopicki and Brzozowska 2021). In general, context is an amalgamation of shared contextual information, cultural assumptions, encyclopedic knowledge of the audience and the speaker’s beliefs and assumptions, sociocultural environment, world facts, the physical context and the genre of the speech event (Yus 2021).

RT identifies two levels of meaning: *explicatures* and *implicatures*. Explicatures, which are interpreted first without any assumption-making, are imperfect conceptual representations. The referential process stops after the informative content of the utterance is recognized and the explicated meaning is accepted as true. Implicatures, which originate as assumptions, are deduced through inferencing. RT identifies two different types of implicatures: implicated premises intended by the speakers and provided by the addressees, and implicated conclusions, which are transmitted by the speakers (Sperber and Wilson 1986). It is worthy to note that relevance negatively correlates with the implicitness of the message because the addressees will have to access more contextual information to infer the implied meaning (Muslim 2021).

The inferential process stops after implicatures are reached and positive cognitive effects on the addressees’ cognitive environment are triggered. These cognitive effects take the forms of deleting, strengthening, weakening, or adding to the existing assumptions. Moreover, cognitive effects are either *propositional* or *non-propositional*. While the propositional effects represent the informative reward, which can be either explicit or implicit, the non-propositional effects represent the emotional reward as instigated feelings or impressions. Expectedly, maximization of cognitive effects is mostly desired since “the greater the cognitive effects, the greater the relevance will be” (Sperber and Wilson 1997: 8). Balancing effect and mental effort presuppose that the more mental effort an addressee must invest to recover a message’s effect, the less relevant the message becomes. In RT terminology, the benefits of relevance must offset its costs, or ‘effort’. In Sperber and Wilson’s words, “the greater the processing effort required, the lower will be the relevance, and the greater the risk of losing the hearer’s attention” (1997: 9).

Forceville (2020) confirmed that the principles of RT can be applied to ostensive visuals as well. Similar to verbal stimulus, informative and communicative intentions motivate ostensive visuals, which also need to be recognized as being ostensive before they are interpreted. They need to have accepted positive cognitive effects at no unnecessary effort to be optimally relevant. Visuals can lead viewers to explicatures and trigger implicatures through the structural elements of the visuals because, unlike verbal utterances, visuals possess neither vocabulary nor grammar in the linguistic sense.

2.2 RT and the incongruity theory

Humor mainly depends on employing inferential strategies; therefore, the Incongruity Theory of humor becomes the theory “that best fits the relevance-theoretic proposal of how humans process humorous texts and obtain humorous effects” (Yus 2016:66). This theory postulates that interpreters solve incongruity between two or more inputs by attempting to find the congruous (Suls 1983). As interpreters oscillate between incongruity and congruity, they are obliged to employ referential bi-sociative thinking and reanalyze the interpretations of the inputs. The humorous effect is the outcome of recognizing and resolving the incongruous. Resolution “reconciles the initial incongruity and leads to a relevant outcome. Otherwise, the hearer may simply feel frustrated at being unable to resolve the incongruity encountered” (Yus 2016: 90). In general, humorous communication requires mental alertness on the receiver’s part since it is devised with the intention of carrying double meanings, and is, therefore, inherently deceitful. This explains the cognitive load it poses. To compensate for this, it is necessary for humorous discourses to produce a positive effect on the audience’s cognitive environment and affect.

2.3 Intertextuality theory (IT)

The concept of intertextuality, first introduced in Julia Kristeva's "Word, Dialogue and Novel", “has led, in turn, to a shift of emphasis from the individual text to the way in which texts relate to one another” (Alfero 1996: 268). The theory is based on the premise that texts are dynamic. A text cannot stand alone or be self-sufficient since it must invariably bear traces of other texts; therefore, textual meaning is embedded in the meaning of other texts. Intertextuality “occurs any time one text suggests or requires reference to some other identifiable text or stretch of discourse, spoken or written” (Norrick 1989: 117). In Fairclough’s words, intertextuality is ‘the property texts have of being full of snatches of other texts, which may be explicitly demarcated or merged in, and which the text may assimilate, contradict, ironically echo’ (1992: 84). To Ben Said and Kasanga, intertextuality “refers to a combination of different discourses in texts resulting in new hybrid or nodal discourses, or even new hybrid genres” (2016: 78).

2. Methodology

This study explores the validity of the hypothesis that, regardless of language, the analyzed IMs employ similar verbal and non-verbal discursal tools to establish

cognitive relevance, activate inferential strategies for sensemaking, make use of intertextuality and ignite humorous incongruity. To achieve its aim, the study is premised on a hybridized approach that rests on four analytical frameworks as detailed below in order of their application. Moreover, it applies a qualitative descriptive approach to the analysis of four purposefully selected cases of IMs from Facebook on Covid-19. Adopting the case design provides “an in-depth study of an example(s) that represents a phenomenon in its natural setting” (Perry 2011: 250) whereby it “is not atypical.....to involve ‘only a small number of texts, even just one or two’ (Machin and Mayr 2012: 206). In addition, purposeful sampling is the sampling paradigm mostly used by qualitative research and which makes analysis, through the deliberate choice of the sample, “supply the most information possible” (Perry 2011: 66). The validity of the four IMs cases emanates from being the ones “that will yield the most relevant and plentiful data” (Yin 2011: 88). Therefore, selection is limited to IMs with texts and screenshots from movies.

Placed at the qualitative end of the continuum, the four IMs are decoded solely by the researcher and, therefore, makes no claims for generalizations to any larger target population regarding its findings. To enhance reliability of the results, a detailed description of the analysis frameworks is provided here under. In addition, analysis begins by considering the distinctive visual components, then moves to analyzing the linguistic features of the verbal text because limiting the analysis to verbal discourse only while neglecting visual images would result in a fragmented understanding of the symbols in the IMs that have a profound effect on their interpretation (Foss 2005).

Frameworks of analysis

3.1 Image analysis

Analysis of images is guided by the Taxonomy of Possible Text-Image Combinations by Yus (2019) which identifies text-image relationship and Baurecht’s Updated Framework for Classifying Internet Memes (2020) which classifies memes according to format and content of transmission. The Yus taxonomy proposes that “the eventual meaning of the meme cannot be obtained from the partial meanings of text or picture taken separately, but only from their combined meanings that yield implications” (2019: 107). This taxonomy defines the relationship between image and text in the meme as follows:

- Word specific (images illustrate, but do not significantly add to the text)
- Image specific (the image dominates)
- Duo specific (words and images send essentially the same message)
- Additive (words amplify or elaborate on an image, or vice versa)
- Parallel (words and image follow different courses without intersecting)
- Montage (words are treated as integral parts of the image)
- Interdependent (image or words combine to convey an idea that neither could convey independently)

Baurecht’s analytical framework of visual rhetorics adopts a deductive approach to achieve the following:

- a. Understanding the primary communicative elements in the image by identifying the concepts, ideas, and inferred implicatures.
- b. Defining the pragmatic function of the image, which is not synonymous to the image creator's purpose or intention. Rather, it is the action the image communicates (Foss 2005). Alharbi and Mahzari (2022) identified seven pragmatic functions of emojis, five of which can be adapted to images in IMs. These are: tone modification by contributing to the image interpretation, softening of the message by making it more polite, portraying specific physical action, portraying an emotional response for recreation, and decoration for making the text more appealing. In another recent study, Hamdan (2022) examined the pragmatic and communicative functions of the most common five emojis in the Jordanian context. They were employed to perform multiple communicative acts including, but not limited to, expressive acts (happiness, admiration, etc.), directive acts (e.g, directing the addressee to stop doing something) and declarative acts (e.g., threatening).
- c. Identifying the kind of information transmitted, whether it be propositional or non-propositional.
- d. Evaluate the image implications, such as reflecting an ethical system or having a liberating effect.

3.2 Inferential relevance-oriented comprehension heuristic (Yus 2021)

This heuristic, inspired by Sperber and Wilson (1995), highlights the stages of the sensemaking process and the related referential/inferential strategies as well as the contextual information the hearer is expected to access to interpret explicit and implicit messages. While this framework is mainly intended for text analysis, it can also be used for ostensive visuals. However, Forceville (2020) pointed out that only two components of the heuristic, which are reference assignment and enrichment, can be applied to investigating cognitive relevance in visuals. These two components require previous knowledge of the identity of the signified, whether it be an individual or an activity to achieve relevance. Moreover, critical to realizing the aims of the heuristic is inferring the intentions of the speaker that motivated the communication behavior (Yus 2014).

The sensemaking process starts by constructing explicatures through a semantic decoding of the logical form or the sequence of words that make up the utterance regardless of its context. The logical form is a “syntactically structured string of concepts with some slots, or free variables, indicating where certain contextual values (in the form of concepts) must be supplied” (Carston 2002: 64) via the following referential/inferential model strategies:

- a. Reference assignment involves interpretation of indexicals (pronouns & adverbs) and proper names to identify the referent in a specific conversational context as in ‘I like *it*’.
- b. Disambiguation of two senses of the same word to the sense which possibly matches the one intended by the speaker requires the activation of

contextual effects and may slow down the interpretation process as in ‘I will meet you at the *bank*’.

c. Conceptual adjustment involves pragmatically adjusting the concept that underlies a word to fit the speaker’s intended concept, which can be broader or narrower than the coded prototypical meaning in the dictionary as in the broader sense of the word: the hotel was *empty*.

d. Free Enrichment is obtained by integrating intertextual references with additional information derived from verbal descriptions or contextual information (Forceville 2020: 85) as when referentially filling in the elided part in ‘This tool is better’ (than what/ for what?)

e. Saturation occurs when the utterance demands from the hearer using contextual information relative to the text genre, encyclopedic knowledge, physical context, and speaker’s tone.

f. Sub-sentential utterances is obtained by arranging sentences on a scale from most to least explicit, depending on the amount of information inferred.

g. Propositional attitude is highlighted by identifying the speech act of the utterance.

2.3 The non-propositional effects (Yus 2017)

These can be classified as either positive or negative. The positive non-propositional effects include:

- Enhancing awareness of the mutuality existing between interlocutors
- Creating feelings of enhanced group membership, group specificity, and group solidarity

The negative non-propositional effects include:

- Increasing negative opinion of the speaker.
- Reducing self-esteem.
- Instigating feelings of non-belonging to a group or community or disgust upon hearing aggressive or nasty jokes.

3.4 Sample analysis



Meme #1: Labib & the Hookah auditorium

Meme #2: Imam in the

Ramesses watching you
complain about just one plague:



When you work at a bank and 2
guys with mask come in but they're
just robbing the place



Meme #3: Yul Brynner as Rameses
Downey Jr.

Meme #4: Robert

Decoding the nonverbal cues starts by identifying the elements depicted in the screenshots. The primary communicative elements in the screenshots of Memes 1 & 2 are the references to Egyptian comedians Lofty Labib depicted as an Egyptian layman smoking hookah and Adel Imam in the role of an adult struggling with an exam. In Memes 3 and 4, the screenshots show American actors Yul Brynner as Ramesses in the movie "The Ten Commandments" and Robert Downey Jr. experiencing a moment of relief after a bank robbery.

The images offer enriched explicatures which facilitate the employment of broad and contextualized background knowledge stored in the viewers' cognitive environment. In Meme 1, the hookah conceptually stimulates the expectation of the junkies' type of wisdom while the hand gesture is recognized as a sign of underestimation. In Meme 2, the frown on Imam's face while clutching his forehead in a university auditorium is an ironic reference to the bronze statue of the Serious

Thinker. Meme 3 with Brynner in the role of Ramesses evokes the biblical descriptions of Egypt afflicted with ten successive plagues while his satirically stern facial expression downplays the sufferings that result from one plague. In Meme 4, Downey Jr. 's closed eyes with his right hand resting on his chest recalls the 'Phew' moment that follows overcoming hardships.

Interpretation of the logical form of the verbal text starts by focusing on its semantic representation. In this stage, the words that make up the texts are identified without making hypotheses about their intended interpretation. The Arabic text in Meme 1 reads as follows:

"This is what we were brought up on: some plain and some with chocolate".
 "ده أحنأ متربيين عليه إيشي سادة, إيشي بالشيكولاته"

Dah ʔihnaa mitrabyyin ʕljih ʔiʕi sad a: ʔiʕi biʕkwlata:

In Meme 2, it reads: "What job was I working before quarantine? Let me think..."

"هو أنا كنت شغال إيه قبل الحظر اللهم صلي علي النبي"

Hwa: ʔana kunt ʕaya:l ʔih qabl ʔilhaðʕr ʔallahomma: sʕli: ʕla ʔilnabyi

Indexicals and adverbs are identified for reference assignment. Meme 1 uses the indexicals: 'Dah ('this') and the implied demonstrative 'ho:nak' ('There is') in 'ʔiʕi' to refer to 'Corona', a local chocolate brand. The indexical collective pronoun 'ʔihna' ('We') creates group bonding and solidarity among Egyptian viewers. In Meme 2, the viewers identify the indexical pronoun 'ʔana' ('I') to refer to the speaker while the temporal expression 'qabl' ('Before') refers to pre-quarantine times.

Indexical pronouns in Memes 3 and 4 are used to refer to people other than the actors in the screenshots. The referent of the pronoun 'You' in Memes 3 and 4 is the viewers while the referent of the pronoun 'they' in Meme 4 is the bank robbers. In these two memes, the adverb 'Just' belittles the referents (the plague in Meme 3) and (bank robbery in Meme 4). The use of indexicals, such as pronouns and demonstratives, further contributes to textual relevance while the use of non-standard language in the memes in Arabic align with Dynel's note (2016: 662) that this "may be deemed a crucial element of I-memes".

Inferential operations triggered by IMs include disambiguation, conceptual adjustment, enrichment, and saturation. Disambiguation of the two senses of a word occurs in Meme 4 where the word 'mask' refers to the intended sense of a medical mask. Conceptual adjustment by narrowing down a word meaning occurs in 'on' in 'ʕljih' to be narrowed down to refer to Covid-19. Similarly, narrowing down the referent of the word 'one' in Meme 3 refers to Covid-19. In Meme 2, an adjustment of the coded concept underlying the words 'What did I use to do?' "ʕaya:l ʔih" fits the speaker's intended narrow concept of 'job', forcing a covert comparison of life pre and post quarantine.

Interpretation of the logical form is enriched with saturation or 'inferential filling' through retrieval and integration of implicated premises which the meme designers intend to stimulate and the audience provide. The implicated premises are generated from the generic information of the IMs, contextual information of the conditions surrounding the pandemic, background information on a local chocolate

brand in Meme 1, the comedy actors as in Memes 1 and 2, the grandiose epic of the historical drama “The Ten Commandments” in Meme 3 and common life experience as in Memes 2 and 4. These are integrated with the implicated conclusion which the audience simultaneously infer, that is, the silliness of worries and fears surrounding the pandemic. Integrating explicatures with r-implicatures forms the resolution to the incongruity, to finally appreciate the satire of exaggerated reactions.

Arranging the sentences on the information accessibility scale indicates variance in the level of explicitness. The text in Meme 1 requires the activation of a cultural experience triggered by the reference made to a popular Egyptian chocolate brand whose name is reminiscent of good old days and is peculiar to the Egyptian local context while Meme 3 demands the activation of a specific historical fact, which may not be available to all viewers. In Memes 2 and 4, the text actuates explicit knowledge that transcends cultural differences as in the reference Meme 2 makes to age-related memory loss and the reference for popular movie scenes of bank robbery situations followed by moments of relief in Meme 4. The cultural and historical background information the audience needs to access for interpreting Memes 1 and 3 make them less explicit than Memes 2 and 4.

In all four memes, the additive interdependent effect of the text with the image endorses humorous incongruity and facilitates transmission of propositional information on the affairs surrounding the pandemic. The implicated non-propositional content trivializes people’s reactions to and fears from the pandemic through mockery, while the positive intended non-propositional effects include endorsing group membership, cultural specificity, and solidarity as in Meme 1, and mutuality of real-life experiences between the interlocutors in Memes 2 and 4.

Incongruity springs from the opposing scripts between the content of IMs and the social context surrounding the pandemic. Resolution lies in laughing at one’s silliness creating a liberating non-propositional effect to countereffect what the IMs producers regard as silly and exaggerated fears. Generating these effects requires more than “mutual intelligibility of language” to include intertextual reference to shared cognitive backgrounds (Denisova 2019; Wiggins 2019). Nevertheless, this same incongruity incites negative non-propositional effects by triggering bitter nostalgia in Meme 1 which results from the opposing feelings of fear, trauma, anxiety, and uncertainty that the pandemic creates, and the feelings of safety, security and love of life triggered by the reference to the local chocolate brand which was popular in the good old days. Similarly, the incongruity in Meme 3 arises from the opposing scripts of sufferings from 10 plagues referred to in the Old Testament and those experienced nowadays due to one sole plague. It may stimulate low self-esteem, which is further endorsed by the adverbial ‘just’. Finally, the interplay of images with words not only amplifies the message and conveys ideas that neither could achieve independently, but it also modifies the pragmatic functions of the IMs and guides their interpretation. These pragmatic functions include displaying specific physical actions, carrying out tone modification and portraying an emotional response to surrounding conditions.

3. Discussion

Analyses confirmed the validity of the hypothesis that more similarities than differences exist in the analyzed IMs in Arabic and English in relation to the nature of the discursual strategies that instigate cognitive relevance and create humor. For cognitive relevance, the four IMs utilize contextualization which is a prerequisite for achieving relevance and interpreting a message by addressing the pandemic, a topic of public concern in the viewers' immediate context. Catering to the interests of the masses through contextualization endows IMs with meaning, attracts attention, and activates background information through initiating a group of related schemata needed to generate implicit interpretation.

Second, images and texts, the two venues of information transmission, combine to signal an optimally relevant ostensive inferential act of communication. This combination triggers shared cognitive environments and maximizes positive cognitive gains at the least cognitive effort. These pictorial messages elicit contextual assumptions, raise incongruity between the content of the IMs and the surrounding situation marked by fear and anxiety and endow the IMs with their cognitive appeal. This concurs with Scott confirming that "the overall intended meaning communicated by the meme emerges from the image combined with the labels when they are interpreted in context and guided by considerations of relevance" (2021: 19).

Wiggins (2019:34) stated that the internet meme as a text "cannot exist without referring to something other than the subject matter it contains". Accordingly, the intertextual reference to "the collective archive" as "stored in the culture" through verbal and non-verbal cues further endorses the IMs cognitive relevance while at the same time reducing mental effort (Yus 2016: 38). In the four IMs, the intertextual reference to movie screenshots has the additive effect of foregrounding shared contextual, cultural and historical knowledge, bolstering IMs appeal, minimizing uncertainty, and enhancing speaker credibility (Chłopicki and Brzozowska 2021). Reference to icons and famous characters from popular culture activates encyclopedic knowledge. In the context of the pandemic, inclusion of items and gestures with cultural significance, such as the hookah to symbolize closeness and trust, and a tilted head and face gestures to embody mockery or feelings of bewilderment or relief align with Chłopicki and Brzozowska's conclusion that activating culture schemas in "collective minds show hope, and unity of the community that survived different difficult times, but is alive, strong and determined to fight the pandemic, and kill the fear with the laughter" (2021: 225).

Following the incongruity perspective, humor processing starts with the taken for granted assumption that humor producers always choose to imply their objectives to reduce the strength of relevance. Convolutional joke processing is favored over a straightforward one to minimize contextual contribution and maximize exerted cognitive efforts. Incongruity dupes humor recipients into certain interpretations and forces them to work harder to discover the relevance of the utterances (Veale 2004). Therefore, incongruous humor overrules the specific

requirement for the realization of relevance that no alternative line of interpretation can be more accessible to recipients than the intended one.

Interestingly, the four IMs adhere to the conditions of relevance in not allowing alternative lines of interpretation. The interplay of images and texts in the four IMs excludes the need to carry out multiple-graded-interpretations to reach the single-covert-interpretation, which ultimately emerges as the accurate one. However, humor in the analyzed IMs springs from the incongruity between the content of the IMs and the surrounding social context without triggering multiple levels of interpretation. This is a type of incongruity which occurs when contextual assumptions, as provided by verbal and non-verbal components of the IMs, contradict the broader context (Gan 2015). In so doing, the four IMs satirically present the mass reactions to the pandemic as exaggerated and absurd, and thereby eliciting a cathartic effect despite the possibility of triggering negative non-propositional effects such as low self-esteem and nostalgia to peaceful pandemic-free days (Cancelas-Ouviña 2021).

In other words, the only relevant interpretation of humor in the four IMs is the outcome of making comparative judgments which are not based on competing interpretations prior to opting for the one that provides the highest interest in exchange with the least mental effort; rather, it relies on contrasting the social context of the pandemic with the IMs' message. Once again, interpretation of humor in IMs is endorsed by contextualization, in making the object of humor contingent on the immediate social context, and intertextuality, which signals the intention to trigger humor. Both enable predictions regarding the quality and quantity of information to be accessed in search of relevant humorous interpretations (Yus 2016; Nicholls 2020; Cancelas-Ouviña 2021:4).

In conclusion, the four memes reflect the RT principles that to facilitate meaning interpretation, a communicative behavior needs to be ostensive and to alert the IMs audience to process input and to deduce the implied meaning by triggering intertextual referencing, exploiting sources of cognitive relevance and humorous incongruity such as background knowledge, logical and lexical information and reconstructing new assumptions.

4. Conclusion

Spurred by the lack of contrastive research on IMs, this qualitative case study explored the sources of cognitive relevance and humorous incongruity in IMs produced in and for Arabic and English-speaking audiences. It concluded that there is a consensus among IMs designers to regard the mass reaction to the pandemic as exaggerated and irrational, which challenges Cancelas-Ouviña's (2021) conclusion of the existence of cultural differences in understanding reality. Moreover, an agreement to create incongruity from opposing scripts. i.e. the content of IMs and the social context surrounding the pandemic, is pinned down. Through the interplay of intertextuality and incongruity, the four IMs not only share the rhetorical purpose of critically satirizing such reactions, but they also exhibit sophisticated humor through utilizing similar sources of establishing cognitive relevance and creating humorous incongruity.

There is a need for further contrastive research on IMs from a cognitive perspective to investigate variance in the sources of humorous incongruity and cognitive relevance in mediated mass communication where achieving relevance remains problematic and far more complex than in face-to-face communication since the addresses do not necessarily share similar spatiotemporal and cognitive environments with the meme designers. Moreover, adopting a cognitive perspective can aid in exploring the critical roles of digital literacy, familiarity with the conventions of the genre of IMs, mastery of net codes as well as having command of the language and the appropriate background knowledge in finding relevance and appreciating humor in IMs (Cancelas-Ouviña 2021).

This study does not presume to be untrammelled by the limitations imposed by the qualitative research design which entails subjectivity of analysis. Therefore, research on IMs needs to adopt mixed research designs, use larger samples and employ a triangulation of data collection tools and procedures to determine the extent to which the perceptions and behaviors of a diversified sample, who are not necessarily netcitizens, have been affected by the messages of the IMs as well as to explore whether the non/propositional effects of IMs during critical times are fulfilled.

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