

But let your ‘Yes’ be ‘Yes,’ and your ‘No,’ ‘No.’*

Meaning construction in medical encounters

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Abstract

This paper investigates interpretation in medical context. Our question is how institutional context influences the utterance meaning: if it is really triple layered (literal, utterance-type or pragmatic, Levinson 2000), or rather a continuum (Wilson 2016). Even idiomatic language use (Kecskes 2017) can induce uncertainty and obscurity, which can be and has to be solved in the given dialogue or discourse context (Wilson and Kolaiti 2017). The paper analyzes various medical encounters in a formal pragmasemantic model called $\mathfrak{R}eALIS$ (Alberti and Kleiber 2014). The benefit of applying this system is that it represents the interlocutors’ mental states (beliefs, desires, and intentions) supplemented by the parameter of authority, by which the occurring mismatches can be captured formally. We have found that two main types of mismatch can be differentiated, and both of them can be originated from the fact that the context is not the same for the participants. Our findings support the view that meaning construction is rather flexible and context-sensitive: it can be considered as wandering along the meaning continuum without any clues.

Keywords: pragmasemantics, medical communication, $\mathfrak{R}eALIS$, meaning construction

1. Introduction

The paper investigates interpretation in medical context. Our question is how institutional context influences the utterance meaning.

Face to face communication in institutional situations is challenging, since the physical and cognitive contexts – by the very nature of the institution – are different for the participants. Therefore, it is difficult to understand formulaic language, and also pragmatic and semantic idioms. In case of irony, sarcasm or joke, it is almost impossible to find the proper interpretation. The addressee has to gather the relevant pieces of contextual information; estimate the social (and cultural), institutional, and even age distance; calculate the addresser’s BDI-state (beliefs, intentions, and desires); and paste them together with the addressee’s own mental states. Considering the pattern matching, it can be seen as a continuum, where the

* Matthew 5:37, NKJV.

addressee has to find the most fitting actual meaning. It seems that using medical terminology is the least expensive way to be clear: the patient either knows the correct meaning, or can notice an unknown or unclear meaning.

In order to address the issue of meaning construction, we analyze various medical encounters in a formal pragmasemantic model called *ReALIS* (Alberti and Kleiber 2014; see also Viszket et al. in this volume), which represents the interlocutors' mental states. Our aim is to find the problematic points of specific doctor–patient encounters, and formally capture the mismatches that occurred in these situations.

The paper is organized as follows. In Section 2, we describe the main characteristics of doctor–patient communication. It can be seen from different perspectives of pragmatics: if we take it as intercultural communication, then intercultural pragmatics is the theoretical framework; having inferences as the key features, presumptive meaning comes to the fore; or we can take the stand of lexical pragmatics describing how word meaning is modified in use. Medical encounter is a special institutional communication where language use and context can induce uncertainty and obscurity instead of clarity. In Section 3, we give a pragmasemantic analysis of doctor–patient (nurse–patient) encounters, where the misunderstandings outline two main types of mistakes: one originates from the participants' dissimilar referent identification, while the second type of mismatch derives from the inaccurate profile-element identification. These examples illustrate that in medical context, direct wording is rewarding. Finally, in Section 4, we summarize our findings.

2. Doctor–patient communication from different perspectives of pragmatics

Despite the common assumption that clarity is one of the most important source of relevance, we often look puzzled when we are mutually misunderstood. This phenomenon is especially frequent in institutional situations. In this section, we discuss doctor–patient communication from three aspects of pragmatics: intercultural communication, the types of presumptive meanings, and lexical pragmatics.

2.1. Intercultural communication

Doctor–patient communication is asymmetrical concerning, for example, the knowledge base and potentials: the special preparedness and being in possession of particular information gives the doctor a sort of higher social position. This position is defined by a set of social norms and cultural rules. However, these norms and rules also determine certain verbal and nonverbal behavior.

The most special characteristics of doctor–patient communication can be captured by its multilayered contextual determinacy: in medical encounters, the parties have different perspectives, means and goals. They are participating in the encounters according to the role they undertook. Nevertheless, it is not an equilibrium: they can move back and forth on the scale of their own conversational repertoire. However, being involved in institutional communication, they are – if we are optimistic – at least partly bound by some convention.

Language usage convention exists in the usage of the members of a speech community if there are language regularities which occur in *strictly delineated cases*, and the members of the community *expect* these regularities to occur in those cases, and the members of the community *prefer* the regularity to occur in those cases, because it solves a problem of communication or interaction (Eemeren and Grootendiors 1984). As part of the conventional usage “Conventional routine expressions like situationally bound utterances encode information that is equally available for all members of the given speech community” (Kecskes 2017: 203). The problem is that doctor–patient communication is like intercultural communication. The participants lack common social-cultural background knowledge. Since this collectively shared knowledge can be acquired only by imitation, training and repetition, we could suppose, that the more patients are familiar with the medical context, the more they will be capable to understand the utterances in it. However, it is not the case. Context is important for appropriate language use: on one hand, the situational context, but on the other hand, the context that is defined by previous experiences. This points out that language use is just as doublefolded as language itself: it has a synchronous (selective) and a diachronic (constitutive) aspect.

2.2. Types of conversational implicatures

Looking from the side of inferences, meaning-construction in doctor–patient communication is also inextricable. Levinson in *Presumptive Meanings* (2000) differentiates three main principles: The Q(uantitative), the I(nformativeness) and the M(anner) principles. He states that there is (or has to be) a level of generalized conversational implicatures: there is a level of utterance-type meaning, which is distinct from, and intermediate between, sentence-type meaning and utterance-token meaning. It is more than encoded linguistic meaning, but generally less than the full interpretation of an utterance. Based on Q-HEURISTIC (what is not said to be the case is not the case), I-HEURISTIC (what is said in a simple (unmarked) way represents a stereotypical situation) and M-HEURISTIC (what is said in an abnormal (marked) way represents an abnormal situation) we usually have to be able to differentiate between the three types of meanings. Utterance-type meaning is a matter of preferred or default (or ‘presumptive’) interpretations, which are carried by the structure of utterances, given the structure of the language, and not by virtue of the particular contexts of utterances. These are default inferences, hence defeasible, and their results can be overridden: if the default output is inconsistent with the context, it is dropped.

In case of medical encounters, doctors and patients often evaluate the utterances differently considering quantitiveness (the interpretation of what was really said), informativeness (whether the utterance was said “normally” and meant stereotypically) and manner (whether the utterance was said “markedly” and meant “abnormally”). They can be lost both linguistically and metalinguistically. Furthermore, when they are confident, it can be more misleading, as they do not even realize the possibility of misunderstanding. It seems that the pragmatic clues can rarely be detected, the utterance-type and utterance-token meaning are easily missed.

2.3. *Lexical pragmatics*

We can take the perspective of lexical pragmatics, and put aside conventional meaning. A central goal of lexical pragmatics is to investigate the processes by which linguistically specified (encoded) word meanings are modified in use, in the processes of lexical narrowing, approximation and metaphorical extension. Narrowing is often treated as a case of I-implicature, involving a default inference to a stereotypical interpretation (Levinson 2000); approximation is often treated as a case of pragmatic vagueness involving different contextually-determined standards of precision; metaphor is widely seen as involving blatant violation of a pragmatic maxim of literal truthfulness in order to convey a related implicature (Levinson 1983). Thus, narrowing, approximation and metaphor tend to be seen as *sui generis* processes involving distinct pragmatic mechanisms or principles. Instead, they are highly flexible, creative and context-sensitive processes, which cannot be satisfactorily handled in terms of a notion of default inference: there is no sharp theoretical distinction between literal, loose and metaphorical uses, but a continuum of cases with no clear cut-off point between them (Wilson and Kolaiti 2017). This approach reflects the real nature of meaning construction in medical encounters. In doctor–patient communication, flexibility and context-sensitivity may result in misunderstanding. However, deliberate and sensitive choice of verbal (and nonverbal) behavior can help the participants find the actual meaning.

Based on the above-mentioned three approaches, we consider a medical encounter a special institutional communication where language use and context have the potential for inducing uncertainty and obscurity instead of clarity. This is why we think that there is no pure semantic meaning: it is at least pragmasemantic, i.e., individual. Personal background knowledge sums up with semantic meaning and contextual elements. This is the starting point for inferences, by which actual meaning can be calculated. In what follows, we model this process in order to be able to pinpoint the mismatches in the course of the participants' meaning constructions.

3. Analysis of medical encounters

For the pragmasemantic analysis, we applied the \Re eALIS framework (Alberti 2011; Alberti et al. 2019), which combines dynamic semantic means and cognitive notions to capture linguistic phenomena traditionally described by concepts such as illocutionary act (e.g. Searle 1969). We start this section by briefly introducing the system, then we move on to the analysis.¹

3.1. *Applied framework \Re eALIS*

\Re eALIS 'Reciprocal And Lifelong Interpretation System' can be characterized as a discourse-representation-based (Kamp, Genabith, and Reyle 2011; Asher and Lascarides 2003) formal pragmasemantic theory. *Reciprocal* means that the interlocutors model each other: the speaker, for instance, when utters a sentence, takes the listener's assumed knowledge into consideration,

¹ For a more thorough introduction to the theory and formalism of \Re eALIS, the interested reader is referred to Alberti et al. (2019); see also Viszket et al. (this volume).

including the assumed knowledge on the speaker's knowledge. *Lifelong* means that the interpreter is building a huge DRS (discourse representation structure) from birth, consisting of momentary information states. Nothing is deleted, a piece of information can only "fade away", and may reoccur later in the mental structure (Kárpáti and Kleiber 2018). These DRSs are constructed via the mathematical technique of *simultaneous recursion* (Alberti 2000). By this operation, \Re ALIS can apply unboundedly huge, but finite structures (Szeteli et al. 2019), in contrast to common-ground based approaches (e.g. Stalnaker 2002), which operate on infinite basis.

The innovative feature of \Re ALIS is that representations are regarded as mental states (the interpreters represent discourses in their minds), and these mind-representations are taken to be part of the world model (Alberti and Kleiber 2014). In this way, a homogeneous structure is used for representing the discourse, the world, and the human mind. Evaluation is achieved by applying an extended version of the pattern-matching operation known from formal semantics. This mechanism makes it possible to evaluate intensional relations, such as the sincerity of a promise, the same way as extensional relations, e.g., the truth-value of a sentence.

A major goal of \Re ALIS is to explore what truth-values the declarative, interrogative and imperative conventions "expect" in the addresser's and the addressee's definite possible worlds. In this respect, it can be regarded as the representationalist counterpart of Lauer's (2013) antirepresentationalist dynamic pragmatics. In \Re ALIS, however, the term *possible world* refers to an actual mental state the interlocutors have, representing some kind of belief (B), desire (D), authority (A), intention (I), or experience (E). For instance, in the possible world of the addresser's beliefs, when uttering a declarative, the ideal truth-value of eventuality e (an event or a state) is +1, meaning that the addresser conventionally communicates the sure knowledge of e . This does not indicate, however, that the speaker *actually* believes e ; the sentence can be a lie, a bluff, an ironic utterance, etc.

On this ground, \Re ALIS assigns so-called *intensional profiles* to the major sentence types (declarative, interrogative, imperative), and also to "fine-tuned" sentence types marked by discourse markers (e.g. biased questions); where an intensional profile is the collection of partial possible worlds – called *worldlets* – evoked by the (conventionalized) use of sentence types. A worldlet minimally encodes one meaning component, such as a desire for an eventuality, or a belief about the intentions of the addressee. It can be regarded as a labeled DRS-like structure about an eventuality e where the *label* encodes the four essential properties which belong to e in this particular case:

1. Host of the *worldlet*: 'I', the addresser (i); 'you', the addressee (u); 'other', a relevant third party (o).
2. Set of modalities: Belief (B), Desire (D), Authority (A), Intention (I), Experience (E).
3. Time parameter: earlier (-), later (+), now (no marking)
4. Intensity: the [-1; 1] interval encoded in fifths. 'Absolutely true': +5 ("five fifths"); 'no idea': 0; 'absolutely false': -5; other degrees of certainty: -4, -3, ... 3, 4.²

² In the case of the three major sentence types, the intensity values of the intensional profiles are calculated on the basis of an underspecified profile (*target-oriented mentalization*). In the case of sentences with discourse markers (particles, intonation, etc.), specialized profiles are defined, which are the modifications the major

For instance, when a declarative sentence *It is Friday.* is uttered sincerely, as a part of the declarative intensional profile, the addresser's mental state includes the worldlet [for e : $iB = +5$] 'I believe with maximal intensity that e is true', meaning that the addresser knows that it is Friday. A worldlet label can refer not only to eventualities but also to mental states. For instance, the more complex worldlet [for e : $iIU+ = '+5$] 'I intend that you intend (at a later time) to execute e ' is a part of the imperative profile, and it represents the central component of the profile, i.e., the intention behind sincerely uttering an imperative. Finally, three minor markings need to be explained. First, when there is no plus or minus sign before an intensity value, it can be either positive, or negative. Second, the prime (') or double prime (") symbol surrounding an intensity value denotes a narrower or a broader interval instead of a precise number.³ And third, since each modality labels need to be assigned an intensity value, in the case of embedded mental states, multiple intensity values are given. However, it is often enough to display only one, relevant value. In these cases, the modality label with the displayed value is underlined.

3.2. *Types of mismatches*

Face to face communication in medical context is challenging, since the physical and cognitive contexts are different for the participants. We argue that this formal pragmasemantic approach, *ReALIS* is able to pinpoint these differences. The following analysis focuses on two main types of mismatch. The first type originates from referent identification, i.e., different interpretation of eventualities, predicates, or entities. The source of these misunderstandings is typically the participants' different contextual background: the context is familiar for the doctor, but unfamiliar for the patient. The second type of mismatch derives from the inaccurate profile-element identification: the interlocutors' misjudge each other's mental states, their authority, belief, or intention regarding the eventualities in question. This can also be explained by the patient's lack of contextual clues; which practically means that the intended meaning is often not apparent for the patient.

In what follows, first we introduce examples where the problem lies in the identification of different kinds of referents: eventuality, predicate, or entity. Then, we turn to the second type of mismatch, where the patient misinterprets the doctor's utterance due to a problem in identifying profile elements of different modalities: authority, belief, or intention. The presented examples are from Hungarian medical situations collected by the authors personally. The data is not aimed to be representative but rather focused on various types of misunderstandings. The analyses reflect our interpretations, the way we experienced the situations from the patients' point of view.

profiles on the basis of the pragmasemantic contributions of these extra elements. (For more details, see Alberti et al. 2019.)

³ For instance, 'n' means a (bell-shaped) normal distribution over interval $[n-2, n+2]$. This notation is to capture the fact that the addresser's role often does not strictly define one particular value, but rather a typical, preferable value, which allows for a slight variation.

3.3. Mismatch in referent identification

The first dialogue we examined occurs when the doctor takes the patient’s medical history (1). The context is familiar for the doctor, but – as it seems – quite unfamiliar for the patient.

- (1) Doctor: *Magas vérnyomás?*
 high blood_pressure
 ‘(Do you have) high blood pressure?’
 Patient: *Nem.*
 ‘No.’ (Since she takes her pills regularly.)

In this case, the patient involuntarily provides misleading information, since she interpreted the question compositionally, as it referred to her actual (under therapy) condition; while the doctor’s use was in fact idiomatic: he meant if she had a diagnosed condition (hypertonia). Without the familiarity of the context (the knowledge of what is relevant here), the patient cannot realize the need for idiomatic interpretation.

The formal analysis can pinpoint the exact source of the misunderstanding (Table 1), namely the difference in identifying the eventuality referent (*e* and *e'*). The last row shows that the patient – correctly – interprets the utterance as a question: she assumes that the addresser’s (doctor’s) intention by this utterance was that the addressee (patient) let the addresser know if the given eventuality is true or false. In the formalism of $\mathfrak{R}eALIS$: $iBuIiI+uB+ = 5$ (‘I believe (iB) that you intend (uI) that I intend later (iI+) that you know later (uB+) if the eventuality holds (5)’), which corresponds to the central component of the interrogative profile from the addressee’s point of view, i.e., the AR’s (supposed)intention behind the utterance. The mismatch results from that fact that this profile element refers to *e'* for the patient (her blood pressure being high), while it refers to *e* for the doctor (the patient having hypertonia).

Table 1: Mismatch in eventuality referent identification. Formal analysis of dialogue (1)

	for the doctor	for the patient
meaning	<i>idiomatic:</i> ‘you do have hypertonia (as a medical condition)’	<i>compositional:</i> ‘my blood pressure is high (at the moment/lately)’
referents ⁴	e: $P_{have} r_{patient} r_{hypertonia}$	e': $P_{high} r_{blood_pressure} r_{patient}$
profile element (interrogative, central comp.)	for e: $iIuI+iB+ = 5$ ‘I want you to let me know if <i>e</i> is true or false’	for e': $iBuIiI+uB+ = 5$ ‘I believe you want me to let you know if <i>e'</i> is true or false’

The analysis reveals that the doctor did not take into consideration the patient’s lack of contextual background, which resulted in the misunderstanding. The cognitively least expensive way to be clear, in situations like these, would be to use medical terminology (*Do you have hypertonia?*), when the patient can at least notice the unfamiliar meaning.

⁴ In harmony with the notation system of $\mathfrak{R}eALIS$, different letters denote different types of referents: *e* represents an eventuality (event or state); *r* stands for entities (people, things, concepts); and *p* indicates a predicate referent. The assumption is that predicates do not necessarily have the exact same meaning for everyone, therefore they are not considered constants either (Alberti 2001).

Similar dialogues are listed below (2, 3).

- (2) Doctor: *Egyedül él?*
 alone live.3SG⁵
 ‘Do you live alone?’
 Patient: *Igen, a fiammal. A feleségem 7 éve meghalt.*
 yes the son.POSS.1SG the wife.POSS.1SG 7 year die.PAST.3SG
 ‘Yes, with my son. My wife died 7 years ago.’
- (3) Doctor: *Hogy tetszik lenni?* (in Hungarian)
 how like.3SG be.INF
 ‘How are you?’ (in a special polite form used with the elderly)
 Patient: *Nehezen, tudja annyi minden történt...*
 hard know.3SG so_much everything happen.PAST.3SG
 ‘It’s really hard, you know, with everything’s going on...’

Example (2) illustrates that medical context does not determine markedness (which expression is idiomatic). In this case (contrary to (1)), the doctor’s meaning is compositional, he wanted to know if there is anyone who can look after the patient; while the patient’s interpretation is idiomatic, he meant his marital status.

In (3), the doctor asks the question in a familiar tone, which overrides the institutional context, and thus triggers the conventional meaning. The effect of the utterance is that the patient starts talking about her life. In this case, politeness/familiarity overrides the institutionally bound eventuality referents for the patient, resulting in a mismatch in referent identification.

Another example illustrates that in some contexts, the predicate referent (*p*) is identified inaccurately (4). The situation takes place in the office of a vascular surgeon.

- (4) Doctor: *Vetkőzzön le!*
 undress.IMP.3SG down
 ‘Get undressed!’
 Patient: takes off her coat (she believes rolling up her trouser leg would be enough)

For the doctor, the familiar context supports a narrowed, indexical interpretation. The meaning of the predicate *levetkőzni* ‘undress’ is contextually bound; it is semantic and institutional, depending on the type of doctor, type of examination. In this case, the intended meaning was taking off the trousers. For the patient, however, the context is unfamiliar; there is no contextual clue for what to take off. Therefore, the interpretation is not narrowed; she is left with the literal/conventional lexical meaning, which is semantic and individual depending on cultural and/or personal factors. In this case, she thought she understood the utterance perfectly, and took off her coat.

The formal analysis is presented in Table 2. The last row indicates that there is no problem in identifying the imperative intensional profile behind the utterance, so the patient correctly recognizes the doctor’s intention, which is for her to get undressed. The source of the mismatch

⁵ In Hungarian, formal polite form is expressed by 3rd-person verbs.

is the extension of the predicate referent, which is different for the doctor (*pundress*) and the patient (*pundress'*) due to their different contextual background.

Table 2: Mismatch in predicate referent identification. Formal analysis of situation (4).

	for the doctor	for the patient
meaning	<i>narrowed</i> : ‘take off your trousers’ based on institutional situation	<i>not narrowed</i> : ‘take off my coat’ based on individual interpretation
referents	e : $\mathbf{P}_{\text{undress}} \Gamma_{\text{patient}}$ where $\mathbf{p}_{\text{undress}}$: take off trousers	e' : $\mathbf{P}_{\text{undress}'}$ Γ_{patient} where $\mathbf{p}_{\text{undress}'}$: take off coat
profile element (imperative, central comp.)	for e : $i\mathbf{U}\mathbf{I}\mathbf{+} = +5$ ‘I want you to make e happen’	for e' : $i\mathbf{B}\mathbf{U}\mathbf{I}\mathbf{I}\mathbf{+} = +5$ ‘I believe you want me to make e' happen’

Similar medical situations occur quite often, all of which demonstrate that without contextual information the exact extension of the predicate referent is not calculable for the addressee. The solution is that the doctor should make it explicit what to take off exactly, since the patient may lack the sufficient contextual facts to execute the task properly.

The next dialogue we analyzed (5) takes place during the admission process, when the patient appears at the hospital for surgery.

- (5) Doctor: *Megbeszélte valakivel, hogy műtétre jelentkezik?*
 discuss.PAST.3sg somebody.INS that surgery.SUBL sign_up.3SG
 ‘Have you discussed the surgery with anyone?’
 Patient: *Igen, az édesanyámmal.*
 yes the mother.POSS.1SG
 ‘Yes, with my mother.’

In this case, the problem is that the patient – due to the lack of sufficient contextual background – does not realize that by “anyone” the doctor, in fact, meant a surgeon to perform the surgery. The meaning is narrowed (indexical) for the doctor, but not for the patient. The formal analysis reveals the different identification of the entity referent for *anyone* (Table 3): for the doctor, the possible entities to choose from are all surgeons, while for the patient, the complete set of referents (R) is available, for instance, a friend, a relative, or a general pediatrician. In this way, we can pinpoint the exact component that needs to be specified.

Table 3: Mismatch in entity referent identification. Formal analysis of dialogue (5).

	for the doctor	for the patient
meaning	<i>narrowed/indexical</i> : ‘you talked to a surgeon about your surgery’	<i>not narrowed/not indexical</i> : ‘I talked to someone about my surgery’
referents	e : $\mathbf{p}_{\text{talk}} \Gamma_{\text{patient}} \mathbf{r}\Gamma_{\text{patient's_surgery}}$ where $\mathbf{r} \in \{\Gamma_{\text{surgeon1}}, \Gamma_{\text{surgeon2}}, \dots\}$	e' : $\mathbf{p}_{\text{talk}} \Gamma_{\text{patient}} \mathbf{r}' \Gamma_{\text{patient's_surgery}}$ where $\mathbf{r}' \in \mathbf{R} = \{\Gamma_{\text{friend1}}, \Gamma_{\text{mother}}, \Gamma_{\text{GP}}, \dots\}$
profile element (interrogative, central comp.)	for e : $i\mathbf{U}\mathbf{I}\mathbf{+}i\mathbf{B}\mathbf{+} = 5$ ‘I want you to let me know if e ’	for e' : $i\mathbf{B}\mathbf{U}\mathbf{I}\mathbf{I}\mathbf{+}i\mathbf{U}\mathbf{B}\mathbf{+} = 5$ ‘I believe you want me to let you know if e' ’

At this point, we have examined medical situations where the misunderstanding can be derived from the mismatch in referent identification: eventuality (idioms), predicate (narrowed meaning), or entity (indexicality). The source of the problem is the fact that the context is familiar for the addresser (doctor), but not for the addressee (patient). The solution could be the use of clear, explicit, context-freewording. In what follows, the other type of mismatch is discussed where the problematic component is a profile element: authority, belief, or intention.

3.4. Mismatch in profile element identification

The second type of mismatch occurs when the addressee misjudges the addresser's mental states, the authorities, beliefs, and intentions. The basis of these profile-identification problems is that in medical context, interrogatives are to be interpreted as imperatives, which is not trivial; it has to be learned throughout various encounters.

A yes/no question, for instance, essentially conveys that the addresser's intention is that the addressee provide information. In the $\mathfrak{R}eALIS$ framework, this element is represented as the central component of the basic interrogative intensional profile ($iIuI+iB+ = 5$). This is not always straightforward, though, given that the addressee should answer with maximal informativity (cf. Grice's maxim of quantity); meaning that in case the doctor asks a yes/no question and the answer can be elaborated on, then a simple *yes* or *no* will not be sufficient. Furthermore, if the question can be interpreted as a directive, then it was in fact meant to be a directive. So instead of the interrogative profile, the imperative profile should be identified with the central component $iIuI+ = +5$ ('I want that you intend to execute e ').

The following examples are to demonstrate the fact that identifying the right illocutionary force could be most challenging when the doctor uses indirect speech acts, and the medical context is not familiar for the patient. In these dialogues, the source of the misunderstanding is some kind of disturbance in recognizing the addresser's authority (6), belief (7–9), or intention (10–12).

The context of (6) is a check-up where the doctor aims at suggesting the patient to consult a specialist from another medical field about his problem.

- (6) Doctor: *Volna szíves elmenni uroológushoz?*
 be.COND.3SG willing go.INF urologist.ALL
 'Would you mind seeing an urologist?'

In (6) the doctor utters a question that is conventionally interpreted as a polite request. The patient tries to match some kind of imperative – and not interrogative – profile to the utterance. However, the unusually/unnecessary polite form causes uncertainty and confusion ('Was it a real question after all? Can I say *no*?'). The formal analysis reveals that this confusion derives from the mismatch in the profile element representing the doctor's authority. Table 4 presents the elements of the basic imperative profile supplemented by the extra axioms coming from the polite form the doctor uses, in other words, the intensional profile of *request* (Kleiber 2018).

Table 4: The elements of the imperative intensional profile from the addresser’s (doctor) point of view: polite request. Problematic component in (6): authority.

belief	$iB = -5; iBuB = -5$	‘I know <i>e</i> does not hold; I assume you also do’
desire	$iBrD = +5$	‘Someone (I, you...) longs for <i>e</i> ’
intention	$iU+ = +5$	‘I intend that you intend to execute <i>e</i> ’
authority	$iAiU+ = 0$ (polite request) $iBuA = +5$	‘I have no/weak authority to tell you to execute <i>e</i> ’ ‘You are able to execute <i>e</i> ’

The addressee’s expectations about the first three components are met, while the last component is problematic. The patient assumes that the doctor has full authority over the actions he tells her to do ($iBuAuI+ = +5$). She tries to resolve this mismatch: maybe the doctor actually believes that he has no/weak authority ($iBuBuAuI+ = 0$), or he just acts like it for some reason ($iBuI+ = 0$); maybe it was a real question after all, or maybe the doctor was being sarcastic.

Therefore, this example demonstrated that in medical context, a polite request could lead to confusion, alternative interpretations, since it indicates weaker authority. Again, the direct form is preferable from the doctor, which minimizes the chance of misunderstanding.

The next utterance took place in the NICU (Neonatal Intensive Care Unit). The nurse (apparently) attempts to motivate the mother who is not feeding the baby properly (7).

- (7) Nurse: *Nem akarja hazavinni a gyereket?*
 not want.3SG take_home.INF the child.ACC
 ‘Do you not want to take your child home?’

Since (7) is in question form, the addressee (mother) tries to match the interrogative intensional profile. The interpretation of this utterance gets her confused and hurt. The formal analysis reveals a mismatch in the component representing the addresser’s (nurse) beliefs. Table (5) presents the elements of the basic interrogative profile, which is conventionally assigned to questions.

Table 5: The elements of the interrogative intensional profile from the addresser’s (nurse) point of view. Problematic component in (7): belief.

belief	$iB = 0; iBuB = 5$	‘I do not know if <i>e</i> ; I assume you do’
desire	$iBrDiB+ = +5$	‘Someone (I, you...) longs for this information’
intention	$iU+iB+ = 5$	‘I intend to find out if <i>e</i> ’
authority	$iAiU+iB+ = iBuAiB+ = +5$	‘We both have authority over this inform.-transfer’

The addressee assumes that the nurse must know that she *does* want to take the child home ($iBuB = -5$), which contradicts the belief component of the interrogative profile (the ‘0’ in the first row of Table 5). She tries to resolve this mismatch: maybe it is not a real question (since the addresser already knows the answer), and the opposite of *e* is true, so it maybe an *ironic question*. In this case, the addresser’s intention is in fact to try to make the addressee do something, and thus the utterance is meant to be interpreted as a directive (for some *e*: $iBuI+ = +5$). However, the addressee expects clear communication and literal meaning in this

extremely sensitive context, she is not prepared for irony, sarcasm or joke. Therefore, it is not surprising that the effect of this utterance is that she becomes confused and hurt instead of motivated to do better.

Example (8) presents a similar situation, where the doctor puts his strong suggestion for a surgery in the form of an alternation (disjunction) with an ironic question. The purpose of the utterance is to force the addressee to choose the first option. However, in the unfamiliar context, the patient is not sure about the irony, and thus may consider the second option (and she is also hurt about the tone of the utterance, the indirectness of the doctor).

- (8) Doctor: *Engedi, hogy megműtsem, vagy örök életére így akar élni?*
 let.3SG that operate.SBJV.1SG or forever life.SUBL so want.3SG live.INF
 ‘Will you let me operate on you, or you really want to live with this condition for the rest of your life?’
- (9) Conversation between the doctor and the patient’s daughter
- Doctor: *Sokat fogyott. Jól van?*
 lot.ACC lose_weight.PAST.3SG well be.3SG
 ‘You lost a lot of weight. Do you feel well?’
- Daughter: *Sokat dolgoztam érte. Igen, jól vagyok.*
 lot.ACC work.PAST.1SG for_it yes well be.1SG
 ‘I worked hard for it. Yes, I am OK.’
- Doctor: *Az nem olyan biztos...*
 that not so certain
 ‘Well, that is not so certain...’

The last dialogue of this type (9) takes place in the oncology, where the patient’s daughter accompanies her father to a check-up. In this case, the addressee (daughter) cannot be sure if the doctor was joking or being serious and actually advising her to get checked. Normally, she would consider the doctor’s response a joke (iBuB = ’0’ ‘I assume you do not believe e’), but in this particular context (oncology) she would not expect the doctor to joke about it (iBuB = ’+5’ ‘I assume you mean e’).

The above examples (7–9) demonstrate that, in unfamiliar institutional contexts, literal meaning is expected, and so even clearly ironic utterances can lead to confusion. For the sake of clarity and in order to evoke the intended illocutionary effect (Searle 1969), irony, sarcasm and joke are ill-advised in medical situations.

The last type of mismatch we discuss occurs when the addressee cannot recognize the intended illocutionary force properly or at all. The source of this problem lies in the identification of the addresser’s intention. Dialogue (10) takes place when the patient is ready to go to the operating room with a male-nurse accompanying her.

- (10) Nurse: *Nincs valamilyen köpenye?*
 not_be some robe.POSS.3SG
 ‘Do you not have a robe?’
- Patient: *Nem.*
 ‘No.’ (Although she does –just not with her, but in her bag.)

For the addressee (patient), the situation seems quite clear: she was asked a yes/no question, therefore she identifies the basic interrogative profile. She assumes that the addresser’s intention behind the utterance was to find out if she had a robe or not. There seems to be no mismatch, she answers the question, and believes her reaction to be adequate. For the addresser, however, the context is much richer, as he holds additional information about the circumstances (e.g., they have to be waiting, it will be cold in there). Therefore, – as it turned out – the addresser’s intention with the utterance was to give the patient advice (Table 6).

Table 6: Mistake in identifying the illocutionary force due to insufficient contextual aid. Problem in (10): mismatch in the addresser’s (actual vs. supposed) intention.

	for the nurse	for the patient
meaning	‘I advise you to bring a robe, because it is cold out there.’	‘I am asked to say if I have a robe with me.’
profile	imperative (advice)	interrogative (yes/no question)
intention	i <u>Iu</u> I+ = +5	iBuIi+ <u>uB</u> + = 5

The misunderstanding would have been avoided if the nurse had realized the unfamiliarity of the context from the patient’s point of view. As in the previous cases, being explicit (‘I advise you...’) would have led to more efficient communication.

Similar examples are listed below (11, 12). The situation in (11) happens after a surgery. The nurse has extra information, namely that the pain will increase considerably. Only later the patient realized that the utterance was supposed to be an advice. At the time of the dialogue, the illocutionary force remains unrecognized, because of insufficient contextual background.

(11) Nurse: *Kér fájdalomcsillapítót?*
ask_for.3SG pain_killer.ACC
‘Do you want painkillers?’

Patient: *Nem.*
‘No.’(The pain is manageable.)

(12) Doctor: *Bejön péntek reggel?*
come_in.3sg Friday morning
‘Are you coming in Friday morning?’

Patient: ??? (#*Nem.* / #*Nem terveztem.* / #*Jöjdek?* / *Igen.*)
no / not plan.past.1sg / come.Imp.1sg / yes
‘#No./#I wasn’t planning to./#Shall I?/Yes, it’s OK.’

Finally, in situation (12), the patient fails to identify the illocutionary force completely, since there is no contextual clue to help her. For the doctor, a whole discourse is incorporated in this question: 1. Assertion: *I can schedule your next examination for Friday morning.* 2. Question: *Is it acceptable?* 3. Directive: *Come in then (if you can)!* The patient, however, has no knowledge about these steps, no contextual aid, and thus she cannot construct the hidden discourse. The solution, once again, would be to spell out these steps, to use direct speech acts.

4. Conclusions

It is not a new discovery that in medical encounters context can induce uncertainty and obscurity instead of clarity. To unravel this puzzle we have conducted a formal pragmasemantic analysis in the *REALIS* framework. We have collected several situations where some kind of misunderstanding occurs. As we examined these examples, we have found that two main types of mismatch can be differentiated, and both of them can be originated from the fact that the context is not the same for the participants.

Firstly, a mismatch can occur in referent identification where the anchoring of a particular referent is different for the addresser (doctor or nurse) and for the addressee (typically the patient). In the paper, we have discussed three types of referents: eventuality, in the case of idioms; predicate, when the meaning is broadened/narrowed; and entity, the problem of indexicality. However, other types of referents can also be problematic, such as time or space.

Secondly, a mismatch can occur in the identification of a profile element. We have discussed situations where the problematic component is authority, e.g. when the addresser is unusually polite; belief, e.g. in the case of irony; and intention when the illocutionary force remains unrecognized, e.g. in the case of indirect speech acts. However, profile elements of other modalities can also be recognized inaccurately, such as desire or experience.

To address the initial question of the paper regarding how institutional context influences the utterance meaning in a medical encounter, our findings support the view that meaning construction is rather flexible and context-sensitive: it can be considered as wandering along the meaning continuum without any clues.

What can be done to resolve these difficulties? As all cases of communication, medical encounters are also two-sided, and the solution can come from both parties. The first possibility is that the patient gradually learns these practices, gains knowledge about medical contexts, develops health literacy skills, and becomes acculturated to medical context. The other – more compelling – option is that the medical staff communicate with more clarity, saying what they really mean using sentence-type meaning. The cognitively least expensive way to be understandable is to be on the least pragmatic end of the meaning continuum by using either common literal meaning – which is *obvious* –, or technical terms – which are *definite*. The practical benefit of this research is that the formal pragmasemantic analysis we conducted could pinpoint the problematic parts, i.e., what to clarify; and in this way, we can suggest more efficient ways in doctor–patient communication.

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