Past Tense Marking in Afrikaans

In our presentation of the Afrikaans system of past tense marking, we will argue that the data can best be described by means of scope underspecification and multiple exponence of temporal operators. We will account for these observations within *Lexical Resource Semantics* (Richter and Sailer, 2001a; Bouma, 2003).

Data In comparison to the verbal systems of related languages such as Dutch or English, Afrikaans verbal morphology is relatively simple. Basically, verbs have two forms: a temporally unmarked form and a form that is marked as past. For some modal verbs, both forms are expressed with morphologically simple words (*wil* (*want*), *wou* (*wanted*)), for other verbs, the unmarked form is simple, and the past form resembles the present perfect of Dutch or English morphologically (*koop* (*buy*), *gekoop het* (*bought*)).

As discussed in the literature (de Villiers, 1971; Ponelis, 1979; Donaldson, 1993; Kleij, 1999), the usage of these forms in Afrikaans leads to systematic ambiguities. Sentence (1) illustrates this ambiguity. In (a)–(c) we indicate the three possible temporal readings,[1] first by an English translation and then by a logical term. In the latter, we use the operator "^" to indicate intensional contexts, and the operator "PAST" to indicate a semantic past tense. For a possible interpretation of this operator, see e.g. Stechow (2002).[2]

(1)   Jan wou   die boek gekoop het.
       Jan want.PAST the boek bought have

    a. Jan wanted to have bought the book. $\mathrm{PAST}(\mathsf{want}'(j, {}^\wedge\mathrm{PAST}(\mathsf{buy}'(j, \mathsf{the\text{-}book}))))$

    b. Jan wants to have bought the book. $\mathsf{want}'(j, {}^\wedge\mathrm{PAST}(\mathsf{buy}'(j, \mathsf{the\text{-}book})))$

    c. Jan wanted to buy the book. $\mathrm{PAST}(\mathsf{want}'(j, {}^\wedge\mathsf{buy}'(j, \mathsf{the\text{-}book})))$

Sentence (1) contains two morphological past markings: the verb *wou*, and the complex *gekoop het*. There is at least one past tense operator in each reading. The three readings, then, differ with respect to the number of past operators and with respect to the scope. In (a), there occur two past operators, one for each verb. In (b), only the embedded verb is interpreted as past. In (c), the past operator has scope over the modal verb.

Notably in the (b)-reading, the modal verb is marked as past, but it is not in the scope of a past operator. We also find instances of a verb that is not marked for past, but interpreted as past. In (2) from Kleij (1999) the unmarked form *moet* (*must*) is used instead of the past form *moes*. Nonetheless, the indicated reading exists.

(2) Ek moet los   kon   rondgeloop   het.   'I had to be able to run around freely.'
    I   must freely can.PAST around.walked have $\mathrm{PAST}(\mathsf{must}'({}^\wedge\mathsf{can}'(i, {}^\wedge\mathsf{run\text{-}around\text{-}freely}'(i))))$

To show that both the modal verb and the embedded verb can contribute a past operator, consider (3). Both sentences are ambiguous between a (b)- and a (c)-reading, but lack the (a)-reading.

(3) a. Jan wou die boek koop.

    b. Jan wil die boek gekoop het.

With these data, we argue that every verb which is marked for past tense contributes a past operator. Nonetheless, the scope of this operator is left underspecified by the position where it is introduced in syntax. To account for the (b)- and (c)-readings of (1), a mechanism is needed to interpret only one of the two past operators.

Lexical Resource Semantics The observations presented above are not easily accommodated with a simple view of compositionality. Therefore, we will provide an analysis within the framework of *Lexical Resource Semantics* (LRS, Richter and Sailer (2001a)). LRS uses techniques of underspecified semantics (Reyle, 1993; Bos, 1995). In such approaches, the semantic representation of a sentence is not a single term, but a set of terms, which will ultimately form the overall logical form of a sentence. What makes these systems underspecified is that the subterm relations between these terms is constrained by the syntactic constellations, but not fully resolved by the principles of grammar. This allows for a lean representation of scope ambiguities.

Bouma (2003) uses LRS for an account of scope ambiguities. Richter and Sailer (2001b) discusses instances of multiple exponence of a semantic operator, negation in their case. In their analysis, several words in a clause may contribute a negation operator to the overall logical form, but language-specific principles will ensure that all these operators will be identical. Our exploration of the data reveals that an analysis of Afrikaans past tense marking

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[1] In addition to the past tense use, *wou* and *gekoop het* can also be irrealis. Thus, we get the readings *Jan would love to have bought the book.*, and *Jan would love to buy the book.*. We ignore these modal readings throughout this paper.

[2] Kleij (1999) shows that the past marked forms are ambiguous between a temporal (past) and an aspectual (perfect) reading. Thus, what we have written as "PAST" corresponds to Stechow's operators PERFECT and PAST.

must account for these two phenomena: underspecification and multiple exponence. This makes LRS particularly apt for our enterprise.

Just as in the underspecification literature, in LRS the logical form of a sentence is the set of subterms of the resulting reading. For the (a)-reading of (1), the logical representation of the clause is the set in (4).

(4) $\left\{ \begin{array}{l} j, \text{the-book}, \text{buy}'(j, \text{the-book}), \text{PAST}(\text{buy}'(j, \text{the-book})), \ \hat{}\,\text{PAST}(\text{buy}'(j, \text{the-book})), \\ \text{want}'(j, \hat{}\,\text{PAST}(\text{buy}'(j, \text{the-book}))), \text{PAST}(\text{want}'(j, \hat{}\,\text{PAST}(\text{buy}'(j, \text{the-book})))) \end{array} \right\}$

In (5), we indicate the elements of the above set according to the words that contribute those elements. We use Greek letters as meta-variables for terms that are not directly contributed by the indicated word.

(5)

Jan	j
wou	$\text{PAST}(\alpha), \text{want}'(j, \hat{}\,\beta), \hat{}\,\beta$
die boek	the-book
gekoop	$\text{buy}'(j, \text{the-book})$
het	$\text{PAST}(\gamma)$

In an LRS analysis, the terms given in the right column in (5) are the semantic contribution of the items in the left column. The syntactic relations between the words enforce the argument identification and enforce that the term $\text{buy}'(j, \text{the-book})$ be a subterm of β.

If all the meta-variables in (5) refer to distinct elements of the set, we get the (a)-reading. It is an important innovation of LRS to allow several lexical elements in a clause to contribute the same semantic operator. For our example, this means that we can assume identity of the past operators contributed by *wou* and *het*. This identity leads to two possible scopings, one where $\alpha = \gamma = \text{buy}'(\ldots)$, i.e., the (b)-reading; and another where $\alpha = \gamma = \text{want}'(\ldots)$, i.e., the (c)-reading.

Note that so far we allow for two more readings of (1), given in (6), i.e., readings where the two past operators are distinct but where one is in the immediate scope of the other. These readings are not available, however.

(6) a. $\text{PAST}(\text{PAST}(\text{want}'(j, \hat{}\,\text{buy}'(j, \text{the-book}))))$

    b. $\text{want}'(j, \hat{}\,\text{PAST}(\text{PAST}(\text{buy}'(j, \text{the-book}))))$

To exclude the readings in (6), we impose a principle according to which the basic semantic contribution of a verb may not be in the immediate scope of two past operators. Richter and Sailer (2001b) applies a parallel principle to prevent double negation readings in Polish.

Conclusion   The system of past tense marking in Afrikaans provides empirical evidence for the need for scope underspecification and multiple exponence of semantic operators within the system of combinatorial semantics. Since LRS has incorporated these two features, it allows for a straightforward account of the data.

In our talk, we will extend this analysis to clauses with temporal adverbials.

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