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Lexical Performance in L1: What is Native-like Lexical Competence?

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Introduction

Vocabulary knowledge is indispensible in any language to communicate meaningfully and appropriately. However, various difficulties are involved in achieving full-development of lexical competence even among native speakers (e.g., Stahl & Nagy, 2006). Previous studies investigated what factors influenced processing and learning vocabulary in the mother tongue. These studies found that one factor is the similarity of meaning among words (Erten & Tekin, 2008; Finkbeiner & Nicol, 2003; Nation, 2001; Webb, 2009). More specifically, some found that dictionary meaning was found to be a cause of ambiguity influencing accurate synonym-usages (Azuma & VanOrden, 1997; Millis & Butto, 1989) while others claimed that more internal factors at a micro level such as semantic representation might have influenced native speaker's successful processing, which affected subsequent learning (Erten & Tekin, 2008; Finkbeiner & Nicol, 2003). In fact, in the word-sense research framework, the meaning similarity determined by the number of word-senses, a segment of word-meaning, was found to be influential to processing of near-synonyms as well as subsequent learning even in the native language (Finkbeiner, 2002; Finkbeiner & Nicol, 2003; Finkbenier, Forster, Nicol, & Nakamura, 2004).

The present study looked for any generalizable patterns of native speakers' lexical performance in relation to the word-sense effect which has been scarcely discussed in the psycho-semantic field. If native

speakers' lexical competence can be measured by observing their lexical performance, this can be utilized as a benchmark for L2 learners' lexical development in the target language, which also develops methodological validity in measuring and drawing a decisive conclusion. This will in turn help L2 learners and instructors predict potential difficulties in acquiring new L2 vocabulary.

Theoretical Background

Words in mind

Many research efforts were made to illustrate a general picture of how words in a native language would be systematically organized in a speaker's mind. One of the early models of word organization in the field was called the hierarchical network model (Collins & Quillan, 1969). The model predicted that words would be conceptually organized according to their interrelationship of idiosyncratic features. More specifically, it was hypothesized that all words were somehow ranked and interconnected based on conceptual features in a hierarchical structure (Figure 1).
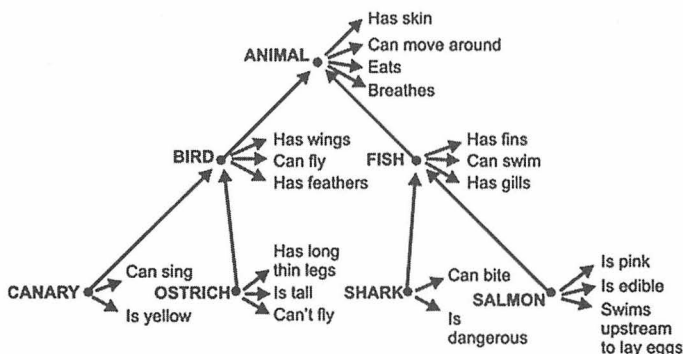

Figure 1. Hierarchical Network Model (Collins & Quillan, 1969)

Furthermore, the model postulated that the distance of node levels (i.e., CANARY, BIRD, or ANIMAL in Figure 1) between words would determine the speed of responses towards given statements in the experiment. That is, it would take longer for participants to activate the relationship if categories in the statement were further apart than if they were closer together in the model. Despite plausible accounts of the latency effect among various statements, however, this model failed to adequately account for a typicality issue (Anderson, 2005).

From a cognitive linguistic viewpoint, linguistic knowledge can be formed by cognitive interaction and experiences (Bechtel & Graham, 1998). In Bechtel and Graham's view, the basic structure of word knowledge organization appeared differently than it did in the previous model. Specifically, the principle underlying their new perspective was that words were organized in a radical order by degree of mutual closeness (Labov, 1973). The radical manner well expresses that the closer to the center a word is located, the more likely it is to represent the category (Bowerman, 1978) or prototypicality (Aitchison, 2003). Aitchison argued for the importance of the prototypicality of the categories, which plausibly accounted for the distance of each word so that some differences in the category would need more latent response than others (Figure 2).
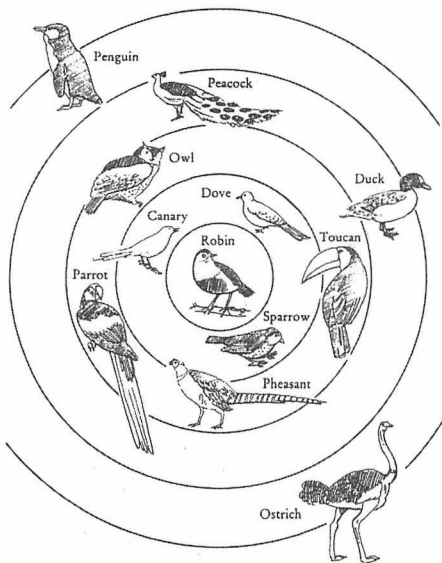
Figure 2. Prototypicality Model (adapted from Aitchison, 2003)

In a more recent approach, further developments in understanding word organization has provided a novel view. Collins and Loftus (1975) attempted to bring together the semantic interrelationship described above in a more integral model: the spreading activation model. This model included nodes which were interconnected with words as seen in the hierarchical network model. What was distinctively different from the earlier models were that the words were no longer ranked in a hierarchical order. Rather, the words were interconnected by a web-like network with lines whose length hypothetically represents the familiarity and similarity of the words.

Their model well depicted rich connections among words in speakers' minds. Figure 3 illustrates the word "fire engine" to show how it would co-activate surrounding words. For instance, based on the "fire

engine" diagram, when the word "fire engine" is processed, it simultaneously activates "house," "red," and "truck" because they are directly and closely connected. In other words, language users will immediately think of "house," "red," and "truck" when they see or hear the word "fire engine." Subsequently, the initial activation leads to spreading activations of other words such as "street," "yellow," or "roses" continuously.
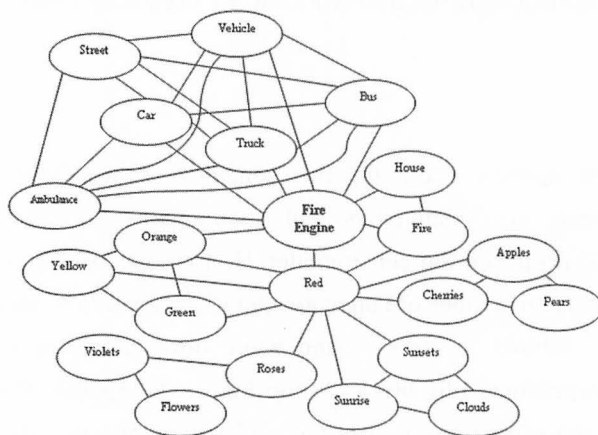
Figure 3. Spread Activation Model (Collins & Loftus, 1975)

As seen in the diagram, the lexical categories are linked not by semantic relationships but by the strengths and distances of the nodes. Furthermore, since the strength is represented by the length of the connections between words, categorical and prototypical relationships are logically well accounted.

Psycholinguistic studies have well supported the model's validity to account for the learner's organization of words. Meyer and Schvanveldt (1971) asked participants in a study to decide whether target words were real words (i.e., lexical judgment test). In the task, the target word

appeared immediately after the prime word disappeared. If there were contrasting differences in the processing speed between the semantically related and non-related pairs, it could be concluded that the words might be linked closer together. Indeed, the obtained results indicated that semantically related pairs such as "bread-butter" were processed quicker than non-related pairs such as "doctor-butter" (Meyer & Schvanveldt, 1971). Meyer and Schvanveldt attributed the latency effect to the fact that semantically-related words were organized closely and strongly.

More recent model

For a more specific view on the segment of word-meaning, especially in terms of simultaneous and spontaneous co-activation, Finkbeiner (2002) proposed the sense model. He hypothesized that each word includes a certain number of language specific segments of meaning or "word-sense" (shown as grayish and white dots in Figure 4) and shared senses (represented by black dots in Figure 4). Specifically, the model predicted the same pattern of priming effects, supporting the idea of co-activation (i.e., when we see and hear a word, it would activate semantically related words). Additionally, this model postulated that a translation asymmetry was attributed not to a weak connection (as seen in the revised hierarchical model; Kroll & Steward, 1994), but to representational asymmetry determined by the number of word-sense. For instance, the equivalent words *black* (English) and *kuroi* (Japanese) differ in the number of language-specific senses. The weaker languages have fewer senses (i.e., English in the case of ESL learners). The less balanced two languages are, the larger the difference becomes between the two languages in terms of number of senses. Figure 4 illustrates the model.
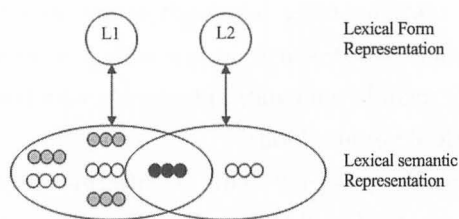
Figure 4. Finkbeiner's Sense Model (Adapted from Finkbeiner, et al., 2004)

In the same vein, Rodd, Gaskell, and Marslen-Wilson (2002) investigated the semantic property with a controversial claim of lexical ambiguity advantage. They claimed that if words in a pair were semantically ambiguous, they would process the word slower. Rodd et al. controlled degrees of semantic ambiguity on a basis of the number of "word-senses" (i.e., smaller segments of word meaning). In addition, they hypothesized that the word meaning advantage was actually a sense advantage (Rodd et al., 2002).

In their series of lexical judgment tests with native speakers of English, the participants were asked to judge whether presented ambiguous and unambiguous words were a lexical item or not (Rodd et al., 2002). The lexical variables, including concreteness, familiarity, and relatedness ratings, were controlled. The results showed that multiple word-senses produced a processing benefit, while multiple word-meanings delayed recognition, and words with many word-senses were responded to faster with fewer errors. They also found that lexical decision times (reaction time or RT) were actually slower for ambiguous words such as '*bank*' than for unambiguous words, whereas decision times for words with many word senses were significantly faster than for words with few word senses (Rodd et al., 2002). Based on the findings, they

suggested that it was not word-meaning but word-sense that would facilitate word recognition, and word-sense was a semantic property which could be ascribed to semantic ambiguity interfering with learning semantically related words (Rodd et al., 2002).

By exploring the semantic property with a different research paradigm, Finkbeiner, Forster, Nicol, and Nakamura (2004) investigated word-sense involvement as semantic representations. They tested both bilingual speakers and native speakers (i.e., Japanese-English bilinguals and native speakers of English). Their main focus was to shed light on priming asymmetry between L1 and L2. They especially examined via task differences of how they could account for such asymmetric relations between L1 and L2 priming by employing word-senses through different measurements. As a result, they found the robust masked L2-L1 translation priming in semantic categorization but not in lexical decisions. They assumed that the relationship between L1 and L2 lexical semantic representations was asymmetrical; L1 was rich but L2 was not. They also found that in lexical decisions, the robust priming effect was obtained in the many-few direction, but no priming was obtained in the few-many direction using the same pairs. The effect in semantic categorization, on the other hand, was obtained in both directions. They concluded that words with many word-senses primed others with few word-senses in lexical decisions and semantic categorization, but the same word-pairs in the few-many direction produced the priming effect only in semantic categorization, not lexical decisions.

What is important is that in a series of psycholinguistic experiments, Finkbeiner et al. (2004) verified the asymmetrical effect in translation tasks. In short, the result confirmed the effect observed across languages if the stimuli shared word-senses. More importantly, they found the effect within a language among native speakers. That is, in a pair of semantically

similar words sharing some senses, the word with more senses would prime the other with fewer senses.

To sum, the findings from Rodd et al. (2002) and Finkbeiner et al. (2004) collectively suggested that word-sense was the semantic property that would affect semantic processing. Specifically, words with many word-senses would facilitate recognition of words with few word-senses within a language as well as across languages (Finkbeiner et al, 2004).

A myth in native-speaker's lexical competence

As seen above, many studies examined in what way word knowledge, especially word meaning, is organized in learners' minds to build a basic understanding of what consists of accurate, appropriate, and native-like use of the target words. Some researchers, however, were doubtful to the word-sense effect. For instance, Gernsbacher (1984) argued that words with more than one meaning were typically more familiar; therefore, it was natural that a robust effect on lexical judgment should be found. Although she found supporting evidence to this effect, such robustness was found only in lexical judgment tests (Borowsky & Masson, 1996), which drove other researchers to investigate such task dependency in terms of the effect's robustness on word-sense (Finkbeiner et al., 2004; Rodd et al., 2002). In other words, the word-sense effect found in the lexical judgment test has been scarcely discussed in other research methodologies, which would fail to generalize the effect in the psycholinguistic research paradigm. Such task dependency needs more empirical attention for a through description of the word-sense effect.

Furthermore, many studies in second language (L2) vocabulary were carried out based on a promise that native speakers must have full-fledged lexical competence. Thus, any results gained from L2 participants in experiments were directly compared to that from native

speakers of the target language based on the premise. What is interesting is that such competence has been taken for granted as a benchmark to decide how far L2 learners of the target language were compared to native speakers. As a result, some L2 learners at an advanced level might be viewed as not native-like due to incongruent results compared with misleading results of native-speakers' lexical performance as well as lack of measuring the word-sense effect in the experiments. In this sense, what it means to be native-like in lexical competence remains unclear in the framework of the semantic judgment test, which deserves more theoretical attentions in the field of psycholinguistics.

Method

Research questions

The major goal of the present study was to determine levels of native-like lexical competence. Specifically, the study hypothesized that, given that the experiment that involved word-sense showed the priming effect among native speakers, the word-sense effect can be observable in the framework of semantic judgment test as well. This in turn helps us determine what is native-like in terms of word-sense acquisition, which will provide more valid methodological clues for clarifying the relationship between L1 translation and L2 word-sense as semantic representation in L2 lexical competence. In order to explore the above aspect, the following research questions were addressed in the framework of the semantic judgment test:

RQ 1: Is native speakers' response towards semantically related words more accurate and faster than unrelated words?

RQ 2: Is native speakers' response towards semantically more similar words less accurate than less similar words?

RQ 3: Is native speakers' response towards semantically more similar words slower than less similar words?

Research design

The study had two independent variables: word-sense and relatedness. Word-sense is used to determine the degree of meaning similarity. The relatedness divided stimuli in either semantically related word-pairs or unrelated word-pairs. The dependent variables were mean accuracy and reaction time (RT) of the semantic judgment test.

Participants

All participants were native speakers of English: five males and 15 females. Their age ranged from 18 to 21 years old. They all voluntarily participated in the experiment ($n = 20$). All of them were college students who had not received any formal Japanese language lessons. Any bilingual speakers were excluded from the group by the background questionnaire. Their college majors widely varied, but none of them was majoring English, Japanese, or linguistics except for two participants (secondary English education or English studies).

Task and materials

Semantic judgment test. The computer-based test, adapted from Jiang (2002, 2004a), where participants were asked to judge whether the presented English word pairs were related in meaning. The test featured 79 paired English words consisting of synonymous pairs ($n = 39$) and non-semantically related pairs ($n = 40$). The order of the item presentation was randomized for each participant. Participants had to press "Y" on the keyboard if a pair seemed to be related in meaning; otherwise, they had to press "N" as unrelated.

The List of Stimuli. The stimuli used in this online experiment were adapted from Goya (2014). Among the semantically related pairs, two sub-types were created by controlling degrees of meaning similarity between paired stimuli: More Similar (synonyms sharing multiple word-senses) and Less Similar (synonyms sharing a single word-sense).

According to the One-way ANOVA, results showed that the multiple word-senses shared pairs had significantly more senses than any of the single word-sense shared pairs. Other lexical variables (word-length, semantic relatedness, and word frequency) were also controlled. According to several *t*-tests, none of the factors were significant. In this sense, "[c]onsidering the minimized effects of other variables (i.e., familiarity, relatedness, word-length, and word-frequency), any results can be attributed to the tested variable" (Goya, 2014). A description of stimuli is presented in Table 1.

Table 1.

Description of stimuli

	Examples of related pairs	[a]Number of senses	[b]Semantic relatedness	[c]Frequency of pairs	[d]Length of words
More similar pairs	(allow-permit)	2.63	5.14	86.79	5.39
Less similar pairs	(admit-accept)	1	5.21	84.05	5.61

Note. [a]The number of word-senses of each word was drawn from the corpus WordNet (Fellbaum, 1998). [b]Semantic relatedness was measured by the a degree of closeness of the meaning between paired words rated by five monolingual speakers of English. [c]Word frequency was measured by average of paired words drawn from Brown corpus (Kučera & Fransis, 1967). [d]Word length was measured by the mean number of letters of the paired words.

Apparatus and Procedures

Two tasks were administered in the following sequence. First, after participants filled out the background information questionnaire, the semantic judgment test was administered. The researcher met all of the qualified participants (n = 20) in the laboratory individually. The experiment was carried out on a Mac computer. The participants were directed to respond as quickly as possible by pressing any key. After a cue, the stimulus word–pair remained on the screen for 500ms or until any button was pressed. The RTs were recorded from the onset of the presentation. The presentation order of the stimuli was randomized for each participant by SuperLab, a psycholinguistic experimentation software.

Result

As mentioned earlier, the total number of the participants was 20; however, one was excluded from further analysis due to significantly slow responses. Figure 5 and 6 present the means and standard deviations (SDs) of accuracy as well as reaction times (RTs) according to the stimulus types, such as overall items (n = 79), related pairs (n = 39), and unrelated pairs (n = 40). Accuracies are presented in percentage (%) while RTs are presented in milliseconds (ms).

According to Figure 5, the mean accuracies were 89.67% (SD = 7.79), 92.17% (SD = 5.37), and 85.79% (SD = 15.70) for the overall items, the related items, and the unrelated items, specifically. The ratio between the number of the semantically related pairs and that of the unrelated pairs was 39:40; therefore, the finalized chance level of both groups' accuracy was 49.37%. All of the participants' judgment was above the chance level, which indicates that the material successfully eliminated any guesswork
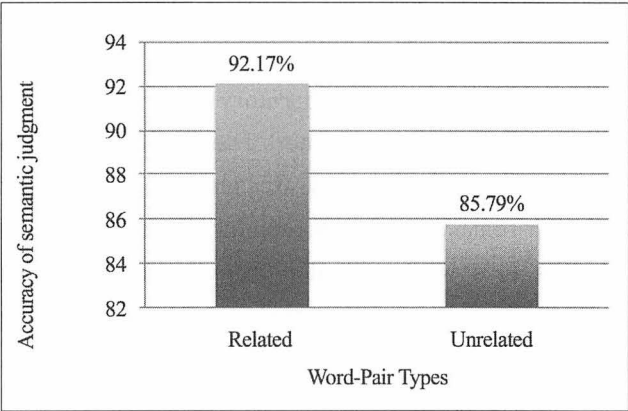
on the semantic judgment.

Figure 5. Accuracy of judgment on related and unrelated word-pairs

As for RTs, according to Figure 6, their means were 1582.08ms (*SD* = 329.39), 1398.13ms (*SD* = 286.57), and 1616.67ms (*SD* = 377.18) for the overall items, the related items, and the unrelated items, specifically.
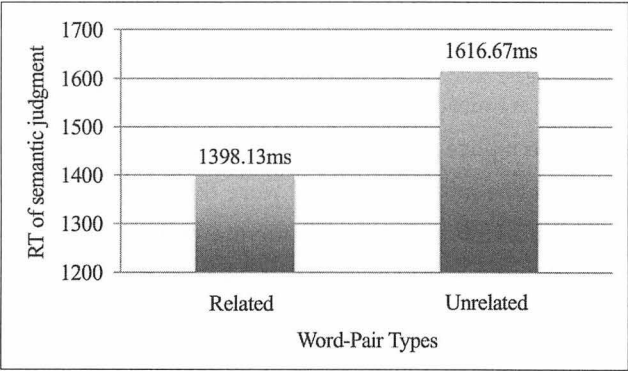

Figure 6. Reaction time (RT) of judgment on related and unrelated word-pairs

To examine whether there is any significant difference in these means, the differences between the means of the related pairs and that of the unrelated pairs were tested using two-tailed paired t-tests. As for accuracy, the difference was not significant ($p = .12$). The results indicate that the group's semantic judgment were equally accurate on both related and unrelated word-pairs. As for RTs, however, the difference was significant: $t(18) = -4.59$, $p < .01$, and $d = .65$. The results indicate that the group's semantic judgment was significantly faster on the related word-pairs than the unrelated counterparts. Table 2 indicates the result.

Table 2.

Results of the t-Test on Means of Reaction Times between Related and Unrelated Pairs

	Mean	SD	t	p	d
Related	1398.13ms	286.57	-4.59	.000	.65
Unrelated	1616.67ms	377.18			

A comparison between semantically more and less similar word-pairs whose similarity was determined by the number of word-sense shared within a pair was also conducted. The mean accuracy of more similar word-pairs (More) was 92.37% ($SD = 6.74$) while that of less similar word-pairs (Less) was 91.97% ($SD = 7.31$). As for RTs, the mean speed of judgment on the more similar word-pairs was 1377.84ms ($SD = 284.12$) while that on the less similar counterparts was 1419.49ms ($SD = 314.98$). Figure 7 and 8 indicate those numbers. Accuracies are presented in percentage (%) while RTs are presented in milliseconds (ms).
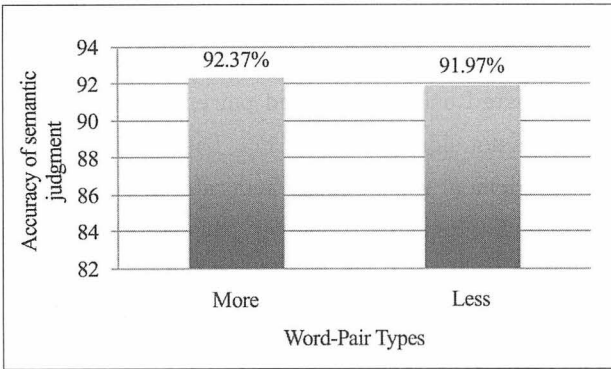
Figure 7. Accuracy of judgment on more and less similar word-pairs
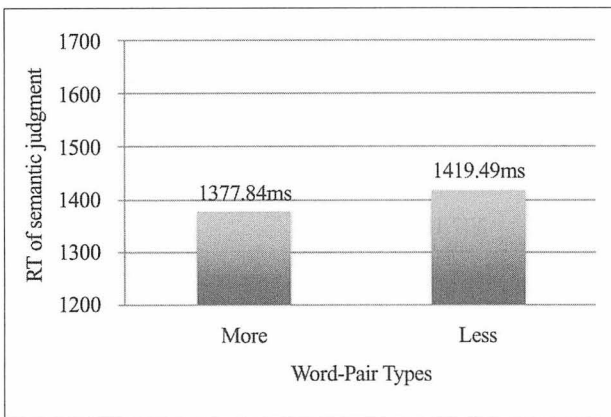
Figure 8. Reaction times (RTs) of judgment on more and less similar word-pairs

To examine whether there is any significant difference in these means, the differences of means between the related pairs and the unrelated pairs was tested using two-tailed paired t-tests. The results indicated that both differences were found to be non-significant; t (18) = .19 and p = .85 for mean accuracy and t (18) = -.96 and p = .35 for mean

RTs. In short, native speakers' judgment was as accurate and fast on both types of stimuli, semantically more similar as well as less similar word-pairs in the experiment.

Discussion

All of the research questions addressed in the present study were to investigate native speakers' lexical performance in terms of subtle meaning differences. The first research question asked whether native speakers' responses towards semantically related word-pairs could be more accurate and faster than their responses to unrelated counterparts in the semantic judgment test. In the test, the participants had to decide whether presented word-pairs were related in meaning. Interestingly, the study found a mixed result. Specifically, the difference in accuracies of the participants" performance between the semantically related and unrelated word-pairs was statistically non-significant; however, how fast the participants responded to the stimuli had a significant difference (p = .00 and d = .65). That is, the participants responded more quickly to the semantically related word-pairs than to unrelated word-pairs in the experiment.

Intuitively and logically, it seems not surprising to observe such non-significant difference in accuracies. The participants involved in the current experiment were all college students in the U.S. who must have a wide range of vocabulary knowledge in order to enroll in the four-year program. In this sense, their fully developed lexical knowledge allowed very accurate lexical performance regardless of the semantic relatedness among the stimulus word-pairs. Then, why did it take relatively longer to execute their reaction to the semantically unrelated word-pairs? The stimuli used in the experiment were either semantically related or

unrelated. In order for the participants to decide whether the presented word-pairs were related in meaning, the participants had to search for the source of their decision while processing these two words in mind. With this in mind, it can be hypothesized that the participants were quicker on the semantically related word-pairs because the pair actually shared common semantic information while they were slower on the semantically unrelated word-pairs because the pair did not have any commonality; the participants had to keep on searching for a common feature of meaning until they terminated their search. Therefore, it seems natural to observe such mixed results.

The above contention can complementarily put forward the previous theoretical models of word organization. Given that the controlled variable was meaning relatedness and the effect was found in terms of reaction time, this can suggest that words in our mind may be linked on a basis of the semantic representation as suggested in the field (Aitchison, 2003; Collins & Loftus, 1975; Collins & Quillan, 1969; Finkbeiner, 2002; Labov, 1971; Meyer & Schvanveldt, 1971). In particular, the Prototype theory (Aitchison, 2003; Labov, 1971) postulates that words in the same semantic category hypothetically are organized in a radical manner in which more central words can be placed in the middle of words while less central words may be placed more peripherally distance. In this sense, the semantically unrelated words are hardly co-activated in the participants' minds while semantically related words become highly co-activated due to closer distances between words. Similarly, the Spread Activation Model (Collins & Loftus, 1975; Meyer & Schvanveldt, 1971) postulates that words in our mind may co-exist in a web-like network. Furthermore, distances between words represent how far they are apart from each other in the network.

These models collectively and adequately account for the slower

reaction time to the semantically unrelated words found in the present investigation. That is, the participants responded more quickly to the semantically related word-pairs because the words were co-activated due to less distance between the stimuli in our mind while they responded more slowly to the unrelated word-pairs due to greater distance between the stimuli in the network or no link in the network at all. Thus, the participants needed more time to search for the link. Yet, one may raise these questions: what connects these words in the same category and what determines the semantic closeness of words in the network.

The second and third research questions addressed these issues by looking into whether native speakers' responses towards the semantically more similar word-pairs could be less accurate and slower than their responses towards the semantically less similar word-pairs due to more word-senses involved in lexical processing. Looking closer at how native speakers perform in the experiment would promote relevant evidence of what connects words in our mind and what determines the semantic closeness of words in the network. Word-sense is a theoretical concept of semantic representation that can be counted by referring to an online corpus, WordNet (Fellbaum, 1998). Given that word-sense is part of the semantic property used for lexical processing among native speakers (Finkbeiner, 2002; Rodd et al., 2002), such polysemous aspect of vocabulary might interfere with the participants' semantic judgment because the participants have to retrieve and process many semantic representations for the lexical comparison of the presented word-pairs.

Surprisingly, however, the study found that the participants responded to the semantically more similar word-pairs as accurately as to the less similar word-pairs according to non-significant difference of accuracy ($p = .85$). As for RT, although the participants responded relatively more quickly to the semantically more similar word-pairs ($M =$

1377.84ms, SD = 284.12) than to the semantically less similar word-pairs (M = 1419.49ms, SD = 314.98) according to the descriptive statistics, the difference was not significant (p = .35). In fact, this is in line with Goya (2014) indicating that even though the English near-synonyms were semantically very similar on the basis of native speakers' ratings through a pilot test, the participants were capable of distinguishing the subtle differences of meaning determined by the number of word-sense.

Likewise, other studies investigating L2 vocabulary knowledge among ESL learners (Jiang, 2002, 2004a) discussed native-speakers' full-fledged lexical knowledge. In Jiang's series of the semantic judgment tests, the data gained from the native speakers of English was used to determine how well the ESL learners had achieved native-like lexical competence. It found that there was no significant difference in the lexical performance in terms of accuracy and RT, which indicated that none of the learners had achieved native-like status due to incongruent lexical performances between L2 learners and native speakers (e.g., Jiang, 2002; 2004a). However, to this date, none of the previous research had focused on in what manner native speakers would spontaneously respond to the semantically related word-pairs divided on a basis of the number of word-senses in an online experiment.

Considering no effect found in native speakers' accuracy and RT in the semantic judgment test, the present findings contributed methodological advancement to the field of L2 vocabulary acquisition. Specifically, the present investigation provided a benchmark of native-like lexical competence which was determined by native speakers' lexical performance in the semantic judgment test. Such novel view of native-like competence can suggest what it means to have fully developed lexical competence in the native language. That is, the native speakers are considerably accurate and spontaneous in distinguishing

near-synonyms regardless of meaning similarity.

Combined with the findings from the first research question, the descriptive statistics of accuracy and speed of their performance in the semantic judgment test may also suggest that the semantically related words can be linked together by word-senses if they share any; therefore, the participants can activate the stimuli quicker, which can support the sense model proposed by Finkbeiner and his colleague (2004). This can in turn suggest that word-sense is a semantic property native speakers use for lexical processing. Despite the statistically non-significance of the word-sense effect found in the present investigation, the participants responded relatively more quickly to the semantically more similar word-pairs than to less similar words. Because the number word-sense was controlled among the stimuli, the semantically related word-pairs share at least a single word-sense, and such commonality might help the participants draw quicker conclusions. In other words, this common word-sense can be a source for participants' semantic judgment, which in turn suggests word-sense can be a part of lexical representation that consists of word-organization.

However, we cannot deny that meaning similarity on the basis of some other overlooked lexical factors might have influenced the participants' lexical processing, which might connect the semantically related words in a network. Therefore, the present finding presses a need for more theoretical clarification on whether L2 speakers can respond to words-pairs that share word-sense as accurately and quickly as to the word-pairs that native speakers conceive as semantically similar but do not actually share any word-sense such as *silly-stupid*, *example-sample*, or *doubt-suspect* (i.e., none of them share any word-sense within a pair). Nonetheless, the present findings can shed more light on the methodological advancement of word-sense in two ways: (1) they are

methodologically useful in investigating the word-organization model and (2) they can be used to assess lexical competence in terms of semantic judgment test in future studies in the native and the second language.

Conclusion

Vocabulary knowledge is essential in any aspect of language use. The myth that the lexical competence of native speakers is fully developed has been taken for granted in L2 vocabulary research, especially in relation to the semantic judgment tests. In this study, such competence was described in terms of native speakers' lexical performance in relation to the word-sense effect. What was found in the present investigation was that native speakers responded significantly more quickly to the semantically related word-pairs than to unrelated word-pairs. This empirical finding serves as evidence of the psycholinguistic models of word-organization. Moreover, the present finding furthers theoretical development in the area of what way words in the mind become co-activated in relation to other lexical items.

In addition to the above contribution, this novel finding may also add a methodological advancement to the field of L2 vocabulary acquisition. That is, the present empirical finding can serve as a benchmark of native-like lexical competence in order to make a direct comparison with L2 learners. Specifically, this can be referred to when investigating whether L2 learners have also acquired the word-sense for lexical retrieval and subsequent processing in their language use.

As for a limitation of the present study, the research design only allowed the study to look at decontextualized empirical evidence, which restricts generalizability of the findings. Thus, providing the contexts for particular near-synonyms in the experiment will add the supplemental

information of how native speakers will process the target words in relation to the embedded context. The present study looked at how native speakers responded to the semantically related words which shared common word-senses in the pair. In order to verify that words are interconnected with the word-sense in the word-organization in our mind, the research needs to focus on word-pairs that do not actually share any common word-sense items despite their meaning closeness rated by native speakers. Investigating this by how quickly native speakers respond to them will determine whether words are connected in terms of word-sense.

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Abstract

Lexical Performance in L1: What is Native-like Lexical Competence?

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　心的辞書に関する研究において、我々の語彙知識は意味的に結びついていると言われている。またプライミングに関する研究では、word-sense (Finkbeiner, 2002) は母語話者の語彙使用に影響を与える事が分かっている。このことより、心的辞書における語彙は、word-sense が共有される事によって結びついていると考えられるが、これまでの意味判断実験において、word-sense は十分に研究されているとは言えない。その上 SLA に関する研究では、母語話者の語彙知識は十分に熟達しているので、意味判断実験において統計学的な差異を示さないと考えられたまま、word-sense を含まない実験結果において第二言語話者の語彙知識の熟達度の基準となっていた。

　本実験では word-sense を統制した語彙のペアを用い、母語話者 ($n = 20$) の意味判断実験での意味処理を観察した。被験者はコンピューターによる反応速度を測る実験（オンライン実験）で、同義語の組み合わせ ($n = 39$) が意味的に似ているかどうかの判断を行った。結果として被験者の意味判断の正確さに統計学的な差は観察されなかったが、意味的に似通ったペアに対しては意味判断が統計学的に遅かった。以上の結果は word-sense に関する実験の方法論的発展を示唆している。それは、（1）心的辞書内の語彙は意味的に組織され、（2）共有される word-sense の数の差は、母語話者の意味判断の語彙処理に影響を及ぼさない、という事であった。以上の結果は意味判断実験を用いる母語研究と第二言語習得研究において、被験者の語彙能力を評価する際の基準となるであろう。