

Reciprocity and Second Language Acquisition: Japanese Students'

Interpretation of *Each Other*

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Abstract

This study examined whether Japanese-speaking learners of English can identify reciprocal pronouns in the object- and genitive positions as anaphors. The results, obtained via a truth-value judgment task, suggested participants treated reciprocals in the object position as anaphors while reciprocals in the genitive position were treated as logophors. These findings may be due to lexical transfer of the Japanese reciprocal pronoun (*o)tagai*.

1. Introduction

Universal Grammar (UG) (e.g., Chomsky, 1981; 1986; 1995) is believed to constrain the properties of natural language. Binding theory, a sub-theory of UG, regulates the distribution of nominal expressions. Condition A of binding theory states that an anaphor must be bound in its local domain; Condition B states that a pronoun must be free in its local domain; and Condition C states that a referential expression must be free. Anaphors include reflexive and reciprocal pronouns. As shown in (1) and (2), both reflexive and reciprocal pronouns are subject to the locality constraint and are thus bound to the local subject DP:

- (1) Tomi said [Jim_j blamed himself^{*i/j}.]
- (2) [Tom and Mike]_j said [[Jim and Steve]_j blamed each other^{*i/j}.]

Many second-language (L2) studies have investigated learners' interpretation of reflexives (e.g., Akiyama, 2002; Cook, 1990; Felser, Sato, & Bertenshaw, 2009; Finer & Broselow, 1989; Hamilton, 1998; Matsumura, 2007; Thomas, 1993; Wakabayashi, 1996). On the other hand, the L2 research on reciprocals (e.g., Kano, 2020) is limited. This study examined whether Japanese-speaking adult L2 learners can correctly identify *each other* as a reciprocal pronoun whether the pronoun occurs in the object- or the genitive position.

2. Theoretical Background

Heim, Lasnik and May (1991) (HLM hereafter) split the reciprocal *each other* into a distributor and a reciprocator, arguing that *each* moves and adjoins to its antecedent phrase at LF. For example, in (3) *each* adjoins to the group-denoting antecedent and serves as a distributor over the plural DP, as shown in (4). HLM further stated that *e1* in [*e1 other*] is an anaphor and is therefore subject to Condition A of binding theory, while [*e1 other*] is an R-expression and is adjoined to the VP by quantifier raising, yielding a structure as shown in (5):

- (3) John and Mary praised each other.
- (4) [[John and Mary] each₁]₁ praised [*e1 other*].
- (5) [[John and Mary] each₁]₁ [*e1 other*]₂ praised *e2*.

The analysis provided by HLM explains why the sentence in (6) can obtain only the reciprocal reading (6a),

ruling out the other readings shown here:

- (6) John and Mary praised each other's child.
- John praised Mary's child, and Mary praised John's child. (reciprocal reading)
 - John praised his child, and Mary praised her child. (reflexive reading)
 - John praised his and Mary's child and Mary did the same. (collective reading)
 - John praised his child and also praised Mary's child, and Mary did the same. (distributive reading)

There are reportedly two reciprocal expressions in Japanese. One is the free morpheme (*otagai*); the other utilizes the verbal affix *-aw*.¹ An example of each is provided in (7) and (8), respectively:

- (7) [John-to Mike]i-ga [Jim-to Steve]j-ga otagai-o hinansi-ta koto-o hanashi-ta.
and NOM and NOM each-other-ACC blame-PAST COMP-ACC say-PAST
'[John and Mike]i said [Jim and Steve]j blamed each other*_{i/j}.'
- (8) [John-to Mike]i-ga [Jim-to Steve]j-ga hinansi-a(w)-ta koto-o hanashi-ta.
and NOM and NOM blame-aw-PAST COMP-ACC say-PAST
'[John and Mike]i said [Jim and Steve]j blamed each other*_{i/j}.'

While Japanese has two reciprocal expressions, this study hypothesizes that Japanese-speaking L2 learners of English transfer the properties of (*otagai*) more easily than the properties of *V-aw* when interpreting the English reciprocal pronoun *each other*. Note that (*otagai*) is more salient: (*otagai*) is a free morpheme and is thus more easily identified, while the verbal affix *-aw* is less salient, making it difficult to recognize the internal composition of the verb structure. Moreover, Japanese-speaking L2 learners of English are often taught that the meaning of *each other* is equivalent to that of (*otagai*). In fact, three of the major English-Japanese dictionaries define *each other* as (*otagai*), and none of these discusses the English reciprocal in relation to *V-aw* constructions.² Given that L2 learners frequently use dictionaries to identify the meaning of new words, first-language (L1) word- and phrase equivalents may well have significant impact on learners' lexical knowledge.

As with English reciprocals, (*otagai*) is subject to the locality condition, as in (7); and it evokes only the reciprocal interpretation when it occurs in the object position, as in (9):

- (9) John-to Mary-ga otagai-o hihansi-ta.
and NOM each-other-ACC blame-PAST
- John blamed Mary and Mary blamed John. (reciprocal)
 - John blamed himself and Mary blamed herself. (reflexive)
 - John and Mary blamed themselves (= John and Mary). (collective)

While many of the properties of (*otagai*) are similar to those of an English reciprocal, there are some

¹ For detailed discussions of Japanese reciprocal expressions, refer to Hoji (2006), Ikawa (1997, 2012), and Nishigauchi (1992), among others.

² Kenkyusya New English-Japanese Dictionary (6th ed.) (2002); Genius English-Japanese Dictionary (2001); and Shogakukan Random House English-Japanese Dictionary (2nd ed.) (1994)

differences. For example, Imai and Peters (1996, p. 100) stated that genitive (*o*)*tagai* evokes all of the readings shown in (10):

- (10) *Mary-to John-ga otagai-no kodomo-o yuuenti-ni tureteit-ta.*
and NOM GEM children-ACC park-LOC take-PAST
- a. Mary took John's children to the park, and he took hers there. (reciprocal)
 - b. Mary took her children to the park, and John took his there. (reflexive)
 - c. Mary took her and John's children to the park, and John took the children there. (collective)
 - d. Mary took her children to the park and also took John's there, and he did the same. (distributive)

Based on the predication-based binding theory proposed by Reinhart and Reuland (1993), Nakao (2003) argued that (*o*)*tagai* is an anaphor when it occurs in the object position, while it is a logophor in other positions, including the genitive position. Because a logophor is free from syntactic constraints, it can exhibit a variety of semantic behaviors. On the other hand, while (*o*)*tagai* can be construed as a reciprocal anaphor in the object position and as a logophor in the genitive position, such asymmetry cannot be observed in English reciprocals. For example, in both (11) and (12), the reciprocal interpretation is the only possible reading:

- (11) Mary and Susan praised each other.
(12) Mary and Susan praised each other's son.

That English reciprocals in the genitive position are construed as anaphors while Japanese (*o*)*tagai* in the same position is construed as a logophor can pose a learnability problem for Japanese-speaking L2 learners of English, in that the input contains no negative evidence that, for English reciprocals in the genitive position, a non-reciprocal reading is impossible.

3. Purpose of the Study

The purpose of this study is to investigate Japanese-speaking L2 learners' interpretation of English reciprocal pronouns in the object- and genitive positions. It is hypothesized that if Japanese-speaking L2 learners transfer the lexical properties of (*o*)*tagai*, they will allow the reciprocal reading only in the object position while allowing other readings in the genitive position. On the other hand, if they can successfully recognize reciprocals in both positions as anaphors, they will allow reciprocal readings in both structures.

4. Methodology

This study employed a written version of a truth-value judgement task in which participants were told that contestants in an English-language contest in the U.S. had been asked to view video recordings of various interactions and then write sentences summarizing these interactions in English. Participants were told that the interactions described in the test stimuli were transcriptions of the videotaped interactions and that the one-sentence summaries appearing below the transcriptions were written by a contestant whose score had not yet been entered. Participants were asked to mark the summaries as *True* if they believed the sentence accurately described the interaction; and they were asked to mark the sentences as *False* if they believed the sentence failed to describe the interaction correctly.

The main task was preceded by a pretest designed to determine whether participants could understand and follow the task procedures. The pretest contained six stimuli. Once participants completed the pretest they

were invited to note any questions or comments they had concerning the test and were then instructed to proceed to the main task. The main task examined four stimuli types and contained 12 test sentences (three sentences per stimulus type) and 12 fillers. Examples of the four stimulus types, referred to in this study as Stimulus Types A, B, C, and D, are below. (Test sentences are listed in the appendix.)

Stimulus Type A (reciprocal in object position; reciprocal reading)

Mary and Stacy blamed each other.

Stimulus Type B (reciprocal in object position; reflexive reading)

Lauren and Allison criticized each other.

Stimulus Type C (reciprocal in genitive position; reciprocal reading)

Faith and Jessica accused each other's boyfriend.

Stimulus Type D (reciprocal in genitive position; reflexive reading)

Angelina and Sara blamed each other's roommate.

Correct responses to Stimuli Types A and C were *True*, while correct responses to Stimuli Types B and D were *False*. An example of the stimuli presented to participants is below:

Sara and Emma are sisters. They share a bicycle. Yesterday while Emma was riding the bicycle, Sara was studying in her room. When Emma came home, she went to talk with Sara:

Emma: "I am sorry. Our bicycle is broken."

Sara: "What happened?"

Emma: "I got a flat tire. I rode the bike really fast."

Sara: "That's all right. Don't worry, Emma. A flat tire happens all the time. It might have happened because I rode on that rocky trail behind the house. It's probably my fault. I am sorry."

Sara and Emma blamed each other.

True/ False

L2 participants were L1 Japanese-speakers majoring in English at Kwassui Women's University in Nagasaki. Participants attended experimental sessions at their convenience and completed consent forms and demographic questionnaires prior to completion of the truth-value judgment task. The experimenter monitored the data collection process to answer any questions regarding the task procedures and to ensure participants did not communicate with each other during the session. Although participants were allowed to take as much time as they needed to complete the materials, no participant required more than 40 minutes to complete all distributed materials. Participants received a 1000-yen library card in exchange for their participation. Nineteen L2 learners participated in the study.

L1 English-speaking control participants were recruited from the Ohio State University by a faculty member in the Department of East Asian Languages and Literatures. Students who agreed to participate in the study were provided with an electronic copy of the demographic questionnaire and a written version of the truth-value judgment task and were asked to complete the materials at their convenience. Control participants were each paid \$10.00 for their participation. Thirteen controls participated in the study.

Test materials for L1 participants contained the same content as those for the L2 participants; however, for L2

participants, while stimuli (one-sentence summaries) were written in English, task directions and stimuli context (descriptions of various interactions) were written in Japanese.

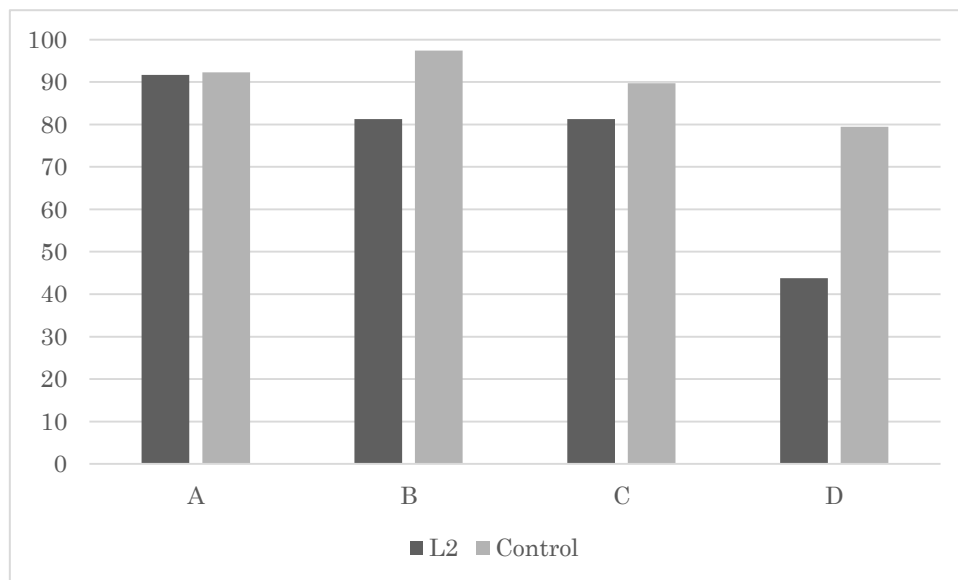
5. Results

Participants who provided two or more incorrect responses to pretest items were screened from further analyses. No control participants were excluded from the study, while three L2 participants were excluded.

The 16 L2 participants remaining in the study had a mean TOEIC score of 648.69 ($SD = 86.63$). (Demographic data collected included participants' highest (self-reported) TOEIC score achieved within the two years prior to the study.)

Figure 1 shows the percentage of correct responses achieved for each test stimulus type. Correct responses to Type A and C stimuli and Type B and D stimuli are *True* and *False*, respectively.

Figure 1. Percentage of correct responses by stimulus type



As can be seen in Figure 1, L2 participants were able to reject Type D stimuli at a low rate of only 44%. Two-way ANOVA (see Table 1) revealed significant main effects for subject group ($p = .0007$) and stimulus type ($p < .0001$), and the interaction was also significant ($p = .0356$).

Table 1. ANOVA Summary Table: Stimulus Type and Subject Group

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Subject Group (SG)	1	6.016	6.016	12.17	.0007*
Stimulus Type (ST)	3	15.008	5.003	10.12	<.0001*
SG * ST	3	4.387	1.462	2.958	.0356*
Residual	108	53.389	0.494		
Total	115	78.800			

* $p < .05$

Post-hoc Tukey-Kramer tests showed L2 participants' low rate of accuracy on Type D stimuli to be significant. See Table 2.

Table 2. Tukey's HSD: Pairwise Multiple Comparisons

Contrast	Difference	<i>SD</i>	<i>CV</i>	Pr > Diff	Sig
Group-Control*Type-B vs Group-L2*Type-D	1.611	6.135	3.091	<0.0001	Yes
Group-Control*Type-B vs Group-Control*Type-D	0.538	1.953	3.091	0.519	No
Group-Control*Type-B vs Group-L2*Type-C	0.486	1.850	3.091	0.588	No
Group-Control*Type-B vs Group-L2*Type-B	0.486	1.850	3.091	0.588	No
Group-Control*Type-B vs Group-Control*Type-C	0.231	0.837	3.091	0.991	No
Group-Control*Type-B vs Group-L2*Type-A	0.173	0.659	3.091	0.998	No
Group-Control*Type-B vs Group-Control*Type-A	0.154	0.558	3.091	0.999	No
Group-Control*Type-A vs Group-L2*Type-D	1.457	5.549	3.091	<0.0001	Yes
Group-Control*Type-A vs Group-Control*Type-D	0.385	1.395	3.091	0.858	No
Group-Control*Type-A vs Group-L2*Type-B	0.332	1.264	3.091	0.910	No
Group-Control*Type-A vs Group-L2*Type-C	0.332	1.264	3.091	0.910	No
Group-Control*Type-A vs Group-Control*Type-C	0.077	0.279	3.091	1.000	No
Group-Control*Type-A vs Group-L2*Type-A	0.019	0.073	3.091	1.000	No
Group-L2*Type-A vs Group-L2*Type-D	1.438	5.783	3.091	<0.0001	Yes
Group-L2*Type-A vs Group-Control*Type-D	0.365	1.392	3.091	0.859	No
Group-L2*Type-A vs Group-L2*Type-B	0.313	1.257	3.091	0.912	No
Group-L2*Type-A vs Group-L2*Type-C	0.313	1.257	3.091	0.912	No
Group-L2*Type-A vs Group-Control*Type-C	0.058	0.220	3.091	1.000	No
Group-Control*Type-C vs Group-L2*Type-D	1.380	5.256	3.091	<0.0001	Yes
Group-Control*Type-C vs Group-Control*Type-D	0.308	1.116	3.091	0.952	No
Group-Control*Type-C vs Group-L2*Type-B	0.255	0.971	3.091	0.978	No
Group-Control*Type-C vs Group-L2*Type-C	0.255	0.971	3.091	0.978	No
Group-L2*Type-C vs Group-L2*Type-D	1.125	4.526	3.091	0.000	Yes
Group-L2*Type-C vs Group-Control*Type-D	0.053	0.201	3.091	1.000	No
Group-L2*Type-C vs Group-L2*Type-B	0.000	0.000	3.091	1.000	No
Group-L2*Type-B vs Group-L2*Type-D	1.125	4.526	3.091	0.000	Yes
Group-L2*Type-B vs Group-Control*Type-D	0.053	0.201	3.091	1.000	No
Group-Control*Type-D vs Group-L2*Type-D	1.072	4.084	3.091	0.002	Yes

6. Discussion and Concluding Remarks

This study showed that Japanese-speaking L2 participants allowed both reciprocal and reflexive readings of reciprocal pronouns in the genitive position; thus, they did not interpret reciprocal pronouns in the genitive

position as anaphors. On the other hand, when the reciprocal was in the object position, participants permitted only the reciprocal reading. These results are consistent with the assumption that these L2 learners transferred the lexical properties of L1 reciprocals to their target language. Indeed, one might suggest that Japanese-speaking L2 learners' knowledge of reciprocals is controlled by predication-based syntactic constraints (e.g., Nakao, 2003). On the other hand, as the genitive position is presumably outside the syntactic domain of the prediction-based approach, such approach cannot fully explain why English reciprocals in the genitive position in structures as in (12) evoked only reciprocal readings for L1 control participants.

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References

- Akiyama, Y. (2002). Japanese adult learners' development of the locality condition of English reflexives. *Studies in Second Language Acquisition*, 24, 27-54.
- Chomsky, N. (1981). *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, N. (1986). *Knowledge of language*. New York: Praeger.
- Chomsky, N. (1995). A minimalist program for linguistic theory. In N. Chomsky (Ed.), *The Minimalist Program* (pp. 167-217). Cambridge, MA: MIT Press.
- Cook, V. (1990). Timed comprehension of binding in advanced L2 learners of English. *Language Learning*, 40, 557-599.
- Felser, C., Sato, M., & Bertenshaw, N. (2009). The on-line application of binding principle A in English as a second language. *Bilingualism: Language and Cognition*, 12, 485-502.
- Finer, D. L., & Broselow, E. I. (1986). Second language acquisition of reflexive binding. *Proceedings of the Sixteenth Annual Meeting of the North Eastern Linguistic Society*, 154-168.
- Hamilton, R. (1998). Underdetermined binding of reflexives by adult Japanese-speaking learners of English. *Second Language Research*, 14, 292-320.
- Heim, I., Lasnik, H., & May, R. (1991). Reciprocity and plurality. *Linguistic Inquiry*, 22, 63-101.
- Hoji, H. (2009). *Otagai*. In A. Ueyama (Ed.), *Theoretical and empirical studies of reference and anaphora—toward the establishment of generative grammar as an empirical science* (pp. 126-138). Retrieved from https://www.researchgate.net/publication/334108220_Otagai
- Ikawa, H. (1999). Events and anaphoric processes. (Doctoral thesis, University of Arizona, Tucson, AZ). Retrieved from <https://repository.arizona.edu/handle/10150/288990>
- Ikawa, H. (2012). *Ibento imiron to nichieigo no kouzou* [Event semantics and structures of Japanese and English]. Tokyo: Kurosio Publishers.
- Imai, I., & Peters, S. (1996). Reciprocity and the semantics of (*o*)*tagai* and *-aw* in Japanese. In T. Gunji (Ed.), *Studies in the universality of constraint-based phrase structure grammars* (pp. 99-109). Osaka University.
- Kano, A. (2020). The Acquisition of reciprocals by Japanese-speaking learners of English. *The Kwassui Review*, 63, 1-11.

- Matsumura, M. (2007). Semantics behind the structure and how it affects the learner: A new perspective on second language reflexives. *IRAL*, 45, 321-352.
- Nakao, C. (2003). Japanese reciprocal constructions and binding theory. *Linguistic Research*, 19, 17-43.
- Nishigauchi, T. (1992). Syntax of reciprocals in Japanese. *Journal of East Asian Linguistics*, 1, 157-196.
- Reinhart, T., & Reuland, E. (1993). Reflexivity. *Linguistic Inquiry*, 24, 657-720.
- Thomas, M. (1993). *Knowledge of reflexives in a second language*. Philadelphia: John Benjamins.
- Wakabayashi, S. (1996). The nature of interlanguage: SLA of English reflexives. *Second Language Research*, 12, 266-303.

Appendix Main Test Stimuli

Type A

1.

Mary and Stacey are roommates. Last week, when the house was empty, a burglar broke into their apartment. After the police left, the roommates had an argument:

Mary: "I cannot believe you forgot to lock the door."

Stacey: "What? You are the one who always keeps the windows open."

Mary and Stacy blamed each other.

True/ False

2.

Angela and Sophie worked at the same company, in the accounting department. Their last financial report contained an error. Angela spoke to Sophie about the problem:

Angela: "You missed a zero in cell D9. Be more careful next time."

Sophie: "Hey, you are the one who was supposed to double-check my report. Pay more attention, OK?"

Angela and Sophie criticized each other.

True/ False

3.

Sophie and Mia were best friends. They decided to share an apartment. But the apartment they rented turned out to be not what they had expected. Sophie complained:

Sophie: "Why are we staying here? But you like this place, don't you? You chose this place."

Mia: "What? That's not fair. You are the one who showed me this place."

Sophie and Mia accused each other.

True/ False

Type B

4.

Sara and Emma are sisters. They share a bicycle. Yesterday while Emma was riding the bicycle, Sara was studying in her room. When Emma came home, she went to talk with Sara:

Emma: "I am sorry. Our bicycle is broken."

Sara: "What happened?"

Emma: "I got a flat tire. I rode the bike really fast."

Sara: "That's all right. Don't worry, Emma. A flat tire happens all the time. It might have happened because I rode on that rocky trail behind the house. It's probably my fault. I am sorry."

Sara and Emma blamed each other.

True/ False

5.

Lauren and Allison are tennis players who often play together in doubles matches. Yesterday's game was a big loss. Afterward, Lauren talked about the game with Allison:

Lauren: "I am sorry, Allison. I missed so many shots."

Allison: "That's OK. I wasn't anticipating your moves today. I need to become a better team player. I am sorry."

Lauren and Allison criticized each other.

True/ False

6.

Jennifer and Mia were taking the same philosophy class at college. Mia often skipped class, so when it was time to study for the final exam, she borrowed Jennifer's notes. But both students did poorly on the exam. Afterward, Jennifer spoke with Mia:

Jennifer: "I know you studied based on my notes. I thought I understood the lectures and took good notes. But they didn't help us pass the exam. I am sorry about that."

Mia: "You don't have to apologize. I cut class often. My performance is my fault."

Jennifer and Mia accused each other.

True/ False

Type C

7.

Emily went on vacation to Bermuda with her husband. While they were gone, Rachel, their teenage daughter, hosted a wild party for her friends. When the party was over the house was a mess, and the couch was covered with spilled alcoholic drinks. When Emily asked Rachel about the couch, Rachel told her that her friend Mackenzie had been drunk and spilled her drink. Emily was furious and went to talk with Maya, Mackenzie's mother:

Emily: "I cannot believe your daughter got drunk and ruined our couch."

Maya: "It was your daughter who invited my daughter to the party at your house. Your daughter pressured Mackenzie to drink. You may not know it, but your daughter is hosting all kinds of wild parties when you

are out of town.”

Emily and Maya blamed each other’s daughter.

True/ False

8.

Paige and Autumn both have sons whose grades are not good. One day, Paige complained to Autumn:

Paige: “Your son is always talking to my son during class, when my son wants to study. So don’t let your son disturb my boy.”

Autumn: “Oh, really? That’s not what’s going on. Your son talks to my boy during class. I know this is true because Mrs. Lòpez, the Spanish teacher, told me so.”

Paige and Autumn criticized each other’s son.

True/ False

9.

Faith and Jessica are roommates. Faith has a boyfriend, Mike, and Jessica also has a boyfriend, Eric. The roommates were talking in their living room when their conversation turned to Eric:

Faith: “Eric sometimes opens the bathroom door without knocking. I think this is extremely rude.”

Jessica: “Mike sometimes opens my bedroom door without knocking. I think this is even more rude.”

Faith and Jessica accused each other’s boyfriend.

True/ False

Type D

10.

Angela and Sara are classmates. Yesterday they talked about their roommates during the class break:

Angela: “You have a nice roommate, Sara.”

Sara: “We don’t get along very well. She stays out until two o’clock every morning and she is the sloppiest person I have ever met. But your roommate seems to be very nice.”

Angela: “Not really. She always lies to me. I don’t know when to believe her anymore.”

Angela and Sara blamed each other’s roommate.

True/ False

11.

Lillian and Becky are friends who often walk together to a park near their home. As they were walking yesterday they talked about their husbands:

Lillian: “Your husband is such a nice guy.”

Becky: “Well, after we married I discovered that he is so disorganized. He always leaves his clothes on the floor and he leaves his dishes in the sink. I am tired of being his Mom. But your husband is a nice man.”

Lillian: “He acts like a nice person with people he doesn’t know. But at home he can be really overbearing.”

Lillian and Becky criticized each other's husband.

True/ False

12.

Jennifer and Emily were friends who used to go to the same high school. One day they decided to have lunch at a local café:

Jennifer: "I heard you recently moved. How do you like your neighbors?"

Emily: "The guy who lives next door is strange. He sometimes starts to yell in the middle of the night. It is so annoying. How do you get along with your next-door neighbor? He seems like a nice guy."

Jennifer: "He plays the drums and often plays early in the morning or late at night. He does not care what his neighbors think. Also, his beat is terrible."

Jennifer and Emily accused each other's neighbor.

True/ False