

WPFG

working papers in functional grammar

wpfg no. 57, March 1995
prijs: f 5.00

On the generation of internally complex English temporal satellite terms.
John H. Connolly
Loughborough University of Technology



ON THE GENERATION OF INTERNALLY COMPLEX ENGLISH TEMPORAL SATELLITE TERMS

John H. Connolly

Department of Computer Studies

Loughborough University of Technology, U.K.

1 Introduction

In Connolly (1994), the problem was addressed of formulating appropriate expression rules for English temporal satellite terms. The rules proposed in that paper dealt with two matters:

- (1) (a) The morphological form of temporal adverbs.
- (b) The insertion of appropriate adpositions into temporal terms.

Our purpose in the present paper is to pursue this line of enquiry further. Before doing so, however, we shall briefly review the earlier work.

2 Background

Three semantic types of temporal term are recognised in FG; see Dik (1978: 26). These are listed below, together with the abbreviations to be used in the present paper:

- (2) (a) Position in time (Time-pos).
- (b) Duration (Dur).
- (c) Frequency (Freq).

Examples of each category are given in the following set of predication-expression pairs:¹

- (3) (a) (Past e_1 : $[\text{begin}_V(d1x_1:\text{meeting}_N(x_1))_{\text{Proc}}](e_1):[(d1x_2:\text{noon}_N(x_2))_{\text{Time-pos}}](e_1))$
The meeting began at noon.
- (b) (Past e_1 : $[\text{last}_V(d1x_1:\text{storm}_N(x_1))_{\emptyset}](e_1):[(i1x_2:\text{hour}_N(x_2))_{\text{Dur}}](e_1))$
The storm lasted for an hour.
- (c) (Pres e_1 : $[\text{run}_V(d1x_1:\text{train}_N(x_1))_{\text{Proc}}](e_1):(\text{frequent}_A(e_1))_{\text{Freq}}$)
The train runs frequently.

Temporal satellites also have a variety of possible morphosyntactic realisations, as exemplified in (4) below. They may take the form of an adverbial phrase, as in (4a), a noun phrase, as in (4b), an adpositional phrase, as in (4c) and (4d), a finite subordinate clause, as in (4e), or a non-finite

subordinate clause, as in (4f).

- (4) (a) [It arrived] recently.
 (b) [It arrived] last week.
 (c) [It snowed] for two hours.
 (d) [It snowed] a week ago.
 (e) [They found the note] when they were cleaning up.
 (f) [They found the note] while cleaning the room.

The adverbs which act as heads of temporal adverbial phrases, such as those found in (3c) and (4a), generally bear a *-ly* suffix which does not appear in their underlying form. An expression rule is therefore needed to introduce this ending, and in Connolly (1994) the following rule is proposed for this purpose:

- (5) Realisation[ITEM_A] = ITEM-ly (if ITEM is the head of a satellite term)

As for temporal adverbs like *soon*, which do not add the *-ly* suffix, it is assumed that these are marked as exceptions, to which rule (5) does not apply. This marking of exceptions could be conveniently achieved by extending the rule-condition in an appropriate manner.

The rules for inserting adpositions into temporal satellites is not so straightforward, however. In Connolly (1994) it is argued that in order to be able to produce a reasonably comprehensive set of rules for this purpose, it is necessary that some, but not all, temporal terms should, in their underlying form, contain what we call *relational formulae*. Consider, for example, the following predication-expression pair:

- (6) (Past e_1 : [depart_V(d1x₁:stranger_N(x₁))_{Ag}](e₁):
 [(d1x₂: (d1x₃: show_N(x₃): x₃ < x₂))_{Time-pos}](e₁))
 The stranger departed after the show.

In this example, the underlying satellite term contains the structure ' $x_3 < x_2$ ', which signifies that the show (represented by x_3) preceded the time of departing (represented by x_2). The structure concerned is a relational formula. Like all other relational formulae it contains two symbols linked by a sign of either equality or (as is this case) inequality.

With regard to example (6), the expression of the temporal satellite involves the insertion of the preposition *after*. This is achieved by a rule which relies upon the presence of an appropriate relational formula:

- (7) Time-pos[TERM] = after TERM (if x_i is the time-position of e_i
 and $x_i < x_j$)

(on the assumption that the TERM concerned is associated with the variable x_i).

In order to cope with durational satellites, it is necessary to posit an additional device, whose purpose is to indicate the starting-point or end-point of a period of time. The notation for this consists of a vertical bar, and it is exemplified in the temporal satellites within the following sentences:

- (8) (a) (Perf Pres e_1 : $[\text{last}_V(d1x_1:\text{soap}_N(x_1))_\emptyset](e_1)$:
 $[(d1x_2:(d1x_3:\text{Christmas}_N(x_3):x_3 = |(x_2)))_{\text{Dur}}](e_1))$
 The soap has lasted since Christmas.
- (b) (Past e_1 : $[\text{last}_V(d1x_1:\text{soap}_N(x_1))_\emptyset](e_1)$:
 $[(d1x_2:(d1x_3:\text{yesterday}_N(x_3):x_3 = (x_2)|))_{\text{Dur}}](e_1))$
 The soap lasted until yesterday.

In (8a) the temporal satellite *since Christmas* denotes a period (represented by x_2) whose starting-point is Christmas (represented by x_3). Thus, x_3 is the starting point of x_2 , and this is indicated by means of the relational formula ' $x_3 = |(x_2)$ '. In (8b), on the other hand, the temporal satellite *until yesterday* refers to a period (represented by x_2) whose end-point is yesterday (represented by x_3), and this is shown by the relational formula ' $x_3 = (x_2)|$ '.

In Connolly (1994) the apparatus just outlined is used to formulate expression rules for English temporal satellites realised as simple adverbial phrases, noun phrases and adpositional phrases. Our present concern, therefore, is to broaden the approach in order to encompass more complex temporal satellites.

3 Extending the Coverage

3.1 Temporal phrases

We shall begin by extending our coverage of temporal satellites that are realised in linguistic expressions as phrases rather than clauses, leaving the latter to be dealt with in a later subsection. With regard to temporal phrases there are several different matters to consider.

3.1.1 Adverbial Phrases Containing Modifiers

As far as adverbial phrases are concerned, in Connolly (1994) only simple one-word phrases are included. Extending the coverage to cater for phrases such as (9) is thus an obvious next step.

- (9) Fairly recently.

In order to accomplish this, we need first of all to make an assumption about the form of the

underlying term in instances like (9). To be precise, it will be assumed that the underlying structure of (9) is as shown in (10):

(10) $(\text{recent}_A(e_i):(\text{fairly}_{Adv}Dg)_{Time-pos})$

Next, we need to modify rule (5), in effect replacing it by rule (11):

(11) Realisation[ITEM_A] = ITEM-ly (if ITEM is the first restrictor within a satellite term)

This rule secures the appropriate expression for examples such as (9).

3.1.2 Temporal Satellites with Focussing Adjuncts

Consider now the temporal satellite *only recently* in the following pair of sentences:

- (12) (a) The letter arrived only recently.
 (b) The letter only arrived recently.

In both examples the adverb *recently* is modified by the adverb *only*, the two words being contiguous in (12a) but separated by the verb *arrived* in (12b). In the descriptive framework propounded by Quirk et al. (1972: 431-32), *only* is categorised as a 'focussing adjunct', and hence as a separate adverbial element from the constituent to which it applies (i.e. *recently* in the present example). This analysis makes good sense on grounds of the positional mobility of focussing adjuncts; see further Connolly (1991:87-91). What we require at this juncture, therefore, is a means of representing combinations such as *only recently* at the underlying level. The notation to be adopted here is to append an asterisk to the item to which the focussing adjunct applies, and to add a corresponding asterisk in parentheses to the focussing adjunct (FA) itself, as illustrated in (13):

(13) $(\text{recent}_A^*(e_i))_{Time-pos} (\text{only}_{Adv}^*)_{FA}$

The asterisk notation introduced above has two particular advantages. Firstly, it can easily be extended to accommodate instances where more than one focussing adjunct and companion constituent appear in the same sentences. In such cases the first pair of such elements can be cross-referenced by means of a single asterisk, the second pair by means of two asterisks, and so on. An example is seen in the following predication-expression pair:

(14) $(\text{Past } e_1:[\text{snap}_V^*(d1x_1:\text{handle}(x_1))_{Proc}](e_1):(\text{simple}_A^*)_{FA}:$
 $(\text{recent}_A^{**}(e_1))_{Time-pos} (\text{only}_{Adv}^{**})_{FA})$

Only recently the handle simply snapped.

Secondly, the asterisk can be applied straightforwardly to any kind of predicate, including verbal predicates such as *snap* in (14), and equally well to term operators, such as those which underlie *that* in (15a) or *two* in (15b):

- (15) (a) $(\text{Past } e_1: [\text{snap}_V(d1x_1: \text{handle}_N(x_1))_{\text{Proc}}](e_1):$
 $[(d \text{ prox} * 1(x_2): \text{week}_N(x_2))_{\text{Time-pos}}(\text{only}_{\text{Adv}}(*))_{\text{FA}}](e_1))$
 The handle snapped only this week.
- (b) $(\text{Past } e_1: [\text{snap}_V(d1x_1: \text{handle}_N(x_1))_{\text{Proc}}](e_1):$
 $[(i2 * x_2: \text{day}_N(x_2): x_2 < E_1)_{\text{Time-Pos}}(\text{only}_{\text{Adv}}(*))_{\text{FA}}](e_1))$
 The handle snapped only two days ago.

As is conventional, the symbol 'E₁' denotes the deictic centre; see Dik (1989: 37).

3.1.3 Temporal Satellites with Nested Adpositional Phrases

As noted above, one of the possible realisations of a temporal satellite is as an adpositional phrase. However, in some instances of this kind we find that the phrase concerned contains another adpositional phrase nested within it. An example is seen in (16):

- (16) Since before the ceremony.

We may compare this example with the simple cases illustrated in (17):

- (17) (a) Before the ceremony.
 (b) Since the ceremony.

Given that the underlying term for (17a) is (18a) and that the underlying representation for (17b) is (18b), then we readily see that the underlying term for (16) is (18c):

- (18) (a) $(d1x_j: (d1x_i: \text{ceremony}_N(x_i): x_j < x_i))_{\text{Time-pos}}$
 (b) $(d1x_k: (d1x_i: \text{ceremony}_N(x_i): x_i = l(x_k)))_{\text{Dur}}$
 (c) $(d1x_k: (d1x_j: (d1x_i: \text{ceremony}_N(x_i): x_j < x_i))_{\text{Time-pos}}: x_j = l(x_k))_{\text{Dur}}$

Granted the above, then the existing expression rules proposed in Connolly (1994) can be applied to the more complex cases such as (18c) in essentially the same fashion as for the simple instances.

It should be noted, however, that there are heavy constraints upon the allowable combinations of temporal adpositions within the nested structure with which we have been concerned. Among the various logical possibilities, only a small number seem unequivocally acceptable. *Since* readily combines with *ago*, *before* and *prior to*, and *until* combines readily with *after* and *ago*, as illustrated in (19) and (20):

- (19) (a) [The new management has been in place] since three weeks ago.
 (b) [The new management has been in place] since before Easter.
 (c) [The new management has been in place] since prior to Easter.
- (20) (a) [The old management was in place] until three weeks ago.
 (b) [The old management was in place] until after the buy-out.

Other combinations easily tend to sound awkward, at the very least.

As far as these unacceptable or dubious combinations are concerned, the constraints which they violate may be either logical or purely grammatical in nature. For example, (21a) is logically inconsistent and (21b) is logically redundant, while (21c) is logical but ungrammatical.

- (21) (a) *Since until midnight.
 (b) ?The incident took place at between seven and eight o'clock.
 (c) *Until on Tuesday.

3.2 *Temporal Clauses*

We now turn our attention to temporal satellites realised in linguistic expressions as clauses rather than phrases. Our coverage will encompass clauses of both the finite and non-finite types. As in the case of Connolly (1994), the treatment will draw upon, and aim at a similar level of detail to, the descriptive work of Quirk et al. (1972, 1985) and Leech and Svartvik (1973).

Whereas the purpose of the rules pertaining to temporal phrases, as presented in Connolly (1994), is to introduce appropriate adpositions into the linguistic expression, the aim of the rules introduced below will be to insert appropriate subordinating conjunctions. Of course, other expression rules besides these are needed in order to deal fully with the surface form of temporal and other subordinate clauses, but it is not feasible to list the full set of additional rules here.

3.2.1 *Time-position Terms*

As far as time-position terms are concerned, a set of rules for introducing the appropriate subordinating conjunctions are presented in (23) below. Their placement in clause-initial position is dealt with in Connolly (1991:61, 65). In formulating the rules in (23) it is assumed throughout that:

- (22) (a) The temporal TERM (denoted by 'x_i') to which any rule applies consists directly of a predication.
 (b) The notation '<!' means 'immediately precedes (in time)'.
 (c) The rules presented in Connolly (1994) apply only to temporal terms that do not consist directly of a predication.

The expression 'consists directly of a predication' in (22a,c) means 'has a predication as its first

restrictor'. This implies that the surface realisation of the term concerned comprises a subordinate clause, as opposed to a phrase containing an embedded (postmodifying) clause functioning merely as part of its internal structure. The actual rules are as follows:

- (23) (a) Time-pos[TERM] = when TERM (if TERM does not directly contain a relational formula)
- (b) Time-pos[TERM] = before TERM (if e_j relates to the PREDICATION of which x_i directly consists and $x_i < e_j$)
- (c) Time-pos[TERM] = after TERM (if e_j relates to the PREDICATION of which x_i directly consists and $e_j < x_i$)
- (d) Time-pos[TERM] = whereupon TERM (if e_j relates to the PREDICATION of which x_i directly consists and $x_i < ! e_j$)
- (e) Time-pos[TERM] = once TERM
or as soon as TERM
or no sooner than TERM
or immediately (that) TERM
or directly (that) TERM
 (if e_j relates to the PREDICATION of which x_i directly consists and $e_j < ! x_i$)
- (f) Time-pos[TERM] = now (that) TERM (if e_j relates to the PREDICATION of which x_i directly consists and $e_j < E_1$)

Examples of the application of rules (23a-f) are presented, respectively, in the following predication-expression pairs:

- (24) (a) (Past e_1 : [leave_V(d1 x_1 :audience_N(x_1))_{Ag}](e_1):
 [(d1 x_2 : {Past e_2 : [end_V(d1 x_3 :concert_N(x_3))_{Proc}](e_2)) }_{Time-pos}](e_1))
 The audience left when the concert ended.
- (b) (Past e_1 : [begin_V(d1 x_1 :trouble_N(x_1))_{Proc}](e_1):
 [(d1 x_2 : {Past e_2 : [assassinate_V(d1 x_3 :king_N(x_3))_{Go}](e_2)) } _{$x_2 < e_2$} }_{Time-pos}](e_1))
 The trouble began before the king was assassinated.

- (c) (Past e_1 : $[\text{begin}_V(d1x_1:\text{trouble}_N(x_1))_{\text{Proc}}](e_1)$:
 $[(d1x_2:\{\text{Past } e_2:[\text{assassinate}_V(d1x_3:\text{king}_N(x_3))_{\text{Go}}](e_2)\}:e_2 < x_2)_{\text{Time-pos}}](e_1))$
 The trouble began after the king was assassinated.
- (d) (Past e_1 : $[\text{assassinate}_V(d1x_1:\text{king}_N(x_1))_{\text{Go}}](e_1)$,
 $[(d1x_2:\{\text{Past } e_2:[\text{begin}_V(d1x_3:\text{trouble}_N(x_3))_{\text{Proc}}](e_2)\}:e_1 < e_2)_{\text{Time-pos}}](e_1))$
 The king was assassinated whereupon the trouble began.
- (e) (Past e_1 : $[\text{begin}_V(d1x_1:\text{trouble}_N(x_1))_{\text{Proc}}](e_1)$:
 $[(d1x_2:\{\text{Past } e_2:[\text{assassinate}_V(d1x_3:\text{king}_N(x_3))_{\text{Go}}](e_2)\}:e_2 < e_1)_{\text{Time-pos}}](e_1))$
 The trouble began once the king was assassinated.
Or:
 The trouble began as soon as the king was assassinated.
Or:
 The trouble began no sooner than the king was assassinated.
Or:
 The trouble began immediately that the king was assassinated.
Or:
 The trouble began immediately the king was assassinated.
Or:
 The trouble began directly that the king was assassinated.
Or:
 The trouble began directly the king was assassinated.
- (f) (Fut e_1 : $[\text{leave}_V(d1x_1:\text{audience}_N(x_1))_{\text{Ag}}](e_1)$,
 $[(d1x_2:\{\text{Perf } e_2:[\text{award}_V(\text{dmx}_3:\text{prize}_N(x_3))_{\text{Go}}](e_2)\}:e_2 < E_1)_{\text{Time-pos}}](e_1))$
 Now that the prizes have been awarded, the audience will leave.

Note that the use of a comma rather than a colon to separate the satellite from the main predication in (24d) and (24f) is due to the fact that the temporal satellites in these two examples are non-restrictive, whereas those in the remaining examples are restrictive. See further Hengeveld (1989: 152-56).

3.2.2 Duration Terms

Turning now to the rules for inserting subordinating conjunctions into temporal terms representing duration, these are presented in (25) below. Like the rules in (23), they are based on the assumptions listed in (22) above.

- (25) (a) Dur[TERM] = while TERM (if TERM does not directly contain a relational formula)

- (b) Dur[TERM] = since TERM (if superordinate PREDICATION is Perf and e_j relates to the PREDICATION of which x_i directly consists and $e_j = l(x_i)$)
- (c) Dur[TERM] = until TERM or till TERM (if e_j relates to the PREDICATION of which x_i directly consists and $e_j = (x_i)l$)
- (d) Dur[TERM] = as TERM (if e_j relates to the PREDICATION of which x_i directly consists and $l(e_j) = l(x_i)$ and $(e_j)l = (x_i)l$)
- (e) Dur[TERM] = as long as TERM (if e_j relates to the PREDICATION of which x_i directly consists and $(e_j)l = (x_i)l$)

As will be evident from (25d), the use of subordinating conjunction *as* is interpreted here as indicating that the durations denoted by e_j and x_i are (approximately) coincident, whereas the use of *while* does not carry such an implication, but rather leaves open the possibility that the state-of-affairs described by the temporal term is of significantly longer duration than that described by the superordinate predication. Regarding the conjunction *as long as*, this is here interpreted as implying only that the end-points of e_j and x_i are (approximately) coincident.

Examples of the application of the rules in (25a-e) are given, respectively, in (26a-e):

- (26) (a) (Past e_1 : [applaud_v(d1x₁:audience_N(x₁))_{Ag}](e₁):
 [(d1x₂: {Past e₂: [bow_v(dmx₃:actor_N(x₃))_{Ag}](e₂)}_{Dur}](e₁))
 The audience applauded while the actors bowed.
- (b) (Perf Pres e_1 : [arrive_v(i49x₁:visitor_N(x₁))_{Ag}](e₁):
 [(d1x₂: {Past e₂: [open_v(dmx₃:door_N(x₃))_{Go}](e₂)}:e₂ = l(x₂))_{Dur}](e₁))
 Forty-nine visitors have arrived since the doors were opened.
- (c) (Past e_1 : [enter_v(i1x₁:water_N(x₁))_{Proc}](e₁):
 [(d1x₂: {Past e₂: [seal_v(d1x₃:window_N(x₃))_{Go}](e₂)}:e₂ = (x₂)l)_{Dur}](e₁))
 Water entered till the window was sealed.
Or:
 Water entered until the window was sealed.

(d) (Past e_1 : $[\text{ship}_V(d1x_1:\text{girl}_N(x_1))_{\text{Proc}}](e_1)$:

$[(d1x_2:\{\text{Past } e_2:[\text{reach}_V(d1x_1)_{\text{Ag}}(d1x_3:\text{summit}_N(x_3))_{\text{Go}}](e_2)\})$:

$l(x_2) = l(e_2):(x_2)l = (e_2)l)_{\text{Dur}}](e_1)$)

The girl slipped as she reached the summit.

(e) (Fut e_1 : $[\text{continue}_V(d1x_1:\text{search}_N(x_1))_{\emptyset}](e_1)$:

$[(d1x_2:\{\text{Pres } e_2:[\text{missing}_A(d1x_3:\text{child}_N(x_3))_{\emptyset}](e_2)\}:(x_2)l = (e_2)l)_{\text{Dur}}](e_1)$)

The search will continue as long as the child is missing.

3.2.3 Frequency Terms

As for the category of frequency, there is only one subordinating conjunction which unequivocally demands inclusion, namely *whenever*. We can, therefore, deal with this item fairly quickly. The simple rule required to insert the conjunction into the linguistic expression is given in (27), based once again on the assumptions enumerated in (22) above. An example of the application of rule (27) is provided in (28):

(27) Freq[TERM] = whenever TERM

(28) (Past e_1 : $[\text{laugh}_V(d1x_1:\text{audience}_N(x_1))_{\text{Ag}}](e_1)$:

$[(d1x_2:\{\text{Past } e_2:[\text{tell}_V(d1x_3:\text{comedian}_N(x_3))_{\text{Ag}}(i1x_4:\text{joke}_N(x_4))_{\text{Go}}](e_2)\})_{\text{Freq}}](e_1)$)

The audience laughed whenever the comedian told a joke.

3.2.4 Non-finite Clauses

All the examples of temporal terms presented in the current section up until this point have been of finite rather than of non-finite clauses. However, certain of the subordinating conjunctions that have figured in the above expression rules are capable of introducing clauses of the non-finite variety; cf. Quirk et al. (1972:744). The conjunctions in question are:

(29) After, before, once, now (that), since, until, when, whenever, while.

The non-finite clauses introduced by these conjunctions are abbreviated in comparison with their finite counterparts, as a result of various processes of ellipsis.

Several different patterns of ellipsis are possible. Firstly, the subject may be ellipitied if it is coreferential with the subject of the superordinate clause, as in (30):

(30) (a) ?After having surveyed the property [he had made a report].

Finite counterpart: After he had surveyed the property [...].

(b) [You must close the windows] before leaving.

Finite counterpart: [...] before you leave.

- (c) ?Once having been discovered [the island became very popular].
Finite counterpart: Once it had been discovered [...].
- (d) [I have been consulted three times] since arriving.
Finite counterpart: [...] since I arrived.
- (e) [You should retain your ticket] until joining the train.
Finite counterpart: [...] until you join the train.
- (f) [The engine makes a noise] when starting up.
Finite counterpart: [...] when it starts up.
- (g) [You must open the window] whenever using this solvent.
Finite counterpart: [...] whenever you use this solvent.
- (h) [She felt uneasy] while journeying through the North.
Finite counterpart: [...] while she journeyed through the North.

(The '?' attached to (30a) and (30c) is intended to indicate that these are stylistically dubious but not actually ungrammatical.)

Alternatively, given the same coreferentiality condition, not only the subject but also one or more auxiliaries may be ellipsed, as in (31):

- (31) (a) After finishing her meal [she went for a walk].
Finite counterpart: After she had finished her meal [...].
- (b) [She had consulted her lawyer] before making the statement.
Finite counterpart: [...] before she had made the statement.
- (c) Once reassured [he felt confident again].
Finite counterpart: Once he had been reassured [...].
- (d) Since being promoted [he had worked even harder].
Finite counterpart: Since he had been promoted [...].
- (e) [She must be kept warm] until seen by a doctor.
Finite counterpart: [...] until she has been seen by a doctor.
- (f) [You must be careful] when trimming the hedge.
Finite counterpart: [...] when you are trimming the hedge.
- (g) [He was uncooperative] whenever assigned a difficult task.
Finite counterpart: [...] whenever he was assigned a difficult task.
- (h) [She made up her mind] while being driven to the theatre.
Finite counterpart: [...] while she was being driven to the theatre.

Note that (unsurprisingly) an elliptical clause may have more than one possible finite counterpart. For example, an alternative correlate to the non-finite clause in (31a) is (32):

- (32) After she finished her meal [...].

If (32) were taken to be the correct unabbreviated form in some context, then of course the relevant ellipsis pattern would be that exemplified in (30a) rather than (31a). Nevertheless, the pattern

illustrated in (31a) is equally valid.

Again given the same coreferentiality condition, it is sometimes possible for the conjunction itself to undergo ellipsis in addition to the subject, as in (33), or in addition to the subject and one or more auxiliaries, as in (34):

- (33) (a) Having satisfied himself that nothing was amiss [he continued on his way].
Finite counterpart: After he had satisfied himself that nothing was amiss [...].
- (b) [You must remain alert] crossing the river.
Finite counterpart: [...] when you cross the river.
- (c) [He was well paid] working for the bank.
Finite counterpart: [...] while he worked for the bank.
- (31) (a) Reassured that nothing was amiss, [he continued on his way].
Finite counterpart: After he had been reassured that nothing was amiss [...].
- (b) Shown the picture [he laughed out loud].
Finite counterpart: When he was shown the picture [...].
- (c) Walking through the woods [she discovered a rare wildflower].
Finite counterpart: While she was walking through the woods [...].

In certain cases, non-finite temporal clauses can also occur whose subject is *not* coreferential with that of the superordinate clause. However, in such instances the subject of the non-finite clause does not undergo ellipsis, as can be seen from the examples in (35):

- (35) (a) An hour having elapsed [they began to worry].
Finite counterpart: After an hour had elapsed [...].
- (b) His moment of departure being imminent [he is going to say goodbye].
Finite counterpart: Now (that) his moment of departure is imminent [...].
- (c) Her visitor being due [she went to the window].
Finite counterpart: When her visitor was due [...].

A further possible pattern consists in the ellipsis of an entire verbal element in which the main verb is *be*. This pattern can occur if the subject of the abbreviated clause is coreferential either with the subject of the superordinate clause, as in (36), or with the object of the superordinate clause, as in (37):

- (36) (a) Once in operation [it will need to be kept going for twenty-four hours].
Finite counterpart: Once it is in operation [...].
- (b) [It must be left alone] until dry.
Finite counterpart: [...] until it is dry.
- (c) When in doubt [you should ask].
Finite counterpart: When you are in doubt [...].
- (d) [He will come] whenever available.
Finite counterpart: [...] whenever he is available.

- (e) [This must be consumed] while fresh.
Finite counterpart: [...] while it is fresh.
- (37) (a) [Do not shake the container] once full.
Finite counterpart: [...] once it is full.
- (b) [Beat the mixture] until thick.
Finite counterpart: [...] until it is thick.
- (c) [Remove the plaster] when hard.
Finite counterpart: [...] when it is hard.
- (d) [Clean the mesh] whenever dirty.
Finite counterpart: [...] whenever it is dirty.
- (e) [Do not repair the appliance] while under guarantee.
Finite counterpart: [...] while it is under guarantee.

3.2.5 *Generating both Finite and Non-finite Clauses*

In FG, deletion rules are avoided as far as possible.² In order to conform to this approach, it is necessary to take the elliptical structures, where they exist, as basic, while also catering for the insertion of the grammatical words necessary to generate the finite analogues. Although it is not feasible here to include all the rules required to achieve the various forms of ellipsis described above, it is reasonable to present a small sample in order simply to illustrate how such rules may be formulated. In (38-40), therefore, a sketch is offered of the rules needed to generate a small subset of finite and non-finite temporal clauses. This subset comprises those whose finite realisations are introduced by one particular subordinating conjunction, namely *when*, whose voice is active rather than passive, whose tense is present rather than past, and whose subject (Subj) is coreferential with the subject of the superordinate clause. For the sake of simplicity of exposition, the rules disregard concord between subject and finite verb, the existence of irregular verb forms, and such like. The rules are ordered.

- (38) (a) Pres[PRED-v] = PRED_{Pres} <OPTION 1>
or PRED_{PresPart} <OPTION 2>
- (b) Prog_Pres[PRED-v] = BE_{Pres} PRED_{PresPart} <OPTION 1>
or PRED_{PresPart} <OPTION 2>
- (c) Perf_Pres[PRED-v] = HAVE_{Pres} PRED_{PresPart} <OPTION 1>
or PRED_{PresPart} <OPTION 2>
- (d) Prog_Perf_Pres[PRED-v] = HAVE_{Pres} BE_{PastPart} PRED_{PresPart} <OPTION 1>
or PRED_{PresPart} <OPTION 2>

(39) *Copula Support*

(Assume here that PRED represents a predicative nominal or adjectival predicate)

- (a) Pres[PRED] = BE_{Pres} PRED <OPTION 1>
or BE_{PresPart} PRED <OPTION 2>

- or PRED <OPTION 3>
 (b) Prog_Pres[PRED] = BE_{Pres} BE_{PresPart} PRED <OPTION 1>
 or BE_{PresPart} PRED <OPTION 2>
 (c) Perf_Pres[PRED] = HAVE_{Pres} BE_{PastPart} PRED <OPTION 1>
 or BE_{PresPart} PRED <OPTION 2>
 (d) Prog_Perf_Pres[PRED] = HAVE_{Pres} BE_{PastPart} BE_{PresPart} PRED <OPTION 1>
 or BE_{PresPart} PRED <OPTION 2>
 (40) (a) Subj[TERM] = PRON
 (if <OPTION 1> has been selected in
 (38a, 38b, 39a or 39b)) <OPTION 1>
 (b) (If any other <OPTION> has been selected, then this rule should not be applied)
 <OPTION 2>

The result of not applying rule (40) is, in effect, to ensure that the Subject does not appear in the linguistic expression of the temporal clause.

Examples of the output of the rules in (38-40) are presented in (41-42):

- (41) (a) (i) [I take my time] when I tie knots.
 (ii) [I take my time] when tying knots.
 (b) (i) [I take my time] when I am tying knots.
 (ii) [I take my time] when tying knots. (*As in (41a.ii).*)
 (c) (i) [I have always taken my time] when I have tied knots.
 (ii) [I have always taken my time] when tying knots. (*As in (41a.ii) and (41b.ii).*)
 (d) (i) [I have always taken my time] when I have been tying knots.
 (ii) [I have always taken my time] when tying knots. (*As in (41a.ii),
 (41b.ii) and (41c.ii).*)
 (42) (a) (i) [He is acerbic] when he is witty.
 (ii) [He is acerbic] when being witty.
 (iii) [He is acerbic] when witty.
 (b) (i) [He is acerbic] when he is being witty.
 (ii) [He is acerbic] when being witty. (*As in (42a.ii).*)
 (c) (i) [He has always been acerbic] when he has been witty.
 (ii) [He has always been acerbic] when being witty. (*As in (42a.ii) and (42b.ii).*)
 (d) (i) [He has always been acerbic] when he has been being witty.
 (ii) [He has always been acerbic] when being witty. (*As in (42a.ii),
 (42b.ii) and (42c.ii).*)

It is acknowledged that the conditions attached to rules (38-40) will need to be expanded in order to constrain further the range of non-finite clauses generated. However, this will require additional

research.

In order to generate expressions with ellipsis of the subordinating conjunction, we need to order the conjunction introduction rules, such as (23a), after rules (38-40), and also to modify them so that, for example, rule (23a) states:

- (43) Time-pos[TERM] = when TERM (if TERM does not directly contain a relational formula) <OPTION 1>
 or TERM (if TERM does not directly contain a relational formula and <OPTION 2> of rule (40) has been selected) <OPTION 2>

The selection of <OPTION 2> of rule (43) makes possible the generation of expressions like:

- (44) [I take my time] tying knots.

3.3 Temporal Satellites Containing Clauses

In 3.2 we were concerned with temporal satellites which consisted directly of clauses. However, it is also possible for a temporal satellite to comprise a phrase or clause with one or more subordinate clauses embedded within it, as exemplified in (45):

- (45) (a) Since the day I left ...
 (b) When he stood where she wanted to be ...

In (45a) we find a temporal prepositional phrase whose prepositional complement, *the day I left*, contains the postmodifying clause *I left*. In (45b), on the other hand, we see a temporal clause which itself incorporates a further subordinate clause, *where she wanted to be*, functioning as an adverbial of place. Constructions such as these need not, however, detain us here, as their generation requires no additional apparatus that has not been dealt with either in the preceding sections or elsewhere in the FG literature.

4. Conclusion

As a result of the work described in Connolly (1994) and in the present paper, a reasonably wide-ranging outline has been proposed of the expression rules required to ensure that English temporal satellites can be generated in their correct form by means of a FG. As always, however, the work that we carry out points to further tasks as yet unattempted, for example the detailed description of ellipsis in non-finite clauses. Nevertheless, it is hoped that our understanding of expression rules for the generation of internally complex as well as simple English temporal satellite terms in FG has now been in some modest way advanced.

Footnotes

1. In this paper the 'x' variable has been used in relation to terms of all kinds. This makes for consistency with Connolly (1994), which was actually written several years previously. Current practice in FG would, however, support the use of the 'e' variable for second-order entities; see Dik (1989: 181).
2. Nevertheless, the device of realising a symbol by zero is employed in Dik (1979).

Acknowledgements

My thanks are due to Lachlan Mackenzie and Peter van Baarle for their comments on a previous draft of this paper.

References

- Connolly, J.H. (1991). *Constituent Order in Functional Grammar: Synchronic and Diachronic Perspectives*. Berlin: Foris.
- Connolly, J.H. (1994). On the generation of English temporal satellite terms. In Engberg-Pedersen, E., Falster Jakobsen, L. and Schack Rasmussen, L. (eds.), *Function and Expression in Functional Grammar*. Berlin: Mouton de Gruyter. 303-315.
- Dik, S.C. (1978). *Functional grammar*. Amsterdam: North-Holland. (3rd printing 1981, Dordrecht: Foris.)
- Dik, S.C. (1979). *Seventeen Sentences: Basic Principles and Applications of Functional Grammar*. (Publikaties van het Instituut voor Algemene Taalwetenschap 22). Amsterdam: University of Amsterdam.
- Dik, S.C. (1989). *The Theory of Functional Grammar, Part I: The Structure of the Clause*. Dordrecht: Foris.
- Hengeveld, K. (1989). Layers and operators in Functional Grammar. *Journal of Linguistics* 25, 127-57.
- Leech, G.N and Svartvik, J. (1973). *A Communicative Grammar of English*. London: Longman.
- Quirk, R., Greenbaum, S., Leech, G.N. and Svartvik, J. (1972). *A Grammar of Contemporary English*. London: Longman.
- Quirk, R., Greenbaum, S., Leech, G.N. and Svartvik, J. (1985). *A Comprehensive Grammar of the English Language*. London: Longman.

