Uncovering regularities:
On the Notion of Bare and Evaluated Controllers in Tigrinya

Related to (ir)regularities in grammars, this paper is an investigation of the gender system in Tigrinya (ISO/DIS 639- 3: tir)[1]. Considering the literature on the topic (see *gender* in Schreiber (1887); Leslau (1941); Agostinos (1994); Lipiński (2001)) in which it is basically presented as "flexible" or "free" gender system, I offer an analysis that predicts the behavior of gender in the language. The following roughly exemplifies what I believe is the issue to cover.

(1) a. mʌtˢħaf   "a book"

  b. qɛyyiħ$_{masc}$ mʌtˢħaf   "a red book"

  c. qɛyyaħ$_{fem}$ mʌtˢħaf   "a (beloved or particular or small) red book"

Following Corbett (Corbett, 1991; Corbett and Fraser, 2000; Corbett, 2001), I assume that a nominal classification (i.e. genders or noun classes) in a language reduces to the evidences the agreement system which that language provides. Tigrinya has two values for gender, traditionally labeled as masculine and feminine, as displayed in (1). One problem is the fact that the word for "book" *mʌtˢħaf* triggers both feminine and masculine in the same agreement domain. Even more problematic is the fact that most nouns, if not all, behave in the such way. While one can say that speakers of Tigrinya have the "liberty" of choice, such an assumption creates several problems, among others: (i) the existence of a language having an unsystematic gender "system"[2] and (ii) reduplication in the lexicon, for each noun must trigger the right value for gender[3].

The analysis proposes two new ingredients in the study of Tigrinya grammar that explain the behavior of gender: (i) supplementing a dichotomy for nominals (i.e. Class I and II, reflecting broad semantic similarities) and (ii) the notion of reference evaluation. First, the division places all nouns in the lexicon with one and only one value for gender.

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[1] http://www.ethnologue.com/showlanguage.asp?code=tir

[2] Considering Corbett (1991)'s explanation of *double* or *multi-gender nouns* as non applicable.

[3] As I endorse Corbett's typology of agreement, underspecifying each noun for its gender value cannot be done for directionality reasons; a noun acts as a controller and determines a particular feature's value on a target. Further, even though HPSG does not model such directionality, if there is gender shift, then an original assigment must exist.

The dichotomy is defined as follows: nouns are of *Class-I* if they satisfy at least one criterion in the list of semantic criteria (i.e. gender is assigned on semantic criteria). All *Class-II* nouns are those that do not satisfy any semantic criterion. These are assigned masculine, the default gender. Second, evaluations are semantic operations and are used by speakers to convey affection, diminution, insult and familiarity towards a referent. Basically what all the readings have in common is the indication that the referent in question deviates from the standard of this referent type. I argue that these evaluations are grammaticalized by gender shift, therefore answering the problem of apparent agreement "mismatches"[4].

The analysis is formalized in a Head-driven Phrase Structure Grammar architecture where (i) the nominal classification is typed and (ii) derivational lexical rules accommodate the gender shift together with the evaluations. The values for the gender feature are represented in Figure 1. The top node is the underspecified value since it subsumes all the other types: it is compatible with both *fem* and *masc*. The types *Class-I* and *Class-II* are abstract types reflecting the classification dichotomy.
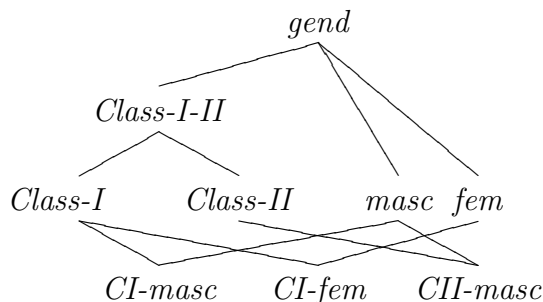

Figure 1: Gender Hierarchy

The three leaf types we get, *CI-masc*, *CI-fem* and *CII-masc* reflects the only possibilities for gender assignment in the language. All nouns should have one of these types as a value for gender.

The type *cat-E* (see Figure 2) is the root of the family of evaluations. It inherits the constraints declared on the type *lexeme-to-lexeme-rule*[5], a rule in which typically (i) the input and the output are not fully inflected and (ii) one daughter (DTR) is the input. The input for *cat-E* is always a nominal and under this rule, nominals cannot undergo a categorial change (i.e. contrary to most derivational rules but typical of evaluative morphologies). The semantic representation is a simplified version of Minimal Recursion Semantics (MRS)[6]. The type *sem-cat-E* constrains the output of the rule to have an additional EP in the RELS's list. All members of the *sem-cat-E* shall introduce in the semantic representation one EP having the constraints given in Figure 3:

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[4]Mismatch in the sense that one value for gender per noun is the standard assumption (i.e. notion of agreement class (Corbett, 1991, pg. 147).

[5]Following the Grammar Matrix (Bender et al., 2003) (`http://www.delph-in.net/matrix/`) , the type *cat-E* turn out to be subtype of *const-ltol-rule* (i.e. for constant lexeme-to-lexeme rule, a "spelling preserving rule").

[6]In a sense that I do not need a full-fledged MRS representation for this phenomenon.
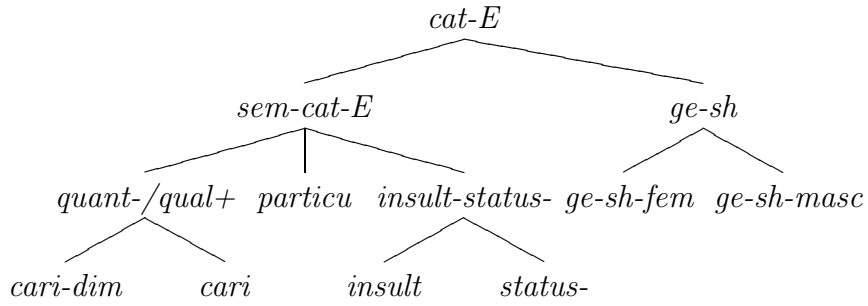
$$
\begin{array}{c}
\textit{cat-E} \\
\diagdown \diagup
\end{array}
$$

Figure 2 hierarchy:

```
                        cat-E
                 _____/    _____
               /                    \
           sem-cat-E                ge-sh
         /    |    \              /      \
 quant-/qual+ particu insult-status- ge-sh-fem  ge-sh-masc
    /  \                  /    \
cari-dim  cari       insult    status-
```

Figure 2: Category E Hierarchy

$$
\begin{bmatrix}
\textit{arg1-rel} \\
\text{PRED} & \textit{string} \\
\text{ARG0} & \textit{event} \\
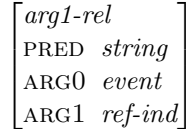\text{ARG1} & \textit{ref-ind}
\end{bmatrix}
$$

Figure 3: *arg1-rel* Relation

This abstract elementary predication is the locus of evaluation. For what I call the "signal" of an evaluation, that is gender shift, the type *ge-sh* stands for *gender shift* and has two subtypes, *ge-sh-masc* and *ge-sh-fem*. These are the types that do the actual shift in gender value. Informally, if the grammatical gender (GEND) of the daughter is α, *ge-sh* makes it $-\alpha$. Thus, since two values for gender are possible, two types are needed:

(2) a.
$$
\begin{bmatrix}
\textit{ge-sh-fem} \\
\text{SYNSEM|CAT|HEAD|AGR|GEND} & \textit{fem} \\
\text{DTR|SYNSEM|CAT|HEAD|AGR|GEND} & \textit{masc}
\end{bmatrix}
$$

  b.
$$
\begin{bmatrix}
\textit{ge-sh-masc} \\
\text{SYNSEM|CAT|HEAD|AGR|GEND} & \textit{masc} \\
\text{DTR|SYNSEM|CAT|HEAD|AGR|GEND} & \textit{fem}
\end{bmatrix}
$$

Looking at Figure 2, I propose five leaf types under *sem-cat-E* and two leaf types under *ge-sh*. The architecture of *cat-E* is built in such a way to force the unification of the 'evaluation side' and the 'gender shift side'. Accordingly, the actual *lexeme-to-lexeme* rules are the joins of subtypes of *sem-cat-E* and *ge-sh*. These are the actual rules since one side cannot go without the other. On ten possible joins (i.e. see (3)), I show that based on empirical evidence I am confident with six of them, that two need further investigation and that two are impossible. Figure 4 displays one example (i.e. caritative evaluation).
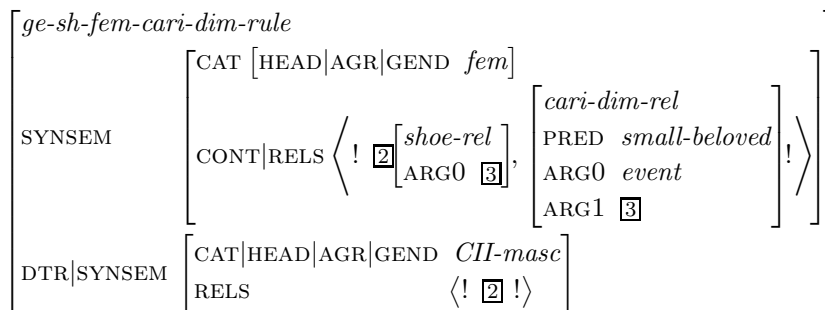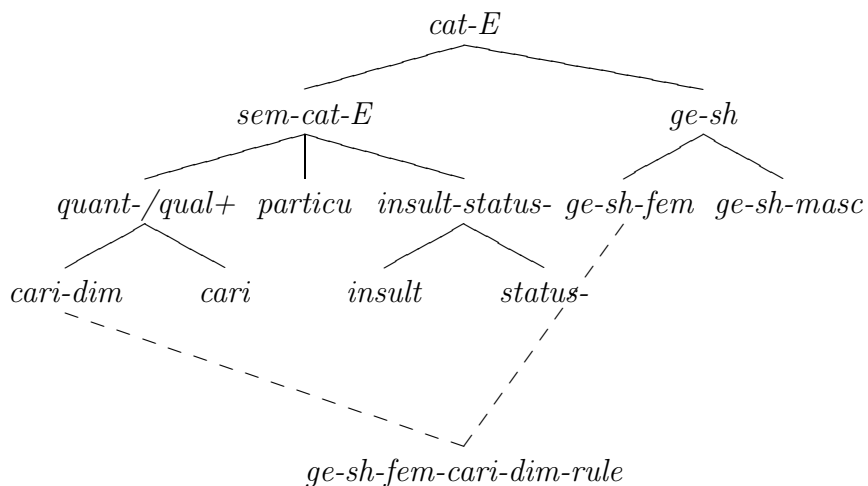
(3) *10 possibilities*

     a.   *ge-sh-fem* ⊓ *insult*

     b.   *ge-sh-fem* ⊓ *status-*

     c.   *ge-sh-masc* ⊓ *insult*

     d.   *ge-sh-fem* ⊓ *particu*

     e.   *ge-sh-fem* ⊓ *cari*

     f.   *ge-sh-fem* ⊓ *cari-dim*

     g.   ? *ge-sh-masc* ⊓ *cari*

     h. * *ge-sh-masc* ⊓ *particu*

     i. * *ge-sh-masc* ⊓ *cari-dim*

     j. ? *ge-sh-masc* ⊓ *status-*

The paper provides a solution for the so-called gender flexibility in Tigrinya. I argue that: (i) nouns are encoded with one value for gender, (ii) semantic criteria together with the notion of evaluation predict a *Class-I/Class-II* dichotomy, (iii) if a noun's value for gender *shifts*, that noun has undergone an *evaluation*, (iv) evaluations are gathered under the term *Category E* and (v) in an HPSG architecture, evaluations are implemented as a set *lexeme-to-lexeme* rules which shifts the value for the feature GEND and add an EP to the RELS's list. Four PRED values, five (leaf) *relation*s, and six *lexeme-to-lexeme-rule*s accommodate the phenomena.

Figure 4: *ge-sh-fem-cari-dim-rule*

"A speaker shows *affection towards* and/or *diminishes the size of* an object or entity."

saʔɨn-ʌy   tˢɨbuqhti   ʔɨyya
shoe.SG-POSS.1.SG nice.FEM.SG AUXP.3.FEM.SG

'My (dear, lovely, small) shoe is nice (*evaluated*)'

$$
\begin{bmatrix}
\textit{ge-sh-fem-cari-dim-rule} \\[4pt]
\text{SYNSEM} \begin{bmatrix}
\text{CAT} \begin{bmatrix} \text{HEAD|AGR|GEND } \textit{fem} \end{bmatrix} \\[6pt]
\text{CONT|RELS} \left\langle !\; \boxed{2}\begin{bmatrix}\textit{shoe-rel}\\ \text{ARG0 } \boxed{3}\end{bmatrix}, \begin{bmatrix}\textit{cari-dim-rel}\\ \text{PRED } \textit{small-beloved}\\ \text{ARG0 } \textit{event}\\ \text{ARG1 } \boxed{3}\end{bmatrix} ! \right\rangle
\end{bmatrix} \\[8pt]
\text{DTR|SYNSEM} \begin{bmatrix}
\text{CAT|HEAD|AGR|GEND } \textit{CII-masc} \\
\text{RELS} \qquad\qquad \langle !\; \boxed{2}\; !\rangle
\end{bmatrix}
\end{bmatrix}
$$

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