Fragmentation in Conversational Japanese: A Case Study

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This paper is a quantitative analysis of the postposing phenomenon in Japanese casual conversation focusing on the relationship between information status and fragmentational patterning of postposed elements in the discourse. The transcription of a 45-minute conversation was segmented into intonation units (IUs), which are defined as "a sequence of words combined under a single, coherent intonation contour" (Chafe, 1987, p. 22). Each of the IUs containing instances of postposing was then coded for several categories. Analysis revealed that speakers frequently postposed intransitive subject NPs/pronouns, adverbial clauses, and given information. It was also found that given information tended to constitute the final part of an IU, whereas new information was always placed in an independent IU. As an explanation for the observed coherent fragmentational behavior of postposed new information, a cognitive constraint on new information quantity per IU is proposed.

本稿は、日本語のくだけた会話における倒置を、情報の性質と談話の中で倒置された要素の分節パターンに焦点をあてて、量的に分析する。45分間の会話が文字化され、イントネーション・ユニット（IU）に分けられた。IUは「単一の一貫したイントネーション曲線によってまとめれらた複数の語のつながり」（Chafe, 1987, p.22)と定義される。次に、倒置を含むIUをいくつかのカテゴリーに分けた。その結果、しばしば倒置されるのは、自動詞の主語となる名詞句、あるいは代名詞、副詞節、そして既知情報であった。また、倒置された既知情報は一つのIUの後半部分となる傾向があるのに対し、同じように倒置された新情報はつねに独立したIUとなることがわかった。倒置された新情報が独立したIUを構成することの説明として、一つのIUにふくむことのできる新情報の量に認知的制約があるという考え方が提唱される。

Spontaneous spoken discourse naturally segments itself into "intonation units (IUs)" (Chafe, 1987, 1993, 1994). The IU is defined as a sequence of words, or a stretch of speech uttered under a single coherent intonation contour, usually demarcated by an initial pause (Chafe, 1987; Du Bois, Schuetze-Coburn, Paolino & Cumming, 1992). That is, spontaneous spoken discourse has the property of being produced in a series of spurts. These spurts of language, or the coherent

chunks into which speakers fragment talk, have been considered the basic units of information flow (cf. "tone groups" or "information units" in Halliday, 1985; "intonation groups" in Cruttenden, 1986). For Chafe (1980), the IUs are "linguistic expressions of focuses of consciousness, . . . whose properties apparently belong to our built-in information-processing capabilities" (p. 48). Concerning the structure of the IU, recent cross-linguistic research has shown that while the majority of IUs in spoken English take the form of a complete single clause (Chafe, 1987; 1993; 1994), Japanese IUs tend to be non-clausal, or phrasal, and thereby shorter and more fragmentary than English IUs (Clancy, 1980; Iwasaki, 1993; Matsumoto, 1995b; Maynard, 1989).

Japanese spoken discourse exhibits constructions which apparently violate the verb-final requirement (cf. Hoji, 1985; Kuno, 1973, 1978; Matsumoto, 1995a; Saito, 1985; Shibatani, 1990; Takami, 1994), i.e., so-called "postposing"[1] constructions in which an element or elements appear after the verb, as shown in (1):[2]

1. nihon de KANgaerarenai ne sonna koto
   Japan in impossible FP such thing
   "(Is) impossible in Japan, such a thing."

In accounting for such instances of postposing in spoken Japanese, Shibatani (1990, p. 259) claims that the verb, or verb plus final particle has a sentence-final falling intonation, whereas the post-verbal element has a low, flat intonation contour, and that, therefore, the postposed element is best considered as an afterthought appended to the end of a complete sentence. Thus the existence of this type of construction, he argues, does not violate the verb-final requirement of the Japanese language. Hinds (1976, p. 116), on the other hand, observes that the verb plus final particle is uttered, not with a sentence-final falling intonation, but with a continuing, flat intonation pattern. These contradictory observations lead us to speculate that there in fact exist two types of postposing constructions which are marked by different intonation patterns falling on the verbal element. They also suggest that intonation is an important consideration in studying the Japanese postposing phenomenon.

One recent qualitative study on postposing (Ono and Suzuki, 1992) took such intonation patterns into account is, distinguishing four types of postposing constructions based on their intonational characteristics and discourse functions. Other studies investigated the discourse functions of Japanese postposing qualitatively but with no reference to such differences in intonational features (e.g., Hinds, 1982; Maynard, 1989; Shibamoto, 1985; Simon, 1989). However, no detailed quantitative analysis

has been available to date of the postposing phenomenon in Japanese conversation, especially in relation to intonation patterns, units of discourse production, and the given/new informational distinction.

This study is concerned with the following research questions: (a) how frequently does postposing occur in Japanese casual conversation? (b) which grammatical categories and constituents are most frequently postposed? and (c) what relationships exist between the speakers' discourse fragmentation into IUs, information status, information quantity, and postposing? What are the speakers' strategies for postposing given/new information in terms of discourse fragmentation?

The Study

Subjects: Two female Japanese UCLA graduate students in their mid-20s, S and Y, speakers of Tokyo Japanese, provided the data for this study. The audio-recorded data was from a 55-minute casual face-to-face conversational interaction between them at a hamburger shop in Los Angeles. A total of 45 minutes of the conversation consisting of four episodes was used as the data for this study. The topics of the four episodes were: Episode 1 = roommates, Episode 2 = the Halloween shooting of a Japanese boy, Episode 3 = danger in the U.S., and Episode 4 = riot in Los Angeles.[3]

Data Transcription: The data were transcribed using the transcription conventions selected from Atkinson and Heritage (1984), Andersen (1991), and Du Bois et al. (1992), paying careful attention to intonation and pausing. The transcription was segmented into what Chafe (1987) calls "intonation units (IUs)." Each IU was put on a separate line and sequentially numbered in the transcript for coding purposes. An IU is a sequence of words combined under a single, coherent intonation contour, usually preceded by a pause. Among Chafe's (1980, p. 14) three criteria (i.e., intonational, hesitational, and syntactic) for identifying IUs, I used the intonational criterion as the single most reliable indicator of an IU boundary in this study (cf. Cruttenden, 1986; Du Bois et al. 1992; Pierrehumbert & Beckman, 1988). This means that neither the presence of a pause nor the syntactic structure of a clause was counted as a necessary criteria for determining the boundary of an IU in conversational Japanese. In this study six intonation contours were distinguished as markers of an IU boundary: (a) final or falling, (b) continuing (with the final syllable stressed), (c) continuing (with the final syllable unstressed), (d) rising, (e) rise and fall, and (f) rise-fall-rise.[4]

Data Analysis: The IUs in each episode were coded for the following categories: (a) presence or absence of postposed elements, (b) grammatical category (e.g., subjects, objects, adverbials) of postposed elements, (c) constituent type (e.g., NPs, PPs) of postposed elements, (d) information status, i.e., whether the postposed element refers to given or new information, and (e) fragmentational status, i.e., whether the postposed element constitutes an independent IU or the final part of an IU.

Definitions of Given and New Information: In coding the information status of each concept, I used the following operational definitions of given, accessible, and new information[5] (cf. Chafe, 1987; Du Bois, 1987): (a) given: a referent which was mentioned within 30 IUs previously in the discourse,[6] or a referent which is given from the conversational context itself (e.g., the conversational co-participants), (b) accessible: a referent which was mentioned more than 30 IUs previously, or a referent which was previously unmentioned but is part of a previously-evoked schema,[7] or a referent which is identifiable by prior knowledge already shared by the participants, and (c) new: a referent which is neither (a) nor (b), i.e., a referent which was introduced into the discourse as a previously-unmentioned, totally new concept. In what follows, I will use the binary distinctions of New and Given (= Non-New), where the categories "given" and "accessible" are subsumed under the category Given.

Results and Discussion

Intonation Units and Postposing: The transcription of the 45-minute conversation yielded a total of 1,526 IUs[8] of which 84 (5.50%) included instances of postposing. Table 1 shows the number of IUs and postposed elements produced by each participant in each episode.[9] Both of the participants, S and Y, exhibited the highest rate of postposing in Episode 1 (S = 9.38%; Y = 4.42%; note also Total = 7.32% and the average number of postposings/min = 2.90), in which the greatest number of IUs were produced (N = 437; 39.7 IUs/min). The fact that the highest rate of postposing correlated with the "denseness" of the conversation suggests that the speakers' use of postposing constructions may be related to aspects of active conversational turn-taking by the participants. The rate of postposing that occurred in the "narrative" portions of the conversation and the rate of postposing that occurred in the "genuine" conversational interaction (Table 2) seem to indicate that postposing is more positively related to active conversational turn-taking between co-participants.

Table 1: Number of IUs and Postposed Elements by Episode and Participant

	Episode 1 (11 min.)	Episode 2 (11 min.)	Episode 3 (13 ymin.)	Episode 4 (10 myin.)	Total (45y min.)
Number of IUs	S: 256 (58.6%)	S: 95 (28.8%)	S: 103 (23.9%)	S: 193 (58.8%)	S: 647 (42.4%)
	Y: 181 (41.4%)	Y: 235 (71.2%)	Y: 328 (76.1%)	Y: 135 (41.2%)	Y: 879 (57.6%)
Total	437	330	431	328	1,526
Average no. of IUs/min.	39.7	30.0	33.2	32.8	33.9
Number of postposing	S: 24 (9.38%)	S: 3 (3.16%)	S: 9 (8.74%)	S: 11 (5.70%)	S: 47 (7.26%)
	Y: 8 (4.42%)	Y: 10 (4.26%)	Y: 14 (4.27%)	Y: 5 (3.70%)	Y: 37 (4.21%)
	32 (7.32%)	13 (3.94%)	23 (5.34%)	16 (4.88%)	84 (5.50%)
Average no. of postposing/min.	2.90	1.18	1.77	1.60	1.87

Table 2: Number of IUs and Postposed Elements in Conversations and Narratives

	IUs	Postposing	
Conversation	1,125	70	6.2%
Narrative	401	14	3.5%
Total	1,526	84	5.5%

Distribution of Postposed Elements: Distribution of postposed elements (N = 84) by grammatical category (a) was adverbials (N = 46 = 54.8%), subjects (N = 27 = 32.1%), objects (N = 8 = 9.5%), and others (N = 3 = 3.6%)[10]; (b) of postposed NPs (N = 37), pronouns (N = 12=32.5%) and bare nouns (N = 11 = 29.7%) were most frequently postposed; (c) of the postposed adverbials (N = 46), non-referring adverbs (N = 12 =26.1%), subordinate clauses (N = 12 = 26.1%), and postpositional phrases (PPs) (N = 10 = 21.7%) were most frequently postposed, and (d) distribution of grammatical roles for the postposed non-topic NPs (N = 35) was intransitive subjects (= S roles) (N = 23 = 65.7%), transitive objects (= O roles) (N = 8 = 22.9%), and transitive subjects (= A roles) (N = 4 = 11.4%).

Information Status of Postposed Elements: The results indicated: (a) of the postposed elements with referential functions (N = 72), 55 (76.4%) are Given and 17 (23.6%) are New; (b) the postposed elements are mostly Given information across the four grammatical categories, and (c) the percentage of givenness is higher in postposed objects (87.5%) and subjects (85.2%) than in adverbials (67.6%). In sum, the data reveal a marked tendency to postpose Given information.

Fragmentational Patterning of Postposed Elements: The results showed: (a) subjects (N = 27) tend to be tacked onto the final part of an IU (N = 18 = 66.7%), whereas referring adverbials (N = 34) tend to be independent IUs (N = 22 = 64.7%), and (b) 52.4% (N = 44) of all the postposed elements (N = 84) constitute the final part of an IU, whereas 47.6% (N = 40) of them constitute an independent IU. The data do not exhibit a skewed distribution of postposing toward either of the fragmentational patternings.

Relationship between Information Status and Fragmentational Patterning: Concerning the interactions between the postposed elements' in-

Table 3: Number of Postposed Elements by Information Status and Fragmentational Patterning

	Independent IUs	Final Part of IUs	Total
Subjects-Given	5 (21.7%)	18 (78.3%)	23 (100%)
Subjects-New	4 (100%)	0 (0%)	4 (100%)
Objects-Given	3 (42.9%)	4 (57.1%)	7 (100%)
Objects-New	1 (100%)	0 (0 %)	1 (100%)
Adverbials-Given	11 (47.8%)	12 (52.2%)	23 (100%)
Adverbials-New	11 (100%)	0 (0%)	11 (100%)
Others-Given	0 (0%)	2 (100%)	2 (100%)
Otherts-New	1 (100%)	0 (0%)	1 (100%)
Total-Given	19 (34.5%)	36 (65.5%	55 (100%)
Total-New	17 (100%)	0 (0%)	17 (100%)
Total	36 (50.0%)	36 (50.0%)	72 (100%)

formation status and fragmentational patterning, the data reveal that Given information (N = 55) tended to constitute the final part of an IU (N = 36 = 65.5%), whereas New information (N = 17) was placed in an independent IU 100% of the time (Table 3). That is, the speakers tended to postpose Given information by appending it to the end of an IU, whereas they introduced New information exclusively in a separate, independent IU.

Coherent Fragmentational Patterning of Postposed New Information: Further examination of the relation between the postposed element and the "original" IU from which it has been postposed, in terms of the information status of concepts or entities contained in each, showed that the postposed New information follows a coherent pattern: New information was postposed exclusively out of an IU containing New (and Non-New, in most cases) information, and, to repeat the finding given above, it was introduced exclusively in an independent IU, instead of being appended to the end of an IU out of which it has been postposed.

Schematically, this means that the postposed New information has exhibited only the information-flow pattern (2a) below[11] (where N = New; *N*= Postposed New; G = Given (given or accessible), the number of which is not limited to just one; dots indicate the existence of previous (i.e. not new) information that may be contained in the unit):

2.	a.	IU-1	..	N ..		b.	IU-1	..	N ..	N
		IU-2		N						
	c.	IU-1	G			d.	IU-1		G	N
		IU-2	N							

Example 3 shows the postposed new information in italics:

3.	a.	Y:	nanka	koo					
			well	this					
		++	jidoosha-o	+	butsukechatta		no	yo	ne?
			car	-ACC	hit-PAST		NML	FP	FP
			ryuugakusei		*-ga*				
			foreign student		-NOM				
		+	*dareka*	*-ni*					
			someone	-DAT					

"A foreign student hit (his/her) car against someone('s car)."

b.	Y:	ano					
		well					
	+	ralph's	ni				
		Ralph's	to				
	++	yoru	juu:jihan	gurai	ka	na?	
		night	ten-thirty	about	Q	FP	
		ni	itta	no	ne?	@	
		at	go-PAST	NML	FP		
	+	*helen*	*to*	*isshoni*			
		Helen	with	together			
		kuruma	*notte*	@			
		car	drive-and				

"(I) went to (the) Ralph's at about ten-thirty at night with Helen by car."

Non-coherent Fragmentational Patterning of Postposed Non-New Information: Postposed Given (= Non-New) information, on the other hand, did not behave in the same consistent way. The data exhibited all of the four patterns (4a)-(4d) (where G = Given; *G* = Postposed Given; N = New):

4.	a.	IU-1	..	N ..		b.	IU-1	..	N ..	G
		IU-2		G						
	c.	IU-1		G		d.	IU-1		G	G
		IU-2		G						

The distribution of the postposed Given information (N = 55), in Table 4, shows that 80% of the postposed Given concepts were postposed out

of an IU containing New information (in addition to given and/or accessible information, in many cases), and appended to the end of it (4b: Type = 45.5%), or placed in the next independent IU (4a: Type = 34.5%).

Table 4: Number of Postposed 'Given' Information Items by Information-flow Type

(4a)	Type	19	34.5%
(4b)	Type	25	45.5%
(4c)	Type	4	7.3%
(4d)	Type	7	12.7%
	Total	55	100%

Examples 5a and 5b, where the postposed Given elements are in italics, belong to the information-flow types (4a) and (4b), respectively:

5. a. Y: sonna kemutakatta? =
that smoky-PAST
"Was (it) that smoky?"

S: = un kemutakatta yo.
yeah smoky-PAST FP
"Yeah, (it) was smoky."
soide
and
++ ano: chotto kikoeru te yuu wake yo.
well a bit hear QT say NML FP
"(She) says (she) can hear a litte bit."
++ [*raiotto*].
riot
"the riot."

Y: [IYA::] Da::!
hateful
"Oh, I hate it!"

b. Y: moo ikkai
more once
"once again"
+ BA:n te oto -ga shite,
bang QT sound -NOM make-and
"(It) went bang."
JUUsei na no yo *sore* *-ga:*, =
gunshot be FP FP it -NOM
"was a gunshot, it.

S: = EE::!
"oh no!"

One New Entity per Unit Constraint: One cognitive explanation for the observed coherent fragmentational patterning is that new information is postposed by "force" out of an IU which could otherwise have contained two new concepts within it, such that it will be compatible with what I call "one-new-entity-per-unit" constraint, which allows only one new entity or concept in each IU (cf. Chafe, 1987; Du Bois, 1987; Givón, 1984). My hypothesis is as follows: at the end of the initial pause which precedes the speaker's utterance of a new IU, under ideal conditions, all the information to be expressed in the upcoming IU will have become active in the speaker's mind (Chafe, 1987). Usually only one new concept is activated for the speaker at this point, but once in a great while more than one new concept will become activated. In such a case, when two pieces of new information become activated, only one of the new concepts is allowed to be expressed in the upcoming IU by the "one-new-entity-per-unit" constraint at work on the basic units of discourse production, and hence, the other new concept is forced to be placed, i.e., postposed, in the next IU.[12] This is how and why new information exhibits a coherent pattern in the Japanese postposing phenomenon: new concepts are postposed exclusively in a separate IU from an IU which itself contains a new concept. It is, however, the speaker's choice which of the new concepts to place in the upcoming IU and which to postpose. Presumably, the speaker places information which is more directly relevant to the topic of the ongoing and upcoming discourse in the period of vocalization immediately following the initial pause (cf. Givon's [1983, p. 20] psychological principle: "Attend first to the most urgent task."). In effect, this has the function of foregrounding the new concept, which the speaker has selected to place in the upcoming IU, while backgrounding the other new concept which has been postposed. Postposing of non-new information, on the other hand, regardless of its fragmentational behavior, that is, whether it involves a separate IU or just the final part of it, will not affect the "one-new-entity-per-unit" constraint.

No previous research has addressed the maximum amount of non-new information within a basic unit of discourse production. The present study has shown that each of the IUs involving postposing contained no more than three non-new concepts (including the postposed elements), with many of the units containing one or two. It is certainly reasonable to assume then that the fragmentational behavior of postposed given concepts is also restricted by a constraint, just as that of new concepts, as I have argued above, is constrained by the "one-new-entity-per-unit" constraint. I will tentatively call this behavior the "no-more-than-three given entities per unit" constraint.[13]

Conclusion

The results of this investigation of the relationships between postposing, discourse fragmentation into IUs, and information status in Japanese conversational discourse have shown that the participants postposed 5.5% of the total IUs they collaboratively produced, postposed intransitive subject NPs/pronouns and adverbial clauses most frequently, and showed a marked tendency to postpose given, rather than new, information. Most interestingly and importantly, it was also found that when the speakers postpose given information, they tend to append it to the end of an IU out of which it has been postposed, whereas new information is postposed by placing it in an independent IU. That is, the speaker's postposing strategy in Japanese conversational interaction seems to be the folowing: 1) Postpose given/accessible information, which is already active either focally or peripherally for the speaker, and the speaker considers to be active for the hearer as well (Chafe, 1987), by appending it to the end of an IU; 2) Postpose new information, which is neither focally nor peripherally activated, in a separate new independent IU so that it will be more salient for the hearer who will process that newly-introduced concept.

The constraint on postposing, or the speakers' postposing strategy in terms of discourse fragmentation and information status which this study has uncovered has important implications. First of all, this strategy suggests that intonation contours have a function of distinguishing given and new information in Japanese spoken discourse. This appears to be in accord with Halliday's (1967) claim that one of the functions of intonation is to mark off which information the speaker is treating as new and which as given (Brown & Yule, 1983). Second, it provides evidence that the speakers do not fragment discourse randomly, but sort discourse fragmentation into IUs. More specifically, the consistent placement of new information in an independent IU seems to reflect, or can be considered the result of, the speakers' interactionally-determined choice to facilitate the information flow in the discourse. It presumably reflects the speaker's choice to make new information, although backgrounded (Takami, 1994), more salient to the hearer who is processing it.

Finally, it should be noted that while this research may be a significant step in analyzing the fragmentation and postposing phenomena in conversational Japanese, the suggestions I have tentatively made above are on the basis of a single transcribed conversation. That is, women speakers, Tokyo dialect, young Japanese, and graduate students abroad all may be variables which might have affected this study in subtle ways. Given the

limitation of a single conversation, more research should naturally follow for an elaborated, deeper investigation of the phenomena.

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Notes

1. The term "postposing" is used in this paper simply to refer to the placement of elements in a postverbal position. The use of the term does not imply movement of constituents from a canonical preverbal position. It is used as a neutral term indicating the postverbal, as opposed to preverbal, placement of elements.
2. This is one of the examples which were actually observed in this study. Transcription conventions are as follows (cf. Andersen, 1991; Atkinson & Heritage, 1984; Du Bois et al. 1992):

=	inter-speaker latching
WOrd	upper case indicates loud talk (stressed or emphasized)
[ ]	overlapping or simultaneous talk
wo:d	sound prolongation or stretching

intonation contours marking the end of each IU

,	continuing intonation (final syllable stressed)
no symbol	continuing intonation (final syllable unstressed)
.	falling, or final intonation
?	rising intonation

+	very short pause (0.1-0.2 seconds)
++	medium length pause (0.3-0.6 seconds)
+++	long pause (0.7 seconds up)
@	listener backchannels (affirmative response)

Abbreviations are: NOM = nominative, ACC = accusative, DAT = dative, FP = final particle, QT = quotative marker, NEG = negative, NML = nominalizer, Q = question marker.

3. Brief interactions which occurred at the beginning of the conversation and between the episodes were not used as data. They were concerned with ordering and the food being eaten.

4. IUs which are marked with stressed final syllables are often found in young females' speech. The rise-fall pitch contour functions to seek agreement or to impose the speaker's opinion on the hearer, whereas the rise-fall-rise pitch contour shows the speaker's doubt or dissatisfaction.
5. It is assumed in Chafe's (1987) discourse production model that the speaker's utterance of an IU functions to activate all the concepts it contains for the hearer, while deactivating others, and to bring about changes in the activation states of information in the hearer's mind. Thus, "given" concepts are those that were "already active" for the speaker prior to uttering an IU, and which the speaker assumed to be active in the mind of the hearer as well. "Accessible" or "previously semi-active" concepts are those that the speaker, before the uttering of an IU, transferred from the semi-active to the active state. "New" or "previously inactive" concepts are those that the speaker, before uttering an IU, transferred from the inactive to the active state.
6. Du Bois (1987) uses 20 IUs for this measure in his analysis of the Pear Story Sacapultec narratives, following Givón"s (1983) measure of referential distance. I used 30 IUs (20 multiplied by 1.5) instead based on the fact that Japanese IUs tend to be non-clausal.
7. When a schema is evoked in a discourse, some of the expectations or concepts associated with it are assumed to change into the semi-active state. For example, the "class" schema includes such concepts as "students," "a classroom," and "a lecture" as accessible entities (Chafe, 1987, pp. 29-30).
8. These IUs do not include what Maynard (1986) calls "turn-internal listener backchannels," or what Schegloff (1981) calls "continuers," i.e., brief backchannelling expressions (e.g., *un, hee*) which the interlocutor who assumes primarily a listener's role sends during the other interlocutor's speaking turn, especially in a long multi-unit turn (e.g., storytelling).
9. Table 1 indicates that while in Episodes 1 and 4 the number of IUs produced, or the amount of talk in the conversation, is relatively balanced between the two co-participants, S and Y, in Episodes 2 and 3 more than 70% of the IUs were produced by Y. This can be accounted for by the fact that the conversational interaction in Episodes 2 and 3 centered on Y's narratives or storytelling. In total, however, the percentage of IUs produced is fairly balanced between the two interactants, 42.4% by S and 57.6% by Y.
10. The category "adverbials" includes non-referring adverbs such as *zettai* "absolutely" and *kekkyoku* "consequently" (N = 12). The category "others" includes topics and nominal complement clauses. Elements were coded as "subjects" or "adverbs" if they functioned as such, even if they are marked by the so-called topic marker *-wa*. Also, only "base-generated genuine" topics as in (i) were coded as topics (cf. Shibatani, 1990).

(i) Tookyoo-wa daremo shiranai.
Tokyo -TOP no one know-NEG
"As for Tokyo, (I) don"t know anyone (living there)."

11. To be more exact, postposed elements containing new information showed

consistent behavior, given that most of the postposed adverbials and clauses (subordinate and non-finite) contained given and/or accessible concepts as well as new ones.

12. This hypothesis provides a satisfactory explanation for those cases where elements are postposed with no discernible initial pauses. When postposing involves significant pausing, however, it could be argued that the postposed elements have been added as an afterthought, and were not in the active state at the time of the utterance of the previous IU. In this study, all cases of postposing of new information involved short or no initial pauses, that typically were uttered in a compressed manner.

13. These two constraints amount to saying that the maximum amount of information that can be contained within a single IU (at least one involving postposing) is "one new and three non-new." The constraints on the amount of information in an IU, however, naturally follow from the capacity and duration limitations of short-term memory. This in turn restricts the content and duration of IUs, given that these units (Chafe, 1980), are linguistic expressions of a single focus of the speaker's consciousness, and that focus is presumably on new information. That is, IUs submit to cognitive constraints or limitations which confine the amount of information to be contained within each unit.

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