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## Accomplishments and the Prefix *re-*

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### 1. The Problem.

1.1. *Overview.* The verbal prefix *re-* is generally said to signify that the result state of an accomplishment has been restored (Marchand 1960, Dowty 1979).<sup>1</sup> (1a) and (1b) describe the same action, but differ in that the latter presupposes that (1c), i.e., that the result state of opening the door was previously true:<sup>2</sup>

- (1) (a) John opened the door.  
(b) John reopened the door.  
(c) 'The door was previously open.'

This affix is surprisingly productive--such locutions as *re-FTP a file*, *re-TeX a document*, *renazify West Germany* are not uncommon--and yet its distribution is systematic.<sup>3</sup> This systematicity begs an explanation. To the extent that *re-* signifies that a result state has been restored, its meaning explains why *re-* can appear on accomplishments, which have result states (as in (1)), but not activities (*\*John reslept for an hour*) or statives (*\*I relove you*), which lack them.

In this paper we look at two problems with this picture, exemplified by (2a) and (b):

- (2) (a) \*John reup the antenna on his car.  
(b) John reread *Ulysses* in one day.

(2a) is an accomplishment with a result state, but rejects the affix, as noted by

Carlson and Roeper 1980. (2b) poses a different problem. To be sure, it is an accomplishment (hence consistent with our generalization), but it lacks a result state. We will see that both kinds of exceptions are systematic, and in explaining them we hope to shed light on the nature of accomplishments.

1.2. *Internal and external adverbials*. Adverbials like *for four years* and *again* are ambiguous with accomplishment predicates:<sup>4</sup>

- (3) (a) The Sheriff of Nottingham jailed Robin Hood for four years.  
 (a') 'The Sheriff of Nottingham spent four years bringing it about that Robin Hood was in jail.' (*external reading*)  
 (a'') 'The Sheriff of Nottingham brought it about that for four years Robin Hood was in jail.' (*internal reading*)  
 (b) John entered the Soviet Union again. (*ambiguous*)  
 (c) Again John entered the Soviet Union. (*external only*)

Following Dowty 1979, we call (a') the external reading, where the durative adverbial *for four years* modifies the entire event, while (a'') is the internal reading, where it modifies only the result state. As a VP-adverb in (b), *again* is similarly ambiguous between (i) external *again*, which is synonymous with the S-adverb in (c), and (ii) internal *again*, where John has come to be within the Soviet Union's borders for a second time, with no commitment as to whether he ever entered before (perhaps he was born in the Soviet Union and never left prior to his trip to the West).

While *again* is ambiguous, re-, according to Dowty, unambiguously denotes internal *again* (1979, p. 256):

[T]he meaning of re- seems to be quite literally the same as that of internal *again*; its meaning is that the result-state of an accomplishment is true for a second time, but not necessarily that the bringing about of this state occurs for a second time.

In (4a) the satellite has been located within the earth's atmosphere on an earlier occasion (the result state of entering), but it need not have entered before:<sup>5</sup>

- (4) (a) The satellite reentered the earth's atmosphere at 3:47.  
 (b) John rearranged the boulders on the hillside.

Similarly, (4b) can be true even if no one has arranged the boulders before. It requires only that the boulders were once before in an 'arrangement'.

For Dowty 1979 the result state is the state under the scope of the BECOME operator, which abbreviates a formula in tense logic. An internal adverbial translates as an expression of some kind occurring just inside the BECOME operator (1979: p. 267ff).

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- (5) (a)  $\exists x$  [ door(x) &  $\exists P$ {j} CAUSE BECOME [open(x)]]  
 (b)  $\exists x$  [ door(x) &  $\exists P$ {j} CAUSE BECOME **again**[open(x)]]  
 (c) **again** [  $\exists x$ [ door(x) &  $\exists P$ {j} CAUSE BECOME [open(x)]]]

*John opens a door* receives translation (5a). *John opens a door again* in the internal sense of *again*, as well as the synonymous *John reopens a door*, receives translation (5b). (5c) translates the external reading of *John opens a door again*.<sup>6</sup>

1.3. *Accomplishments lacking a result state*. Dowty noted that accomplishments like *read a book* pose a problem for an analysis like his which ties accomplishmenthood to the bringing about of a result state (1979: pp. 186-187). (He did not look at *re-* in connection with this problem, as we will presently.) The sentences in (6) pass the tests for accomplishments, but *re-* does not seem to signify that a state has been restored.

- (6) (a) John reread *Ulysses* in one day.  
 (b) The instructor wasn't looking, so John had to reswim the last lap.  
 (c) John reran the last lap of the race for the TV cameras.  
 (d) CBS will rebroadcast the game at 5 pm.  
 (e) We will replay that last tackle in slow motion.

In (6b) and (c), for example, John's position is the same before as after swimming or running the lap. Of course the events described by these sentences will have consequences: if John read *Ulysses* in a day, his eyes were tired by the end of the day, and so on. But an activity has such incidental consequences as well, and so they are not result states in the sense intended here, nor would they correspond to the state *p* in an expression BECOME(*p*) in the Dowty 1979 system. A result state is a specific state built into the predicate which serves as a criterion for the action to be perfected.

If examples like (6) lack result states, what makes them telic (i.e. accomplishments)? The *sine qua non* for telicity is the inclusion of a definite endpoint, sometimes called the *culmination*, *goal*, *limit*, or *terminal point* (Greek *telos* = end, completion).<sup>7</sup> For events with result states the inception of that state signals the endpoint. But in the type of telic event in (6), the endpoint is signalled in a different way, as discussed by Dahl (1981: p. 82):

This terminal point may be defined by a certain state-of-affairs, as when the coming into being of the chair defines the terminal point of the making of the chair. But the terminal point may also be defined, for example, by indicating some other measure (e.g., *This car has run 20,000 miles*). In these cases, an 'end-state' cannot be defined independently of the action: We can understand what it means for a chair to exist without referring to how it comes into being, but we cannot understand what it means for a car to have a certain mileage without referring to the process of running.

We will call this second type of accomplishment, which lacks a result state, a *path accomplishment*, and the more familiar type a *result state accomplishment*.

Our first pass at the meaning of *re-* is the following. In a result state accomplishment, *re-* is synonymous with internal *again*, while in a path accomplishment *re-* is synonymous with external *again*, as schematized in (7):

- (7) (a) Mary repainted the wall.  
 (a') Mary did something CAUSE BECOME [**again** [ the wall is painted ] ]  
 (b) John reswam the English Channel.  
 (b') **again** [ John swam the English Channel ]

The analysis in Dowty 1979 seems to predict this external reading for *reswim*, or in any case it could be modified to do so.<sup>8</sup> However, in this paper we are concerned not only with the interpretation of *re-*, but also with its distribution. Here the path accomplishments pose a problem. Path accomplishments lack result states and accept *re-*, while activities lack result states (by definition) and disallow *re-* (*\*resleep*, *\*repush a cart*). Thus the presence of the BECOME operator cannot be what licenses *re-*; but at the same time we know empirically that the prefix requires accomplishments.

## 2. Event Structure.

2.1. *Accomplishments as basic*. The strategy of Dowty 1979 was to reduce all the aspectual classes to a single homogeneous class--the *stative* predicates--plus three or four operators and connectives such as CAUSE and BECOME. Instead we will assume a richer ontology in which accomplishments are basic (see, e.g., Moens and Steedman 1987).<sup>9</sup>

Informally, *re-* means that the situation denoted by an accomplishment or some subpart of it (the result state, if there is one) previously obtained. This characterization leaves intact any insights of the Dowty 1979 analysis of accomplishments using BECOME, since these still form a subclass of accomplishments.

What about the path accomplishments? We tentatively concluded above that when applied to a path accomplishment *re-* is synonymous with external *again*. But this is not quite right, as shown by (8):

- (8) (a) John reswam the English Channel with flippers.  
 (b) John swam the English Channel with flippers again.

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In contrast to (8b), (8a) does not require that John used flippers for the earlier Channel-swimming. Clearly we need a way to separate out the roles played by the various participants in an accomplishment event. We turn to this problem next.

2.2. *Incremental themes.* (9a) is a result state accomplishment, while (9b) is a path accomplishment. But *a glass of wine* and *a poem* play similar roles in their respective events:

- (9) (a) Mary drank a glass of wine.  
(b) John read a poem.

The poem and the wine have the following in common: their *definite extent* is crucial in order for the event in which they participate to be an accomplishment. In (9b) the reading event has definite extent only if the poem does; in (9a) the drinking event has definite extent only if the wine does. Both exhibit the phenomenon studied by Verkuyl 1972, in which a quantized direct object yields an accomplishment (10a,11a), but a mass noun or indefinite plural yields an activity (10b,11b):

- (10) (a) John read a poem (in an hour).  
(b) John read poetry (for an hour/\*in an hour).  
(11) (a) Mary drank a glass of wine (in an hour).  
(b) Mary drank wine (for an hour/\*in an hour).

The lattice-theoretic approach to Verkuyl's puzzle (Hinrichs 1985, Krifka 1987) works as follows. In (11b) the mass noun *wine* has 'cumulative reference', since 'if there are two entities to which wine applies, this predicate applies to their collection as well' (Krifka 1987, p. 2): adding wine to wine gives wine. The NP *a glass of wine* in (11a) has quantized (and additive) reference, since adding a glass of wine to a glass of wine gives, not a glass of wine, but two glasses of wine. Quantificational reference types like cumulative and quantized reference categorize NP denotations, and categorize complex predicates such as VP denotations as well: 'Basically, telic predicates are quantized, and atelic predicates are cumulative' (Krifka 1987, p. 13).

Krifka notes that 'the influence of the reference type of the noun predicate depends on the thematic relation the NP bears in the sentence, so the laws which govern this influence can be stated most easily relative to thematic relations.' (1987: p. 12) These 'thematic relations' are modelled as follows. Events and object predicates are represented as algebraically structured, each on a join semi-lattice (cf. Link 1983). The 'part' relation relates any object (or quantity of matter) or event to its upper bound(s). Certain algebraic relations between the two lattices are then defined. For example, a role R is 'gradual' if whenever R(e, x) holds for an event e and object (or quantity of matter) x, there exists an e' which is part of e and an x'

which is part of  $x$  such that  $R(e', x')$ . Examples are the thematic roles of the 'readee' and 'drinkee' arguments in (10). Note that for such roles the two lattices are homomorphic: parts of wine map onto parts of drinking wine. Dowty (1988) dubbed this role the *incremental theme*.

2.3. *Nuclear arguments*. Recall that a result state accomplishment owes its accomplishmenthood to the existence of a definite result state. For a given result state accomplishment predicate, only certain of its arguments--those involved in the result state--and not others, lend the utterance its accomplishment interpretation (e.g. the result of typing a letter is not a property of the typist but of the letter).

Turning now to path accomplishments, what we saw in the previous section showed that a path accomplishment (*read a poem*), like a result state accomplishment, owes its accomplishmenthood to facts about CERTAIN of its participants (the incremental theme *a poem*) and NOT others. Arguments of either type of accomplishment predicate which denote those 'certain' participants we will call *nuclear arguments*. A simple test for nuclear argumenthood is that criteria for the completion of an accomplishment are given in terms of them. Incremental themes constitute one subclass of nuclear arguments; arguments of an accomplishment result state constitute another.

2.4. *Theme-path verbs*. For theme-path verbs, the stationary participant is usually the incremental theme (12a), but in principle either argument can be:

- (12) (a) John crossed the desert in one hour.  
 (b) The train crossed the border in one hour.

It is the *relative* position of the two participants which changes incrementally. Both theme and path are criterial for the event's completion, so both are nuclear arguments.

In (13a), the parts of the English Channel-swimming event map onto parts of the English Channel itself along the path traversed by the swimmer. It follows that we get the telic/atelic alternation discussed above, depending as the path is quantized (a 'delimited path' in the terminology of Tenny 1987) or not:

- (13) (a) John swam the English Channel in 10 hours.  
 (b) John swam in circles (for 10 hours/\*in 10 hours).  
 (c) John swam to England in 10 hours.

From this it is clear that the path is a nuclear thematic role. But it is also clear that in (13a) John is a nuclear argument, since the *relative* position of swimmer and Channel is criterial for the perfection of the event. We know when an event of drinking a glass of wine is complete, solely on the basis of the wine, but there is no analogous effect upon the English Channel of swimming it. In general in a theme-path predicate both theme and path are nuclear thematic roles. In the result state accom-

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plishment (13c) both swimmer and goal (England) bear nuclear roles, since the result state is that John is in England.

Summarizing, typical nuclear arguments are affected themes, delimited paths, and goals. Generally all arguments of a result state are nuclear. In a path accomplishment (e.g. transitive *swim*) both theme and path are nuclear.

### 3. Analysis of re-.

3.1. *Scope of re-*. Let re-S be a sentence S with *re-* affixed to the verb. Then re-S entails S and presupposes that a situation resembling the event denoted by S, or resembling some subpart of the event denoted by S (namely the result state) previously obtained. In what ways must the presupposed earlier situation resemble the denoted one? Specifically, which participants must be common to both?

The answer is that all the participants denoted by *nuclear* arguments must be common to both. We will say that *re-* 'takes scope over' those arguments which must be part of the presupposed earlier situation. We propose the following Nuclear Argument Condition (NAC):

(14) *re-* takes scope over all nuclear arguments.

For example, we noted that in (8) the instrumental *with flippers* is outside the scope of *re-*. The NAC predicts this, since the instrument is non-nuclear.

Why should (14) be true (if in fact it is)? Informally, we could think of *re-* as an operator taking an accomplishment denotation as its input. Since the individuation of the accomplishment depends on the nuclear arguments but not on the non-nuclear arguments, exactly the nuclear arguments must be in the scope of this operator.

We noted above that verbs can have more than one nuclear argument. Certain thematic role types discussed in the literature can be reconstructed simply from the number of nuclear arguments together with the parameter of incrementality. If a verb has only one nuclear argument, that 'solo' nuclear argument is typically called an 'affected theme' (the theme argument of *drink* or *dissolve*). Verbs with two nuclear roles fall into at least two classes: if one is incremental, we have a 'theme-path' verb (*John swam the Channel*); if neither is incremental, we have a 'theme-goal' verb (*John reached England*).

In result state accomplishments the nuclear arguments are exactly the arguments of the result state. It is easy to see that for result state accomplishments the NAC will give the same result as Dowty's 1979 analysis, where the operator **again'** takes scope over the result state.

More interesting are the path accomplishments. It is often noted, and equally often forgotten, that Vendler's aspectual classes (activity, accomplishment, achievement, state) do not classify verbs, VP's or even S's but rather interpretations of utterances in context. *John ran in 30 minutes* is a felicitous accomplishment utterance given the background assumption that John has a certain running routine. So nuclear arguments are really those arguments responsible for the



accomplishment interpretation in a given context. Given the constraint in (14) we expect that as contextual factors force shifting interpretations of a sentence, the scope of *re-* should shift as well.

On the most prominent reading of *John reswam the English Channel*, both John and the English Channel are within the scope of *re-*, as predicted by NAC, since both arguments are nuclear. But there are also various marginal result state readings, where a swimmer's successful crossing crucially 'affects' the English Channel (recall that a so-called 'affected theme' is just a solo nuclear argument). Suppose the swimmer's purpose is to inspect the Channel floor for sunken treasure, a task which turns an uninspected Channel into an inspected one. Since this result state involves only the Channel and not the swimmer, the swimmer argument falls outside the scope of *re-* in *reswim*, as in (15):

- (15) John swam the Channel yesterday and found nothing; but I don't believe he looked carefully enough. So I'm going to reswim it today.

Indeed, in (15) the swimmer argument lies outside the scope of *re-*. For speakers who find (15) plausible, in this context transitive *swim* has only one nuclear argument.<sup>10</sup>

Reading resembles swimming in that the text being read acts as a path along which the reader moves, while the text itself is not affected by the reading process. Consider whether (16a) presupposes (b) or the stronger (b'):

- (16) (a) John reread the poem.  
(b) 'Someone had previously read the poem.'  
(b') 'John had previously read the poem.'

(16a) clearly presupposes at least (16b). The NAC covers this case, since the poem is an incremental theme (recall (10a)). But was *John* necessarily the reader in the presupposed earlier reading event? My intuition is that if we assume (i) that John read the poem silently, and (ii) that he read passively, and not for the purpose of affecting the poem (he was not, e.g., proofreading or editing it), then (16a) does indeed presuppose (b'). However, if we drop one of those assumptions, then (16a) no longer presupposes (b'), but only the weaker (16b).

As an example of dropping the first assumption, suppose that (16a) describes an event at a poetry recital. The speaker could then felicitously say that Mary read the poem (aloud), and then *John reread it*, even if John never read it before. This has only the weaker presupposition (16b).

As an example of dropping the second assumption, suppose Mary and John are editors of a poetry journal who are proofreading the poem. Then one could say that Mary read the poem, and then, to be on the safe side, *John reread it*. Again, this contradicts the presupposition in (b') and has only the weaker presupposition that someone read the poem before. The interpretation of (16a) with the weaker

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presupposition (b) is a result state accomplishment, where completion depends on the attainment of a result state.

Now suppose John serves on an evaluation committee and read a report in order to evaluate its merits. Another committee member had already read the report, but the assiduous John felt obliged to *reread* it. Here John's act of reading amounts to extracting (and processing) information from the report. The task of extracting and processing this information is delimited solely by the report itself, so the agent becomes non-nuclear.

(17a) allows a distinct 'historical' result state interpretation (17b') in addition to its normal result state interpretation (17b):

- (17) (a) On Sept. 17 Dr. Jones reentered the crypt of the pharaoh.  
 (b) 'Dr. Jones *was inside* the crypt prior to Sept. 17.'  
 (b') 'Someone (or something) *entered* the crypt prior to Sept. 17.'

Normally the result state of *X entered Y* is 'X is located inside Y', so that *X reentered Y* presupposes that X was previously located inside Y. On the normal reading of (17a), which presupposes (17b), Dr. Jones did not necessarily ever *enter* the crypt before. He may have been born inside the crypt, and never reentered until September 17. But some speakers also get a special 'historical' reading, which presupposes (17b'): Dr. Jones need never have been inside the crypt prior to September 17, the relevant background assumption being perhaps that Dr. Jones was the first to violate the sacred crypt in many years.

Notice that these shifts in scope are not the result of any extra principles of a pragmatic nature or any other kind. The verbs we have looked at (even in unprefix form) exhibit a certain plasticity with respect to interpretation. But once that interpretation is fixed, the interpretation of *re-* simply follows from the meaning we needed to assign to the morpheme anyway on the basis of the simple cases.

Next we will look at how morphosyntactic properties of the host verb interact with the NAC.

3.2. *The Direct Argument Condition.* Internal *again* and *re-* have the same meaning, but differ in distribution:

- (18) (a) John put the book on the shelf again.  
 (b) \*John re-put the book on the shelf.

Note that (18a) can have the internal reading ('John put the book back on the shelf') which presupposes only that the book was previously located on the shelf.

Carlson and Roeper 1980 noticed that *re-* is sensitive to the direct/oblique distinction, taking scope over direct arguments and not obliques:<sup>11</sup>

- (19) (a) John redirected the man to the airport.  
 (b) John re-resent the package to Cuba.

The oblique goal in each case is outside the scope of *re-*: the man was previously 'directed' somewhere (i.e. he had a direction), but not necessarily to the airport; the package was previously sent somewhere, but not necessarily to Cuba.

In contrast, the adverb happily takes scope over direct and oblique arguments:

- (20) (a) John directed the man to the airport again.  
 (b) John sent the package to Cuba again.

In (20a) the airport was necessarily the goal of the previous directing. An S-initial adverb gives only the external reading, scoping over all arguments, direct or oblique:

- (21) (a) Again John directed the man to the airport.  
 (b) Again John sent the package to Cuba.

We have seen that for transitive verbs with two nuclear arguments, both subject and object are inside the scope. (Second objects of ditransitives can be as well as in *John re-sent Mary the letter*, at least in my intuition.) So the morphosyntactic generalization appears to be that the scope of *re-* is limited to *direct arguments*, subsuming (for English) subjects, objects, and second objects (languages vary as to the maximum number of direct arguments a verb can have). On the other hand, *re-* never enforces scope over obliques or non-arguments. We call this the Direct Argument Condition (DAC):<sup>12</sup>

- (22) *re-* takes scope over only direct arguments (though not necessarily all direct arguments, as we have seen).

Assuming that the DAC is true, how might it be explained? One hypothesis would be that the DAC can be derived from the NAC, together with independent principles of thematic role projection. If it were the case that nuclear arguments always project as direct arguments, then the DAC would follow as a deduction. However, one need not look far to see that this is not true in the general case. Oblique goals like the goal of *put* are clearly nuclear arguments. Instead, we will see evidence that the DAC is one instance of a general (perhaps universal) property of V<sup>0</sup>-modification, quite independent of the semantics connected with *re-*.

3.3. *Cross-linguistic evidence.* DAC seems to be a special case of a cross-linguistic generalization that a V<sup>0</sup>-modifier sees only the direct arguments of the verb it modifies. The Greek verbal prefix *ksana-* '(external) again' requires that the arguments within its scope be syntactically direct. A Greek benefactive can be expressed either as the object of the preposition *gia* 'for', or as the direct object of the verb, in the genitive case.<sup>13</sup> When expressed as a prepositional object, the benefactive is out-

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side the scope of *ksana-*, but when it is a direct object it is inside the scope. Thus (23a) carries the presupposition (23c), but (23b) does not, as suggested by the glosses:

- (23) (a) *Ksana-magirepsa tu Yani.*  
 again-cooked.1sg the John.GEN  
 'I cooked for John again.'
- (b) *Ksana-magirepsa [gia to Yani]pp.*  
 again-cooked.1sg for the John.ACC  
 'I cooked again, for John (this time)'
- (c) 'I had cooked for John before.'

Greek also has an adverb *pali*, meaning 'again'. As in English, the adverb is not sensitive to the direct/oblique distinction:

- (24) *Magirepsa [gia to Yani]pp pali.*  
 cooked-1sg for the John.ACC again  
 'I cooked again for John again'

Similarly, Chichewa (Bantu) has an enclitic =*nso* meaning (external) again. An instrumental argument is expressed either as the object of the preposition *ndi* (25a), or, provided the verb bears the applicative affix *-re*, as a direct object (25b,c). Crucially, =*nso* takes scope over the direct object instrumentals (25c) but not PP instrumentals (25a).

- (25) (a) *mu-lembe=nso chimangirizo [ndi nthenga]pp*  
 you-write(sbjnct)=again essay with feather  
 "You write the essay again, with a quill (this time)."
- (b) *mu-lembe-re nthenga chimangirizo*  
 you-write-appl feather essay  
 "You write the essay with a quill."
- (c) *mu-lembe-re=nso nthenga chimangirizo*  
 you-write-appl=again feather essay  
 "You write the essay with a quill again."  
 (\*"You write the essay again, with a quill this time.")

That is, the direct instrumental form (25c) but not the PP form (25a) presupposes that it was with a feather, in particular, that the addressee wrote the essay previously. So when cliticized to a verb, Chichewa *-nso* shares with the affixes *re-* and Greek *ksana-* this special property of picking out direct verbal arguments and ignoring obliques.<sup>14</sup>

3.4. *Oblique goals.* According to NAC, *re-* takes scope over all nuclear arguments. According to DAC, *re-* takes scope over only direct arguments. If both are true we immediately predict the following:

- (26) *re-* prefixation should be impossible on any verb with an argument which is both oblique and nuclear.

The oblique goal argument in a verb like *put* is such an argument; it is criterial for completion of the action:<sup>15</sup>

- (27) \*John put the book on the table, but it never got there.

Prediction (26) is borne out for *put* and other verbs with oblique goals of this kind (goals which are criterial for completion of the action):

- (28) (a) \*John reset his weights on the table.  
 (b) \*John reput the cards on the chair.  
 (c) \*John restood the ladder against the wall.  
 (d) \*John restuck a feather into his cap.

Still other verbs alternate between direct and oblique projection of a nuclear role. As predicted, *re-* is consistently grammatical on the direct variant and ungrammatical on the oblique variant:

- (29) (a) \*John reswam from France to England.  
 (b) John reswam the English Channel.
- (30) (a) \*John reclimbed over the fence.  
 (b) John reclimbed the fence
- (31) (a) \*John reran around the track.  
 (b) John reran the last lap.

Note also paraphrases like the following:

- (32) (a) \*John rewalked across the desert.  
 (b) John recrossed the desert.

Each example contrasts an oblique path argument (the (a) sentences) with a direct object path argument (the (b) sentences). The oblique paths are uniformly ungrammatical, while the direct object paths are OK.<sup>16</sup> The path arguments are nuclear, so by NAC *re-* must take scope over them. But by the DAC *re-* cannot take scope over obliques, which explains the ungrammaticality of (28) and (29-32)(a).

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## 4. Conclusion.

Two factors conspire to determine the distribution and interpretation of *re-*. First, it adds a presupposition to the meaning of an accomplishment-denoting sentence, taking scope over exactly those arguments responsible for the accomplishment interpretation in a given context. This constraint on scope was shown to hold constant, so that as contextual factors forced shifting interpretations of a sentence, the scope shifts as well. Secondly, this prefix takes scope over only direct arguments, perhaps as one instance of a universal condition that V<sup>0</sup>-modifiers take scope over only direct arguments.

## Notes.

<sup>1</sup>This paper has undergone numerous revisions, benefiting along the way from comments and suggestions by Paul Kiparsky, Ivan Sag, Cleo Condoravdi, Joan Bresnan, Annie Zaenen, Stanley Peters, and Mary Dalrymple. Cleo Condoravdi provided data and insight on Modern Greek, as did Sam Mchombo on Chichewa. Of course none of them are responsible for any of the shortcomings or errors of this paper. Research was conducted at the Center for the Study of Language and Information as part of the Lexical Initiative project, with support from the System Development Foundation.

<sup>2</sup>The terms accomplishment, activity, achievement, and state are from Vendler 1967. We use the test of felicity with *in*-adverbials for accomplishmenthood; see Dowty 1979, pp. 55-60 for additional tests. Also, we characterize the meaning contributed by *re-* and *again* as a 'presupposition.' Dowty 1979 takes its contribution to be part of the propositional content, while Oh and Godden (1979: p. 231), assume that *again* contributes a presupposition. Our usage reflects the intuition that *John entered again* denotes a single entering, while *John entered twice* denotes two enterings. Nothing turns on the resolution of this issue.

<sup>3</sup>FTP = 'File Transfer Program'. TeX is a text formatting system.

<sup>4</sup>Example (3a) is from Dowty 1979 (p. 250), attributed to Robert Binnick.

<sup>5</sup>(4a) and (b) are both from Dowty 1979. He attributes the latter to James McCawley.

<sup>6</sup>I have simplified these translations slightly. CAUSE is a relation between two propositions. P{j} is an unspecified "property" of John, generally an action taken by John, which brings about the result state. See fn. 8 below.

<sup>7</sup>"...running a mile or writing a letter... proceed toward a terminus which is logically necessary to their being what they are. Somehow this climax casts its shadow backward, giving a new color to all that went before." (Vendler 1967, p. 101-2)

<sup>8</sup>Using the PTQ past tense operator (H), Dowty fixes the interpretation of the S-modifier *again*<sub>1</sub> with this postulate:  $\forall p$  [*again*'(*p*)  $\leftrightarrow$  [*p*  $\wedge$  H[ $\neg p \wedge$  H(*p*) ]]]. ("That is, *again*(*p*) is true just in case *p* is now true, there was an earlier time at which *p* was false, and a still earlier time at which *p* was true." p.261). *again*<sub>1</sub> is of type <t/t>, so it is appropriate either as S-modifier external *again* (see (4c) above), or as modifier of a result state (see (4b) above). Under the 'ambiguous adverb' treatment, the VP-adverb *again* translates as *again*<sub>2</sub>, which is interpreted indirectly via *again*<sub>1</sub> using his postulate (49) (p. 265):  $\forall x, P, p$  [*again*'<sub>2</sub>( $\hat{\mathcal{S}}[P\{y\}$  CAUSE BECOME *p*)](*x*)  $\leftrightarrow$  [*P*{*x*} CAUSE BECOME *again*<sub>1</sub>'(*p*) ]]. ("an individual stands in the *again*<sub>2</sub>-relation to the property of bringing it about that *p* by doing *P*, if and only if *x* brings it about that *again*<sub>1</sub>(*p*) by doing *P*." (p. 265)) If BECOME is absent then this postulate cannot apply, and a second one yields the external reading

(this approach is one option given; see Dowty 1979, p. 291, fn. 14). Since *re-* receives the same translation as the VP-adverb *again*, this system should carry over to it. Actually this will not quite work, as (i) and (ii) are not synonymous:

- (i) Again a Parisian swam the English Channel.
- (ii) A Parisian reswam the English Channel.

In (ii) the same individual performed both Channel-swimmings, while in (i) this was not necessarily the case. Other differences are discussed in Sec. 2.1.

<sup>9</sup>A central notion in the ontology is that of an elementary event-complex called a "nucleus". A nucleus can be thought of as an association of a goal event, or "culmination", with a "preparatory process" by which it is accomplished, and a "consequent state" which ensues.' (Moens and Steedman 1987, p.1)

<sup>10</sup>Some speakers can get a historical result state reading, where swimming the Channel 'affects' it in some abstract sense by giving it the status of a conquered goal. In a discussion of swimmers throughout history who have managed to cross the English Channel, a speaker says

- (i) After Smith's famous crossing in 1930, the Channel remained unconquered for over 50 years. Finally, in 1986, a young swimmer named Jones reswam the Channel.

<sup>11</sup>The examples in (19) are from Carlson and Roeper 1980.

<sup>12</sup>Here we must be careful in our definition of scope. Recall that the effect of *re-* must be calculated with respect to a particular interpretation of an utterance. But it is always possible that background assumptions (or facts about the world) could for completely irrelevant reasons force an interpretation in which a given participant happens to be common to the denoted and the presupposed situation. So first we need to restrict our domain to include all and only those interpretations in which a certain fixed subset of the arguments are nuclear arguments (assuming the membership of this subset is capable of variation, as in the examples above; if not, then the domain includes all interpretations). Within this domain, if a given participant is common to the denoted and presupposed situations for all interpretations, then it will be said to be 'in the scope of *re-*.' (Of course, if the NAC is correct, then these will be exactly the nuclear arguments.)

<sup>13</sup>A pervasive property of term arguments in Greek is (optional) clitic doubling. Genitive objects (of a verb), as in (i) and (i'), share this property with accusatives, while PPs do not (ii):

- (i) Tu ksana-magirepsa tu Yani.
- (i') Tu Yani tu ksana-magirepsa.  
the John-GEN CL-GEN again-cooked-1sg  
"I cooked for John again."
- (ii) [Gia to Yani]pp (\*tu/\*ton) ksana-magirepsa.  
for the John-ACC (CL-GEN/ACC) again-cooked-1sg  
"I cooked again, for John."

<sup>14</sup>That a clitic, which is placed by the syntax and not the morphology, should have this property suggests that what distinguishes these bound forms from free adverbials like *again* is not that they are sublexical, but rather that they modify verbs ( $V^0$ ). In fact *-nso* accepts phrasal hosts as well, including NPs (*John=nso* means "John, too"). When adjoined to a verb, *=nso* means that the ac-

tion described by the verb took place previously, including, however, only the direct arguments of the verb in that previous action.

<sup>15</sup>This test is not ideal. Note that *\*John inserted the key in the keyhole, but it never got there*, like (26), is ungrammatical. However, it differs in that omitting the goal still yields an accomplishment: *John inserted the key (in two seconds)*. The addition of the (overt) goal seems merely to specify the goal more precisely. Note that the goal is outside the scope of re-:

- (i) Take the key out of the lower lock and reinsert it in the upper one.
- (ii) The mechanic reinstalled the Porsche engine in my VW.

So these are not counterexamples to either NAC or DAC. If the goal argument were inside the scope, these would be counterexamples.

<sup>16</sup>Besides direct and oblique arguments, there is a third type of verbal dependent, namely obliques which are idiosyncratically selected by their governing verb, much like lexical case marking in case-marking languages. The verb *position* semantically selects a locative complement, while the verb *interest* subcategorizes for the specific preposition *in*:

- (i) (a) We positioned Grandma in/on/beside the greenhouse.
- (b) We interested Grandma in/\*on/\*beside the greenhouse.

(Note also *We positioned Grandma there*). Interestingly, the morphologically governed obliques pattern with direct arguments with respect to re- prefixation:

- (ii) (a) Grandma had gotten bored with the greenhouse, so we repositioned her in the apiary.
- (b) #Grandma had gotten bored with the greenhouse, so we reinterested her in the apiary.

(iib) is odd unless Grandma was previously interested in the apiary, indicating that *the apiary* is inside the scope of re-. Further examples which pattern like *interest* are *reallude to X*, *reassociate X with Y*, *reharmonize X with Y*, and *recombine X with Y*. E.g. *Dukakis realluded to the Iran-Contra scandal* suggests more than that something was alluded to before; it suggests that on a prior occasion this particular scandal was alluded to.

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