ABSTRACT. Quantificational arguments can take scope outside of temporal adjunct clauses, in an apparent violation of locality restrictions: the sentence few secretaries cried after each executive resigned allows the quantificational NP each executive to take scope above few secretaries. I show how this scope relation is the result of local operations: the adjunct clause is a temporal generalized quantifier which takes scope over the main clause (Pratt and Francez, Linguistic and Philosophy 24(2), 187–222. [2001]), and within the adjunct clause, the quantificational argument takes scope above the implicit determiner which forms the temporal generalized quantifier. The paper explores various relations among quantificational arguments across clause boundaries, including temporal clauses that are modified internally by a temporal adverbial and temporal clauses with embedded sentential complements.

1. Introduction

Temporal clauses provide apparent counterexamples to the generalization that adjunct clauses form boundaries for quantifier scope. The sentences in (1) have readings where the quantificational argument of the embedded clause takes wide scope with respect to the matrix subject: the sentences are true if each resignation or termination is associated with different crying secretaries.

\[
\begin{align*}
(1) \quad \{ & \text{A secretary} \} \quad \{ & \text{before} \} \\
& \{ \text{Few secretaries} \} \quad \{ \text{when} \} \\
& \{ \text{each executive resigned.} \} \\
& \{ \text{the board fired each executive.} \}
\end{align*}
\]

Such readings are generally not available with non-temporal adjunct clauses: the sentences in (2) do not allow a wide-scope interpretation of the embedded argument.
The ability of a quantificational argument to take scope outside of a temporal adjunct clause therefore appears to be related to the temporality of the clause. In this paper I show how this falls naturally from a semantics that treats temporal adjunct clauses as temporal generalized quantifiers (Pratt and Francez 2001). Temporal adjunct clauses become temporal generalized quantifiers through the application of a temporal determiner, akin to the explicit determiner in PPs such as before/during/after each meeting. The determiner applies within the adjunct clause, so a quantificational argument can take scope over it; in turn, the entire temporal generalized quantifier can take scope above a quantifier in the matrix clause, giving the quantificational argument scope over the matrix clause as well. Through this mechanism the scope of a quantificational argument transcends the clause that contains it without violating locality restrictions.

A further illustration of the scopal properties of quantificational arguments in temporal adjunct clauses is the ability of a quantifier inside such a clause to bind a pronoun outside it. The sentences in (3) all have such readings, which can be roughly paraphrased as “for each boy, before/when/after he goes to sleep, I give him a kiss”.

(3)  
\[
\begin{align*}
\text{Before} & \\
\text{When} & \\
\text{After} &
\end{align*}
\] 
each boy goes to sleep, I give him a kiss.

While superficially similar to “donkey” sentences like if a farmer owns a donkey he beats it, the above sentences must be instances of true variable binding because universal quantifiers do not license “donkey” readings; the sentences in (4) do not have readings that can be paraphrased as “for each boy, if/although/because he goes to sleep, I give him a kiss”.

(4)  
\[
\begin{align*}
\text{If} & \\
\text{Although} & \\
\text{Because} &
\end{align*}
\] 
each boy goes to sleep, I give him a kiss.