Information Structure and the Lexical-Functional Grammar Framework

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Abstract

This paper explores a formal analysis of Information Structure in Kusaal. It is observed that the i-structure is inadequately resourced to account for the various subcategories of discourse notions; more specifically the difference between information focus and contrastive focus in Kusaal and by extension some African languages. These two subtypes of focus are observed to have identical i-structures, resulting in ambiguity, although the c-structures may be different especially with languages where overt morphological particles play important roles in expressing the discourse statuses of constituents. To address the issue, an additional feature, DTYPE, with a value that subcategories subtypes of focus and topic notions is introduced in the i-structure. Another feature referred to as DFORM shows values that may either be morphologically or phonologically realised on an individual language basis.

1.0. Introduction[1]

This paper discusses a formal analysis of Information Structure which basically includes focus and topic constructions. The Lexical-Functional Grammar (LFG) architecture is premised on multiple levels of representation mediated through mapping. One such level of representation for Information Structure is the i(nformation)-structure (King 1997; Mycock 2006, 2013; Dalrymple and Nikolaeva 2011; Butt 2014). Previous attempts have been made at capturing finer grained components of Information Structure such as background, given, focus and topic within the i-structure projection (Butt 2014). This paper is intended to make further suggestions on capturing subtypes of discourse notions: information focus/ new information, contrastive focus, familiarity topic, contrastive topic etc, by building on the combined studies of previous attempts (Butt 2014; Choi 1996; Mycock 2006, 2013, Butt and King 1996 etc). This is deemed necessary because the existing analyses of focus constructions within the i-structure projection are insufficiently resourced to express correctly the statuses of given notions in Kusaal. The i-structure projection as it stands does not distinguish between subtypes of discourse notions such as information focus, contrastive focus, selective focus etc. although the c-structure from which the i-structure is mapped may have overt morphological markings for distinguishing various

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[1] This paper is a modified version of aspects of chapter five in Abubakari (2018). My sincere appreciation goes to all the anonymous reviewers for comments and suggestions which have greatly helped in improving this paper.

subtypes of focus i.e. in the case of Kusaal and several African languages. The mismatch between the c-structure and the i-structure makes the latter under-specified in expressing the exact notion conveyed in the c-structure most especially in instances involving contrastive focus which often results in ambiguity. The ambiguity arises because the same i-structure is projected for both information focus and contrastive focus as will be detailed soon. My aim, in this paper, is to indicate some challenges within previous proposals for Information Structure in LFG and further make suggestions as to how these problems can be resolved.

The discussion in this paper is divided into five (5) sections. After this section, section (2) will explore previous analyses of focus and topic constructions within the LFG literature. I will illustrate problems for these proposals with data from Kusaal. This will be followed by section (3) which will propose the introduction of additional features in the i-structure in an attempt to solve the problems raised in section (2). I further discuss how this proposal can be made universal to accommodate other languages whether discourse notions are expressed phonologically, syntactically, morphologically or by a combination of two or more of these strategies. Section (4) provides sample analyses using the proposed features in the i-structure for topic and focus constructions. Finally section (5) gives a summary of the paper.
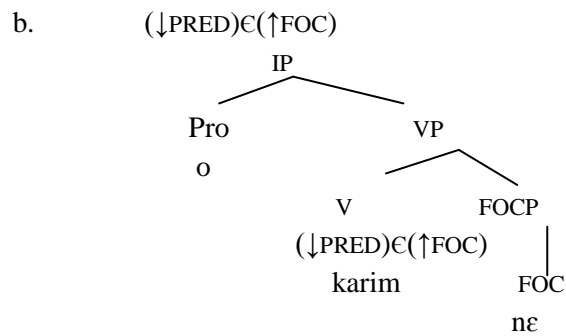
2.0. Previous analyses of Information Structure in LFG

Following Falk (2001:58-59) and Bresnan and Mchombo (1987:757) grammatical function is the underlying concept behind the f-structure in LFG. Syntactic elements can simultaneously perform both grammatical and discourse functions. This has served as the main motivation behind the representation of both grammatical and (grammaticalized) discourse functions in the f-structure.

Examining the interaction that goes on between syntax, prosody and by extension morphology in encoding discourse functions King (1993/1995) and Choi (1996) opine that the introduction of an information (discourse) structure, in addition to the separation of the constituent structure from the functional structure, puts LFG in a better position to account for these interactions. This intervention became necessary in attempts to resolve issues of over-scoping when assigning discourse function to f-structure heads (King

1993/1995) as illustrated in example (1) in answer to the question 'What did he do?'

(1) a.   Ò   kārīm   nέ.
          3SG   read   FOC
          'It is reading that he did (not for example *sleeping*)'

b.   ($\downarrow$PRED)$\in$($\uparrow$FOC)

$$\text{IP}$$
$$\text{Pro} \qquad \text{VP}$$
$$\text{o}$$
$$\text{V} \qquad \text{FOCP}$$
$$(\downarrow\text{PRED})\in(\uparrow\text{FOC})$$
$$\text{karim} \qquad \text{FOC}$$
$$\text{n}\varepsilon$$

The annotation thus (1b) results in over scoping of the focus domain as illustrated in the f-structure in (1c). By focusing the head 'read<SUBJ>' both the core meaning of the PRED and its argument get included in the focused domain although the interpretation of the contrastive focus in this sentence excludes all other constituents except for the verb (see King 1997).

c.
$$\begin{bmatrix} \text{PRED} & \text{'karim<--->'} \\ \text{FOC} & [\;\;] \\ \text{SUBJ} & [\text{PRED 'o'}] \end{bmatrix}$$
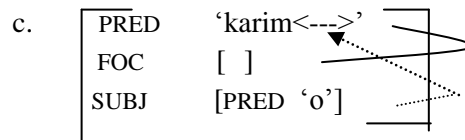
In finding a solution to the problem of over scoping, King (1997) suggests an approach which involves two basic parts. The first is to posit an i(nformation)-structure projection distinct from that of f-structure. The second is to remove the argument structure of the predicate, thus employing only the core grammaticalized discourse meaning in the i-structure. This means that the i-structure should refer to just the core meaning of the predicate excluding its arguments (see King 1997: 9-12; Butt and King 2000:11).
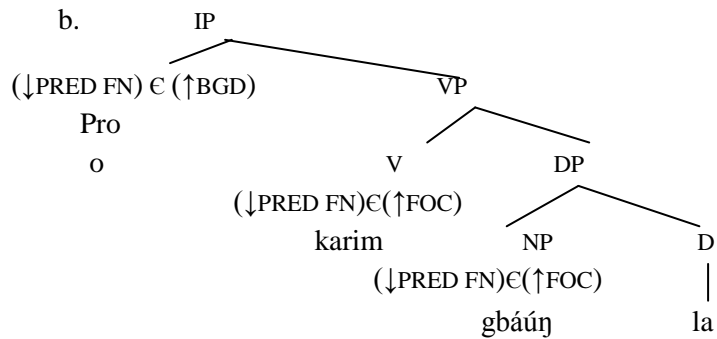
Below are two constructions: example (2) is an information focus whilst example (3) is a contrastive focus construction (É. Kiss 1989). Focus elements are annotated with ($\uparrow_i$ FOC), ($\downarrow$PRED FN) $\in$($\downarrow_i$ REF) (also King 1997) whilst others are annotated as BACKGROUND (BGD). The c-structure

projections are further mapped on to the f-structure and the i-structure projections. Of particular interest is the comparison between the c-structure in (2b) and the i-structure in (2c) on the one hand and the c-structure in (3b) and the i-structure in (3c) on the other hand.

(2) a. What did he do?

Ò   kārīm   gbáúŋ   lá.

3SG   read   book   DEF

'He read the book.'

Information Focus= read the book

b.

```
                        IP
                       /  \
(↓PRED FN) Є (↑BGD)          VP
       Pro                  /  \
        o                  V     DP
                (↓PRED FN)Є(↑FOC)  /  \
                    karim       NP    D
                          (↓PRED FN)Є(↑FOC)  |
                              gbáúŋ        la
```

c. I-structure

```
┌─────────────────┐
│ FOC {karim}     │
│ FOC {gbáúŋ}     │
│ BGD  {o}        │
└─────────────────┘
```
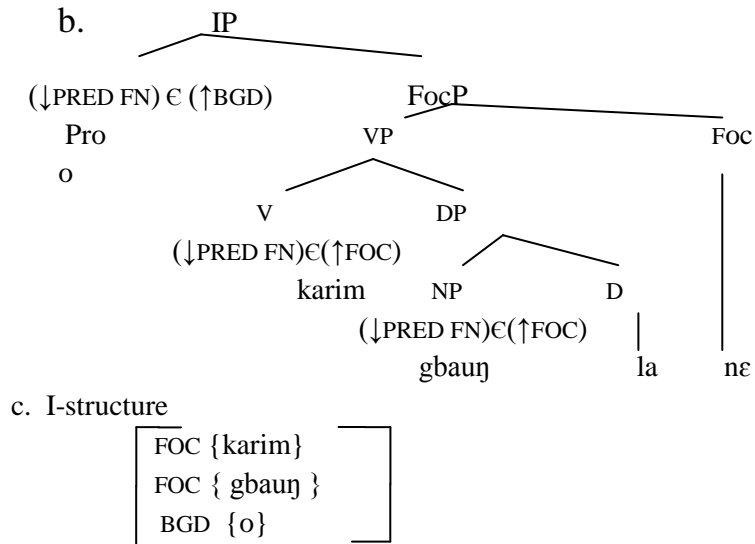
(3) a. What specifically did he do?

Ò   kārīm   gbáúŋ   lá   né.

3SG   read   book   DEF   FOC

'He READ THE BOOK' (as opposed to him selling the news paper for instance)'

Contrastive Focus =read the book

8

b.

IP
```
(↓PRED FN) Є (↑BGD)          FocP
        Pro              VP              Foc
         o
                    V         DP
              (↓PRED FN)Є(↑FOC)
                  karim      NP        D
                      (↓PRED FN)Є(↑FOC)
                         gbauŋ      la      nɛ
```

c. I-structure

```
┌                    ┐
│  FOC {karim}       │
│  FOC { gbauŋ }     │
│  BGD  {o}          │
└                    ┘
```

2.1. Problem one: Ambiguity in i-structure

Notice that the i-structures for the sentences in (2) and (3) are underspecified for the subtype of focus category they express. While *kārīm gbáúŋ lá* 'read the book' in (2c) is an information focus *kārīm gbáúŋlá* 'read the book' in (3c) is a contrastive focus and yet there are no specifications to facilitate the correct interpretation of each focus type. There is what I term 'discourse status under-specification' between the information in the c-structure and what is projected in the i-structure. To ensure a complete mapping of subtypes of discourse functions from the c-structure to the i-structure, it is important that the latter projection should reflect the exact discourse type in the well-resourced c-structure for maximum discourse effect and interpretation. Since all projections in LFG are mediated by mapping, and are independent structures, the i-structure does not efficiently express the desired discourse interpretations between contrastive and information focus since these two have the same i-structures. To address the ambiguity between (2c) and (3c), I will introduce a discourse feature in the i-structure with a corresponding value.

Another well acknowledged proposal on discourse information in LFG is the work of Choi (1996) who builds on the proposal of Vallduví (1992, 1993) to propose a four way distinction using two primitive distinctions in Information Structure [±New] and [±Prominent]. Vallduví (1992) divides Information Structure into *focus* and *ground*. He further subcategorizes *ground* into *link*

and *tail* where elements in the former are assumed to be more prominent than elements in the latter. Vallduví (1992) does not divide focus into subgroups. Building on this proposal, Choi (1996) divides focus into *contrastive focus* and *completive focus* (information focus), where contrastive focus is assumed to be 'more prominent' compared to completive focus. Choi (1996)'s four way distinction of Information Structure is captured in (4) below.

(4)

	+Prom	-Prom
-New	Topic	Tail
+New	Contrastive Focus	Completive Focus

From the diagram, topic and contrastive focus share the identical feature [+Prominent] distinguishing them from their less prominent counterparts tail (Background) and completive focus. Completive focus and contrastive focus share the same feature [+New] since they both introduce new referents into the discourse and what distinguishes the two is 'prominence'. Whilst completive focus is [-PROM], contrastive focus is [+PROM]. Proposing to represent the features [PROM] and [NEW] in the i-structure will not be a major issue but the question is as to whether this can serve a cross linguistic purpose.

2.2. Problem two: Prominence not a universal distinguishing feature in discourse notions

Prominence is not an exclusive feature of contrastive focus in Kusaal. It can as well be realised on information focus constituents as illustrated in (5b-c) following the context in (5a).

(5) a. Context: Assuming a context where a child is beaten but the culprit is not known. Whilst A in (5b) thinks *Aduku beat the child*, B in (5c) corrects A by indicating that *it is the man who beat the child*. The use of the long form of the noun *Aduku* instead of *Aduk* is a mark of emphasis accompanied by strong prominence. Kusaal has long and short forms of lexical items; the long forms are used in questions, negations and mostly for marking emphasis whereas the short forms are used elsewhere. Though *Aduku* in (5b) is an example of completive/information focus, it is as prominent as *dau la* 'the

man' in (5c) which is an example of contrastive focus further marked by the subject focus particle *n*.

b. A: [Àdúk.ú]$_{+N+P}$bʋ¹   bííg   lá.

    Aduk.Emph. beat   child   DEF

    'Aduku beat the child.

c. B. Àyéí, [dáú   lá]$_{+N+P}$ ń   bū¹   bííg   lá.

    no   man   DEF   FOC   beat.perf.   child   DEF

    'No, it is the man who beat the child (not the woman, not Aduk)

Prominence as demonstrated can be a feature of both information focus and contrastive focus in Kusaal. The difference between information focus (5b) and contrastive focus (5c) is morphologically encoded in the presence of the particle *ń* in the case of the latter whilst same is not in the case of the former. In essence the feature [±PROM] cannot be used to distinguish between contrastive focus and information focus in Kusaal.

More recent studies on Information Structure in LFG which are closely related to the objectives of this paper but with slightly different goals and approaches include (Bodomo & Marfo 2005; Dalrymple and Nikolaeva 2011; Mycock 2006; 2013, Butt 2014). The central objectives of these studies have been word order, question formation and the relationship therein with Information Structure. The basic aim of this paper is to suggest an approach which will see the introduction of values that represent subtypes of discourse functions: contrastive focus, information focus, contrastive topic, familiarity topic etc in the i-structure projection in the LFG architecture. Below are short reviews of some of the above mentioned studies.

Marfo and Bodomo (2004) following Choi (1999; 2001) and Lee (2001) use the profile in (6) to describe the similarities between Q-words and focused constituents in Akan.

(6)   Focus $\begin{bmatrix} \text{NEW} + \\ \text{PROM} + \end{bmatrix}$ Q-word $\begin{bmatrix} \text{NEW} + \\ \text{PROM} + \end{bmatrix}$

They argue that the two have identical c-structure and f-structure but they differ in the i-structure. To distinguish the focus type in wh-fronting and contrastive focus construction in the i-structure, they use the terms 'F-TYPE NEUTRAL' and 'F-TYPE CONTRASTIVE' for wh-fronting and contrastive focus

respectively (see Marfo and Bodomo 2005:199). The main analytical tool used by Marfo and Bodomo (2005) is OT-LFG.

Mycock (2013) considers the discourse functions of question words. In this work, she looks at the various possibilities that arise from the work of Butt (2012) and argues that question words can belong to the Information Structure categories Topic and Completive Information. Question words can have the same values as non-interrogatives for the information features [±NEW] and [±PROM] as suggested by Butt & King (1996). To mark the difference between interrogative and non-interrogative constituents Mycock augments Butt &King's (1996) system by having question words fully populate the information feature space. This proposal introduces an interface feature Q that is potentially relevant at multiple levels of the grammar in line with Dalrymple & Mycock 2011; Mycock &Lowe 2013.

Butt (2014) works on 'Question and Information Structure in Urdu/Hindi', where particular attention is devoted to word order variations involving wh-elements in constituent and polar questions in Urdi/Hindi. Butt, in her analysis, assumes an LFG architecture in which the i-structure is represented as a separate projection (in line with King 1997, Mycock 2006) but instead of the feature-based notions of topic, focus, background and completive information, Butt uses the basic notions of topic, focus and givenness and also allows for finer grained distinctions between these categories following Krifka's work.

The idea of introducing finer grained distinctions between discourse functions in the proposal of Butt (2014) and Choi (1999) are relevant to this paper as the same idea is adopted but in a different form and with more refined details. As indicated earlier, the analysis in this paper looks at subtypes of the notions of focus thus (information focus, contrastive focus etc), and subtypes of the notion of topic thus (familiarity topic, contrastive topic etc.) where discourse particles and phrases play integral roles.

3.0. Towards a solution

The proposal to introduce finer grained details in the i-structure (Choi 1999; Butt 2014) serves as the foundation upon which the analysis for subtypes of discourse notions is built. I will suggest the introduction of additional discourse features in the i-structure to solve the issue of ambiguity. This proposal also suggests a path where language specific discourse strategies for

various Information Structure notions can be captured in the i-structure. The whole intervention as suggested here is a further development on the combined approaches of King (1997); Choi (1996) and Butt (2014). Since discourse particles are meaning distinguishing morphemes, it is paramount to include them in the i-structure to distinguish subtypes of discourse functions in a way close to the use of [+New, +Prom] by Choi (1996) to account for the various discourse notions in selected European languages: German, Russian, and English in the 'skeletal f-structure'.

African languages are predominantly particle-centred when it comes to the expression of discourse notions. These particles, generally referred to as discourse particles, cannot be excluded from a projection purposely designed to express the discourse statuses of constituents. Just as TENSE is primitive to the PREDICATE, thus the verb, so are these particles to discourse constituents such as focus and topic constituents. For this reason, we need to find a different way to treat them instead of considering them on a par with functional particles and eliminating them entirely from both the f-structure and the i-structure. Since the i-structure is the projection designated for discourse function, discourse particles should be added to the i-structure. In general, information in the i-structure becomes ambiguous if it is not adequate to express completely the discourse distinctions that are made in the c-structure especially in instances involving languages where discourse notions are expressed morphologically. Below is a suggestion of how these particles should be integrated from inception to finish in any analysis involving Information Structure.

(7)   Suggested path for discourse particles[2]

Discourse particles
↓
Lexical entries
↓
c-structure
↓
i-structure

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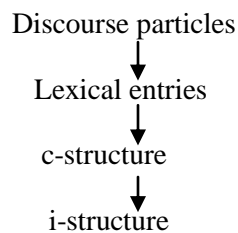
[2]The a-structure is not included in this path since its function does not overlap directly with grammaticalized discourse function. The f-structure is also left out because of the issue of over-scoping of discourse domain discussed previously following King 1997. However, the c-structure maintains the value for discourse functions which is subsequently projected into the independent i-structure.

All discourse particles should be adequately captured in the lexical entries, represented in the c-structure and further mapped on to the i-structure. This ensures that discourse particles are fully accessible to the i-structure for a holistic discourse interpretation and a complete mapping between c-structure and i-structure.
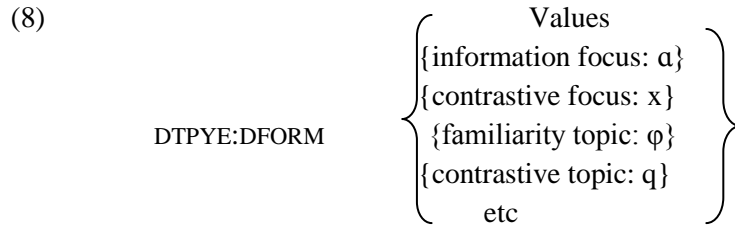
3.1. Introducing DTYPE and DFORM

I propose a feature in the i-structure referred to as Discourse Type (DTYPE). DTYPE will have attributes that provide further details of the discourse subtype: contrastive focus, completive/information focus and topic. The value for DTYPE will correspond to the discourse status of the constituent in question together with the corresponding particle if any or the feature specification of the said discourse status determined by the language in question. Discourse particles or feature specifications will be referred to as discourse form (DFORM). In other words, a DFORM is a further break down of how a language expresses its DTYPE which may be morphological, phonological or otherwise. For instance a DTYPE can have the value {contrastive focus} and DFORM of the value {nέ} for Kusaal and DTYPE value {contrastive focus} with a corresponding feature specification, thus, DFORM value {+ NEW +PROM} for German. The predicate functor (PRED FN) is represented in the i-structure as REF(ERENCE). This is mainly aimed at distinguishing subcategories of discourse functions (focus and topic). More specifically, within the i-structure, each discourse function (focus and topic) is still set valued, but each item of the set is an AVM which contains the following:

i.   The PRED FN is coded as REF(ERENCE)
ii.   The DTYPE, is an abstract meaning like "contrastive" or "completive" and is a subtype of DF
iii.   The DFORM, is the particle form such as nέ and /or intonation or prosodic information such as [±PROM] or null [Ø] for any given DTYPE.

Additionally, the value of DTYPE may have a corresponding relationship with the value of DFORM with the latter being morphologically, phonologically, or syntactically encoded in the particle used or the phonological features associated with the said notion. This will also be entirely language dependent since different languages have different discourse particles that may also be tied to specific discourse strategies (Abubakari 2018).

The rule below serves the purpose of identifying values of DTYPES with corresponding DFORMS on language specific basis.
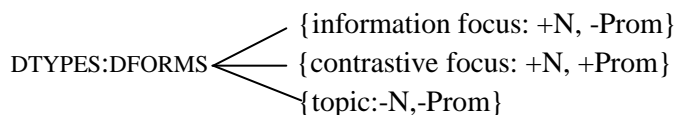
(8)

$$
\text{DTPYE:DFORM} \left\{ \begin{array}{c} \text{Values} \\ \{\text{information focus: } \alpha\} \\ \{\text{contrastive focus: x}\} \\ \{\text{familiarity topic: } \varphi\} \\ \{\text{contrastive topic: q}\} \\ \text{etc} \end{array} \right\}
$$

(where α,x, φ, and q are particles if any or features such as [±New] or [±Prom] or others)

I provide values for both DTYPES and DFORMS in (9) Kusaal and (10) German, English and Russian.

(9)   Kusaal   Value

$$
\text{DTPYES:DFORMS} \left\langle \begin{array}{l} \{\text{in-situ focus}\} \\ \{\text{contrastive focus: n}\} \\ \{\text{contrastive focus: n}\varepsilon\} \\ \{\text{contrastive focus: ka}\} \\ \{\text{familiariy topic: } \emptyset, \text{-N, +Prom}\} \\ \{\text{contrastive topic: yaa an, -N,+Prom}\} \end{array} \right.
$$
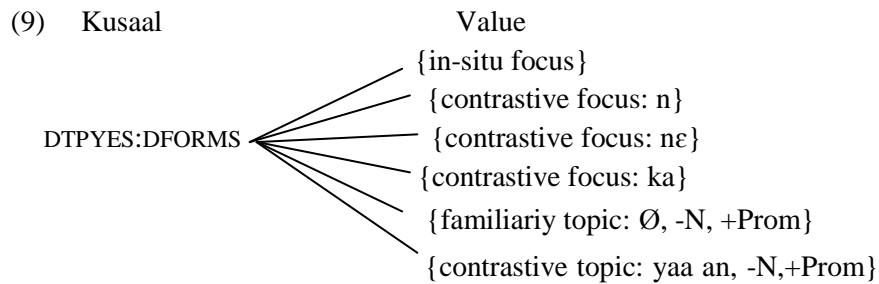
The rule for Kusaal in (10) implies that the DTPYE: information focus is morphologically null, there are no corresponding particles (DFORMS) for this discourse subtype hence the use of {Ø} value. It is infelicitous to use the DFORM values [+New] and [+Prom] since the same values apply to contrastive focus in Kusaal. On the other hand, contrastive focus has different DFORM values for its subtypes: in-situ subject focus: *n*, in-situ non-subject focus: *nɛ*, and ex-situ non-subject focus *ka* (Abubakari forthcoming; 2018). These values are included for purposes of providing finer grained details of various discourse functions as the case may be. Topics, in Kusaal, are also subcategorized into two: familiarity topic and contrastive topic (Abubakari 2018). These are further distinguished by the absence of the special topic phrase in the former, resulting in a DFORM value of {Ø, -N, +Prom} while the latter has the said phrase, resulting in a DFORM value of {yaa an, -N,+Prom} .

(10)   English, German, Russian   Values

$$\text{DTYPES:DFORMS} \begin{cases} \text{information focus: +N, -Prom} \\ \text{contrastive focus: +N, +Prom} \\ \text{topic:-N,-Prom} \end{cases}$$

In the absence of overt morphological markings, the DFORM values, [±NEW] and [±PROM] are used to set apart the differences between contrastive focus, information focus and topic in English, German and Russian (see Choi 1996).

In this section, I have proposed that the features DTPYE and DFORM be introduced in the i-structure with values that specify the status of a discourse constituent. I have indicated how languages can apply the rule in generating the needed mechanism to disambiguate discourse constituents in the i-structure. In the next section, I will focus on providing an analyses of both focus and topic constituents with data from Kusaal.

4.0. Sample analyses

In this section, I intend to provide sample analyses demonstrating the implementation of the proposal in section 3. The analyses fall in three categories: argument focus, VP focus and IP focus and topic constructions. For each analysis I will begin from the lexical entry to the c-structure followed by the i-structure.

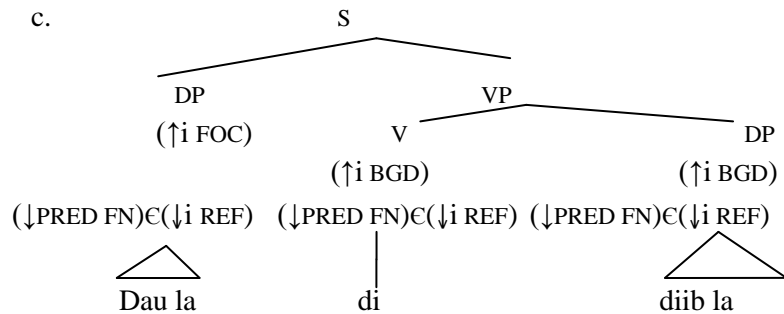### 4.1. Category one: Argument focus

In answer to the question in (11), the sentence in (11a) is information focus construction and that in (12a) is contrastive focus construction.

(11)   Q.: Who ate the food?
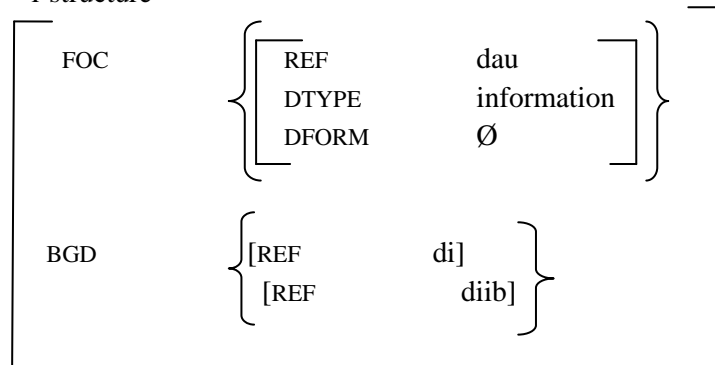
   a. Dáú   lá   dī   dííb   lá.
     man   DEF   eat   food   DEF
   'The MAN ate the food.'

  b.Lexical entries: Dáú lá dī dííb lá.

     Dau   N(ˆPRED) = 'dau'

     Di   V (ˆPRED) = 'di<(ˆSUBJ) (ˆOBJ)>'

     Diib   N(ˆPRED) = 'diib'

c.

```
                        S
            ┌───────────┴───────────┐
           DP                      VP
         (↑i FOC)          ┌────────┴────────┐
    (↓PRED FN)Є(↓i REF)    V                DP
                        (↑i BGD)         (↑i BGD)
                   (↓PRED FN)Є(↓i REF)  (↓PRED FN)Є(↓i REF)
          △                 |                  △
        Dau la              di              diib la
```

d.   i-structure

```
⎡                                                        ⎤
⎢ FOC        ⎧ ⎡ REF        dau         ⎤ ⎫              ⎥
⎢            ⎨ ⎢ DTYPE      information ⎥ ⎬              ⎥
⎢            ⎩ ⎣ DFORM      Ø           ⎦ ⎭              ⎥
⎢                                                        ⎥
⎢ BGD        ⎧ [REF        di]  ⎫                        ⎥
⎢            ⎨ [REF        diib] ⎬                        ⎥
⎣            ⎩                   ⎭                        ⎦
```

The discourse status of *dáú* 'man' is explicitly expressed from the lexicon to the i-structure. The value of DTYPE specifies that the focused constituent in question *dáú* 'man' subcategorizes as an information focus constituent. Each level of the architecture independently expresses this status which is mapped from one projection to the other.

Consider the contrastive focus construction in (12a).

(12)   a. Àyéí,   bíís   lá   ń   dí   dííb   lá.

           no   children DEF   FOC   eat   food   DEF
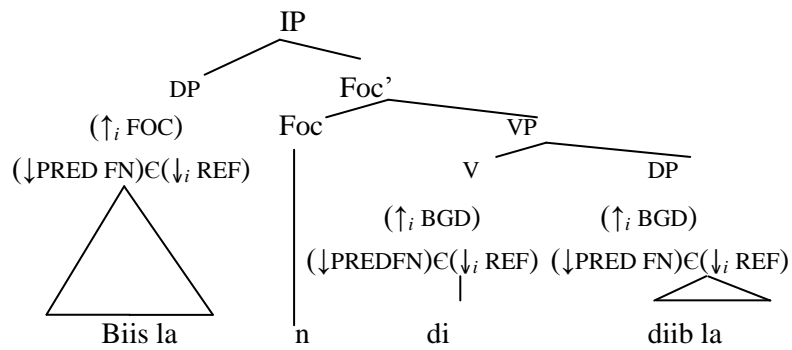   'It is the children that ate the food.'

      b.Lexical entries

                    Biis   N(ˆPRED) = 'biis'

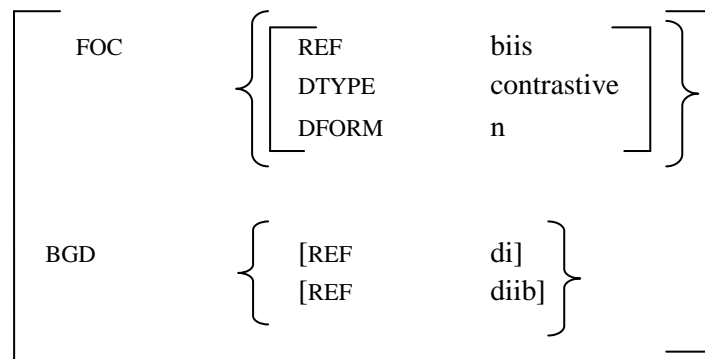   n   FP[3](ˆi DFORM) = 'n'

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[3] FP refers to 'Focus Particle' and for projection into i-structure, arrows are subscripted with an 'i'.

$$(\hat{\ }\text{i DTYPE}) = \text{CONTRASTIVE FOCUS}$$

Di $\quad$ $\text{V}(\hat{\ }\text{PRED}) = \text{'di}<(\hat{\ }\text{SUBJ}) (\hat{\ }\text{OBJ})>\text{'}$

Diib $\quad$ $\text{N}(\hat{\ }\text{PRED}) = \text{'diib'}$

c. C-structure equation

```
                          IP
                   ┌──────┴──────┐
                  DP            Foc'
             (↑i FOC)      ┌─────┴─────┐
      (↓PRED FN)Є(↓i REF) Foc         VP
                           │      ┌────┴────┐
                           │      V         DP
                           │   (↑i BGD)  (↑i BGD)
              △         (↓PREDFN)Є(↓i REF) (↓PRED FN)Є(↓i REF)
           Biis la        n    di         △  diib la
```

d. i-structure

```
┌                                                      ┐
│ FOC        ⎧ ┌ REF      biis          ⎤ ⎫            │
│            ⎨ │ DTYPE    contrastive   │ ⎬            │
│            ⎩ └ DFORM    n             ⎦ ⎭            │
│                                                      │
│ BGD        ⎧  [REF      di]  ⎫                       │
│            ⎩  [REF      diib] ⎭                      │
└                                                      ┘
```

From the lexical entry through to the c-structure and subsequently the i-structure, the subtype of the discourse status of the focused constituent is clearly specified as contrastive focus. Unlike the c-structure in (11c), the c-structure in (12c) has a projection for a focus particle which hosts the focused subject at the specifier of Foc. The focused particle *ṅ* which is listed in the lexical entries conveys relevant information regarding the focused constituent. The same information is inherently mapped on to the i-structure by the predicate attribute DFORM with the value *n*. Finally, the focused constituent *bíis* 'children' in the i-structure can be argued to have all the necessary resources that fully identify its discourse subcategory.

Having considered an example involving in-situ contrastive subject focus in (12), the example in (13) is a demonstration of in-situ contrastive focus with an object.
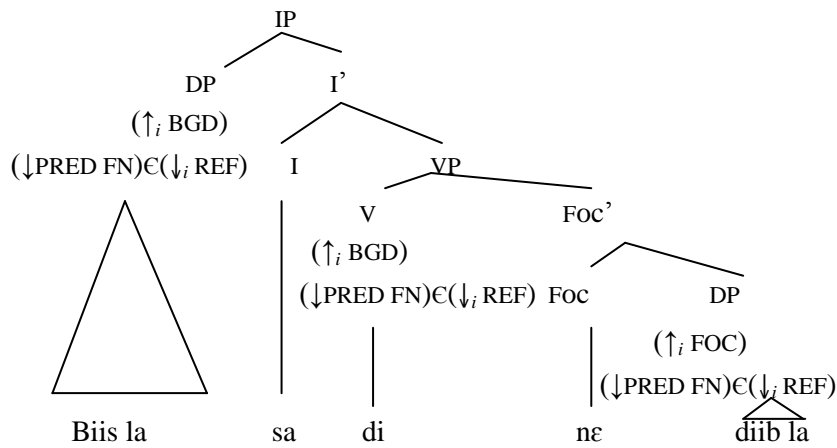
(13)　　　　Did the children eat the fruits or the food?

a. Bíís　　　lá　　　sà　　　dí　　　nέ　　　dííb　　　lá.

children　　DEF　　PAST　eat　　FOC　　food　　DEF
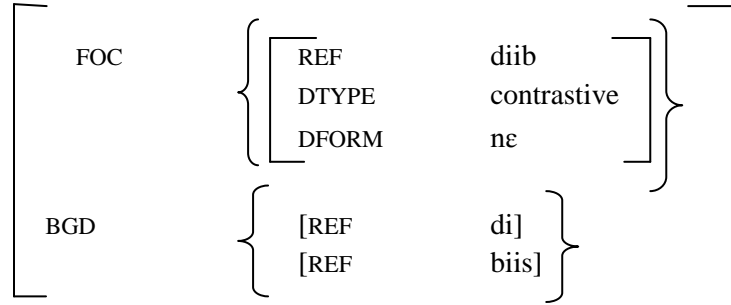
'It is the food that the children ate (yesterday).'

b. Lexical entries

Biis　　N(ˆPRED) = 'biis'

Di　　　V(ˆPRED)='di<(ˆSUBJ) (ˆOBJ)>'

Diib　　N(ˆPRED) = 'diib'

nέ　　　FP (ˆi DFORM) = 'nέ'

　　　　(ˆi DTYPE) = CONTRASTIVE FOCUS

c.　　c-structure

d. i-structure

$$
\begin{bmatrix}
\text{FOC} & \left\{ \begin{bmatrix} \text{REF} & \text{diib} \\ \text{DTYPE} & \text{contrastive} \\ \text{DFORM} & \text{nε} \end{bmatrix} \right\} \\
\\
\text{BGD} & \left\{ \begin{array}{ll} [\text{REF} & \text{di}] \\ [\text{REF} & \text{biis}] \end{array} \right\}
\end{bmatrix}
$$

The status of the focused element *dííb* 'food' is specified as contrastive by virtue of the particle *né*. The representation of this particle from the lexical entries through to the i-structure ensures full specification and coherent discourse interpretation in the various projections.

4.2. Category two: VP and IP focus

To mark VP or IP focus, the focus particle *né* occurs after the focused VP or IP, i.e., at clause internal right periphery (Abubakari forthcoming). The response in (14ii) is a surprised response which is out of the hearer's expectation. It is used in a context where 'no one is supposed to eat a particular food'. The entire response, i.e., the IP is focused with the particle *né*, emphasising that some people defied the said order.
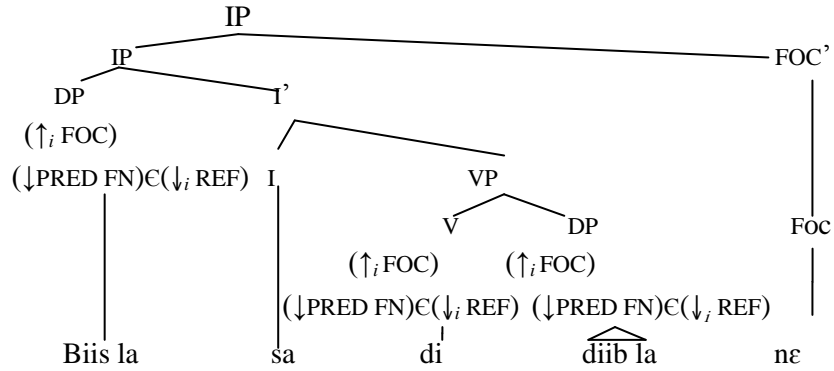
(14)   a. i. Q: What happened?

       ii. Ans: [Bíís   lá   sà   dī   dííb   lá   nέ]$_F$

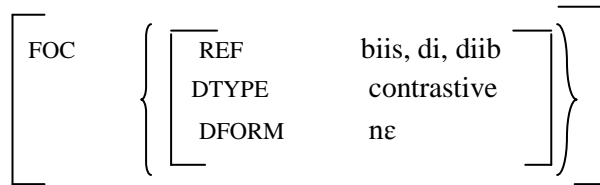   children   DEF   PAST   eat   food   DEF   FOC

              'THE CHILDREN ATE THE FOOD (yesterday).'

   b. Lexical entries

          Biis   N(^PRED) = 'biis'

          Di   V(PRED)='di<(^SUBJ) (^OBJ)>'

          Diib   N(^PRED) = 'diib'

          nε   FP(^i DFORM) = 'nε'

                  (^i DTYPE) = CONTRASTIVE FOCUS

c. c-structure

d. i-structure

Finally the i-structure shows that the entire IP is focused. Every constituent in this structure is contrastively focused as they all share the single DTYPE with the value contrastive focus and the same DFORM of the value *nɛ*. The same discourse information is traceable from the lexical entries through to the c-structure and finally to the i-structure.

4.3. Category three: Subcategories of topics and the i-structure

Two types of topic are indentifies in Kusaal: familiarity topic (15) and contrastive topic (16) (Abubakari 2018).

(15)   a. Dííb   lá,   ò   sà   dī   lì.

          food DEF   3SG   PAST   eat   it

     'The food, s/he ate it (yesterday).'

(16)   a. Yá'á   án   dííb   lá,   ò   sà   dī   lì.

          if   COP.be food   DEF   3SG PAST eat   it

     'As for the food, I ate it (yesterday).'

Topic constituents that are qualified by the special topic phrase are classified as contrastive topics and those without the topic phrase are categorized as

familiarity topics on pragmatic grounds (Abubakari 2018). DTYPE is either valued as {contrastive topic} with a corresponding DFORM which is valued as {yáá án} or DTYPE {familiarity topic} with a corresponding DFORM {ø} for Kusaal. Below are the various stages and projections for the contrastive topic construction in (16) within the proposed analysis. (17a) is the lexical entries, whilst (17b) is the c-structure and (17c) is the i-structure projection.

(17)　　　　a. Lexical entries

Diib　　　　　　N(ˆPRED) = 'diib'

Yaˑa an　　　　　TP[4](ˆi DFORM) = 'yaˑa an'

　　　　　　　　(ˆi DTYPE) = CONTRASTIVE TOPIC

Di　　　　　　　V(ˆPRED) = 'di<(↑SUBJ) (↑OBJ)>'

O　　　　　　　PRO (ˆPRED) = 'o'

Li　　　　　　　ANAPHORIC PRO (ˆPRED) = 'li'

　　　　b.　　　c-structure
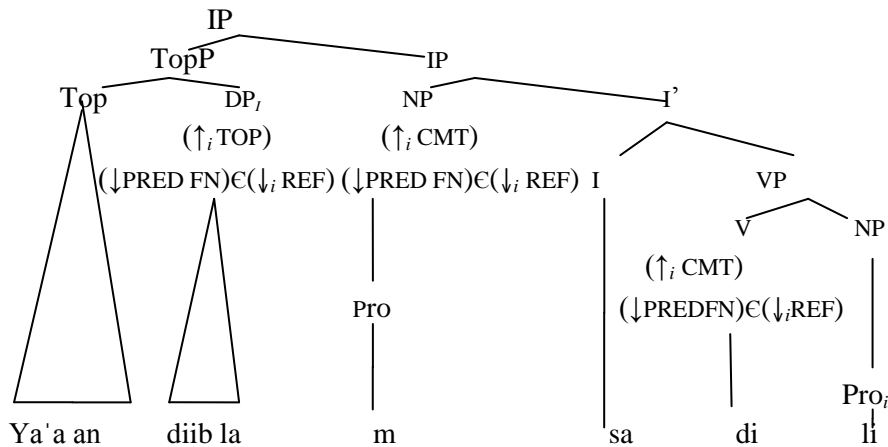
c.　　i-structure

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[4] TP: Topic phrase

22
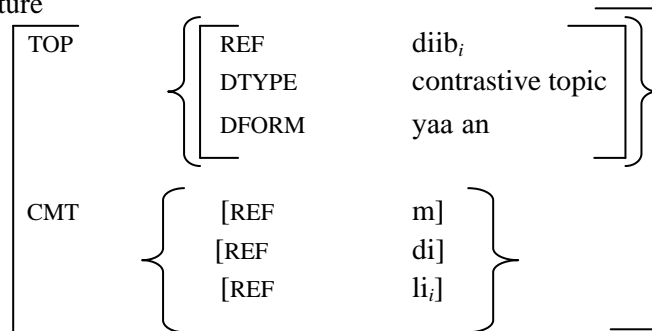
The i-structure is able to set the difference between a familiarity topic construction which is without the topic phrase and contrastive topic construction with the topic phrase by virtue of the values of their respective DTYPEs and corresponding DFORMs.

5.0. Conclusion

This paper set out to discuss a formal account of Information Structure in Kusaal using the Lexical Functional Grammar framework. The main purpose has been to point out issues in previous analyses of focus constructions in the i-structure projection and to suggest possible ways of addressing the problem(s). Generally, it was found that the i-structure is inadequately resourced to account for the various subtypes of discourse notions; more specifically the difference between information focus and contrastive focus. These two subtypes of focus are observed to have identical i-structures although their c-structures may be different especially in languages where overt morphological particles play important roles in expressing the discourse statuses of constituents. The impossibility of differentiating between subtypes of focus in the i-structure results in ambiguity and under specification of discourse interpretations. In addressing the problem, I introduced an additional feature, DTYPE, with a value that specifies subtypes of focus and topic notions in the i-structure. DTYPE can have a value, for example, {contrastive focus} or {information focus}. Another feature referred to as DFORM shows values that may either be morphologically or phonologically realised on individual language basis. For instance the feature values [±New] and [±Prom] are suggested for some European languages whilst the morphological features: *n*, *nɛ* and *ka* are used for Kusaal.

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