

Effects of Awareness on the Noticing Function of Output

Jeong Ah Shin
(Seoul National University)

Shin, Jeong Ah. 2003. *Effects of Awareness on the Noticing Function of Output*. *SNU Working Papers in English Language and Linguistics* 2, 75-93. This pilot study investigated the effects of awareness on the noticing function of output and second language acquisition. The hypothesis was that the participants who have some awareness of a target form would pay more attention to the form when they experience difficulty in producing the output which requires the use of the target form. The degree of awareness was measured by pretests, production, and immediate retrospective interviews. Based on the results, the participants were divided into four awareness levels. Sixteen Korean L2 learners reproduced a passage flooded with English object-of-preposition relatives. The overall difference of noticing scores between four levels was not significant. However, the means of each level were carefully examined to obtain relevant information for a further study. According to the analyses, the noticing scores between level 2 and level 0 and between level 2 and level 3 were significantly different. The level 2 learners, who were partially aware of the target form, noticed the form more than any other level in the subsequent input. Although the small number of participants remained as a limitation, the hypothesis assumed was partially supported. (Seoul National University)

Keywords: the degree of awareness, noticing function, output, English object-of-preposition relatives

1. INTRODUCTION

1.1. Background and Motivation

The communicative approach to language teaching, primarily focusing on using language for meaningful interaction and for accomplishing tasks, rather than on learning rules, has been widely popular since the 1980s. It has won support from many teachers and learners as well as many researchers in Second

Language Acquisition (SLA). Long (1986) proposed Interaction Hypothesis, which posited conversational adjustments promote comprehensible input, comprehensible input promotes acquisition, and thus conversational adjustments promote acquisition. In other words, negotiation of meaning was emphasized to promote acquisition. However, the findings of immersion programs suggested that when classrooms are entirely meaning-focused, some linguistic features do not ultimately develop to targetlike levels (Harley & Swain, 1984). Those findings, in part, led to a claim that only negotiation of meaning cannot promote acquisition, and thus, *focus on form*, which is the second language instruction to connect grammatical form to meaning during primarily communicative tasks, was proposed in Long (1996)'s revised interaction hypothesis. He claims that negotiation facilitates acquisition through *focus on form*, drawing attention to the linguistic form during negotiation of meaning and communication.

In general, *focus on form* is designed to promote noticing of target forms. Also, output-oriented *focus on form* instruction is supported on the ground of noticing function of output, as Swain (1985, 1995, 1998) proposed in her Comprehensible Output Hypothesis. Studies investigating the output hypothesis are Izumi, Bigelow, Fujiwara, & Fearnow (1999), Izumi & Bigelow (2000), and Izumi (2002). Izumi et al. (1999) investigated the effects of output on noticing and second language acquisition, and found the partial support for the output hypothesis. One year after, Izumi & Bigelow (2000) replicated the previous study, also investigating whether output promotes noticing and second language acquisition; however, they obtained no unique effects of output.

Their mixed findings may be due to the problems in

methodology. They did not consider the degree of participants' awareness of the target form, which might affect whether learners notice during output production. The results might have depended upon how much the participants were aware of the target form. In other words, Izumi et al. (1999, 2000) did not consider the participants' level of awareness of the target form. Taking it into consideration, Izumi (2002) compared the effects of visual input enhancement and output production on the noticing and acquisition of a grammatical form. Even though he considered the participants' awareness in the study, he did not categorize the degree of awareness but experimented only with participants who had partial awareness of the target form.

The assumptions on which Izumi (2002) experiments are that learners who are aware of the target form can notice more than those who are not, and that learners who are ready to notice the gap between what they know and what they want to produce in their output production more than those who are not. Since the assumptions were not proved, however, the noticing function of output should be investigated according to the degree of awareness and learners' developmental readiness.

1.2. The Research Question and Hypothesis

The purpose of the present study is to investigate the following research question: Does the degree of learners' awareness of a certain linguistic form have any relationship with the noticing and the acquisition of the form?

The hypothesis for the research question is that the level of awareness on a form is correlated with the degree of noticing. That is, the higher level of awareness the learners have, the more noticing is made in producing output and is promoted in

the subsequent input.

2. REVIEW OF LITERATURE

2.1. The Noticing/Triggering Function of Output in SLA

The current view of output is that it is not only the means by which learners practice their interlanguage for greater fluency, but also a potentially important cause in the acquisition process. In general, it is posited that producing language mainly serves second language acquisition by enhancing fluency. In Swain (1985)'s output hypothesis, she argues that learners need not only comprehensible input but also comprehensible output, suggesting that the failure of French immersion students to reach nativelike levels might, in part, be due to the lack of opportunities to participate in classroom conversation.

Swain (1995) claims that, in addition to the function of output in the sense of practicing, output can serve as the function of improving accuracy as well. The functions of output in second language acquisition are hypothesized to relate to accuracy in three ways: output promotes noticing, output is one way of testing a hypothesis about comprehensibility or linguistic well-formedness, and output serves a metalinguistic function (pp. 125-126). Of several functions of output identified by Swain, this study focuses on the *noticing/triggering function* of output. This function of output relates directly to Schmidt (1990)'s Noticing Hypothesis, which assumes that learners notice the gap between their interlanguage and the target language form and their noticing promotes acquisition. In other words, he claims that intake is that part of the input that the learner notices (p. 139). In addition, Schmidt (2001) argues attention is the necessary and sufficient condition for long-term memory storage because unattended stimuli persist in immediate short-term memory for only a few seconds at best (p. 16).

Little research so far has investigated the noticing/triggering function of output except studies such as Izumi, Bigelow, Fujiwara, & Fearnow (1999), Izumi & Bigelow (2000), and Izumi (2002). Izumi et al. (1999) examined whether output production would make learners know the gap between what they know and what they want

to produce, and thus it would prompt them to seek out subsequent input with more focused attention and lead to the noticing and learning of a specific grammatical form. They compared two groups of ESL students in regard to learning the past hypothetical conditional in English. The participants in the experimental group produced written output and then were provided with relevant input in the short reading passages. In treatment phase 1 they reconstructed a passage after being exposed to it. In phase 2 they wrote on given topics, followed by the presentation of a model. To test the noticing function of output, the participants underlined parts of the sentences they thought were particularly necessary for subsequent reproduction. The comparison group was exposed to the same input but was not required to produce any output for the purpose of comprehension only. The findings of the study were as follows: Although phase 1 tasks, reconstruction tasks, resulted in noticing, the posttest performance did not prove their effects. In contrast, phase 2 tasks, essay-writing tasks, resulted in improvement on posttest 2. In other words, the study partially supported that output promotes noticing.

Izumi & Bigelow (2000) experimented the noticing function of output again, because they thought the ordering of tasks and task variables might have affected the results in Izumi et al. (1999)'s study. Since the essay-writing tasks were found to be much more susceptible to such individual variation than were the text reconstruction tasks, they experimented with the essay-writing tasks first and then with the reconstruction tasks. Their replicated research followed the same target form and treatment, etc. except the task ordering. Izumi & Bigelow changed the ordering, reconstruction first and then essay-writing into essay-writing first in phase 1 and then reconstruction later in phase 2. The results indicated no effect of output on noticing and second language acquisition.

These mixed results are, in part, due to the problem in methodology, as mentioned in the introduction. Izumi et al. (1999) and Izumi & Bigelow (2000) did not take into account whether the participants were aware of the target form or not. The participants' awareness of the target form might affect the noticing function of output. Thus, Izumi (2002)'s study complemented the previous studies by considering the awareness of participants. The students

were determined to have at least rudimentary knowledge of target forms, English relative clauses (RCs), in particular, the object-of-preposition type of RCs. Considering the awareness of the participants, he compared the effects of visual input enhancement and output production on the noticing and acquisition of a grammatical form. From the study, it was found that the group with output-input activities noticed more than that only exposed to the same input for the sole purpose of comprehension. Thus, support was found for the hypothesis that output promotes noticing of the target form in comparison to input enhancement.

Even though Izumi (2002) took into account the participants awareness, he did not categorize the degree of awareness. He experimented with only the participants who had partial awareness of the target form.

2.2. The Role of Awareness in SLA

Whether the role of awareness in L2 learning is crucial for subsequent processing of L2 data is controversial in SLA research. On one hand, several researchers (e.g., Carr & Curran, 1994; Tomlin & Villa, 1994) have argued for dissociation between awareness and learning. For example, Tomlin & Villa (1994) argues that awareness is not required for *detection* of L2 data. On the other hand, Schmidt (1990, 1995), in regard to awareness, argues that consciously noticing demonstrates a conscious apprehension and awareness of some particular form in the input. In other words, he seems to equate noticing with attention plus awareness (1990, p. 132).

Awareness, both within SLA (Schmidt, 1990) and within cognitive science more generally (Schacter, 1992, cited in Tomlin & Villa, 1994), refers to a particular state of mind in which an individual has undergone a specific subjective experience of some cognitive content or external stimulus (Tomlin & Villa, 1994, p. 193). In order to determine whether

any individual is aware or not, three specific criteria must be satisfied according to Allport (1988, cited in Tomlin & Villa, 1994), as follows:

Individuals must (a) show some behavioral or cognitive change due to the experience, (b) report that they were aware of the experience, and (c) describe the subjective experience. (Tomlin & Villa, 1994, p. 193)

That is to say, awareness is to note both a behavioral change and subjects report on some subjective experience (meta-awareness), or to simply demonstrate experience directly.

The role of awareness has also become the focus of recent SLA empirical studies (Leow, 1997, 2000; Rosa and O'Neill, 1999) and measuring the degree of awareness has been attempted. Their studies supported that the higher level of awareness was demonstrated, the stronger effects on intake or foreign language behavior, that is, recognition and accurate written production of noticed forms. In addition, Leow (1997, 2000) investigated whether awareness is dissociated from learning, and found that there is no dissociation between them. However, he did not investigate the role of awareness on the noticing function of output, nor the syntactic form. As Leow (1997) argues, the issue of whether awareness is *essential* for subsequent processing remains unsolved (p. 494). Thus, a further study for the role of awareness should be needed.

2.3. Levels of Awareness in the Present Study

Leow (2000) proposed the levels of awareness in terms of

morphological forms. However, the present study suggests a modified model, applying to syntactic features as well as morphological features, as shown in Figure 1.

FIGURE 1

The level of awareness (criteria: Existence, Rule, Usage)

	Existence (Meta-Awareness)	Rule	Usage	Description
Level 0	-	-	-	The state of no awareness of the even whether a certain linguistic form exists and rules
Level 1	+	-	-	The state of awareness of the existence of a certain linguistic form, but no awareness of the rules or the usages
Level 2	+	+	-	The state of awareness of the existence of a certain linguistic form and its rules, but no awareness of the usages
Level 3	+	+	+	The state of awareness of the existence of a certain linguistic form, its rules, and the usages

Whether the participants are aware of the target form, rules, and usages determines their awareness level, that is, the degree of the awareness.

3. THE PILOT STUDY

3.1. Target Forms

The target forms in this study were English relative clauses (RCs), as Izumi (2002) and Doughty (1988, 1991) used. The reason why English RCs were chosen is that it can show the natural developmental sequence of acquisition, as well as implicational scaling, as follows:

The well attested *developmental sequences* in interlanguage (IL), such as those for Swedish negation, English relative clauses and German word order, are fixed series of overlapping stages, each characterizable by the relative frequency of IL structures, which learners apparently have to traverse on the way to mastery of the target language system (Long, 1991, pp. 41–42).

Therefore, the English RCs might be useful to examine the degree of awareness and the readiness of participants.

3.2. Participants

The participants in the study were a heterogeneous group of Korean EFL learners (N=16). To investigate the noticing function of output according to the degree of awareness within a certain grammatical form, participants were divided into four groups according to the levels suggested in Figure 1. The levels were determined according to the scores of pretests and production, focusing on the Object–of–preposition type of RCs. In addition, the immediate retrospective interviews after the

treatments were also used as the secondary sources to help measure the degree of awareness.

3.3. Materials and Instruments

3.3.1. Operationalization of Awareness (Testing Instruments)

Two different written tests were used in order to assess the participants' knowledge of English relativization before the treatments. The tests consisted of two measures: a sentence combination test (SCT) and a grammaticality judgment test (GJT). The former aims at testing the participants' productive knowledge,

Least marked	1. subject (The man that stole the car...)
	2. direct object (The man that the police arrested...)
	3. indirect object (The friends that he gave books to...)
	4. object of a preposition (The man that he spoke to...)
	5. possessive/genitive (The man whose...)
Most marked	6. object of a comparative (The man that Joe is older than...)

and the latter test was supposed to examine their receptive knowledge. All tests included three of six relativization types represented in the Noun Phrase Accessibility Hierarchy (Keenan & Comrie, 1977, Comrie and Keenan 1979 cited in Long, 1991, see Figure 2): subject, direct object, and object-of-preposition relatives.

FIGURE 2
Noun phrase accessibility hierarchy (Long, 1991)

3.3.2. Procedure and Treatments

After the pretests (SCT and GJT) were administered, the reconstruction tasks were conducted. In other words, Text Reconstruction Task was used because it is the potential for promoting comparisons between the interlanguage (IL) output and the target language (TL) input (Zumi, 2002, p. 551). In addition, the advantage of the reconstruction task is the control over the content and form that learners produce.

The reconstruction task in this study had several features: It was entirely the reading-based reproduction in a written mode, and the input texts contain numerous examples of the target form used in contexts, that is, input flood condition for all groups. In order to help the participants to write many target forms, guidelines were needed. Before giving the first input text, the participants were told to take notes of any or every word that they think was particularly important, necessary, or useful to reconstruct the text as accurately as possible, avoiding the simple sentences with only a subject and a verb. Also, they were told not to take notes of the whole sentences, either. Before the first reconstruction they were told to use the picture-cue and the notes they already made in the previous input, and to reconstruct the text as accurately as possible, also avoiding simple sentences that consist of only a subject and a verb. At the beginning of giving the second input text which was same as the first one, they were told to underline any or every word that they think is particularly important, necessary, or useful to reconstruct the text as accurately as possible in the subsequent reproduction, avoiding the simple sentences, but not the whole sentences. In the second reconstruction task, they were also told to use the picture-cue and the notes they already made in the first input and reconstruct the text as accurately as possible, avoiding simple sentences that consist of only a subject and a verb.

Since the experiment in this study was concerned with the relationship between the degree of awareness and the noticing function of output, it was not necessary to design separate treatments according to the degree of awareness. Every group in the experiment underwent the same treatment. The overall procedure is summed up in Figure 3.

FIGURE 3
Experimental Sequence

Pretest	25 min.
Input 1 (reading and note-taking)	5 min.
Output 1 (reconstruction)	20 min.
Input 2 (reading and underlining)	5 min.
Output 2 (reconstruction)	20 min.
Posttest	25 min.
Interview	5 min.

3.3.4. Data Scoring and Analyses

Since the purpose of this study is to investigate the noticing function of output, underlying in the second input text is the most important part to score. Therefore, how many underlines the participants drew under the RCs were counted. Scores were computed for these categories: preposition followed by relative pronouns, relative pronouns, and words inside the relativized NP. If a participant, for example, underline "with whom she is going out", the RC scores are six by giving one point for a word in the categories. Then, the RC scores are divided by the total underline scores. In other words, the noticing scores are the ratio of RC scores to the total underline scores.

All the pretests and posttests were scored by giving one point for a correct response and zero for an incorrect response. As mentioned above, the pretest was used to measure the degree of awareness. Of the treatment tasks, note-takings and immediate retrospective interviews were also employed to measure the awareness of the participants.

For the data analysis, the Statistical Packages for the Social Sciences (SPSS) 10.0 window version was used. A significant alpha level is .05. Data were analyzed quantitatively by the Kruskal–Wallis Test, a kind of Non–Paramatic Tests, and the one–way ANOVA test.

4. RESULTS AND DISCUSSION

The research question is concerned with whether the degree of learners awareness of a certain linguistic form has any relationship with the noticing function of output and second language acquisition. In this section, the participants' underlining of the input passages is first analyzed in terms of the noticing issue. Second, the reconstruction is analyzed in order to investigate the immediate uptake. Finally, the pre- and post-test results are presented, addressing the acquisition issue.

4.1. Noticing Results

Table 1 displays the average of noticing scores of every group. The noticing scores mean the ratio of RC scores to the total scores. As mentioned in the section above, the RC scores were measured by counting the number of underlines the participant drew under prepositions followed by relative pronouns, relative pronouns, and words inside the relativized NP. Also, the total scores indicate the total number of the words the participant underlined. Therefore, the noticing score mean is the average of the ratio of the RC scores to the total scores.

TABLE 1

Descriptive statistics for the median noticing scores

Note. The scores are presented in percentages: the number of RC words underlined divided by the total number of words underlined. The difference between groups is not statistically significant according to both a one-way ANOVA ($p=.087$) and a Kruskal-Wallis Test ($p=.076$).

An examination of the underlining of the RC words revealed that Level 2, the rule-awareness group, had a greater noticing than any other group, though the difference between all groups is not statistically significant as the table 1 revealed. The one-way ANOVA test showed there was no significant differences between four groups on the second input. The Kruskal-Wallis Test, a nonparametric test, was also used to

Group	N	M	SD	Significance of difference between groups
Level 0	3	22.20%	19.22	n.s.
Level 1	3	31.60%	1.57	
Level 2	5	50.80%	13.43	
Level 3	5	26.96%	19.70	

assess the significant differences between them, because of the possible effect of the number of the participants. However, it revealed no significant differences, either.

In spite of the nonsignificance of the differences between all four groups, the LSD test was performed because this research is the pilot study to obtain relevant information for a further study. According to the LSD test, significant differences occurred between Level 2 and Level 0, and between Level 2 and Level 3 (see Table 2). This significant difference indicates that Level 2 may be a necessary level to notice the target forms after producing output. In other words, the participants who are, at least, aware of the rule of the target forms can be triggered to notice the target forms. Also, the learners—Level 0 and Level 1—who do not reach the level cannot notice the target forms. They detect many other forms as well as the target forms. On the other hand, the participants in Level 3 already finished acquiring the rule and the usage of the target

forms, and thus they did not notice the forms that much.

TABLE 2

The LSD test of differences in noticing scores among the four groups

*. The mean difference is significant at the .05 level.

(I) Group	(J) Group	Mean Difference (I-J)	Sig.
Level 0	Level 1	-9.40	.482
	Level 2	-28.60	.030*
	Level 3	-4.76	.688
Level 1	Level 0	9.40	.482
	Level 2	-19.20	.123
	Level 3	4.64	.696
Level 2	Level 0	28.60	.030*
	Level 1	19.20	.123
	Level 3	23.84	.035*
Level 3	Level 0	4.76	.688
	Level 1	-4.64	.696
	Level 2	-23.84	.035*

4.2. Results of the Reconstruction Scores

Table 3 presents the results of the reconstruction by all groups during the reconstruction tasks, Output 1 and Output 2. The participants in Level 0 rarely attempted to reproduce the RCs and they cannot formulate correct RCs, either. That is certainly because they are not aware of the existence of the target forms, let alone the rule. In other words, they cannot notice the particular target forms at all. Also, the participants in Level 3 showed few increases of attempt to produce the RC structures and formulation of RCs. That may be due to the fact

that they have already fully acquired the target forms, rules and even usages. Therefore, they need not notice the target forms at all, because they did not experience any difficulties in producing those forms in Output 1.

However, for Level 1 and Level 2 the attempt of producing RCs and the formulation of correct RCs increased from Output 1 to Output 2, but the increases were not statistically significant. However, these results suggest that in Input 2 the participants who are aware of the existence of the target forms or those rules can notice the target forms and then apply to production in the subsequent Output 2. In other words, those increases can be analyzed as a result of noticing after the participants felt their failure to produce the correct target forms.

TABLE 3
Attempt and correct use scores

Group	Output 1		Output 2	
	M of attempt	M of correct formulation	M of attempt	M of correct formulation
Level 0	1.33	0.0	1.33	0.66
Level 1	2.66	1.0	4.33	3
Level 2	3.6	2.4	4.8	4
Level 3	4.8	4.6	5	4.6

Note. The scores are presented in the number of RC structures

4.3. Test Results

Table 4 shows that the median score of Level 1, 2, and 3 on a sentence combination test (SCT) and a grammaticality judgment

test (GJT) did not increase from the pretest to the posttest and revealed no significant differences in the scores. The median score of Level 0 increased a little but it was not statistically significant, either. A possible explanation for the participants' failure to achieve a statistically significant increase may be that the number of the participants was too small to analyze the results. Also, the opportunity to notice the target forms was only one time, which may not be enough to trigger acquisition.

However, the participants in Level 0 revealed the small increases from the pretest to the posttest. That was probably not because the participants noticed and acquired the target forms, but because they first saw the target form in Input 1 and 2 and answered all the patterns as right in the grammaticality judgment test in the posttest. Still, they were not able to produce the correct target forms in the sentence combination test at all.

TABLE 4
Scores in the pretest and the posttest

Group	Pretest		Posttest		Sig.
	M	SD	M	SD	
Level 0	0	0.0	2.67	0.57	n.s.
Level 1	8.33	1.52	7.67	2.08	
Level 2	13.80	0.83	14.40	0.54	
Level 3	16.60	0.54	16.40	0.89	

5. CONCLUSION

This study examined the effects of awareness of target forms on noticing. Although the results demonstrated no overall

differences between the four groups which were separated by means of the degree of participants' awareness of the target forms, the group who was aware of the rule revealed statistically significant differences in noticing them, compared with the group who was not aware of the existence of the target form and the group who had already acquired up to the usage of the target forms. In other words, some awareness of the target forms can lead the learners to pay attention to them. That may be the reason why Izumi et al. (1999)'s study did not gain the results supporting the effect of the output on noticing. They should have experimented their study with the participants who had some awareness of target forms.

However, the nonsignificant results may be due to the small number of the participants. Sixteen students were too small to properly analyze. In addition, the opportunity to notice the target forms was just one time, and thus it was not enough to trigger much noticing and, eventually, acquisition. Moreover, it was possible for participants to memorize the target forms and then produce them in Output 2 after reading Input 2. Finally, the target forms can be troublesome, because the relative clauses are not essential structures to produce output. Therefore, the participants were not able to produce the structures easily instead of other structures, though flooded RC structures were provided in the input.

Acknowledging those limitations of the present study, several suggestions should be provided for the further studies in this area. First of all, more participants are essential to make the study more reliable. Second, several opportunities to notice the target forms should be provided because, as mentioned above, only one time to notice and produce those forms is probably not due to the noticing but to the memory capability. Third, the

target forms should be reconsidered to make the participants use those forms by all means. Finally, further studies should investigate the effects of awareness on noticing according to the noun accessibility. In accordance with the sequence of the noun accessibility the participants' noticing should be examined. Then further studies will lead to more meaningful results.

The implication of this study is that learners should have some awareness of the target forms in order to notice them and trigger acquisition. This noticing is different from Tomlin and Villa (1994)'s *detection*, and detection without awareness of the target forms cannot promote producing and acquiring those forms. Therefore, giving some instructions of the target forms to learners is needed up until they can notice and acquire those forms. Furthermore, that can be a possible indirect proof that L2 learners' explicit learning is more effective than the implicit learning which does not obtain any explicit instructions.

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APPENDIX 1
The noticing scores

Participants	Level	Relative-clause Scores (A)	Overall underline Scores (B)	Ratio (A/B*100)
1	0	28	83	33.7
2	0	23	70	32.9
3	0	0	54	0
4	1	4	12	33.3
5	1	10	32	31.3
6	1	13	43	30.2
7	2	2	5	40
8	2	14	19	73.7
9	2	10	20	50
10	2	12	25	48
11	2	11	26	42.3
12	3	2	10	20
13	3	5	22	22.7
14	3	0	20	0
15	3	4	8	50
16	3	8	19	42.1

APPENDIX 2

The First Input Material

Directions:

1. 한 문단으로 된 다음의 영어 글을 읽습니다. 읽고 난 뒤에 바로

그 글과 똑같이 재구성하기 위해 필요한 부분을 메모합니다.

2. 주어진 그림과 메모는 계속 보여 드립니다. 그 외에 필요한 것들을 메모하시기를 바랍니다.

3. 전체 문장을 그대로 옮겨 적으면 안됩니다. 이어진 단어는 네 개의 단어 이하로 메모하셔야 합니다.

Career or marriage?

Lucy is 29 years old and a lawyer. She is quite successful in her career, but she is in trouble. She cannot decide to marry Tom with whom she is going out now. She likes him because he has good looks and a good manner. Above all, he has a good personality to which she is most attracted. However, the problem is that he plans to study abroad and leave Seoul in which she is working. He wants to marry her and go abroad together. She also hopes to marry him, but she cannot give up her job with which she is most satisfied now. Also, she cannot leave her parents of whom she should take care. That is her dilemma.