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On representing implicated illocutionary force: grammar or logic ?
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0. Introduction

It has become commonplace, since the pioneering work of the speech-act theorists (Grice 1967; Searle 1975), to distinguish between at least two kinds of illocutionary forces: *Literal Illocutionary Force* and *Implicated Illocutionary Force* (hereafter LIF and IIF). Roughly speaking, the former is the illocutionary force which is directly reflected by the surface syntactic form and thus conveyed in all contexts; the latter is the one that is only indirectly conveyed in a particular context. Regarding the representation of these two kinds of illocutionary forces, several proposals have been made, in particular within pragmatically-oriented linguistic models. In the Functional Grammar (hereafter FG) framework, this problem was examined - and has been more or less adequately resolved - by De Jong (1981), Moutaouakil (1986), Vet (1986), Hengeveld (1989), Risselada (1990), and Dik (1989a). Being the most recent and the most complete, as far as I know, Dik's proposal is to be considered as typical of the current FG conception of the representation of illocutionary force. The basic idea underlying this proposal is that only the illocutionary force which is (grammatically) coded in the linguistic expression is to be represented in the underlying clause structure. This means that only LIF and grammatically coded IIF should be dealt with within grammar: all IIFs which have no formal impact on the linguistic expression fall outside this area.

My main concern in this study is to examine and to evaluate the consequences of such an idea for the conception of the underlying clause structure and the organization of the FG model as a whole.

In order to do so, I will proceed as follows: in section 1, I will present an overview and a sketchy typology of those meanings which may constitute the illocutionary potential of linguistic expressions; in section 2, I will show that all the IFs associated with a sentence should be accounted for, including those which seem to have no formal (grammatical) correlates. Starting from this claim, I will examine the following three possibilities offered by the FG framework: (a) all IFs are dealt with outside the grammar proper; (b) only (grammatically) coded IFs are represented in grammar; (c) all kinds of IFs fall within the scope of grammar. Throughout the examination and the evaluation of these three views, I will postulate that, given the modular conception of the FG model presented in Dik (1989a), the Functional Logic (hereafter FL) module is the most natural landing site of those IFs which are assumed to fall outside grammar.

1. Illocutionary potential of linguistic expressions

My aim in this section is simply to recall what has been established in the literature (i.e. speech act theory and pragmatically oriented linguistic models) about the kinds of IFs which may be associated with linguistic expressions, in order to facilitate the understanding of the content of the following sections.

1.1. The facts

Let us consider the following groups of Arabic sentences ¹ :

- (1) man fī hāda l-bayti?
 who in this the-house-gen
 "Who is in this house?"
- (2) hal tuṣāhibunī ?ila l-masraḥi?
 Int go-with-me to the-theatre-gen
 "Will you go with me to the theatre?"
- (3) hal tastaṭīʿu ?an tunāwilani l-milḥa?
 Int can-you that pass-you-me the salt-acc
 "Can you pass the salt?"
- (4) ?a lam ?undirka?
 Int not warn-I-you
 "Haven't I warned you?"

Sentence (1) constitutes the simplest case from the point of view of illocutionary potential, in the sense that only one IF, i.e. the LIF, is associated with it. No IF other than the *Question* -which is literally expressed by the interrogative form - is conveyed. As for sentences (2), (3) and (4), they are clearly examples of relatively more complex cases: each of them has at least two IFs. (2) and (3) convey both a *Question* and a *Request* having thus as possible paraphrases (5) and (6) respectively:

- (5) ṣāhibnī ?ila l-masraḥi.
 come-with-me to the-theatre-gen
 "Come with me to the theatre."
- (6) nāwilnī l-milḥa.
 pass-me the-salt-acc
 "Pass the salt."

With (4) are associated a *Question* and a positive *Statement*; it can thus be paraphrased by (7):

- (7) ?andartuka.
 warned-I-you
 "I have warned you."

Sentences (2), (3) and (4) have in common the property of expressing more than one IF; the IFs they convey do not, however, have the same status. This is what will be discussed in the following two sub-sections.

¹ In this study the exemplification will be, in almost all cases, in Standard Modern Arabic. This, however, does not mean that the points which will be discussed are specific to this language. In each case, a cross-linguistic generalization is possible.

1.2. Literal illocutionary force vs implicated illocutionary force.

Much work, as is well known, has been devoted to the distinction between LIF and IIF, both in speech act theory (Grice 1967, Searle 1975) and in pragmatically-oriented linguistics. So, referring the reader to that work for more detail, I will only mention here the following two features, which I assume to be crucial to the distinction between the two kinds of IFs:

- (i) LIF is associated with a linguistic expression in all contexts where it may be used. IIF is, on the contrary, contextually-bound, being conveyable only in some particular classes of contexts. For instance, while it may always express a *Question*, sentence (2) can convey a Request (and thus be paraphrased by (5)) only if certain contextual conditions obtain.
- (ii) As a consequence of (i), IIF has a secondary status compared to LIF. In other words, IIF is usually understood as a supplementary meaning which is added to the basically conveyed (literal) IF. The secondary character of IIF in constructions such as those exemplified in (2) becomes clear when we keep in mind the following well-known observations:
 - (a) Unlike LIF, IIF can be cancelled. Sentence (2), for example, may, without any problem, be understood as conveying nothing but a *Question*.
 - (b) LIF is immediately deduced from the syntactic form of the linguistic expression. As for IIF, it can be arrived at only through a chain of inferences. In the case of (2), for instance, the question interpretation is directly given by the formal structure itself (i.e., the interrogative particle *hal* and the intonational features) whereas the request interpretation must be inferred, i.e. *calculated* through a reasoning process.

It should be noticed, at this point, that although the formal properties are usually taken as reflecting LIF rather than IIF, they cannot be used as a basic criterion for distinguishing these two kinds of IFs. As we will see in section 3, IIFs also co-determine, to various degrees, the structural (syntactic and/or prosodic) features of the linguistic expressions they are associated with.

1.3 Implicated illocutionary force and literalization process

Consider sentences (3) and (4), repeated here for convenience:

(3) hal tastat̃eu ?an tunāwilani l-milħa?
 Int can-you that pas-you-me the salt
 "Can you pass the salt?"

(4) ?a lam ?undirka?
 Int not warned-I-you
 "Haven't I warned you?"

A closer look at the IIFs associated with these two sentences and the one which is conveyed by sentence (2) reveals that these IIFs do not have the same status with respect to the LIFs with which they co-occur:

- (i) On the one hand, the IIFs (i.e. Request and Statement) of (3) and (4) do not have the same secondary character as the IIF (i.e. Request) of (2);
- (ii) On the other hand, while the Request IIF in (3) is at least as important as the Question LIF, the Statement IIF in (4) is obviously the most salient illocutionary feature of this sentence.

These differences may reasonably be explained in terms of the well-known process of *grammaticalization*. In the particular case of IIF, I have assumed elsewhere (Moutaouakil, F.C.) that this process takes place in two major successive steps. I have proposed there, on the basis of the progressive character of grammaticalization, to distinguish between: (a) *conventionalization* and (b) *literalization*. Here is a summarized account of the manner in which I have tried to describe these two processes within the FG framework:

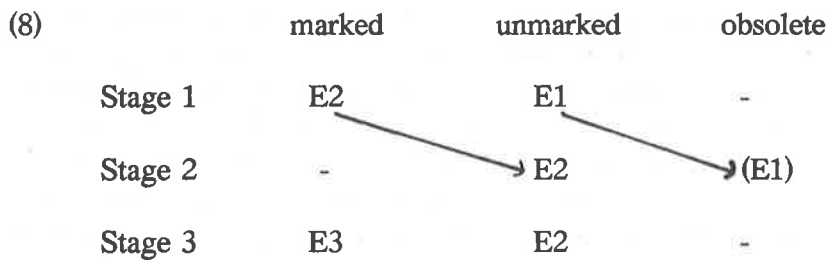
- (i) An IIF undergoes a conventionalization process when it progressively loses the two main defining features singled out above, i.e. when (a) it adopts a generalized meaning, associated with the linguistic expression *in all contexts* and (b) it acquires a status at least equal to the one the original LIF has. The best-known example of IIF conventionalization process is the one undergone by *can you* constructions in English (and their equivalents in many other languages). The Request IIF associated with constructions like (3) tends to be a generalized meaning of these constructions and to get the status of another LIF, i.e. to have the same importance as the original Question LIF.
- (ii) The grammaticalization process is completely achieved when the original LIF is removed and replaced by the literalized IIF. Negated constructions like (4) seem to be good candidates for this kind of illocutionary change. In these constructions, indeed, there is no longer room for a *real question interpretation*: the only literally conveyed IF is the original IIF (i.e. Statement) which has undergone a literalization process.

In sum, linguistic expressions conveying an IIF may undergo a grammaticalization process which generally consists of a progressive integration of the IIF into the literal illocutionary area. This integration may be only partial, in which case the IIF is simply conventionalized; it may also reach the ultimate step, yielding constructions where the original LIF is replaced by a literalized IIF.

Being a case of grammaticalization, the literalization of IIF falls within the scope of what Dik (Dik 1978; 1980; 1989a) calls the *principle of markedness shift*. According to this principle the markedness shift - which is a diachronic process - takes place in the following way:

- (a) the first stage is characterized by the co-existence of two competing forms, an unmarked form E1 and a marked form E2.
- (b) In the second stage, the marked form E2 loses its markedness, while the unmarked form E1 becomes an *archaic variant* or totally disappears.
- (c) In the third stage, another (new) marked form E3 may appear, announcing that the process can start anew.

In Dik (1989:42), these 3 stages are symbolized in the following schema:



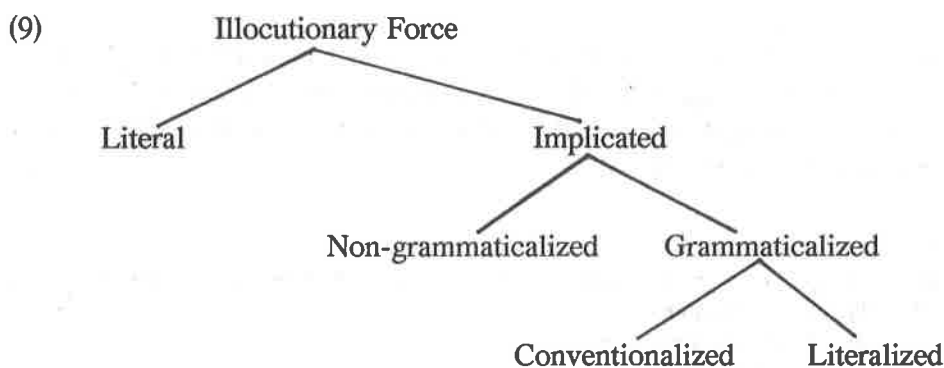
Let us now see to what extent the principle of markedness shift works in the case of grammaticalized IIF, taking as an example interrogative constructions conveying a Request such as (2) and (3). Constructions of this kind are used as marked variants of the constructions which directly express a Request: (2) and (3) are, in this respect, marked variants of (5) and (6) respectively. In a first stage, the two types of constructions co-occur as possible means for expressing requests. Progressively, marked constructions become ordinary means for expressing this IF and thus lose their markedness. This *de-marking* process takes place as a consequence of the progressive conventionalization described above. What should be noticed concerning the markedness shift process when it applies to IIF is the fact that it occurs more slowly than in other cases. As a consequence, though the marked construction becomes unmarked the originally unmarked construction may remain available (i.e. does not become obsolete), which leaves no room for the achievement of the third stage (for the creation of a new marked construction). This is not a problem for the principle of markedness shift, which can be formulated so as to allow the third stage not to necessarily take place in all cases.

1.4 A typology of IFs

On the basis of what was stated in the previous subsections, we can establish the following general typology of IFs:

- (i) An IF is literal or contextually implicated.
- (ii) The IIF keeps its context-bound and relatively secondary status except when it undergoes a grammaticalization process.
- (iii) In the latter case, it is partly or completely grammaticalized.

This classification may be visualized in diagram (9):



2. Problems and proposals

It is well-known that linguistic theories pertaining to the so-called *formal paradigm* (e.g. Generative Grammar) provide no means to account for IF in a satisfactory way. This is, obviously, a logical consequence of the general methodological principles underlying these theories, namely those which stipulate that only purely grammatical (i.e. lexical, syntactic, semantic and phonological) properties of language are relevant to linguistic description. In these grammars, then, all pragmatic aspects, including IFs, are simply neglected or - in the best cases - relegated to a hypothetical *performance model*. Pragmatically-oriented grammars, on the other hand, must, in accordance with their own theoretical claims, be organized in such a way as to permit the representation of all relevant pragmatic features of linguistic expressions, including those which belong to the illocutionary area. In fact, it is difficult for any grammar to adequately account for the properties of linguistic expressions if it does not take into account their illocutionary potential (among other pragmatic aspects). This will be argued for throughout this section.

2.1. Why must IIF be accounted for?

It is commonly admitted that LIF is generally expressed by sentence type, (i.e. the syntactic form of the linguistic expression) since there is a cross-linguistic correlation between Assertion, Question, and Order, and declarative, interrogative, and imperative forms respectively. The most natural way to represent LIF in grammar is thus to indicate it by means of the device usually serving to designate sentence type, i.e. DECL, INT and IMP.

As for IIF, it seems that its representation in grammar is less motivated than the representation of LIF, since there is in general no grammatical device indicating it in a direct manner. However, both IFs must be accounted for within a linguistic theory which aims to attain pragmatic and psychological adequacy. Here is a brief summary of the main arguments which are usually taken as evidence for representing IIF:

- (i) LIF and IIF constitute, together, an important part of the pragmatic content of linguistic expressions. Even in the cases where it is associated only contextually with the linguistic expression, IIF is a crucial component of the illocutionary potential. It must, thus, be dealt with within any pragmatically-oriented grammar. A pragmatic description of sentences (2), (3) and (4) which does not take into account the fact that they convey a Request and an Assertion respectively is fundamentally inadequate.
- (ii) The pragmatic importance of IIF is formally reflected by the fact that it co-determines the syntactic properties of the linguistic expression with which it is associated. Here are some well-known examples:
 - (a) The occurrence of a certain class of morphemes is determined not by LIF but by IIF. For example, the particle *min* (from) in Standard Modern Arabic (SMA) can only occur in an interrogative construction conveying a denial, as is shown by the contrast between (10 a) and (10 b)²

²In general, the particle *min* appears in negative contexts, where negation is either direct as in (i) or indirect as in (10a): (i) mā jāʔa min ʔaħadin
neg came from someone-neg
"Nobody has come"

(10) a- hal min šafi' in?!
 Int from an-intercessor-gen
 "Is there an intercessor?"
 "There isn't an intercessor."

b-* hal min risālatin?
 Int from a-letter-gen
 "Is there a letter?"

(b) Certain adverbial expressions are connected with the illocutionary potential of the sentence rather than with one of its other constituents. Some of these are used to modify not LIF but IIF, as in the case of *min faḍlika* in (11), for instance:

(11) hal tušāhibunī? ila l-masraḥi, min faḍlika?
 Int come-with-me to the theatre-gen from
 "Will you come with me to the theatre please?"

In (11), the adverbial expression is related to the request IIF rather than to the question LIF³.

(c) In general, illocutionary force indicating particles (i.e. a sub-set of *complementizers*) are determined by LIF, as is shown by (2), (3) and (4) where the particles *hal* and *?a* are the conventional means used, in SMA, to express a question. However, we find in this language another interrogative particle, *?awa*, which can appear only in interrogative constructions conveying a *reproach*, as becomes clear from (12):

(12) ?awa taṭṭimu Ḥālidan?
 Int slap-you-in-the-face Ḥalid-acc
 "Are you slapping Ḥalid's face?"
 "You shouldn't slap Ḥalid's face."

(d) In general, the identity of IFs constitutes one of the well-formedness conditions on coordination: two sentences must, in order to be coordinated, have the same IF. This condition is met by (13) but not by (14):

(13) a- hal jā?a ḍ-ḍuyūfu wa hal staqbaltahum?
 Int came the-guests and Int received-you-them
 "Did the guests come and did you receive them?"

b- *hal jā?a ḍ-ḍuyūfu wa ḥruj li-tastaqbilahum!
 Int came the-guests and go out for receiving them!
 "Did the guests come and go out to receive them!"

³ In the so-called *Performative Hypothesis*, this has been taken as one of the main arguments for postulating in underlying structure a *higher sentence* which represents the implicated meaning.

Nonetheless, we can find coordinated constructions where the LIFs are different such as (15):

- (14) ?a lam ?uʕtika l-māla wa
 Int not gave-I-you the money-acc and
 wahabtuka d-dāra?
 presented-I-you the-house-acc
 "Did I not give you the money and presented you with the house?"
 "I gave you the money and presented you with the house."

The grammaticality of this type of constructions can be explained only by the fact that the IIF of one of the two coordinated elements is identical to the LIF of the other. For instance, in (15), the (literalized) IIF of the first clause *?alam ?uʕtika lmāla* and the LIF of the second are the same, i.e. a statement, which allows them to be coordinated although they are formally of different sentence types.

- (iii) As for the prosodic level, data suggest that the connection between intonational contour and illocutionary features can cross-linguistically be characterized as follows:
- (a) The intonational contour of a linguistic expression with which is associated only a LIF is uniquely determined by this IF. Thus, an interrogative construction conveying nothing but a question typically has a rising intonation; declarative and imperative constructions with as illocutionary potential only statement and order LIFs respectively, get a falling intonation. The intonational structure of (1), for example, may be informally represented as follows:

- (15) [man fī hāda l-bayti]

- (b) In the case of a linguistic expression conveying an IIF, the intonational contour is co-determined by both the LIF and the IIF. The intonational structure of interrogative constructions conveying a request is something between a rising intonation and a falling one. It should be noticed here that there is a clear connection between the intonational features and the status of the IIF. This connection is shown by the following facts: if the IIF keeps its basic status as a secondary context-bound force it co-determines the intonational contour together with the LIF; when it undergoes a grammaticalization process, it tends to become the unique intonation determining illocutionary factor. In (3) and in particular (4), for example, the intonational contour is uniquely determined by the grammaticalized original IIFs, i.e. the request and the statement respectively. This observation should, I think, be generalized to the other formal levels in the sense that the conventionalized (or literalized) IIF should tend progressively to become the most important determining factor of the formal properties of linguistic expressions which have undergone a grammaticalization process.

I have so far mentioned only some examples of formal properties determined by IIF; many other examples are given in the literature on the so-called *Performative Hypothesis* (henceforth PH) which I recommend to the reader for further detail.

2.2 Some proposals

Two theoretical frameworks, as far as I know, have made concrete proposals for the formal representation of the illocutionary potential of linguistic expressions. In chronological order, these two theoretical frameworks are PH and FG. In this subsection, I will concentrate on the FG proposals, in particular the one made in Dik (1989), which will be discussed in section 3.

2.2.1 Earlier FG proposals

In a critical study (Moutaouakil 1986) of an earlier analysis proposed by De Jong (1981) to deal with illocutionary force within the FG framework, I showed that one of the most adequate ways to represent the illocutionary potential of linguistic expressions is to indicate it by means of a predication operator. According to this proposal, the structure of a sentence can be represented, in its general form, as (16):

(16) π [Predication]

Where π symbolizes the predication operator.

The basic ideas underlying this proposal may be summarized in the following way:

- (i) The predication operator π indicates the whole illocutionary potential: it represents not only LIF but also IIF. In the former case, we have a *simple* operator, while in the latter a *complex* operator is used. For instance, the structures of (1) and (2) may be represented, according to this convention, as (17) and (18) respectively:

(17) INT [man fī hāda l-bayti]

(18) INT REQ [tuṣāhibunī ?ila l-masraḥi]

- (ii) In order to *calculate* (non-grammaticalized) IIF, a set of inferences is needed. I have proposed to incorporate into FG a system of rules based on the Searlean notion of conditions on speech-act accomplishment. The central idea underlying this system of rules is formulated in the following generalization:

(19) Given the conditions C1, C2 ..., Cn relating to the LIF "F", an utterance "E" may imply contextually the IF "F1" by the violation of one of the conditions C1, ..., Cn. The IF "F1" is that of which one condition is the condition "C" ("non-C").

- (iii) In so-called *hyper-sentences*, such as (20), the illocutionary potential is lexically expressed by means of a higher performative verb:

(20) ?as?aluka man fī hāda l-bayti
ask-I-you who in this the-house-gen
"I ask you who is in this house?"

In this case the representation of IF through a predication operator becomes superfluous. This type of representation of IF has been criticized by Risselada (1990), who points out, among other things, that an analysis based on the notion *sentence-type* cannot do justice to the complex nature of the illocutionary potential which may be expressed by other (lexical,

semantic, and intonational) grammatical means. An alternative approach is proposed by Hengeveld (1989), according to whom the illocutionary area of a clause is represented by an *illocutionary frame* into which the *proposition* (i.e. the content of the speech act) is inserted.

However, the basic idea underlying the earlier approach (i.e. that IF is representable by means of a clause operator) has been adopted by Vet (1986) and Dik (1989a) and further developed and refined by the latter. Its recent version presented in Dik (1989a) seems to be widely accepted by the FG community, so it may be taken as the current standard position concerning the problem of the representation of illocutionary potential. In the remainder of this study, I will call it, for the sake of exposition, the *TFG approach* borrowing this label from the title of Dik (1989a).

2.2.2 TFG approach

Dik's analysis is based on the general claim that, of the illocutionary forces associated with a linguistic expression, the one which must be given most importance is the one which is grammatically coded. This implies that only the IF which is somehow formally coded is to be represented in the underlying structure of the clause.

As for IFs which may constitute, in general, the illocutionary potential of linguistic expressions, Dik distinguishes between two main types: (a) *basic illocution* and (b) *derived illocution*.

Basic illocutions are illocutionary values typically indicated by the four sentence type distinctions made across languages: Declarative, Interrogative, Imperative and Exclamative. These basic illocutions are to be interpreted *as instructions from S to A to effect certain changes in A's pragmatic information*. More explicitly:

- (21) a- DECL : S instructs A to add the propositional content to his pragmatic information.
 b- INT : S. instructs A to provide him with the verbal information as specified in the proposition
 c- IMP : S instructs A to perform the controlled SoA as specified in the proposition.
 d- EXCL : S instructs A to add to his pragmatic information that S finds the propositional content surprising, unexpected, or otherwise worthy of notice. (Dik 1989a: 256)

Basic illocutions may be *converted* into *derived illocutions* through the process of *illocutionary conversion*. Three types of illocutionary conversions are distinguished: (a) pragmatic conversion, (b) lexical conversion and (c) grammatical conversion. These operations are defined as follows (Dik 1989a: 257):

- (a) *Pragmatic conversion*: the conversion is effected at the level of intention and interpretation and has no reflection on the linguistic properties of the expression.
 (b) *Lexical conversion*, in which the illocution is specified in some explicit performative verb or other lexical expression. Thus the step from (22a) to (22b) is seen as a form of lexical conversion:

- (22) a- Will you marry me?
 b- I ask/request you to marry me.
- (c) *Grammatical conversion*, when the language has certain grammatical means for changing the basic illocution of an expression into some derived illocutionary value. For one example of grammatical conversion, compare:
- (23) a- She is a nice girl. (DECL)
 b- She is a nice girl, isn't she? (DECL INT)

As regards the representation of IF at the underlying clause structure level, an illocutionary operator π 4, is used in order to indicate the grammatically coded IF which may be either the basic illocution or the grammatically derived illocution. In the former case, a simple operator (DECL, INT, IMP or EXCL) suffices; in the latter, a complex operator is required to indicate the conversion operation. To illustrate this point, Dik gives the example of (23b) whose underlying structure may be represented as (24):

(24) [INT < Tag [DECL]] Ei: [She is a nice girl](Ei)

In representation (24), the tag is taken as a kind of operator which operates on DECL and yields INT.

From this summarized review of the TFG approach, the following conclusions can be drawn:

- (i) The IF which is formally reflected (in particular by sentence type) is the most important illocutionary feature;
- (ii) Only this IF is to be represented by an illocutionary operator at the underlying structure;
- (iii) This holds for both LIF (=basic illocution) and grammatically derived IIF (i.e. the derived illocution resulting from a grammatical conversion);
- (iv) Pragmatically derived IIF is to be dealt with outside the grammar proper, namely within a wider pragmatic theory of verbal interaction.

3. Logic, Grammar or both?

Starting from Dik's proposal as briefly summarized above, one can envisage three possible solutions to the problem of representing IF within the theory of FG. The first solution consists in dealing with IF entirely outside of grammar. The second solution is to distinguish between what must be dealt with within grammar and what is to be accounted for within another apparatus. The third one is to handle all illocutionary properties of linguistic expressions within the grammar proper. The aim of the following three subsections is to examine and evaluate these solutions, which I will call, for the sake of exposition, *the outside-the-grammar analysis*, *the within-and-outside-the-grammar analysis* and *the within-the-grammar analysis* respectively.

3.1 Outside-the-grammar analysis

I have mentioned above that the IF which has no formal reflection in the linguistic expression is, according to Dik, to be dealt with outside the grammar proper; i.e. in an area different

from grammar. This area is usually referred to (Dik 1989a, Risselada 1990) as a *wider pragmatic theory*. Obviously, such a label is too vague and provides us with neither an indication of the precise nature and the organization of this kind of theory nor of the way in which it is to be related to grammar. In my opinion, the Theory of Functional Grammar in its recent version (Dik 1989a) gives us the means to handle a number of pragmatic properties without recourse to any other unknown apparatus. In this theory, the descriptive device is a Model of the Natural Language User (MNLU) whose task it is to account for the global (communicative) competence of speakers, which is thought of as encompassing five main capacities: (a) linguistic capacity, (b) epistemic capacity, (c) logical capacity, (d) perceptual capacity and (e) social capacity. These capacities interact with one another so that *each of them produces output which may be essential to the operation of the others*.

In order to reflect this, the MNLU is conceived of as a set of five modules dealing with the five capacities and related to each other by means of communication systems.

Let us now concentrate on the module which is to account for the logical capacity. Dik (1989b) defines this module - which he calls *Functional Logic* (hereafter FL) - as a component of the MNLU which is *capable of deriving new pieces of knowledge from given pieces of knowledge according to principles of valid reasoning*. The following three assumptions constitute a general characterization of FL:

- (i) The logical form of a linguistic expression is represented by its FG-style underlying structure. Given the definition above, FL is conceived of as a device which derives underlying structures from other underlying structures.
- (ii) FL expressions are interpreted through mental representations called *Pictures*, which represent the state of knowledge of the interpreter at the moment of interpretation. (Dik 1989b:273)
- (iii) FL is divided into six sub-theories depending on those aspects of logical form (i.e. underlying structure) on which the validity of a pattern of reasoning depends: (a) illocutionary logic, (b) propositional logic, (c) predicational logic, (d) predicate logic, (e) term logic and (f) lexical logic. Illocutionary logic - with which we are concerned here - is the logical sub-component which deals with *the logical properties of illocutionary operators such as DECL, INT, etc., which specify different speech act types*. (Dik 1989b:23). This sub-component enables us to account for IIFs associated with linguistic expressions, i.e. the passage from LIF to IIF.

How precisely it works will require further research with a view to specifying and formalizing the logical mechanisms involved. However, the following general assumptions may be taken as constituting a basis for such research:

- (i) The structure on which FG-rules operate as input is a FG-style underlying structure with a specified illocutionary operator indicating the LIF associated with the linguistic expression.
- (ii) The output is either another underlying structure with the same propositional content but a different illocutionary operator or a totally different underlying structure. The former case can be exemplified by (2); the latter by constructions such as (25) which has, in a request context, (26) as a possible paraphrase:

- (25) It's cold in here!
- (26) Close the window, please.

In the structure which is logically derived from the structure underlying (2), the Question operator is replaced by a Request operator while the propositional content remains the same. Compare:

- (27) a- INT [tuṣāhibunī ?ila l-masraḥi]
 b- REQ [tuṣāhibunī ?ila l-masraḥi]

As for (25) and its contextual paraphrase (26), they have two distinct underlying structures:

- (28) a- DECL [It's cold in here]
 b- REQ [close the door]

- (iii) Given the nature of the reasoning mechanisms involved in deriving output underlying structures, the illocutionary sub-component can reasonably be conceived of as a system of inference rules such as that which is argued for by Searle (1975). This fits in with Dik's general conception of FL rules, which are inferential in nature.

Let us give an example to illustrate the point. In its Reproach reading, sentence (29) has (30) as its underlying structure:

- (29) ?a laṭamta Hālidan?
 Int slapped-you-in-the-face Hālid-acc
 "Did you slap Hālid in the face?"

- (30) INT [laṭamta Hālid]

In order to derive a Reproach reading from (30), the following minimal inference rules are to be applied, which account for the reasoning taking place in the mind of the addressee:

[A] The speaker asks whether the proposition *laṭamta Hālidan* is true. He already knows, however, that this proposition is true. Therefore, (29) is not a (real) question.

[B] To slap somebody in the face is conventionally judged as reproachable behaviour. Therefore, the speaker's primary point, in uttering (29), is to express a Reproach.

The derived structure which can be built up on the basis of this reasoning is (31), where the operator REP indicates the reproach IIF:

- (31) REP [laṭamta Hālidan]

This is, obviously, a very simple example. The implicature process involves, in general, a more complex chain of inferences. However, there is good reason to assume that simple cases as well as complex ones can be dealt with according to the same general principle.

To sum up: Given the current organization of FG as a model of the natural language user subsuming five autonomous but interacting modules, my suggestion is that the implicature

process can be accounted for within the FL module, which potentially provides us with a system of inference rules capable of describing the reasoning mechanisms involved in this process. These rules operate on the underlying structure of the sentence and deliver another (partly or totally different) underlying structure which represents the implicated meaning.

The question which arises now is: can we deal with all types of IIF distinguished in section 1 within the FL module? It is obvious that it would be a great gain if this were possible. All phenomena related to the implicature process would be described within one and the same module, by a unified and uniform body of rules. Unfortunately, the postulated reasoning mechanisms hold only for those cases where implicature is a *purely* contextual process, which means that when the IIF is formally (i.e. lexically or grammatically) expressed, these mechanisms are *neutralized*. This IIF *short-circuiting* phenomenon finds its explanation in the fact that in these cases the addressee does not need to *calculate* the IF through any logical reasoning: he/she deduces it from the form of the linguistic expression itself. This, obviously, leaves no room for the *outside-the-grammar* hypothesis, i.e. that all types of IFs can be described within the FL-module.

3.2. Within - and - outside-the-grammar analysis

An alternative hypothesis may be to consider the implicature process as the subject-matter of both the grammatical and the logical modules of MNLU. Roughly speaking, this may be realized in the following way:

- (i) All formally coded IFs are to be accounted for within the grammatical module. This is, of course, true for LIF and all types of IIFs which have some formal reflection in the structure of the linguistic expression. LIF is to be represented, at the underlying structure level, by means of an illocutionary operator. This has been exemplified in (17), repeated here as (32):

(32) INT [man fī hāda l-bayti]

As for IIF, when it is formally coded, it also must be represented by means of an illocutionary operator, which is added to the operator used to indicate LIF. So two operators are required in order to represent in an adequate way the complex illocutionary potential of those linguistic expressions conveying more than one IF. Recall that the IFs associated with linguistic expressions do not, as shown above, have the same status: the IIF may be less important (i.e. when it is an ordinary IIF), more important (i.e. when it is *literalized*), or as important as LIF (i.e. in cases where it is merely *conventionalized*). In order to allow the underlying structure representation to reflect these status differences, we can relate the two illocutionary operators to each other by means of standard comparison indicating symbols such as (>) and (<), as suggested in (Dik 1989a: 257). Thus, the structures underlying (3) and (4) should be something like (33) and (34) respectively:

(33) INT-REQ [tastaṭīʿu ?an tunāwilanī l-milḥa]

(34) INT < DECL [lam ?undīrka]

The representation of the status differences between illocutionary operators at the underlying structure level ensures the coding of the information required by both semantic interpretation and morpho-syntactic rules (i.e. *expression rules*).

- (ii) In those cases where the implicature has no formal (lexical or grammatical) reflection in the structure of the linguistic expression, it is to be dealt with within the FL-module. As sketched above, the implicated meaning is coded on an underlying structure derived from the underlying structure representing the literal meaning by means of a system of inference rules which have the property of reflecting the reasoning mechanisms taking place in the addressee's mind when he/she interprets the linguistic expression. This procedure has received some explicitation above and has been exemplified in (29) - (31).

3.3 Within-the-grammar analysis

The third analysis is backed by the hypothesis that the entire illocutionary potential of linguistic expressions can be accounted for within the grammar proper, i.e. within the grammatical module of MNLU. According to this analysis, not only formally coded IFs are to be represented by illocutionary operators at the underlying structure level but also those IIFs which have no grammatical or lexical reflection. This means that even the IIF to which no grammatical feature corresponds can be indicated in the underlying structure by means of an illocutionary operator. To take an example, the underlying structure of (2) is something like (35):

(35) INT > REQ [tuṣāhibunī ?ila l-masraḥi]

In (35), the two operators INT and REQ represent the LIF (Question) and the IIF (Request) respectively; the symbol > is used to indicate the status difference between these two IFs.

The main implication of such an analysis is that it leaves no room for a logical account of those phenomena related to the implicature process. The FL-component on MNLU thus does not contribute in any way to the description of the illocutionary features of linguistic expressions.

3.4 On choosing between the three analyses

In the previous subsections, the three competing analyses have been briefly characterized. Let us now try to evaluate them on both empirical and theoretical grounds. The main - and perhaps the only - advantage of the outside-the-grammar analysis is that it permits us to account for all illocutionary features of linguistic expressions in a unified way, i.e. within one and the same component of MNLU. Handling phenomena by the same system of rules is, of course, more economic for grammar than handling them by two (or more) systems of rules. However, the economy criterion must be satisfied only in cases where it does not conflict with other crucial criteria such as psychological reality of grammars. As I have pointed out above, the analysis based on the claim that all illocutionary potential may be dealt with within the logical module cannot but result in a counter-intuitive account, in the sense that it overgeneralizes the fact that the addressee has recourse to reasoning mechanisms in order to arrive at the appropriate illocutionary interpretation. Furthermore, in dealing with all illocutionary properties outside the grammatical module, we lose the possibility of accounting for the connection between these properties and the grammatical features they determine.

By assuming that all phenomena connected with IF, including those which pertain to implicature process, may be described in the grammatical module of MNLU, *the within-the-grammar analysis* has the important theoretical advantage of unifying the treatment of these phenomena. It permits us, consequently, to account for them in an obviously economical way:

one and the same system of rules is required. Empirically, this analysis makes it easy to describe in a satisfactory way the grammatical processes related to illocutionary features such as sentence-initial particle insertion, the occurrence of particular morphemes, particular cases of coordination processes and so on. All these phenomena are accounted for by means of morpho-syntactic rules (i.e. expression rules) which operate on the underlying structure containing the relevant information. In the functioning of these rules, no recourse is had to extra-grammatical mechanisms or representations. This is true not only for morphological and syntactic processes but also for prosodic processes. As shown above IIF may codetermine not only the grammatical properties of linguistic expressions but also their intonational structure. Furthermore, it can be assumed, without any problem, that IIF determines the intonational features in all cases, in particular those where it has no morphological or syntactic reflection. This constitutes, of course, a strong argument for the hypothesis that even the IF which is only pragmatically implicated (i.e. not grammatically coded on the linguistic expression) can be accounted for within the grammar proper.

However, this radical grammatical analysis faces some empirical problems. Two difficulties are to be mentioned in this connection. First, it describes perfectly the implicature process which involves no more than an illocutionary change (i.e. which has no impact on the proposition itself) but it provides us, as far as I can judge, with no means for dealing with those implicatures which also have a propositional effect such as the ones involved in the derivation of (26) from (25), repeated here for convenience:

(25) It's cold in here.

(26) Close the window, please.

It would be, indeed, very difficult and very costly if not impossible, to relate (26) to (25) through purely grammatical means, i.e. by using only the devices provided within the grammar proper. Second, as pointed out by Sakkaki, an ancient Arab rhetorician, it is not unusual for a linguistic expression to convey more than one IIF at once. Consider, for example, (36):

(36) lam taqhab ba^cdu.
not go-you yet
"You haven't gone yet."

With this sentence are associated three IFs: a LIF and two IIFs. The LIF is a statement; the first IIF is a rebuke while the second IIF is a command. Its contextual paraphrases in English are, thus, (37) and (38):

(37) I scold you because you haven't gone yet.

(38) I order you to go

Of course, the illocutionary potential of this type of constructions within the grammatical module of MNLU is accounted for by indicating the LIF and the two IIFs at the underlying structure level by means of illocutionary operators. The structure which could be postulated as the source derivation of (36) is something like (39) where DECL, IMP, and SCOLD stand for Declaration, Imperative and Scolding respectively:

(39) DECL < IMP < SCOLD [Neg tad_hba^cdu]

This would be an economical procedure for dealing with linguistic expressions with more than one IIF: all IFs, whatever their number, would be accounted for in the same module and represented by means of the same type of device. Unfortunately, however, two problems immediately arise. On the one hand, one of the (two) IIFs may have neither grammatical nor prosodic reflection, in which case its representation in the underlying structure has no empirical justification. For example, in (36) the scolding IIF is reflected by the intonational structure while the command IIF seems to have no formal correlate at all. Consequently, the former IIF, but not the latter, is to be represented in the underlying structure. Accordingly, the structure which could be taken as underlying (36) is not (39), but (40):

(40) DECL < SCOLD [Neg tad_hba^cdu]

On the other hand, even in those cases where all IIFs are formally expressed (i.e. grammatically and/or prosodically), it seems to me that an underlying structure containing many illocutionary operators would be a too *heavy* and, thus, inelegant representation.

As for the *within-and-outside-the-grammar analysis* the following important advantages are to be noticed:

- (i) Like the *outside-the-grammar analysis*, it fits in with the modular conception of MNLU argued for in Dik 1989a. Furthermore, it can itself be taken as an argument supporting the relevance of the logical module (i.e. FL): in order to be completely motivated, this module must contain an illocutionary sub-component in addition to the other (predicate, predication and propositional) subcomponents.
- (ii) It provides MNLU with a device which accounts in an adequate way for the reasoning mechanisms through which appropriate illocutionary interpretations are assigned to linguistic expressions. Given their nature these mechanisms can adequately be described only by means of logical inference rules.
- (iii) But unlike the *outside-the-grammar analysis*, it does not suffer from the deficiency of overshooting its target: only those IFs which actually involve logical reasoning are assumed to be dealt with within the FL-subcomponent of MNLU.
- (iv) By assuming that formally reflected IFs are to be accounted for within the grammatical module, it does justice to the implicated meanings which can be immediately deduced from the structural features of the linguistic expression, i.e. which do not necessitate any reasoning mechanism on the part of the addressee. The distinction between grammatically coded and logically derived meanings and the assumption that these two types of meanings are to be described within two different modules contribute, no doubt, to the achievement of the *psychological adequacy* regarded as one of the main standards of MNLU.
- (v) A last argument for the *within-and-outside-the grammar analysis*: In the so-called natural logic literature, it has been argued that a number of grammatical processes can be more adequately accounted for if they are related to the (*natural*) logical capacities of language users. In this perspective, some syntactic phenomena (i.e. deletions, the occurrence of certain morphemes, coordination etc.) were conceived of as determined

by implicature features. Consequently, syntactic rules were formulated on the basis that they are sensitive to logical features. This was, of course, a reasonable claim about the relationships between language and thought but its actual execution was not, it seems to me, very felicitous. In general the theorists of *natural logic* worked on the assumption that grammatical phenomena and logical processes are to be dealt with within one and the same apparatus, namely grammar. In Gordon and Lakoff (1975) for example, the rules of grammar - which are organized according to the basic *generative semantics* hypothesis - are thought of as *transderivational* in nature, i.e. as operating on two (logically related) derivations at once. This example shows that logic, in this framework, is an integrated part of grammar. As one may expect, such a conception of the organization of grammar resulted in a heavy and overcomplicated system of hybrid rules intended to account for two different (although related) kinds of processes. In dealing with logical and (purely) linguistic phenomena within two sharply distinct but related modules, MNLU avoids this deficiency.

These are important advantages which may favour the *within-and-outside-the-grammar analysis*. This does not mean, however, that this analysis provides us with a perfect solution to the problem of representing IF in a FG framework.

As an example of the technical difficulties it may face, some *expression rules* - which pertain to the grammatical module - must be assumed to *see* into the logically derived underlying structure, i.e. to operate on information given in the logical module. This exceptional behaviour of expression rules is required, in particular, in cases where the logically derived IF co-determines the intonational structure of the linguistic expression. The derived IF not being indicated by any illocutionary operator in the underlying structure, it becomes necessary to formulate the prosodic rule intended to specify the intonational features so that it operates not only on this underlying structure but also on the logically derived structure represented in the logical module. In such cases, thus, a set of rules of grammar (i.e. prosodic rules) must operate on input pertaining to two distinct modules. This may be regarded as a problem for the analysis in question in the sense that expression rules must operate, in some cases, on structures belonging to more than one module. This is a rather ad hoc and probably costly procedure.

Conclusions

In simple cases, the illocutionary potential of linguistic expressions consists only in the literal illocutionary force which determines both semantic interpretation and formal (i.e. grammatical and prosodic) features. More often than not, however, linguistic expressions also convey an implicated illocutionary force which may have a different status: in standard cases it constitutes a secondary (contextual) meaning but it may progressively become the most salient illocutionary feature when it undergoes a grammaticalization process (i.e. a *conventionalization* which can result in a complete *literalization*). As for its formal expression, the implicated force may be coded on the linguistic expression by means of lexical, grammatical and prosodic devices; it also can be merely contextually deduced, in which case it has no formal reflection.

All illocutionary features contribute, to different degrees, to determining semantic interpretation as well as the lexical, grammatical and intonational properties of linguistic expressions. A linguistic description which strives to be both pragmatically and psychologically adequate must, therefore, account not only for literal but also implicated

illocutionary forces. In the recent version of the FG framework, three types of analyses are envisageable: the *outside-the-grammar analysis* based on the hypothesis that all the illocutionary features of linguistic expressions are to be dealt with in a module other than the grammar proper, specifically in the FL-module; the *within-the-grammar analysis*, according to which all these features can be subject-matter of the grammar with no recourse to another module; and the *within-and-outside-the-grammar analysis* in which illocutionary meanings deducible from the formal properties of the linguistic expression itself are described within the grammatical module, while those that are derived through logical reasoning mechanisms naturally fall within the scope of the logical module.

The radical logical approach, although it might permit us to deal with all different kinds of illocutionary forces in a unified manner, can hardly be adopted, for it leads to a counterintuitive and unrealistic account, to the extent that immediately deducible meanings are assumed to result from logical reasoning processes. In order for us to have a thorough evaluation of the other two approaches and to select one of them it seems to me that further research on both illocutionary and functional logic areas is required, as well as a more precise characterization of the way in which the logical module of MNLU works and interacts with the other modules. For the time being, these two competing approaches are to be taken as a priori possible adequate FG accounts of illocutionary phenomena.

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