## An Analysis of Serialization as a Unique Phenomenon

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Studies of serialization have been plagued by the annoying fact that the meaning relations between serials are apparently so diverse as to defy a unified semantic account of serialization. Thus, in previous studies, the apparent heterogeneity of meaning dependencies has led to `fragmentation' of serialization into `coordinating' and `subordinating' types, and of the subordinating type, in turn, into a variety of lexically governed subtypes.

On the other hand, Jo (1993) argues against such fragmentation and puts forth a unified semantic account of serialization, drawing heavily on the philosophical discussions of event individuation and causation. The purpose of this paper is to show that Jo's semantic analysis of serialization, in conjunction with various general pragmatic principles, provides a very natural account of the diverse meaning dependencies between serials.

## I. Introduction.

This paper is an attempt to analyze serialization as a unique phenomenon by providing a unified account of the diverse readings of it. To facilitate the analysis, most examples will be drawn from Korean. What I call `serialization' in Korean consists of a sequence of VPs or Ss connected by a particle <u>-ese</u>, as illustrated below:<sup>1</sup>

<sup>&</sup>lt;sup>1</sup> Typologically, Korean is an agglutinating SOV language: the `head' constituent of an NP or VP (i.e. N or V) occurs phrase finally, and various grammatical relations are expressed by postpositional `particles' which form morphological units with the content words they are attached to.

- (1) a. Kimi yulichangul cha-ese <u>pwuswu</u>-essta Kim window kick-SER break-PAST
   `Kim broke the window by kicking it.'
  - b. Kimi Johnul (khal-lo) <u>ccil</u>-ese <u>cwuki</u>-essta Kim John knife-with stab-SER kill-PAST
     `Tom killed him by stabbing him (with a knife).'

Before delving into the analysis of this construction, a brief remark for the term `serialization' is in order.

The term `serialization' will be used ambiguously to refer to either the whole construction or the connecting particle <u>-ese</u>.<sup>2</sup> This is to match the conventionalized use of the term `conjunction' for both the coordinate construction and the lexical word `and'. Each of the constituents serialized will be called a `serial', just as each of the constituents coordinated is called a `conjunct'.<sup>3</sup>

ACC: Accusative, BASE: BASE, CONJ: Conjunction, DEC: Declarative, HON: Honorific, IMP: Imperative, INF: Infinitive, NOM: Nominative, LOC: Locative, PL: Plural, PAST: Past tense, PRSNT: Present tense, Q: Question, REL: Relative Ending, SER: Serialization, TOP: Topic Marker

<sup>2</sup> The serialization particle  $-\underline{ese}$  has a stylistic variant  $-\underline{e}$ .

 $^3$  The serialization particle <u>ese</u> forms a morphological unit with the final word of the preceding serial (which happens to be the head of the preceding VP, due to the head final word order of Korean). In this paper, the semantics of serialization will be ultimately analyzed in terms of a weak sense of causal dependency (i.e. counterfactual dependency) between the events denoted by the serials. As will be noted later, however, causal relations between events can be discussed in terms of the relations between linguistic descriptions of the events. In the following discussion, dependency between serials should always be taken as dependency between the

The Yale Romanization is used for Korean data throughout the chapter. Grammatical features conveyed by various postpositional `particles' shall not be glossed unless they are relevant to the current discussion. The following abbreviations are used in the gloss:

Until recently, serialization has enjoyed little more than passing interest on the part of linguistic students of Korean with only a few exceptions such as Ree (1975, 1978), and Lukoff and Nam (1982).<sup>4</sup> Ree's main interest was to describe, under the `performative' analysis framework, the semantic and syntactic contrast between the serialization and another construction marked by the conjunctive morpheme -ni(kka). Ignoring the details, the essence of his claim was that the clause with the conjunction -ni(kka) modifies the illocutionary force of the following clause, while the clause with the conjunction <u>-ese</u> modifies the propositional content of the following clause, as illustrated by the following examples:

- (2) a. Kimun nay atul chinkwu-i-nikka sumwu-sal-ilketa Kim my son friend-is-since 20-year-suppose Since Kim was my son's friend, he should be 20.'
  - b. ??Kimun nay atul chinkwu-i-<u>ese</u> sumwu-sal-ilketa
     Kim my son friend-is-SER 20-year-suppose
     I suppose that Kim's being 20 is because of the fact that he is my son's friend.'

Lukoff and Nam (1982) (henceforth L&N) note a similar contrast between the two constructions. They also make quite insightful

events described by them, unless indicated otherwise.

<sup>&</sup>lt;sup>4</sup> In fact, the construction in question has never been characterized as a serialization in previous studies. Some studies (e.g. Sohn 1976, Abasolo 1977, Lee 1978, Yang 1978) only analyzed `coverbial' examples that would be better analyzed in terms of lexical idiosyncracies or subcategorizations. It is an interesting question how serialization undergoes idiomaticization, but this is outside the scope of the present investigation.

observations on various aspects of serialization. They first observe that the construction conveys a puzzling variety of meaning relations such as `sequence, cause, stativeness, means, manner, purpose and so on,' (p.567) as illustrated in the following examples.

- (3) SEQUENCE ilena-se celhay-ssta stand-up-SER bow-PAST `He stood up and bowed.'<sup>5</sup>
- (4) CALSE kakkawa-se keleka-ssta close-SER walk-PAST `It was close and so I walked to it.'
- (5) STATIVENESS
   celm-ese no-se
   young-SER play-let's
   `Let's have fun while young.'
- (6) MEANS/ FURPOSE kuka cipul phal-ese catongchalul sa-ssta he house sell-SER car buy-PAST `He sold his house and bought a car with the proceeds.'
- (7) MANNER
   chimtay-wie nwu-ese khwulkhwul ca-ssta.
   bed-on lie-SER soundly sleep-PAST
   `I slept soundly, lying on the bed.'

L&N claim that the serial construction  $\underline{\alpha}$ -ese  $\underline{\beta}$  `essentially expresses a "related sequence," that is, " $\underline{\beta}$  after  $\underline{\alpha}$  and with some relation to it," and, further, that such a related sequence has the potential for implying that  $\underline{\alpha}$  is the cause of  $\underline{\beta}$ .' (p.559) What is

<sup>&</sup>lt;sup>5</sup> Zero anaphora is a prominent feature of Korean. In the translations of Korean data, appropriate pronouns will be provided.

implicit in their claim is that the causal reading is only part of the pragmatic implications arising from the underlying semantics of `necessary relatedness' between the serials. Along with such an implication, they observe various linguistic factors that should be taken into any adequate analysis of serialization. For example, they note that the ultimate interpretation of a particular serial construction is crucially affected by negation and aspectual distinctions of the predicates involved. They also observe that the sense of relatedness is not necessarily accompanied by the `temporal ordering' between the events serialized, as suggested by examples like (5) above.

These insightful observations of L&N, however, failed to be integrated into a unified semantic analysis of serialization, and the question is left open whether all of the various meaning relations (such as sequence, cause, stativeness, means, manner, etc.) can indeed be derived from a single semantic source.<sup>6</sup>

Studies of serialization in other languages have been plagued by exactly the same problem, namely the annoying fact that the kinds of meaning relations between serials—as suggested by the Korean

<sup>&</sup>lt;sup>b</sup> The necessary relatedness between the serials has been recognized in a number of other studies. Chu (1909) describes the serialization particle <u>ese</u> as being used for related actions,' in contrast with the coordination particle <u>ko</u>, which is used for unrelated actions.' In later studies, the particle <u>ese</u> has been referred to by such terms as continuative suffix' (Park 1965), pre-step means' (Yang 1972), and so on. Practically all studies of the construction include mention of the senses of `sequence' and `cause' in one way or another. Yet the semantics of the necessary relatedness has not been elaborated enough to accommodate the diverse meaning relations between the serials.

examples in (3) through (7) above—are apparently so diverse as to defy a unified semantic account of serialization. Thus, in previous studies, the apparent heterogeneity of meaning dependencies has led to `fragmentation' of serialization into `coordinating' and `subordinating' types, and of the subordinating type, in turn, into a variety of lexically governed subtypes. Sebba's (1987) analysis of serialization is one of the best examples of such an analytic tradition.

However, such `fragmenting' analyses do not have strong semantic motivations and fail to prove that various subtypes are indeed discrete with respect to each other. In fact, different studies have postulated different numbers and kinds of semantic relations between serials, largely on the basis of intuition. Yet, intuitions can vary and can be stretched to some extent.

For example, Bamgbose (1974) distinguishes two types of SVC for Yoruba, namely what he calls the `linking type' and the `modifying type', while Oyelaran (1981) lists 14 different types for the same language. Voorhoeve (1975) distinguishes 20 different semantic classes for Sranan. Jansen, Koopman and Muysken (1978) list a total of seventeen different types in various Creoles and African languages.

Traditional characterizations of the relations (in such terms of sequence, cause, stativeness, means, manner, purpose, etc.) do not provide any real insight into the semantic nature of serialization. They are only in danger of clouding the underling identity of the relations, rendering serialization merely a

pretheoretical umbrella term or `a heterogeneous bag of structural and semantic phenomena' (Mufwene 1990:91).

Against the implicit assumption in such characterizations, however, the apparent diversity is not automatically evidence for their heterogeneity. In the absence of an explicit analysis of each meaning class, it is impossible to determine whether the semantic classes are indeed discrete with respect to each other. And there is a danger that semantic classes may be multiplied to such an extent as to make the classification virtually meaningless. It also becomes impossible to distinguish in a principled manner semantically transparent cases from semantically opaque or idiomatic cases.

On the other hand, Jo (1993) argues against such fragmentation and puts forth a unified semantic account of serialization, drawing heavily on the philosophical discussions of event individuation and causation. Under Jo's analysis, the variety of meaning relations between the serials are accounted for as arising from the interaction between the basic semantics of serialization and the pragmatic knowledge about the kinds of events serialized.

In what follows, it will be shown how Jo's semantic analysis of serialization, in conjunction with various general pragmatic principles, can provide a very natural account of the diverse meaning dependencies between serials, and thereby make it possible to analyze serialization as a unique phenomenon.

## II. A Counterfactual Analysis of Serialization.

For the convenience of the analysis, the various meaning relations can be tentatively classified into three general types, namely `causally-determining,' `causally-involved,' and `grounding' types.<sup>7</sup> These three types are ultimately analyzed as particular instances of underlyingly the same relation, namely the `necessary relatedness' in L&N's term.

The semantics of serialization of two events (i.e.  $\psi$ -ese  $\phi$ ) is uniquely defined as follows:<sup>8</sup>

(8)  $\underbrace{\psi-ese \phi}{\psi-ese \phi}$  is true if and only if the following are all true: (i)  $\psi$  and  $\phi$ , and (ii)  $\neg \psi \Box \rightarrow \neg \phi$ . (i.e. just in case the events/facts actually occur/obtain with a counterfactual dependency between them such that if  $\psi$  had not occurred/obtained,  $\phi$  would not have occurred/obtained.)

Under this definition, the minimum requirement for serialization is that the occurrence of the first event  $\psi$  is only a necessary, rather than the sufficient, condition for the occurrence of  $\phi$ . The exact nature/degree of the necessity is not part of the semantics of serialization.

 $<sup>^7</sup>$  What I call the `grounding' relation corresponds to the `situating' relation in Jo (1993). Such a terminological shift is motivated solely for metaphorical reason, with no change in the nature of the analysis.

<sup>&</sup>lt;sup>8</sup> Discussion of various technical problems of the counterfactual logic will take us too far afield. For a fuller discussion, see Jo (1993: ch 5).

II.1. Causal Relation as an Instance of Counterfactual Dependence

The causal dependency (or causal determination) is defined as follows:

This formulation captures our intuition about the causal determination between two events  $\psi$  and  $\phi$ : whether  $\phi$  occurs or not depends on whether  $\psi$  occurs or not: the determinate cause is not only a necessary condition but also the sufficient condition for the occurrence of the effect.

On the other hand, under the semantics of serialization as defined in (8), the minimum condition for serialization is that the first event is a necessary condition for the second. Accordingly, causally related events can always be serialized, since they always meet the minimum condition for serialization.

Conversely, any serial construction  $\underline{\bullet} - \underline{\bullet} \underline{\bullet}'$  can be interpreted as representing a CAUSALLY DETERMINED sequence of events as long as such a dependency as  $\underline{\bullet} \square \underline{\bullet} \phi'$  can be pragmatically accommodated. Since  $\underline{\bullet} \square \underline{\bullet} \phi'$  is not a direct assertion by the serialization, it must be a generalization that is available independently of the events serialized. The relevant form of the

generalization is that EVENTS LIKE  $\psi$  ARE ALWAYS FOLLOWED BY EVENTS LIKE  $\phi$ , or that IF  $\psi$  OCCURS, THEN  $\phi$  OCCURS. Such a generalization may be a kind of general knowledge (such as laws of nature, conventions/rules/customs of a society, patterns of human behavior, etc.) that can be accommodated pragmatically without an explicit assertion.

Given the semantics of serialization (i.e.  $\neg \psi [ \rightarrow \neg \phi )$ , accommodation of such a generalization (i.e.  $\psi [ \rightarrow \phi )$  has the effect of rendering  $\psi$  not only a necessary but also sufficient condition for  $\phi$ . And the causal reading arises such that  $\psi$  CAUSED  $\phi$ . It does not follow, however, that every serial construction can be interpreted with a CAUSALLY DETERMINED DEPENDENCY with the same degree of ease or appropriateness. The appropriateness of the causal interpretation will depend on how easily the such regularities as laws of nature can be accommodated to explain the dependency between the particular serials.

This COUNTERFACTUAL analysis of a causal reading is illustrated as follows:

- (10) kunun ywulichangul kkay-ese pelul pat-assta he window break-SER punishment receive-PAST `He broke the window and so was punished.'
- (11) a. He broke the window, and
  - b. He was punished, and
  - c. if he had not broken the window, he would not have been punished, and
  - d. Breaking a window is an action to be punished.

The regularity as in (11d) is not asserted by the serialization itself, but can be pragmatically accommodated from our world knowledge. The counterfactual dependence (11c) only establishes that (11a) is a necessary condition for the occurrence of (11b). On the other hand, given the regularity (11d), events like (11a) can constitute a sufficient condition for events like (11b). In the absence of evidence to the contrary, the counterfactual dependency (11c) and the regularity (11d) then combine to give rise to the sense of causal determination such that (11a) indeed caused (11b).

## II.2. Causally Involved Relation as an Instance of Counterfactual Dependence

Given the foregoing analysis of a causal reading, `causally involved' relation can be defined derivatively as follows:

Under this definition,  $\psi$  does not cause  $\phi$  itself: only part of the second event  $\phi$  is causally attributed to the first event  $\psi$ . Yet, it remains true that  $\psi$  is a necessary condition for  $\phi$ , which is the minimum requirement for serialization. And CAUSALLY INVOLVED events can always be serialized.

Conversely, any serial construction  $\frac{\psi-ese}{\psi}$  can be interpreted as representing a CAUSALLY INVOLVED sequence of events as long as it can be accommodated that  $\psi$  causes part of  $\phi$  (i.e. the conditions (iii) and (iv) in (12)).

According to this account, the causally-involved interpretation of  $\psi$ -ese  $\phi$  amounts to such a pragmatic implication that  $\phi$  involves some causal effect of  $\psi$ . Considering that there can be potentially infinite gradations in the degree of causal involvement of one event into another, most of the previous semantic classifications of serialization (in such terms as SEQUENCE, MEANS, MANNER, PURPOSE, PRESTEP, etc.) can be considered merely particular instances of underlyingly the same relation, i.e. the CAUSALLY INVOLVED relation. Consider the following example:

### (13) nan ppangul sa-ese mek-essta I bread buy-SER eat-PAST `I bought and ate a bread.'

The two events in (13) may be considered to constitute merely a SEQUENCE in traditional terms. Or one event may be considered as a PRESTEP to another. No matter how the relation may be characterized, the two events can be considered to instantiate a counterfactual dependency only if a participant of the second event (i.e. `the bread I ate') is made available by the first event (i.e. `my buying the bread'). In other words, the reading of (13) that `what I ate is what I bought' is a kind of implication that can be accommodated under the requirement of counterfactual dependency between the two events.

Given the foregoing analysis of causally-involved relation, the following generalization emerges: a serial construction represents a sequence of events that instantiate a counterfactual dependency (i.e. a CAUSAL/CAUSALLY-DETERMINED or a CAUSALLY-INVOLVED RELATION).

# II.3. Situating Relation as an Instance of Counterfactual Dependence

What I call the SITUATING-relation presents a potentially serious challenge to a unified semantic analysis of serialization in terms of counterfactual dependency. The SITUATING interpretation amounts to the fact that the second event takes place while the `state' referred to by the first serial holds, as in (13a):

 (13) nali edukedukha-ese apecika tolao-si-essta day dark-SER father return-HON-PAST
 a. Father came back when it was dark.'
 b. Father came back because it was dark.'<sup>9</sup>

This relation cannot be analyzed to be `causal' in any normal sense of the term. Rather, it should be analyzed as another kind of relation, namely a relation between spatio-temporal locations of the

<sup>&</sup>lt;sup>9</sup> Of course, the same example can have such a causal interpretation as (13b), with an implication that there is some independent explanation for why the state of being dark caused Father to come. The causal reading, however, does not present a problem for the counterfactual analysis of serialization: as discussed above, a causal relation is analyzed as an instance of counterfactual dependence.

events involved, along the line of Cooper's (1986) analysis of discourse location under the Situation Semantics framework. A detailed review of Cooper's analysis will take us too far afield. The main idea relevant to current discussion is the following.

The spatio-temporal location of a state exhibits the so-called `cumulative reference' of mass nouns: just like any subpart (portion) of a mass is still the same mass, any subpart of the universal space-time of a state is still a space-time of the same state. In contrast, nonstative events (e.g. `activities', `accomplishment', etc.) are spatially bounded, and must be understood as occupying a particular space at a given time. Thus, the spatio-temporal location of non-stative events in general can be considered as having the NON-CUMULATIVE REFERENCE like count nouns.

The property of NON-CUMULATIVE REFERENCE refers to the fact that any material subpart of a count noun is not the same count noun. For example, a leg of a table is certainly a part of the table, but the leg is not the table. Likewise, any subpart of the space-time of a non-stative event cannot be considered as the spacetime of the same event.<sup>10</sup>

Given this distinction between states and non-stative events, a subset relation can hold between the space-times of a state  $\psi$  and a non-stative event  $\phi$ , as long as they are cotemporal (or as long as

 $<sup>^{10}</sup>$  For a detailed discussion of referential distinctions between mass and count nouns, see Link (1983), Landman (1990), and references there.

the state obtains while the event occurs). The subset relation can be represented in the space-time continuum as follows:



The space-time of the non-stative event  $\phi$  is a subset of the universal space-time of the stative event  $\psi$ . The subset relation can be represented by the conjunction of (15a) and (15b), where  $g(\psi)$  is the space-time of  $\psi$ :

Therefore, the SITUATING interpretation (that the event occurs while the state holds) corresponds to the counterfactual dependence between the space-times of a state and a non-stative events that are cotemporal.

#### III. 'Event Unity' and the Notion of 'Single Event'.

It has been argued above that the diverse readings of serialization can be accounted for as arising from the interaction between the unique semantics of serialization and the pragmatic knowledge about the kinds of events serialized. The counterfactual dependency, given as the unique semantics of serialization, can be safely taken to represent the sense of `inseparable connection' between events serialized. For example, events that stand in a causal relation, regardless of the degree of causal involvement, can be said to have an inseparable connection between them.

The SITUATING relation is not causal. Yet it may also be considered as representing another kind of inseparable connection that we perceive between events, namely the so-called perceptual connection between a `figure' and its `ground'. A figure is to be perceived in its contrast against the ground. The contrast may arise in virtue of the distinction between their stativity/dynamism or between their shapes. Thus, moving objects with a particular shape can be perceived as FIGURES against the GROUND of static state of affairs with no particular shapes. Of course, nothing is inherently a FIGURE or a GROUND. It is only a perceptual distinction. And the counterfactual dependency of serialization can be considered to iconically represent such a perceptual/intensional aspect of event individuation.

It is further arguable that the so-called `single-eventhood' of serialization should be analyzed as referring to the eventual unity that arises in virtue of the counterfactual dependency between the events serialized. Practically all studies of serialization have assumed that a serial verb construction refers to `a single event'. Despite its intuitive appeal, however, the concept of single event has not been elaborated enough to play a verifiable

role in the analysis of serialization, particularly in the analysis of the diverse meaning relations between serials. Most studies simply bypassed the question of `what sequence constitutes a single event and what does not.' The shaky understanding of the concept of single event has also led to another failure to understand the `same tense constraint' on serialization, namely that the verbs in serialization have the same tense.

Referring a fuller discussion to Jo (1993), I only point out that the concept of single event and the same tense constraint can be adequately analyzed as two sides of the same coin only when the single event is conceived of in terms of the intensional/relational unity rather than in terms of the extensional/absolute identity among its subevents. The intensional/relational unity between events should, in turn, be attributed to the counterfactual dependency or the sense of inseparable connection between them.

#### IV. Conclusion: The Analysis in a Wider Perspective.

In closing, it is worth noting that there is a significant distinction between the previous studies of serialization and mine. As well reviewed in Schiller (1990:41ff), most previous studies considered serialization a subsentential phenomerion, i.e. at the level of lexical verbs or verb phrases. Apparent examples of sentential serialization are rarely mentioned only to be ignored for no substantial reason. However, nothing in the previous analyses accounts for why serialization cannot be a sentential phenomenon. For example, Foley and Van Valin (1984) claim that one major function of serialization is valence expansion at the lexical level. In the frame of Role and Reference Grammar under which their claim is based, valence expansion happens to be the result of applying the serialization (or `cosubordination' in their terms) at the level of lexicon. In a recent development of Role and Reference Grammar (Van Valin 1987), however, COSUBORDINATION is not restricted to connecting lexical verbs: it can also connect phrasal and clausal expressions.

In my analysis presented so far, what is serialized are events (or sentential event descriptions). Nothing in the analysis requires that only verb phrases are serialized. The serials may happen to share the same grammatical subject, and thus have the surface syntax of VP serialization controlled by the same subject. My analysis of serialization can accommodate such a syntactic fact, with no essential modification, under the categorial grammar The only necessary modification is to analyze framework. serialization as a crosscategorial operation just like the crosscategorial analysis of conjunction in Gazdar (1980) and Partee & Rooth (1983) under the framework of categorial grammar. Under such an categorial analysis, in which the distinction between lexical verbs and verb phrases are not recognized, the serializable syntactic categories will be characterized simply as verbal projections.

Part of the claim of my analysis is that meaning dependencies between serials are not attributed to lexical idiosyncracies (or

subcategorizations), but are attributed to the semantics of serialization itself. Thus, both coordination and serialization can be assigned a paratactic structure, syntactically.

Certainly, previous studies of serialization have included examples where the relationship between the constituent verbs would be better analyzed in terms of lexical idiosyncracies or subcategorizations. Genuine `coverbs' may be just such examples: they are semantically bleached to serve particular grammatical functions. What I emphasize, however, is that a more revealing account of serialization can be made when the synchronic productivity of the construction is distinguished from idiomaticization of it through diachronic change. It is rather obvious that the distinction between these may not always be clear, considering that diachronic change or idiomaticization is a gradual process and hence a matter of degree. A language may exhibit examples of a synchronically productive construction along with idiomaticized examples parasitic to such a construction. Nevertheless, the conceptual distinction between synchronic stages and diachronic changes needs to be maintained: otherwise, no regularities of language can ever be discussed since language itself is constantly changing. It is an interesting question how serialization undergoes idiomaticization, but this is outside the scope of the present investigation. In principle, any putative examples of SVC that involve a subcategorization of one constituent for another will be ruled out as idiomaticizations of the construction.

On the other hand, one may opt to apply the term `serialization' only to examples where one verb subcategorizes for another (as Jansen et al. (1978) seem to do). There is no a priori argument against such a use of the term, since the choice of a technical term is ultimately up to the analyst. However, if the term is restricted in this way, it fails to represent a unique phenomenon, since lexical idiosyncracies with respect to subcategorization can vary from one lexical group to another. In addition, such a restricted view of serialization tends to overlook a fairly large group of examples which are distinct from coordination in that they exhibit some kind of meaning dependency and yet resist a lexical analysis of the dependency.

In contrast, my analysis of serialization as a non-lexical phenomenon seems more promising in that it resolves the apparent heterogeneity of the putative examples of serialization by making a categorical distinction between instances of a productive construction and its idiomaticizations.

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