The Role of Conceptual and Contextual Components in the Processes of Formulation and Encoding in FDG

Maha Tahir Eesa[a], Anwar Turki Atiyah[b], [a]Al_Qadissiyh university College of Arts, [b]Al_Qadissiyh University/ College of Computer Science and Information Technology, Email: [a]maha.eesa@qu.edu.iq, [b]Anwar.alsaadi@qu.edu.iq

Being a part of a wider theory of verbal interaction that focusses on the generation of utterances, Functional Discourse Grammar (FDG) has increasingly important implications and applications in different linguistic studies. As a blended approach, it recognises that the forms taken by utterances are variable, but the variation is limited by the communicative needs of users. It aims at describing and explaining the formal (syntactic, morphological, and phonological) properties of a Discourse Act from a functionalist perspective. These formal properties show that any language user has a dual purpose of interacting successfully and imparting propositional information, which Hengeveld and Mackenzie (2008) modelled respectively at the interpersonal level of grammar and the Representational level that (as formulating level) form together the input to the encoding levels (the Morphosyntactic level and the Phonological level) that yield corresponding structures.

Key words: *FDG Conceptual Component, Contextual Component, Construal Metonymy.*

Functional Discourse Grammar: An Overview

Hengeveld and Mackenzie (2008:1-12) argue that Functional Discourse Grammar (henceforth FDG) is a structural, functional, typological model of grammar. It is the latest manifestation of Disk's (1997a, b) functional grammar and came as a response to criticism of the earlier model. FDG retains the strengths of FG in particular by combining typological neutrality with formal rigor. Despite the fact that FDG shares many of the basic assumptions and general features of FG, the main difference between FG and FDG is that FDG has a top-down organisation, taking

as its starting point the speaker's intention and then working its way down to articulation. Another new feature of FDG is that it analyses Discourse Acts in terms of independent pragmatic, semantic morpho-syntactic and phonological modules (levels). It is a multi-stratal framework to describe any language working on four levels (Hengeveld and Mackenzie, 2008:4-6) the Interpersonal, Representational, Morphosyntactic, and Phonological Levels.

FDG consists of four components, which together make up its model of verbal interaction: Grammatical component represents the central components, and the other three components – the Conceptual Component, the Contextual Component, and the Output Component – are ancillary to the Grammatical Component. These four components of FDG interface in different ways with the two main operations that occur within the Grammatical Component, these two operations are Formulation and Encoding. Formulation is a process that yields valid pragmatic and semantic representations, shown as the Interpersonal Level and Representational Level respectively Hengeveld & Mackenzie, 2014: 206).

The Conceptual and Contextual Components

Both the Conceptual and Contextual Components are seen differently by Connolly (2013, 2017, 2018) with relation to Hengeveld & Mackenzie's FDG framework.

The Conceptual Components

The Conceptual Component, for Hengeveld and Mackenzie (2008: 3), acts as the 'driving force' behind the Grammatical Component as it develops "both a communicative intention relevant for the current speech event and the associated conceptualisations with respect to relevant extra-linguistic events"

Connolly explains that the Conceptual Component contains different elements (Connolly, 2013: 128-132):

1. A Conceptualiser, a setting register, and a monitor. The conceptualiser generates the Messages that underlie Discourse Acts (Conceptual Level Representation) from prelinguistic intentions. The Setting register contains contextually relevant information as the discourse type and level of formality while the monitor takes into account internal and external feedback received during the process of discourse interaction, and makes necessary adjustments and/or instigates corrective action.
2. A long-term knowledge store which "serves as a repository of knowledge that is not part of the immediate context, but which may be necessary in order to conceptualise a Discourse Act", and it contains encyclopaedic knowledge.

3. An Ontology and an Onomasticon. Ontology consists of a hierarchy of concepts "organised in terms of three fundamental metaconcepts, namely 'entity', 'event' and 'quality', such that every concept is classifiable in terms of one or other" in a hierarchy: concepts that underlie Discourse Acts and how those concepts interrelate; whereas Onomasticon provides information about particular individuals and events, and is useful for dealing with proper names (Connolly, 2017:3)

The formation of a prelinguistic Message requires the Conceptualiser to go through more than one stage (Connolly, 2015: 23). In the same line, Hengeveld and Mackenzie (2016: 1138) postulate that the process of developing a message precisely consists of two stages (elaborated in Connolly, 2017:18). The first stage involves the "determination of 'global settings' (a somewhat obscure term), which are then passed to the Grammatical Component and give rise, during the Formulation process, to 'global choices of frame'"; and the second stage is influenced by some factors of different types (ibid:19) as:

1. The communicative intentions of the Discourse Act or what the author seeks to achieve through the communication in which s/he is engaged. It refers to what Hengeveld and Mackenzie (2016: 1138) call speaker's 'intentions' encapsulated in the Message formed during the first stage of conceptualisation.
2. Contextual factors external to the Author that include the discourse in which the Author is engaged, the genre to which that discourse belongs, and the social situation in which the interlocutors find themselves (e.g. one demanding a particular level of politeness).
3. Psychological factors that include the Author's emotional state and attitudes.
4. The structure of the target language (i.e. the language in which the Discourse Act is to be formulated.)

Connolly admits that Hengeveld and Mackenzie's two-stage model (adopted from Konopka and Brown-Schmidt's 2014 approach) constitutes an interesting contribution to his understanding of the Conceptual Component. He explains how their model suggests that one should deal with the process of conceptualisation in terms of two sub-levels that the first of the two stages is treated as "outputting an intermediate CLR, which acts as input to the second stage, which in turn outputs a representation that contains all the information that the conceptualiser needs to supply for input to the Grammatical Component"(2017:25).

Taking the conceptual component as a seeding ground, Connolly (2017: 24) names two representations:

1. The Germinal Conceptual-level Representation (GCLR).

By this stage the germ of the idea behind each Discourse Act has been sown, to the extent that the GCLR contains sufficient information to pass on to the Formulator for the purpose of selecting an appropriate frame.

2. The Terminal Conceptual Level Representation (TCLR).

By this stage the idea has fully blossomed, so that the TCLR contains all the information which the Conceptualiser needs to feed to the Formulator for the purpose of producing a complete ILR and RLR (including, of course, lexical insertion). All the CLRs presented so far have been TCLRs.

Connolly (ibid) adds that in order to produce GCLR, the prelinguistic intention behind each Discourse Act needs to specify the following:

1. The 'conceptual configuration' of the situation to be described. This involves the identification of one or more entities, events and/or attributes involved in the situation concerned, and the identification of the role of each such unit within that situation.
2. Information relating to the time axis. A conceptual configuration is inevitably conceived of in relation to past/present/future time.
3. The 'Interactional Status' of the message. That is to say, whether it belongs to the category of *INFO-PRESENTATION*, *INFOREQUEST* or *ACTION-REQUEST*. This is just as basic an aspect of the communicative intention as the conceptual configuration. For instance, if one sees that someone needs to be warned of a danger, then the intention to issue such a warning is at least as fundamental as choosing a conceptual configuration to support an actual expression such as 'Fire!', 'Run for it!' or whatever.

He (ibid:25) further explains that the additional information which needs to be added to the GCLR in order to arrive at the TCLR depends partly on the factors summarised as:

1. The Author's discourse goals.
2. Contextual factors external to the Author.
3. Psychological factors.
4. The structure of the target language.

On the base of these factors, Connolly discusses making alterations to the GCLR and as such the Conceptualiser may well go through several intermediate representations before the TCLR is reached to form what is called "Intermediate Conceptual Level Representation (ICLR)" (ibid).

Connolly concludes (ibid:46) that the Conceptual Component needs further development, though he presents a more articulated view than before in integrating the Conceptual Component into the operation of input mode as well as in output mode of FDG.

The Contextual Component

In Hengeveld and Mackenzies' FDG model, the main component is the Grammatical component to which the other three components (the Conceptual, the Contextual and the output) are ancillary. The Contextual component provides the information necessary for a proper functioning of the grammar, that the Contextual component is to be seen as a "companion to the Grammatical Component, collaborating with it to achieve contextually appropriate outputs" (Hengeveld and Mackenzie, 2014: 203). The Contextual Component "contains situational and discursive information and is organised in different strata that correspond to the interpersonal, representational, morphosyntactic, and phonological levels of representation within the grammar" (ibid). There is a kind of exchange of information between the grammatical and the contextual components handled by an interface called 'contextualiser'. Thus, "the Contextual Component is divided into four strata. Each stratum corresponds to one of the levels of the Grammatical Component and, in turn, covers either one or two kinds of information: Discoursal and Situational. The situational information is relevant at the strata that correspond to the two formulation levels: the interpersonal and representational levels." (ibid:206).

The Situational Information

Hengeveld and Mackenzie maintain that the situational information offers a language-specific repertoire of the speech situation details that are related to formulation. As such, it is dynamic and continually adapting itself to the current interactional circumstances. It covers three distinct dimensions. First, it includes an indication of the current participants in the speech event (as number, gender, power, rank and similar factors). Second, it includes "aspects of the locale where the speech event is taking place… so that speakers can indicate (culturally) prominent landmarks with mere deictics.", and the third is that it contains "an indication of the time of the speech event"(2014:207). Time dimension lies at the basis of the notion of stacking and decay … and is thus also essentially connected to the distinction between given and new information. But this takes us on to the other type of information located in the Contextual Component, discoursal information. " (ibid)

The Discoursal Information

The Discoursal information is found at all four strata and takes the form of a set of pushdown stacks which together record, for each linguistic unit as it is created, the information that has been formulated or encoded in the Grammatical Component. Thus, the Discoursal information at the interpersonal stratum records the interpersonal level analysis of all preceding Discourse Acts, with the most recent being placed highest on the stack. The lowest items on the stack gradually decay, mimicking the limitations on episodic memory. The next Discourse Act will

move to the top of the stack, pushing the previous top item down one place. In FDG, all levels have internal hierarchical layering, and each layer forms its own pushdown stack within the discoursal information. At the interpersonal stratum, for example, there are pushdown stacks for the Layers Move, Discourse Act, Communicated Contents and Subact… One of the purposes of storing Discoursal information is to allow anaphoric and cataphoric reference to any of the aspects of preceding and following utterances… that anaphors can refer back to many different characteristics of earlier material; this can only be achieved by recording all the details of preceding units in the Contextual Component. Another important advantage is that there is a clear basis for distinguishing between given information (stored in the Contextual Component) and new information (which enters the system in the Grammatical Component).

Hengeveld and Mackenzie   (2014:211-212) , assume that the "representations within the Contextual Component use the same symbols as those used in the Grammatical Component…[since] the Discoursal information in the Contextual Component contains units that are taken over directly and automatically from the Grammatical Component, with the labels they have acquired there; the Situational information is represented in the same way as the Discoursal information in order to achieve unity within the Contextual Component…" Connolly, since his positions in (2007), attempts to provide FDG with a more comprehensive contextual framework. Stating the general principles of context, Connolly categorises context in a complex multidimensional structure proposing a modified version of the framework of FDG. For him (2007: 13), context is not static rather changeable and some utterances with perlecutionary effects have their impacts on context as context conversely influences discourse. Another feature of context is that it is structured in categories into 4 dichotomies (ibid:14):

1) Discoursal (linguistic) context versus situational (physical)context.
2) Physical context versus socio-cultural context.
3) Narrower context versus broader context.
4) Mental context versus extra-mental context.

These dichotomies may be explained further as such: in any discourse or text the linguistic context is verbal (language) and any other contextual phenomenon that is not linguistic (non-verbal) is situational and related to the time and place of the utterance. Yet, "the term 'linguistic context' is still available if needed, but it is now to be regarded as a proper subset of discoursal context. In other words, discoursal context is divisible into two parts, namely linguistic and non-verbal context." (ibid:15). As for the situational context it is "divided into the 'physical context' and the 'socio-cultural context'. The physical context is supplied by the material universe, and includes such contextual factors as time and space. The socio-cultural context, on the other hand, lies in non-material phenomena, notably social organisation and norms of thought and behaviour." (ibid).

There is a subdivision for both the discoursal and situational contexts as the broader and narrower contexts. The broader discoursal context is other discourse/s that supply the discourse (D) with what is called inter-text, whereas the remainder of the discourse D in question supplies the narrower discoursal context of D, i.e., the co-text that both inter-text and co-text may be subdivided into 'linguistic' and 'non-verbal' parts" (ibid:15). As for the narrower situational context of a discourse or fragment, it is supplied by the immediate surroundings and the broader situational context is supplied by the physical and social universe outside of the immediate context." For instance, when standing in a travel agency and booking a flight abroad, the geographical destination would be a relevant physical consideration and the currency system in which the cost was presented would be a relevant socio-cultural factor in the conversation. Neither the destination nor the currency system would lie (at least entirely) within the immediate context" (ibid: 16).

Connolly elaborates that "the narrower physical context may be termed the 'setting' and the narrower socio-cultural context the 'scene'. The same setting may host different scenes". For instance, a hall could be used either for a meeting or for the counting of ballot papers during an election, these being very different 'occasions' in socio-cultural terms." (ibid:15).

Connolly ends with the distinction between mental and extra-mental contexts. The mental context resides in the minds of discourse participants in their mental representations of contexts as viewpoints while the extra-mental parts lie in the universe outside (ibid:18). He clarifies how mental and extra-mental contexts could have a similar structure. Yet he gives the following differences:

Firstly, the scope of mental context is broader than that of extra-mental context, since mental context extends to imaginary as well as real phenomena and events, which are not found in the actual universe that supplies the extramental context. Secondly, the participants' mental representations of the discourse in which they engage are not an exact counterpart of the extra-mental co-text. When we take part in discourse activity, we are not always able to recall verbatim what has been said prior to the current moment. Rather, we build up a memory of the gist of what has gone before, based partly on the preceding utterances, but also partly on inferences that we have drawn in the light of the context.

His position of context structure can be summarised as having a multidimensional hierarchical structure divided into discoursal and situational parts. The former is subdivided, in turn, into "narrower and broader aspects (co-text and inter-text) and also, orthogonally, into linguistic and non-verbal aspects", and the latter is "subdivided into narrower and broader aspects and also, orthogonally, into physical and socio-cultural aspects."(ibid:17)

Classifying context, Connolly presents it as a "super-component" divided into 3 components: a content component, a discoursal context component and a situational context component. Thus, he (ibid:21) reformulates Hengeveld and Mackenzie's outline of FDG into "a comprehensive and serviceable" one, changing the "output component" into an "empiric component" to reflect the fact that at this level a physically observable phenomena (acoustic or optical, depending on the medium) is dealt with and the framework is applied both to the production and interpretation of language (ibid:29):
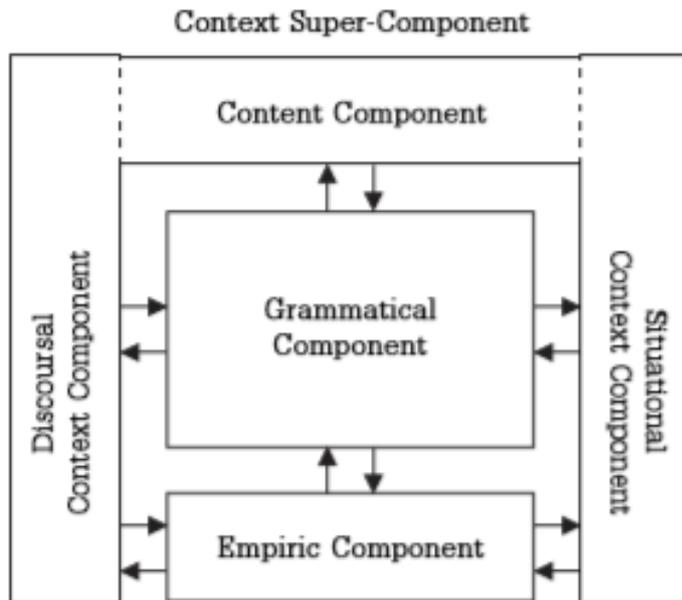
Connolly (2014:245) concludes that there is an "interaction among the components of the FDG model, suggesting that this interaction operates in a cyclical manner, in which the Conceptual Component exchanges information with the Discourse and Situational Context Components, and in which the Conceptual Component plays a mediating role between these and the Grammatical Component".

Hengeveld and Mackenzie maintain that there are four Strata that correspond one-to-one with the Levels of the Grammatical Component within the Contextual Component. These are "Interpersonal, Representational, Morph syntactic, and Phonological Levels in the Grammatical Component, and parallel to these there are Interpersonal, Representational, Morphosyntactic, and Phonological Strata in the Contextual Component" (2014:209). They clarify how "Interpersonal and Representational Strata in the Contextual Component receive both discoursal and situational information, while the Morph syntactic and Phonological Strata receive discoursal information only" in this classification:

Interpersonal Stratum: (i) Situational source: participants, utterance time, utterance place; (ii) Discourse source: Acts that have been executed in the previous discourse. Representational

Stratum: (i) Situational source: perceived entities, such as individuals, events, properties; (ii) Discourse source: entities that have been denoted in the previous discourse. Morph syntactic Stratum: Discoursal source: morph syntactic units that have been produced in the previous discourse Phonological Stratum: Discoursal source: phonological units that have been produced in the previous discourse. The Contextualiser takes input from all four Strata of the Contextual Component and distributes information as appropriate to any or all of the four levels of the Grammatical Component. The feeding of information in the Contextual Component is dynamic and has the form of stacking: "Information that is last fed into the Contextual Component occupies the highest position on a stacked list" (ibid)

Formulation and Encoding

In order to understand the processes of Formulation and Encoding fully, it is essential to have an overview of the functional approach of FDG to language, as seen by Hengeveld and Mackenzie (2008:2)

FDG is conceived of as the Grammatical Component of an overall model of verbal interaction in which it is linked to a Conceptual Component, an Output Component and a Contextual Component. These three non-grammatical components interact in various ways with the Grammatical Component, more specifically with the operations of Formulation and Encoding. Formulation concerns the rules that determine what constitute valid underlying pragmatic and semantic representations in a language. Encoding concerns the rules that convert these pragmatic and semantic representations into morphosyntactic and phonological ones.

Thus, "within the top-down organisation of the grammar, pragmatics governs semantics, pragmatics and semantics govern morphosyntax, and pragmatics, semantics and morphosyntax govern phonology" (ibid:4).

Discussing Formulation and Encoding, Hengeveld and Mackenzie (2014:204) agree that:

The Conceptual Component develops a communicative intention that is relevant for the current speech event, and as such interfaces with the operation of Formulation, which converts the intention into language-specific representations at the Interpersonal and Representational Levels. The Output Component interfaces with Encoding, specifically the Phonological Level, which it converts into Phonetic Form (or alternatively into written form or in the case of gestural languages into gestural form). The Contextual Component interfaces with the entire Grammatical Component, since – as we shall see – every aspect of the formulation and encoding of linguistic units may be sensitive to contextual factors.

They (ibid) add: "The Contextual Component interfaces with the entire Grammatical Component, since … every aspect of the formulation and encoding of linguistic units may be sensitive to contextual factors."

As FDG is built on operations that take place on various levels in a dynamic model, there are three major processes to consider (Connolly,2017:7):

1. Conceptualisation
This takes place within the Conceptual Component and results in the formation of a prelinguistic Message

2. Formulation
This takes place within the grammar itself, i.e. within the Grammatical
Component of the message verbal interaction MVI. It is driven by the prelinguistic Message and its outcome is a pair of representations: the Interpersonal Level Representation (ILR) and the Representational Level Representation (RLR), and

3. Encoding.
This, too, occurs within the Grammatical Component. It operates upon the ILR and RLR and yields two further representations: the Morphosyntactic Level Representation (MLR) and the Phonological Level representation (PLR). The prelinguistic Message, (or Conceptualisation) is formed by the prelinguistic message that underlies each Discourse Act.

Connolly (2015: 1) explains that the input to the process of Formulation is the Conceptual Level Representation (CLR), which is the outcome of the process (of Conceptualisation). The latter maps the CLR into two underlying linguistic representations: the Interpersonal Level Representation (ILR) and the Representational Level Representation (RLR). These, in turn, act as input to the process of Encoding, which maps them into a Morphosyntactic Level Representation (MLR), and then uses the latter to produce a Phonological Level Representation (PLR)."

He adds (ibd:25), "by formali[s]ing the CL, we also find ourselves in a position to formali[s]e the process of linguistic Formulation, as well as the process of Encoding. This, in turn, opens the way to producing an algorithm to act as a foundation for the dynamic model of FDG. Accordingly, we may have some confidence in hoping that future work on Conceptuali[s]ation and Formulation within the dynamic model of FDG will bring further benefits."

In his model, Connolly (2017: 22) claims that in developing the communicative intention into an expressible Message, it is not necessary that all of the information considered be included

in the CLRs; rather only the information that are necessary and sufficient to enable CLRs to fulfil their role in driving the Formulation process.

Connolly (ibid: 21) asserts that the CLR and Settings Register combined should contain sufficient Information. For him (2013: 130, 2017:21), as it is for Hengeveld and Mackenzie (2016: 1137), the Settings Register needs to include at least the following:

(a) Discourse Type/genre (e.g. textbook).
(b) Formality/ relative social status of the participants (e.g. high).
(c) Civility/ Speaker's emotional state (e.g. polite).
(d) Communicative Purpose (e.g. pedagogical).
(e) Emotional state (e.g. calm).
(f) Attitude (e.g. unprejudiced).

Hengeveld and Mackenzie (ibid.) see these settings as "impinging on Formulation and Encoding". Connolly reveals, while he (Connolly) sees some of them (like Discourse Type/ Genre) as being "assigned on the basis of information stored in one of the Contextual Components"; and others (like Attitude) as depending on the psychological state of the Author of the Discourse Act." (2017: 21)

Yet, Connolly shows the difference between his model and Hengeveld and Mackenzie's (2008) in that his model "is based on a dynamic, computationally oriented implementation, whereas theirs is not " (ibid:22), that he extended their model of verbal interaction (MVI) to a multimodal discourse in Connolly (2010).

As Hengeveld and Mackenzie (2016: 1137) claim that the approach adopted in Connolly (2013) constitutes a 'one-level approach' to meaning, Connolly argues that this is "because they regard the CLRs… as standing in a relationship of one-to-one mapping with the corresponding underlying representations (i.e. the ILR-RLR pairings) within the Grammatical Component" (2017:22). In response he makes two points: first, he regards "ILR-RLR pairings as deriving not from CLRs alone, but from combinations of CLRs and Settings Register values (a fact which Hengeveld and Mackenzie appear to disregard)" that "the provision of the Settings Register obviates any need to include within a CLR all of the information required by the Formulator". The second is that he finds it inappropriate "to describe CLRs, on the one hand, and ILRs and RLRs on the other, as paraphrases or notational variants of one another [as]… they are different in nature". He explains how ILRs and RLRs are linguistic in character "that they constitute the outcome of grammatical decisions, whereas CLRs are not linguistic but prelinguistic and (obviously) do not result from grammatical processing" (ibid).

Referring to Hengeveld and Mackenzie's (2008), Connolly (2017: 20) states that FDG provides "an 'explicit and highly formali[s]ed' account of 'the knowledge' that underlies a language user's potential to communicate in his/her language". As the Conceptual Component drives the Formulation process, the latter depends on receiving well-defined input from the former. Hence, the grammar and its input need to be formalised, as Hengeveld and Mackenzie made no provision for such formally defined input.

Connolly 2018:14) clarifies Hengeveld and Mackenzie's model of Conceptual Component as a two-stage process in which "at the end of the first stage, the requisite information is passed to the Formulator to enable the latter to select the appropriate frames"; and (in 2017) he distinguished between the Germinal Conceptual Level Representations (GCLR) that constitutes the output of stage 1 and Terminal Conceptual Level Representations (TCLR) that comprises the output of stage 2.

Put another way, the problem here is that in FDG the grammar, as a formal system, is not autonomous, but serves to map legitimate inputs into appropriate, legitimate outputs. (A preliminary indication of how the Formulation process may be defined as an algorithm drawing on Information supplied by CLRs in given in Connolly (2013: 141-147).)

The Working of the Model (Methodology)

For Connolly (2017:2), the dynamic implementation of FDG requires a 'Control Mechanism' whose function is to activate the conceptualiser and direct the flow of information around the different components of the FDG model as a whole, taking into account some psycholinguistic implications where relevant. This Control Mechanism "is able to pass contextual information down to the Grammatical Component, just as it can pass down CLRs and settings" that the contextual information feeds only into the Conceptual Component and does not feed directly to the Grammatical Component. One can see "Control Mechanism [as] copying contextual information into the Conceptual Component and, if necessary, onward to the Grammatical Component or the Output Component."

His model is based on the idea that the "contextual information is stored in the Discoursal Context Component and the Situational Context Component, but that the Conceptual Component may draw on it whenever necessary and apply it as required"(ibid). This makes his model different from Hengeveld and Mackenkie's. He proposes that the Conceptual Component should have access to some resources such as: a Long-term Knowledge Store (LTKS), an Ontology and an Onomasticon in addition to the Conceptualiser, Settings Register, and the Monitor.

Connolly (2018:10) takes the conceptual component in the FDG model as a separate element distinct from the Grammatical Component focussing on the notion of the Construal developed within Cognitive Linguistics. He sees the Speaker as establishing "a 'construal relationship' between himself/herself (the 'conceptualiser') and 'the scene so structured' (the 'conceptualisation')" (ibid:2). He (2018:11) regards Construal "as a process that impacts directly upon the formation of the prelinguistic Message, though it has an indirect affect upon linguistic meaning insofar as the Formalisation process is driven by the content of the Message". He follows Croft and Cruse's construal processes classification into four categories: Attention/Salience (Attention involves directing the mind toward some particular focus while Salience is a property of phenomena whereby they attract attention); Judgment/Comparison (making judgment entails deciding among alternatives, and this necessarily involves drawing a Comparison between one phenomenon and another); Perspective/Situatedness (adopting a perspective is taking up a particular position or viewpoint with reference to it, and this relates to one's Situatedness within some concrete or abstract space; and, Constitution/Gestalt (taking elements of experience, which may well be fragmentary, and forming them into a coherent structure, or Gestalt) (ibid:3). He further subdivides these superordinate categories into twenty-three kinds of Construal (ibid:3-9).

Connolly (2018: 14) states that message planning allows some construal operations and he divides them into: Distillation, Angulation, and Classification. He defines Distillation as "forming, from the Speaker's flow of thought, a feasible and manageable communicative intention, organised into one or more distinguishable Message Elements, which (if there is more than one) stand in some kind of direct or indirect interrelationship". As for Angulation it "involves viewing certain aspects of the Message from particular angles or positions while Classification consists in describing aspects of the Message in terms of the Speaker's repertoire of expressible concepts". It is not necessary that these operations occur successively, rather that they overlap, Connolly suggests.

Distillation comprises eight types of construal to operate: Accessibility, Force dynamics, Individuation, Relationality, Scanning, Scope of predication, Search domain, and Spatiotemporal deixis (ibid:19). As Distillation operations "determine the number of Message Elements and their interrelationship, the CLRs that result from their application contain the information required to enable the Formulator to choose appropriate frames" (ibid). These Construal Operations that pertain to Distillation "can be regarded as belonging to stage 1 of Hengeveld and Mackenzie's model of the Conceptual Component" (ibid: 20). The communicative motivations behind are:

1. To crystallise thought, and communicative intentions in particular, into Messages that consist of discrete Message Elements which are coherently related to one another, with the result that those Messages are capable of linguistic expression.

2. To facilitate selectivity in the formation of the Message, and hence to provide one of the available means of achieving conciseness in the planning of Messages, thus fostering communicative efficiency.
3.   To relate the Message to the time axis

In Angulation, ten types of Construal operate, namely the following: Empathy, Epistemic deixis, Fictive motion, Figure/ground, Force dynamics, Orientation, Schematisation, Spatio-temporal deixis, Subjectivity/objectivity, and Vantage point ; that the majority of them "belong to a superordinate category of Perspective/Situatedness" (ibid:23).These operations are not crucial for the choice of frames and may therefore be treated as belonging to stage 2. They fulfil two communicative motivations:

1. Organise the presentation of Information to the Addressee, through the choice of a particular starting point followed by an appropriate continuation.
2.   Systematise the portrayal of the described situation from a consistent viewpoint with which the Addressee can align.

The third wave within the Message Planning process is called Classification process in which CLRs show the specific concepts that have been chosen by the Speaker. Classification affords the opportunity for eight types of Construal to operate: Categorisation, Force dynamics, Metaphor, Metonymy, Profiling, Qualitative scalar adjustment, Quantitative scalar adjustment Scale (ibid: 27). The communicative motivations behind the Construal Operations are as follows (ibid:28):

1. To facilitate an appropriate and nuanced choice among concepts underlying lexemes, thus facilitating the selection of appropriate means for the lexical expression of those concepts during Formulation.
2.   To facilitate economy in linguistic expression by affording the possibility of particular lexemes' having more than one possible interpretation, depending on the context. As is the case with Distillation operations … this helps to foster communicative efficiency.

Connolly (2018:33) sees Construal as a widespread phenomenon within language, and essential to "the way in which we portray the world for communicative purposes". Within the FDG framework, it plays a pervasive role within the Conceptual Component, and also "reflected in, the Grammatical Component, particularly during the process of Formulation".
Referring to Levelt's term of 'preverbal Message' (1989: 9), Connolly (2018:10) maintains that generating it sets the Grammatical Component into operation. As such, "the Grammatical Component takes the output of the Conceptual Component as the input to the process of Formulation, which results in the production, for any given input, of a pair of underlying representations: an Interpersonal Level Representation (ILR) and a Representational Level Representation (RLR)".

The process of Formulation includes the choice of frames and lexemes. Frames "define the possible combinations of elements at the Interpersonal Level and at the Representational Level" (Hengeveld and Mackenzie, 2008: 19). Connolly explains that "the ILR and RLR are then input to the process of Encoding, which yields two further representations: the Morphosyntactic Level Representation (MLR) and the Phonological Level Representation (PLR)" (2018:10). Thus, "the output of the Grammatical Component is then input to the Empiric Component, where it is realised either (in the case of speech) through the activation of an airstream and its modification by means of articulatory and (where appropriate) phonatory activity, or (in the case of writing) through the appropriate manual movements."(ibid)

Discussion

The presence of the contextual factors in the minds of discourse participants influence the production and interpretation of discourse. The Conceptual Component plays a vital role in the handling of interactions between the Mental Discoursal and Situational Context Components, on the one hand, and the Grammatical Component, on the other as in this example:

A and B are sitting in the guest room. A is watching news live. B is texting a friend.

A: Desperately, protesters call for writers to support their issue and not only activists.
B: Yea, the pen is mightier than the sword.

Representations of this Discourse Act are investigated with relation to Connolly's model (2017) in which the conceptual component represent a seeding ground to GCLR and TCLR. The germ of the idea behind this Discourse Act is initiated as the Germinal Conceptual-level Representation, which contains sufficient information to pass to the Formulator to select an appropriate frame. The conceptualiser feeds to the formulator all the information taken from the Terminal Conceptual Level Representation so as to produce a complete Interpersonal Level Representation and Representational Level Representation. In order to produce GCLR the prelinguistic intention behind each Discourse Act needs, first, to specify or identify the conceptual configuration: entities, attributes, and events. Second, conceiving the time axis of this conceptual figuration: past, present, future. Third, identifying the interactional status of the message whether Info-presentation, Info-request, or Action-request. There are some factors that provide additional information to GCLR as the author's discourse goal(s), contextual factors external to the author, psychological factors, and the structure of the target language.

In this Exchange, while A is in the process of formulating and expressing the Discourse Acts in the opening Move within this Exchange, he has to conceptualise at least the following:

1. The fact that A is spatiotemporally collocated with B conceptualising the narrower situational context, in which protesters, writers and activists are relevant animate entities.
2. The belief that B may or may not know the conjunction of the fact of protesters call. In other words, A's assessment that this conjunction of facts does or does not constitute part of the common ground between A and B; or A likes to know B's opinion.
3. A's intention to bring the conjunction of facts into the common ground, linguistically (thus turning it into the described context of the opening Discourse Act) and addressing the message to B giving A's attitude by means of the qualifying adverb "desperately".

Interpreting A's Discourse act in the opening turn, B decides to make a Move (response) conceptualising:

1. The fact that B is spatiotemporally collocated with A conceptualising the narrower situational context, in which protesters, writers and activists are relevant animate entities
2. Though busy texting, B knows the conjunction of the fact of the protesters' call that it constitutes part of the common ground between A and B.
3. B's intention to bring the fact of supporting the protesters' stance into the common ground by representing it linguistically in a form of metonymy and addressing the message to B.

The situational information carries information about the participants (two friends: A and B). Both are male and there is no place for rank or power. Though the locale is A's house, watching live news on TV makes A and B share the context of the event being reported as live, not only in place but also in time (two dimensions). They (A and B) share with protesters the same situational context as they are all present in the same situation though in a (virtual) context and not really physical. As new information is being presented about protesters' action, this moves us to the other type of information located in the Contextual Component, i.e., discoursal information. Replying with reference to pen and sword seems to make no sense because it is "irrelevant" in terms of Grice's maxim of relevance. Yet, it can be interpreted and understood as relevant if taken metaphorically with relation to inter-text as a broader discoursal context which is linguistic (verbal). It has the same meaning as the proverb: "words speak louder than deeds". In terms of Connolly's model, the store of contextual information is the Discoursal Context Component and the Situational Context Component; and the Conceptual Component makes use of this information whenever necessary or required as it has access to LTKS (long term knowledge store) that contains encyclopaedic knowledge.

The immediate physical contextual factor is that both A and B are co-located in place and time. The mental context is that A knows all the facts in A's speech and believes that B does not know, or, needs to know B's attitude. Watching live news, A and B have their own metal representations of contexts as viewpoints. A wants B to know (assuming that B is preoccupied with texting), or, wants to get B's opinion. Therefore, A chooses to utter a statement. B's mental

representation seems to be an exact counterpart of the extra-mental co-text in A's discourse in inferring that protestors act in despair in the light of the context.

Now, new entities enter the setting: pen and sword, which are inanimate. The narrower physical and socio-cultural context change during the course of a discourse to shelter an updated interpretation. As "the broader socio-cultural context supplies various ideologies that may be reproduced or resisted when composing (sequences of) Discourse Acts within the context of an individual argument" (Connolly:2014: 235), the interpretation of B's Act could give an update to the course of the argument. Metaphorically, words could be more influential than deeds and protesters could get sufficient support from attitudes and public opinion. The power of mass appeal is stronger than the force might be used against it and protesters call for writers' support because they never want to encounter government or authority. Writers, if they support protesters, can be more commanding than protesters' actions against authority and more influential than force or fighting. Here, B tries to assure that the protesters' act is effective in calling for writers' support and not only activists'.

In this Discourse Act, the Situational and Discoursal Context Components feed into the Conceptual Component and influence the pre-linguistic conceptualisations formed here. The conceptualisations are passed to the Grammatical Component, where they are formulated and encoded into expressions framed in comparison. The resulting interpretation brings about an update to the mental discoursal context in the Discoursal Context Component that the latter becomes ready to feed into the conceptualisation of a new Discourse Act, if necessary.

The narrower physical context shows animate and inanimate entities present, together with their physical attributes and activities. Here, the extra-mental context is related indirectly to message comprehension and production and grounds the mental context in the universe.

The Construal that impacts directly upon the formation of the prelinguistic Message here is that of Perspective/Situatedness (taking up the position or the viewpoint of the importance of the role of media) formulated by means of metonymy for economy. The speaker uses the Message Planning Process of Classification.

In this wave within the Message Planning process (Classification process), CLRs show the specific concepts that have been chosen by the Speaker. Classification affords Construals of Metaphor and Metonymy to operate. The communicative motivations behind these Construal Operations is to facilitate an appropriate choice among concepts underlying lexemes, thus facilitating the selection of appropriate means firstly for the lexical expression of those concepts during Formulation: secondly, to facilitate economy in linguistic expression by affording the possibility of particular lexemes having more than one possible interpretation, depending on the context. As is the case with Distillation operations … this helps to foster

communicative efficiency. Thus, the meaning of the word 'pen' is multi-faceted and different facets are picked out, or 'profiled', to involve the selection of the relevant facet of the meaning by the Speaker and (hopefully also) by the Addressee.

Is Metonymy Universal?

FDG assumes that both Formulation and Encoding are language-specific, and there is no universal pragmatic, semantic, morphosyntactic or phonological categories that "are postulated until their universality has been demonstrated through empirical research". (Hengeveld and Mackenzie, 2008: 2).

In this Discourse Act one can find a universal pragmatic category of metonymy used through centuries in different nations and religions with the same usage and meaning. The semantic fields of the words are also shared. Thus, in the Formulation process, there is a kind of correspondence between the rules behind a valid pragmatic and semantic representation in English and Arabic as Formulation converts the intention into representations at the Interpersonal and Representational Levels, which are not to be seen as language-specific in examples 1 and 2. Encoding, in its turn, concerns the rules that convert these pragmatic and semantic representations into morphosyntactic and phonological ones. The Output Component interfaces with Encoding, specifically the Phonological Level, to convert it into a Phonetic or a written form.

Connolly (2014:245) concludes that there is an "interaction among the components of the FDG model, suggesting that this interaction operates in a cyclical manner, in which the Conceptual Component exchanges information with the Discoursal and Situational Context Components, and in which the Conceptual Component plays a mediating role between these and the Grammatical Component".

Despite the fact that every aspect of the formulation and encoding of linguistic units may be sensitive to contextual factors, the inter-texts of these two sayings are shared between Arabic and English (with a difference in the physical context that have generated these sayings being said in different situations, culture, time, and place). The first (the pen is mightier than the sword) dates back to about 500 BCE in one copy of the Teachings of Ahiqar that states; "The word is mightier than the sword", and "The pen is mightier than the sword." (Wikipedia). There are other Biblical, Talmudic and Islamic sources for this saying in addition to Early post-enlightenment and modern sources. It is also recorded as being first written by the novelist and playwright Edward Bulwer-Lytton in 1839, in his historical play *Cardinal Richelieu*. This enables this saying to have a universal usage. The Arabic saying (rubba qaulin anfatha min saoul) is recorded as being said by Imam Ali Bin Abi Talib (Shamsuldin: 1971:188).

On the contextual and conceptual levels, they have the same interpretation in English and Arabic in that they can be said in similar situations or contexts and get the same interpretation as being part of a wider and universal human experience. On the part of Formulation and Encoding represented by the Representational and Morphosyntactic levels, language typology governs these processes. Therefore, since Message planning encompasses a classification process that comprises eight types of construal to operate, one of which is Metonymy and as Connolly (2018:10) takes the conceptual component in FDG model as a separate element distinct from the Grammatical Component focussing on the notion of the Construal, metonymy should be input as a requisite information passed to the Formulator to enable the latter to select the appropriate frames of universal nature. This has some implications and applications to different linguistic studies including Machine Translation.

Conclusion

Surveying the development of FDG, in Hengeveld, Mackenzie and Connolly's recent contributions and the latter's alterations and addition to the FDG model, shows the importance of focussing on the Conceptual component as a separate entity in which the construal needs to be framed and input as a requisite information passed to the Formulator. The example of metonymy as a construal makes it necessary to add a loop for universal constructs within the cycle of frames, as there is a kind of pragmatic and a limited semantic equivalence on the Interpersonal and Representational levels to be passed into the Formulator.

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