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English Loan Words in Japanese:

Exploring Comprehension and Register

by

Naoko Horikawa

A thesis submitted in partial fulfillment of the
requirements for the degree of

Masters of Arts
in
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Portland State University
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Abstract

English loan words (ELWs) have become a considerable part of the contemporary Japanese vocabulary. Meanwhile, it has been shown that there are individual differences in the rate of ELW comprehension. Among the factors for low comprehension is age; people over 60 years old have been shown to comprehend fewer ELWs than the overall age group. As Japan is expected to soon enter the era of an aging society, the issue of ELW comprehension is likely to present serious social and personal problems.

The purpose of this study was to identify the current state of frequently used ELWs in contemporary written Japanese, with particular attention to their frequencies, linguistic features, and comprehension rates by people over 60 years old. In order to identify the mediums that are likely to be problematic, three registers were examined: government white papers, books, and internet texts.

The study found that the three registers differ in their overall frequencies of ELWs and distributions of the semantic categories, while the distributions of the types of borrowing are similar. It also found that ELWs in certain semantic categories have lower comprehension rates than other categories. Registers that regularly contain low-comprehension ELWs are likely to pose problems for readers over 60 years old.

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Chapter 1

Introduction

In recent years, a number of anecdotal accounts and studies have reported on the ubiquitous nature of English loan words (ELWs) in contemporary Japanese. Particularly, their rapid growth, pervasiveness, creativity, and "intimate incorporation" (Kachru & Nelson, 2006, p. 172) into Japanese are often the primary interests of the authors (Daulton, 2008; Kachru & Nelson, 2006; Kay, 1995; Loveday, 1996). These reports are also true in my own personal experiences as a native speaker of Japanese. Every time I visited Japan in the past eight years, I encountered ELWs that I had never expected to see in Japanese. It seems that ELWs are constantly expanding not only in numbers, but also in the contexts and ways in which they are used. As a student of linguistics with great interest in language contact, this phenomenon to me has been nothing but a source of fascination. However, it has also caused problems when communicating with my elderly family members who not only have difficulty understanding the meanings of certain loan words but also embracing the new life styles that these loan words represent, such as *blog* (‚burogu' ブログ), *download* (‚daun roodo' ダウンロード), or to *google* (‚guuguru' グーグル) something. They almost seem resentful that the younger generation is using words that they do not understand.

Figure 1, a snapshot of the official government website, shows just how much ELWs have become common in Japanese (Prime Minister of Japan and His Cabinet, 2011). On this page alone, twelve English-based words written in Japanese script are found: サイトマップ „site map', リンク 'link', トピックス „topics', ステップ „step', インフルエンザ „influenza', ブログ „blog', チーム „team', スタート „start', トップ

‘top’, セールス „sales’, and メール „mail’. In addition, there are English phrases and abbreviations written in the Roman alphabet: „Prime Minister of Japan and His Cabinet’, „FAQ’, ‘PDF’, ‘RSS’, ‘English’, ‘[Kan-]Full Blog.’

Figure 1: Official front page of the Japanese Prime Minister’s webpage

According to the Japanese National Language Research Institute, ELWs make up eight percent of the total Japanese vocabulary and 94% of all Western loan words, which also include Dutch, Portuguese, and German (as cited in Stanlaw, 2004). Furthermore, Sanseidou, one of Japan’s leading dictionary publishers, recently released a new edition of the *Concise Katakana-Word Dictionary* (Sanseido, 2010), a compilation of 48,100 loan words, most of which are of English origin.

Despite the high number of loan words, there are considerable individual

differences in the comprehension levels of loan words. According to the study conducted by *Nippon Hoso Kyokai* (Japan Broadcasting Corporation), as cited in Daulton (2008), one of the backgrounds that influence the comprehension of loan words is age. Compared to more traditional loan words, older people were less familiar with "radically innovative loan words" (p. 87), suggesting that loan words are actively incorporated and modified by a younger generation.

Another aspect of loan word knowledge is people's attitude and perceptions towards them. Myers-Scotton (2006) suggested that attitude towards a particular language or word correlates with the rate of acquisition and usage. Also, according to two surveys conducted by the National Institute of Japanese Language and Linguistics (NINJAL, 2006), Japanese people over 60 years old were found to have lower approval rates for loan words and to comprehend fewer of them in comparison to the overall population.

In sum, although ELWs undoubtedly constitute a considerable part of the contemporary Japanese vocabulary, some people, especially those who are 60 years old or above, do not seem to approve or understand them, which could pose communication problems. Those without sufficient understanding of common loan words are not likely to receive the same amount and quality of information as people who comprehend them would. In addition, low comprehension of ELWs could impair their abilities to function in domains in which ELWs are frequently used. As the number of the elderly is rapidly increasing in Japan, their low comprehension of loan words is likely to result in serious societal and personal problems.

However, not all ELWs appear equally in the same kinds of texts, and the chances of encountering ELWs are higher for certain kinds of texts than they are for others. Studies have been conducted to investigate the loan word distributions among different registers, such as newspapers and magazines (Shibatani, 1990; Tanaka, 2007; Kiryuu, 2007); however, the mediums through which information is disseminated today are much more diverse, largely due to the advancements in computer technology. Therefore, in order to gain further understanding of where communication problems might occur due to low comprehension of ELWs, it is necessary to consider different mediums of communication that include both traditional and contemporary platforms.

The present study uses a corpus linguistic approach to investigate ELWs in three registers: government-issued reports, books, and internet texts. More specifically, it identifies the overall ELW frequencies and the attributes of those that occur frequently in each register, allowing register characteristics with respect to ELWs to emerge. The study also identifies the extent to which people over 60 years old comprehend common ELWs in the three registers, drawing comparison among the registers with regard to ELW comprehension. It is my hope that the findings of this study will contribute to our understanding of the current state of ELW use in Japanese, and provide useful information necessary to identify disadvantages that those with low ELW comprehension might be experiencing.

There are five chapters in this study. Chapter 2 reviews previous studies concerning ELWs in Japanese and introduces the research questions of the study, establishing the scope of the present study. Chapter 3 introduces the data and the analysis procedures of the study, followed by Chapter 4, which presents the analysis results and

their implications. Finally, Chapter 5 synthesizes the literature review, research questions, and the study findings and discusses limitations of the study, and then concludes the study.

Chapter 2

Literature Review

The following literature review is divided into four sections; the first section looks at the historical background of Japan's language contacts and the current status of English loan words (ELWs). The following section provides detailed characteristics of ELWs. The third section reviews studies on the perceptions of loan words by the Japanese people and their familiarity with them, with special attention to those over 60 years old. Finally, the fourth section looks at loan words from a register perspective, drawing on the general discussion of registers and previous studies concerning loan words in a particular register. The chapter concludes with the research questions for this study.

Loan Words in Japanese: Historical Context

In order to gain an overall picture of loan words in Japanese, it is important to consider their historical background. Long before European languages were introduced, China was the single most prominent influence on Japanese culture and language (Miller, 1967, 1986; Loveday, 1996). China's political system, culture, and language were introduced to Japan, often by way of Korea, and were incorporated by the early Japanese powers during the fifth and the sixth centuries, A.D. (Miller, 1967; Inaga & Takemori, 1997). One of the major consequences of this contact was the introduction of the written language and the mass importation of Chinese characters, as Japan had not developed its own orthography (Loveday, 1996; Inaga & Takemori, 1997).

By the eighth century, Chinese had gained ‚high second language' status and was used in various formal domains in Japanese society, such as law, academics, and religion

(Loveday, 1996). However, as the Japanese developed their own scripts in addition to inventing a system for reading and writing Chinese characters based on the Japanese grammar and vocabulary, Chinese was no longer a subject of second language learning but was dissected and imported into Japanese itself as Sino-Japanese (Loveday, 1996; Irwin, 2005). For instance, words that did not exist in native Japanese, such as political terminologies, Buddhist concepts, and objects from the continent, were acquired through Chinese orthography with the pronunciation relatively faithful to the original language. For example, the native Japanese word for ‚mountain' is *yama*, which is 山 in written Chinese. Since the word had already existed in spoken Japanese, only the written form of the word was incorporated, but not the Chinese sound for 山. However, for words that did exist in Japanese, either the Chinese translation was added as an alternative word choice, or only the Chinese character for the word was employed to express the original Japanese word. Thus, there are two possible choices for the word ‚mountain range' in Japanese: one is native Japanese word *yamanami*, which comes from *yama* (‚mountain') and *nami* (‚range') and the other is *sanmyaku*, which is a direct loan word from Chinese (‚山脈') **(**Yan, 1994**).** The two words, however, slightly differ in their subtle nuances and appear in different contexts. While the Japanese word *yamanami* typically refers to a smaller range of mountains and connotes a softer impression than the Sino-Japanese *sanmyaku,* which is always used as the official name of the mountain range (i.e. *Hidaka sanmyaku* (日高山脈), ‚the Hidaka Mountains').

Chinese influences, whether orthographical or lexical, are so deeply embedded in today's Japanese that they are considered inseparable elements of the language (Miller,

1967). The Chinese character remains one of the three scripts of Japanese orthography, and words that originate from Chinese comprise 49% of the Japanese vocabulary (Kindaichi, 2002). Thus, by the time the importation of ELWs began, the Japanese had already experienced a major language contact, which helped establish a unique method of incorporating foreign vocabulary.

Japan's first major contact with the West dates back to the 16th century when Portuguese and Spanish missionaries and trade merchants arrived in Japan. However, the impact of the contact was limited at that time, as there was little or no centralized promotion of the outside world due to long lasting provincial wars and isolationist policies during the Edo period (1600-1868) (Miller, 1967; Inagaki & Takemori, 1997; Loveday, 1996).

With the Meiji Reform in the late 19th century, however, westernization of the country was promoted at a rapid rate. The government played a leading role by sending delegates to European countries and rigorously importing Western literature, politics, technology, science, and culture. European culture and language were considered to be the symbol of modernization and sophistication (Loveday, 2008). During this period, there were several major European languages from which words were imported: English, French, German, Italian, Portuguese, Spanish, Dutch, and Russian. In addition to direct loan words, creation of new Japanese-based words for the newly introduced concepts and vocabulary was undertaken. For example, the importation of the concept *democracy* resulted in two new words entering the Japanese vocabulary: *minshushugi* (民主主義), which is a calque using the Chinese orthography, and a phonologically modified English loan word *demokurashii* (デモクラシー) (Loveday, 1996).

The next major wave of contact with the West came after World War II. In this period, importation of Western values and culture, most directly from the U.S., was conditioned both by the Allied occupation between 1945 and 1952, and the public's social motivation to embrace and become part of the Western world and its economic success (Loveday, 1996). With the economy booming in the 1980's and 1990's, overseas traveling and English learning gained greater popularity, resulting in more English-Japanese language contacts among ordinary people.

There was a common pattern for the importations of Chinese and European languages; when the government regarded the language and the culture of the donor language to be valuable and important for the country's future, a great deal of investment was made for a small group of elites to acquire the language (Loveday, 1996). These elites acquired the new language as a whole and used it bilingually, separating one language from the other. However, when the language eventually reached the public for its own use, it was reduced to smaller segments, usually at the lexical level, which were eventually digested to become part of the Japanese vocabulary.

The importation of Chinese, after a few revivals during the Edo period, seems to have come to an end at the moment, as we have not seen new Chinese loan words entering Japanese since. On the contrary, English seems to continue to be an active donor language, adding a significant number of loan words each year. Presently, ELWs make up eight percent of the total Japanese vocabulary and 94% of all Western loan words, which also include Dutch, Portuguese, and German (Japanese National Language Research Institute, as cited in Stanlaw, 2004). Furthermore, *Sanseidou*, one of Japan's leading dictionary publishers, recently released a new edition of the *Concise Katakana-*

Word Dictionary (Sanseido, 2010), a compilation of 48,100 foreign origin words, most of which are of English origin.

Types of Loan Words

On a broad level, loan words can be divided into two major groups: cultural borrowing and core borrowing (Myer-Scotton, 2006). According to Myer-Scotton, cultural borrowing refers to lexical borrowings "that fill gaps in the recipient language's store of words because they stand for objects or concepts new to the language's culture" (p. 212). Examples of cultural borrowing in Japanese include *computer, fax,* and many other technology-related words, as the concepts of these words were introduced along with the language. Core borrowing**,** on the other hand, refers to importation of a foreign word when the object or concept already exists in the recipient language, creating "duplicate elements that the recipient language already has in its word store" (Myer-Scotton, 2006, p. 215). *Rabu* („love') and *happii* („happy') are examples of core borrowing from English to Japanese.

Furthermore, words can be borrowed directly or indirectly. A direct borrowing refers to situations where a donor word is received as it is by the host language, whereas indirect borrowing involves alterations of the donor word (Myer-Scotton, 2006). One of the most common indirect borrowings is calque, where the meaning of the donor word itself is borrowed, but the actual word that becomes part of the recipient language is its translation. The word *democracy* mentioned earlier is an example of cultural borrowing that involves both direct and indirect borrowing:

English*: democracy*

Type of borrowing: Cultural, as the concept was new to Japanese

Direct borrowing: *Demokurashii*　デモクラシー

Indirect borrowing: minshushugi　民主主義

When there is a duplicate word that refers to the same concept, differences in the context, the nuance of the word, and the attitude towards the donor or recipient language are involved in the selection. *Love* („rabu', ラブ), is an example of core direct borrowing, which competes against its Japanese equivalent *ai* (愛). To most Japanese speakers, the loan word *rabu* is common enough that they would comprehend the meaning. However, the two words are not always used in the same way. The English loan word *rabu* is typically used for romantic love as in *rabu sutoorii* („love story') and *rabu retaa* („love letter'), while the Japanese equivalent *ai* has broader use. When there is no absolute difference in the context, the selection of the word involves the nuances and the intent of the speakers; they might want to sound Western-like by using *rabu*, or sound more formal by using *ai*. Attitudinal differences also likely influence the selection between the loan and the native word. On the other hand, a conservative view against foreign languages might restrict one's selection of a loan word, as Loveday (1996) noted:

> A further attitude that has received little attention is the conception that the current extent of Western borrowings is leading to language „decline' or „infection' and is a sign that the Japanese have lost faith in their own linguistic creativity… (p. 208)

People that are less likely to approve of the increase of ELWs are older people who have

established their repertoires of vocabulary and see less immediate need for loan words, or who even feel threatened by the rapid intake of foreign words.

Characteristics of ELWs in Japanese

As a result of the language contacts discussed above, the contemporary Japanese vocabulary is comprised of three major types of language sources: native-Japanese (NJ), Sino-Japanese (SJ) (words that derive from Chinese, but are now considered Japanese), and other foreign languages (FJ), most of which are English (Irwin, 2005). While all of these languages can form a complete word (i.e. *yama* [NJ], *sanmyaku* [SJ], *demokurashii* [FJ]), many of them also form compound words. Irwin (2005) categorized the patterns of compound words into three types of monolingual compounds and six types of hybrid compounds. Table 1 provides examples of monolingual and hybrid compounds based on Irwin's categorization.

Table 1: Examples of monolingual and hybrid compound words based on Irwin's categorization (Irwin, 2005, p.123)

	Type of compound	Examples
Monolingual	NJ-NJ	*yama-michi*: 山道 („mountain' + „path'= „mountain trail')
	SJ-SJ	*sei-mei* 姓名 („surname' + „given name' = „full name')
	FJ-FJ	*intaanetto-kafe* インターネットカフェ („internet' + „café' = „cyber café')
Hybrid	NJ-SJ	*buta-niku* 豚肉 („pig' + „meat' = „pork')
	NJ-FJ	*ichigo-soda* 苺ソーダ („strawberry' + „soda' = „strawberry soda')
	SJ-NJ	*ki chigai* 気違い („mind' + „discrepancy'= „insanity')
	SJ-FJ	*dai seeru* 大セール („big' + „sale' = „big sale')
	FJ-NJ	*gomu-tebukuro* ゴム手袋 („gum' + „gloves' = „rubber gloves')
	FJ-SJ	*fasshon-kai* ファッション界 („fashion' + „domain' = „the fashion industry'

Once incorporated into Japanese, English words undergo major and minor linguistic changes, similar to what happened with Chinese. These changes are often described in terms of the following areas: phonology, orthography, morphology,

semantics, and syntax (Daulton, 2008; Kachru & Nelson, 2006; Kay, 1995; Kowner & Daliot-Bul, 2008; Stanlaw, 2004).

Phonological change. The phonological changes for ELWs occur in accordance with native Japanese phonology (Kay, 1995; Kubozono, 2005). The general rule is that when an English sound has no equivalence in the Japanese phonetic inventory, the Japanese sound that is perceptually closest to its English equivalent replaces it. With respect to consonants, Tsujimura (1996) observed that there were four typical sound substitutions in English loan words: /f/, /v/, /θ/, and /ð/are substituted by /ɸ/, /b/, /s/ and /z/, respectively. Another common area of change is syllable structure. The Japanese syllable system, often distinguished from English syllable structure as *mora-timing* (Kubozono, 1995), has a strong inclination to consonant-vowel (C-V) pairing, which is not always the case in English. Therefore, an English sound with no vowel ending is likely to change to a C-V combination when entering Japanese (e.g. „milk' is changed from /mɪłk/ to /mɪɹuku/).

In sum, phonological changes are mostly predictable and rule-governed. It is through these predictable patterns that ELWs are phonologically made accessible to Japanese monolingual speakers.

Orthographical change. Instead of using the original form of the word in the Roman alphabet, which is known to an increasing number of Japanese speakers, loan words are usually written in *katakana*, one of the three character sets in Japanese writing (hiragana, katakana, and kanji). Katakana is employed exclusively to write words of foreign-origin (Akamatsu, 2006; Kubozono, 1995; Stanlaw, 2004). Hence, the ELW *milk* is written as ミルク in katakana, rather than みるく in hiragana. This orthographical

change is largely influenced by the phonological changes discussed above. Katakana, similar to hiragana, consists of 71 characters that are phonetically relevant to syllables that exist in Japanese speech; for example, the letter ミ in the example above (ミルク) represents the syllable /mɪ/ and ル represents /ɹu/. Although an in-depth phonetic inventory indicates that the written form of words are not the same as the spoken form (Tsujimura, 1996; Yamane, 2001), katakana provides the reader with necessary information about how to say an ELW in the Japanese context. It also semiotically and symbolically marks all loan words as not Japanese, while simultaneously suggesting that they are now entering the Japanese language.

Occasionally, ELWs are written in Roman letters instead of katakana (Daulton, 2008; Stanlaw, 2004). In fact, the use of the Roman alphabet has become so common in Japan that Kess and Miyamoto (1999) stated that Japanese has a fourth script which is not formally recognized as part of the traditional orthographic system. Roman letters are omnipresent and used in a number of interesting ways to complement the appearance of hiragana, katakana, and kanji in printed text. This phenomenon is especially pervasive in advertisements where Western-words are used to attract customers (Baker & Jones, 1998). As mentioned earlier, loan words, after being established as part of the Japanese vocabulary, are learned as katakana words and the knowledge of the original English spelling is not required. The question with re-Romanization of ELWs is whether the reader is able to configure the spelling of the English word, link it to its equivalent in katakana, and understand the meaning. If this process is incomplete, it can potentially cause comprehension problems. For example, ジーンズ (‚jeans') is a common loan word for many Japanese people who are now accustomed to wearing denim trousers. However,

without the knowledge of the English spelling of the word, one might not be able to read the sign „*Jeans Shop*' (Figure 2).

Figure 2: Store front of Marukawa Jeans Shop. (Image retrieved from google.com)

Morphological change. The most typical morphological change of ELWs in Japanese is „clipping', the shortening of the original word by omitting one or more syllables. Kay (1995) used the word *accelerator* to show how this was back-clipped to become *akuseru* („accel[erator]'). Shortened words are sometimes used in compound words. For example, *personal computer,* after being phonologically altered to /pa-a-so-na-ru kon-pyu-ta-a/ (パーソナルコンピューター), is further shortened to /*pasokon*/ (パソコン). Other examples of clipping include: *depaato* („department [store]'), *suupaa* („super[market]'), *hebimeta* („heavy meta[l]'), and *superu* („spell[ing]').

It is also common for ELWs in Japanese to become part of English-Japanese hybrid compound words. For example, the Japanese word *ha* („tooth') and an ELW *burashi* („brush') are combined and make up *ha-burashi* („toothbrush'). Clipped loan words can also be part of compound words. For example, the word *depa-chika*, which refers to the basement level of a Japanese department store where delicatessen shops are typically located, consists of the following elements: 1) *depa,* a shortened version of

back-clipped loan word *depaato* („depart[ment store]') and 2) a Japanese word, *chika* („underground').

Syntactic change. Syntactic change of a loan word is typically discussed with respect to the creation of verbs, adjectives, or adverbs through the addition of Japanese affixes. Loveday (1996) described the initial process of this change: "…in most cases the Japanese treat loans as uninflected nouns or bound bases that do not belong to a word class but which are potentially convertible to any class by means of suffixation…" (p. 138). Nouns constitute 90% of English loan words, followed by adjectives and other parts of speech (Daulton, 2008). Japanese particles, such as *na* and *ni,* and the verb *suru* („to do') are often used as suffixation devices to transform loan words into adjectives, adverbs, and verbs, as shown in Table 2.

Table 2: Examples of syntactic changes in ELWs in Japanese

English	As a loan word	Affix	Part of speech	Example
logical (adjective)	rojikaru ロジカル	-na (particle)	rojikaru-na (adjective)	*Kare wa rojikaru-na hito da* („He is a logical person')
		-ni (particle)	rojikaru-ni (adverb)	*Kare wa rojikaru-ni mono wo kangaeru* („He thinks logically')
exciting (gerund)	ekisaitingu エキサイティング	-na (particle)	ekisaitingu-na (adjective)	*Ekisaitingu-na tatakai* („An exciting battle')
		-ni (particle)	ekisaitingu-ni (adverb)	*Ekisaitingu-ni ikiru* („To live excitingly')
enjoy (verb)	enjoi エンジョイ	-suru (verb)	enjoi-suru (verb)	*Dokushin seikatsu wo enjoi-suru* („To enjoy single life')
shopping (gerund)	shoppingu ショッピング	-suru (verb)	shoppingu-suru (verb)	*Shoppingu-suru* („To do some shopping')
		-chuudoku (noun: „addiction')	shoppingu-chuudoku (compound noun)	*Shoppingu-chuudoku* („Shopping addiction)

Semantic change. Finally, semantic change refers to cases where the meaning of a loan word in the Japanese context differs from the word's original meaning in the English context. For example, the word *about* as an adjective in English would typically mean something is moving around as in *'he was up and about.'* However, as a loan word in Japanese, *abauto* (about) is used as a descriptive word for someone that is not detail-oriented as in *'kare wa abauto na hito desu'* ("he is an 'about' person"=he is not a detail-oriented person). Although not all loan words undergo this change (Hogan, 2003), there seems to be a substantial number of such occurrences. Stanlaw (2004), in his discussion on the two types of loan words, wrote:

> …[words] imported from English include such everyday items as *terebi* for 'television', *tabako* ('tobacco') for cigarettes, as well as myriads of baseball terms (e.g. *hoomu ran* 'home run' or *sutoraiku* 'strike'); many of which reflect the importation of related aspects of Western culture. In addition, however, many other items are uniquely Japanese in their provenance, and might more accurately be regarded as made-in-Japan creations. This domestically-created Japanese English vocabulary include *kyanpingu kaa* (camping car for recreational vehicles), *raibu hausu* (live house for coffee shops or jazz clubs with live music), or *afutaa kea* (after care for product maintenance). (Stanlaw, 2004, pp. 11-12)

As one can imagine, semantic change in ELWs can cause great confusion to those who are acquiring English, Japanese, and those who speak both languages, as they are required to reconfigure their knowledge of the words.

Perception and Comprehension

As mentioned earlier, the individual differences in English loan word comprehension and attitude towards them are likely influenced by multiple factors, including age. Concerned that the pervasiveness of loan words was causing comprehension problems among the Japanese public, the National Institute for Japanese Language and Linguistics (NINJAL) conducted two surveys to assess the public's attitude towards and comprehension levels of ELWs (NINJAL, 2006).

The first survey, *Gairaigo ni kansuru ishiki chousa* (NINJAL 2004), which investigated the respondents' attitude towards loan words, was distributed nationwide to a total of 4,500 people over the age of 15 in 2003. Based on the survey, NINJAL found that approximately 55% of the overall respondents were either "not in favor of the increase" or "more or less not in favor of the increase" of loan words (Aizawa, 2007). Particularly, the percentage of people 60 and older who were not in favor of loan words was above 60%. Some of the common concerns against the invasion of loan words were that they might cause communication problems depending on the interlocutor (46.7%) and misunderstanding of the meaning (37.2%), that the tradition of Japanese language is ruined (33.3%), and that it is difficult to read and remember loan words (27.4%).

The other survey, *Gairaigo teichakudo chousa* (NINJAL 2006), which was concerned with the respondents' familiarities with loan words, were distributed to a total of 2,861 people over 16 years old between the years 2002 and 2004. For this survey, the researchers selected approximately 300 loan words based on the following two criteria: the loan words are commonly used in public materials, such as newspapers, governmental-issued papers, and local newsletters, but are unlikely to be widely

understood by people. In addition to these common-yet-unlikely-understood loan words, approximately 100 common-and-likely-understood loan words were included in the survey for comparison. Each respondent was presented with 15-30 words, and asked the following questions about them:

1. Have you seen or heard of this word? (yes/no)
2. If „yes', do you understand the meaning of the word? (yes/somewhat yes/no)
3. If „yes' or „somewhat yes', have you used this word yourself? (yes/no)

The percentage of those who answered „yes' was identified for each target loan word, as illustrated in Table 3. The percentage of respondents who comprehended the selected words was consistently lower for the age group over 60 years old, with an average of 13% difference.

Table 3: The results of Language Attitude and Pervasion Survey: Five most and least comprehended loan words (NINJAL, 2006)

	Overall (%)			Over 60 years old (%)		
	Recog.	**Compr.**	Usag.	Recog.	**Compr.**	Usag.
ストレス (stress)	97.4	**92.6**	90.6	94.1	**82.9**	80.2
トラブル (trouble)	96.2	**92.3**	86.4	89.2	**81.1**	70.7
プライバシー(privacy)	97.1	**91.9**	87.6	91.6	**81.7**	76.3
リストラ(restructure)	97.8	**91.8**	79.8	93.2	**80.6**	66
リサイクル (recycle)	97.1	**91.1**	87	94.3	**82.8**	77
アドミッション・オフィス (admission office)	7.2	**2.4**	0.9	1.8	**0.4**	0.2
オーセンティシティ(authenticity)	4.3	**2.2**	1	1.8	**1.1**	0.4
トリアージ (triage)	4	**2**	1.1	2.1	**0.2**	0
フィランソロピー(philanthropy)	5	**1.9**	0.7	4.1	**1.7**	0.9
キュレーター (curator)	4.9	**1.5**	0.5	1.6	**0.2**	0

In sum, NINJAL found that people over 60 years old were less in favor of and comprehended loan words less compared to the overall age group (Aizawa, 2006). Based on these results, it seems clear that there is a mismatch between the preference and the phenomenon, especially for those over 60 years old; the use of loan words is growing

despite the fact that many people do not approve and/or comprehend them. While NINJAL's survey findings shed light on this serious social issue, what is still left unclear is where and how frequently they are likely to encounter loan words that they do not understand.

Considering ELWs in Registers

One of the ways to investigate "where" people might encounter certain loan words is analyze the register in which loan words are frequently found. Studies in discourse analysis and corpus linguistics have shown that the context of use often influences linguistic features, including lexical choices (Biber, Conrad & Leech, 2002; Biber & Conrad, 2009). For example, in their discussion of features, Biber and Conrad (2009) demonstrated that the situational characteristics of classroom teaching (i.e. spoken, interactive, personal) resulted in relatively frequent use of certain linguistic features, such as pronouns, mental/desire verbs, and clause-initial *and/but* (p.65). In comparison, the situational characteristics of academic prose (i.e. written, no interaction between the author and the reader, carefully composed) resulted in the relatively frequent use of nouns and complex clause structures. This analysis methodology, which links the situational and linguistic characteristics to investigation of the language features, can be extended to loan word analysis, as some have done.

Tanaka (2007) looked at three registers (newspapers, government-issued white papers, and local newsletters) and reported that the types of frequently occurring loan words were representative of the content, which varied among registers. He found that local newsletters contained more loan words related to day-to-day activities (e.g. *challenge, pool, gallery*), while the government white papers included more loan words

related to economy, business, and information (e.g. *part-time, monitoring, initiative*) while newspapers contained more loan words related to sports, especially baseball and golf (e.g. *solo, play off, birdie*). Furthermore, he found that the highest rate of comprehension of frequent loan words occurred more in local newsletters than in white papers.

Topic area within register is another factor that has been shown to influence loan word frequencies. Kiryuu (2007), in her analysis of Japanese newspaper sections, found that section-specific loan words were most frequently found in sports, entertainment, science, home, and economy sections, while there were fewer section-specific loan words in the front page, third page, and the editorial section, which do not have explicit topics assigned for them.

Lexical choices are also influenced by communicative purposes. For example, advertising, whose communicative purpose is to tell the reader how attractive a product is, tends to use words that are unique and draw readers' attention. Therefore, it is common for Japanese advertisements to incorporate ELWs to „enhance the attention-grabbing potential of English, making it an effective tool in promotional strategies' (Daulton, 2008).

Literature Review Summary and Research Questions

In this chapter, I have provided background for the present study. In particular, I have provided the historical background of Japan's importation of foreign languages that led to the wide spread of ELWs in contemporary Japanese. I have also reviewed the linguistic characteristics of ELWs and the types of lexical borrowing, which provided the reader with a general sense of the processes that ELWs undergo when entering Japanese.

I have also presented previous studies concerning comprehension of ELWs, in which people over 60 years old have been shown to be less in favor of and familiar with ELWs. Finally, I have reviewed register variations and lexical choices, and presented multiple factors that likely influence the use of ELWs.

Previous studies have provided some basis for linking context of use, age, and rates of comprehension to better understand the multiple dimensions of loan words in Japanese. However, so far the studies have been limited to public materials, such as newspapers and government-issued white papers. Although these materials are one source of public information, they rarely cover personal issues and interests, as do some other registers, such as general books and internet texts. The Internet especially has undoubtedly become a significant part of the contemporary lifestyle, and texts produced on the Internet seem likely to contain different kinds of loan words that may be understood differently. Therefore, in order to gain a comprehensive picture of the problem that people, especially those over 60 years old, experience in comprehending ELWs, an investigation of a wide range of mediums of communications, including the traditional and contemporary, is needed.

In this study, in order to gain a further understanding of the current state of ELWs that are poorly understood by people over 60 years old so as to identify the most problematic medium, I investigated the following three written registers: government-issued white papers, books, and internet texts. The specific research questions of the study are as follows:

Research Question 1:

For each of three registers-government-issued reports, books, and internet texts-how do the following compare?

- Frequencies and diversity of katakana words and high-frequency ELWs
- Types of borrowing of high-frequency ELWs
- Semantic categories of high-frequency ELWs

Research Question 2:

Based on the results of the *Language Attitude and Pervasion Survey* (NINJAL, 2006), to what extent do people over 60 years old comprehend high-frequency ELWs, and how does their comprehension compare across registers?

Chapter 3

Methodology

This chapter introduces the data and the analysis procedures for the study. The first section provides the background for the data source for this study, followed by the second section, which describes the data in detail. The third section outlines the analysis procedures that guided this study.

Background: The BCCWJ and the Monitor Data

The source of the data for this study, the Balanced Corpus of Contemporary Written Japanese Monitor Data 2009 (The Monitor Data), is a subset of a larger and more comprehensive corpus, the Balanced Corpus of Contemporary Written Japanese (The BCCWJ) (NINJAL 2011).

The BCCWJ was developed between 2006 and 2011 as part of a long-term Japanese language research project known as the *Kotonoha Project* conducted by the National Institute for Japanese Language and Linguistics (NINJAL, 2010; 2011). It contains over 100 million words and consists of three sub-corpora: 1) the Publication corpus, 2) the Library corpus, and 3) the Special-Purpose corpus (NINJAL, 2011). The Publication corpus consists of randomly selected samples of books, newspapers, and magazines published in Japan between 2001 and 2005, which represents the overall picture of the recent published written texts in the market. On the other hand, the Library corpus is a collection of randomly selected samples of books published between 1986 and 2005 that are included in the library catalogues in thirteen public libraries in the Tokyo Metropolitan Area. Therefore, samples in the Library corpus represent books that were not only published, but also have wide circulation among the public. Lastly, the Special-

Purpose corpus contains various types of context-specific texts that may or may not have been published, such as governmental documents, best-selling books (the top 20 of the year), textbooks, laws, Yahoo! Blog, and Yahoo! Chiebukuro (知恵袋), which is the Japanese equivalent of Yahoo! Answer. For the governmental documents, there are several types of texts including white papers (authoritative reports issued by the government) and the Diet meeting minutes (official records of the proceedings of national government meetings). Some of the texts in the Special-Purpose corpus date back to 1976, while some are as recent as 2005. In summary, the BCCWJ includes various types of texts that range from government-issued documents, which are one of the most formal registers of writing, to internet texts, where authors are anonymous, carefree, and is likely informal.

In 2009, while the BCCWJ was still under compilation, the Balanced Corpus of Contemporary Written Japanese Monitor Data 2009 (The Monitor Data) was published as an interim resource for research purposes (Maruyama, 2009). The Monitor Data is a subset of the BCCWJ with the same basic structure, consisting of approximately 45 million words and the same three sub-corpora. The major difference between the complete BCCWJ and the Monitor Data is the extent of text coverage; while the Publication corpus in the BCCWJ includes magazines and newspapers, the Monitor Data only contains books. Also, although the Special-Purpose corpus in the BCCWJ Monitor Data contains nine types of texts, the Monitor Data includes four: best-selling books, white papers, Diet meeting minutes, and *Yahoo! Chiebukuro*. Despite the smaller range of text type, however, the Monitor Data contains many samples of governmental documents and internet texts, which represent the formal and informal registers of

writing, and of books that represent registers of neutral formality. In fact, in order to reach a data size feasible for the analysis, I selected specific parts of the Monitor Data, as described in the following section.

The Data

For the purpose of the study, which was to investigate the characteristics of ELWs found in recently written Japanese texts in three registers, I made the following decisions in selecting the data. First, I limited my data to texts from 2001 to 2005 in all three corpora in order to align the period of time when the texts were produced, as well as to keep the size of the data feasible for my study. Second, I excluded the Library corpus and the Best-seller corpus from the data because the Publication corpus alone contained 4,459 samples, which provided large and comprehensive enough data for the book register. Furthermore, I decided to exclude Diet meeting minutes from the data because they were transcripts of the spoken dialogue during the meeting, which was inherently different from the written language. As a result, the following corpora constituted the data for the study: white papers, books, and Yahoo! Chiebukuro, representing the three registers, i) government-issued reports, ii) books, and iii) internet texts, respectively (Table 4). The word counts for each corpus in Table 4 were calculated in the initial stage of the analyses, which will be described in detail in the data analysis procedure section.

Table 4: The data of the study

Register	Government-issued Reports	Books	Internet texts	Overall
Corpus (Source)	White papers (Special-Purpose)	Books (Publication)	Yahoo! Chiebukuro (Special-Purpose)	
Year	2001-2005	2001-2005	2001-2005	2001-2005
# of Samples	250	4,459	45,725	50,434
# of words	828,000	12,700,000	5,239,000	18,767,000

Each corpus includes various topic categories. Maruyama (2009) identified 11 major categories for the books, nine for the white papers, and 14 for the Yahoo texts (Table 5). While all three corpora included topics related to economy, science, and society in general, some categories were unique to the register. For instance, the white paper corpus included texts that are specific to national governmental functions, such as security and foreign diplomacy, while the Yahoo corpus included categories that are distinctly personal, such as entertainment and hobbies, occupation and career, and parenting and schools.

Table 5: Topic categories in white papers, books, and internet texts

White papers	Books	Internet texts
1. Security	1. General	1. Entertainment and hobbies
2. Foreign diplomacy	2. Philosophy	2. Internet, PC and home appliances
3. Science and technology	3. History	3. Business, economy and money
4. Environment	4. Social science	4. Occupation and career
5. Education	5. Natural science	5. News, politics and world affairs
6. Economy	6. Technology and engineering	6. Sports, outdoor, and cars
7. Welfare	7. Industry and commerce	7. Life styles and living guide
8. Agriculture and fishery	8. Arts	8. Health, beauty and fashion
9. Land, infrastructure and transport	9. Language	9. Parenting and schools
	10. Literature	10. Mannerism and life events
	11. No category	11. Culture, learning and science
		12. Places, traveling, and outing
		13. Yahoo! JAPAN
		14. Others

In summary, the data used in this study were from three corpora that consist of three distinct registers: white papers, books, and internet texts. Each corpus includes a wide variety of topics, some of which are unique to one register while some are shared by

all three. The sizes of the corpora vary, but they are large and principled enough for the scope of this study.

Data Analysis Procedures

The analysis procedures of this study are divided into five stages. For the first stage, I used *UniDic* (Den, et. al, 2007) to modify the data, which included both word and non-word units, and created a modified corpus that only consists of words for each register. The purposes of this step were to obtain the number of words in preparation for the subsequent frequency analysis, and to collect information that helped identify loan words. For the second stage, I created a list of katakana words (Western loan words) and analyzed their frequencies. Then, I extracted high-frequent katakana words of English origin, and created the high-frequency ELW list. For the third stage, I analyzed the semantic properties of high-frequency ELWs based on the semantic categories that emerged from the data. For the fourth stage, I analyzed the types of high-frequency ELWs based on the core/cultural distinction adapted from Myers-Scotton (2006). Finally, I compared the high-frequency ELWs with the loan words surveyed in *Language Attitude and Pervasion Survey* (NINJAL, 2006) and identified the extent to which people over 60 years old comprehended high-frequency ELWs. The following subsections provide the detailed descriptions of the five stages.

Stage 1: Using UniDic to modify the corpora. *UniDic* (Den, et. al, 2007) is a Japanese corpus analysis tool developed under the supervision of NINJAL. *UniDic* is commonly used for recent Japanese corpus research and was available for download online. The basic function of *UniDic* is to transform sentences into units of words and/or non-words, such as symbols, punctuations, and letters. Texts loaded in *UniDic* are

returned as a list of units with their descriptions, including, but not limited to: 1) the lexeme (語彙素), 2) written form (書字形), 3) part of speech (品詞), and 4) the word type (語種) (Kokiso & Nakamura, 2009). The lexeme information provides the dictionary form of the word in standard Japanese dictionaries, which may be different from its written form, as there are four types of scripts in Japanese: hiragana, katakana, kanji, and the Roman alphabet. For example, the loan word *page* may be written in four different scripts depending on the style or the intent of the author, as in ぺーじ (hiragana), ページ(katakana), 頁 (kanji), and *page* (the Roman alphabet). Still, all of them point to the same lexeme, ページ, which is written in katakana because katakana is the standard script for Western loan words. The part of speech description provides the grammatical information for word units (e.g. verb, noun, modal verb), and the types of symbols for non-word units (e.g. bracket, punctuation, exclamation). The word type description provides information about the origin of the word, such as Japanese (和), Chinese (漢), or as indicated as gairaigo (外来語), which are other foreign languages.

In order to create corpora that only consisted of words, I used the part of speech descriptions provided by *UniDic* to separate word and non-word units. In *UniDic,* non-word units are classified as variations of symbols. For example, the unit "<" is classified as "symbol-open bracket" (記号-括弧開), and " 。 " is classified as "auxiliary symbol" (補助記号). Also, I treated symbol-like numerals as non-word units, such as Roman numerals (e.g. I, II, III) and circled numbers (e.g. ①, ②, ③). On the other hand, I treated words that are often written in symbols, such as *percent (%), plus (+),* and *minus (-)* as word units because they are processed as words with essential meanings in the

reader's mind. After all non-word units were removed, the remaining units constituted the modified corpora for the three registers. The corpora are stored as a table that could be organized by the descriptive fields provided by *UniDic* (Figure 3).

Figure 3: Example of modified corpus organized by the lexeme (White Paper)

出典 (Sample ID)	語彙素 (Lexeme)	書字形 (Written form)	発音形 (Pronunciation)	語彙素読み (Lexeme reading)	品詞 (Part of speech)	活用型 (Inflection type)	活用形 (Inflecton form)	語形 (Word form)	語種 (Word type)
OW6X_00028.txt	啓発	啓発	ケーハツ	ケイハツ	名詞-普通名詞-サ変可能			ケイハツ	漢
OW6X_00028.txt	啓発	啓発	ケーハツ	ケイハツ	名詞-普通名詞-サ変可能			ケイハツ	漢
OW6X_00028.txt	型	型	ガタ	ガタ	接尾辞-名詞的-一般			ガタ	和
OW6X_00028.txt	型	型	ガタ	ガタ	接尾辞-名詞的-一般			ガタ	和
OW6X_00028.txt	契約	契約	ケーヤク	ケイヤク	名詞-普通名詞-サ変可能			ケイヤク	漢
OW6X_00028.txt	契約	契約	ケーヤク	ケイヤク	名詞-普通名詞-サ変可能			ケイヤク	漢
OW6X_00028.txt	形成	形成	ケーセー	ケイセイ	名詞-普通名詞-サ変可能			ケイセイ	漢
OW6X_00028.txt	形態	形態	ケータイ	ケイタイ	名詞-普通名詞-一般			ケイタイ	漢
OW6X_00028.txt	掲げる	掲げ	カカゲ	カカゲル	動詞-一般	下一段-ガ行	連用形-一般	カカゲル	和
OW6X_00028.txt	掲げる	掲げ	カカゲ	カカゲル	動詞-一般	下一段-ガ行	連用形-一般	カカゲル	和
OW6X_00116.txt	ページ	頁	ページ	ページ	名詞-普通名詞-一般			ページ	外
OW6X_00116.txt	べし	べき	ベキ	ベシ	助動詞	文語助動詞-ベシ	連体形-一般	ベシ	和
OW6X_00116.txt	べし	べき	ベキ	ベシ	助動詞	文語助動詞-ベシ	連体形-一般	ベシ	和
OW6X_00116.txt	べし	べき	ベキ	ベシ	助動詞	文語助動詞-ベシ	連体形-一般	ベシ	和
OW6X_00116.txt	ベッド	ベッド	ベッド	ベッド	名詞-普通名詞-一般			ベッド	外
OW6X_00116.txt	ベッド	ベッド	ベッド	ベッド	名詞-普通名詞-一般			ベッド	外

One unique feature of Yahoo! Chiebukuro samples was that each sample included a topic title under which Q & A was posted. For example, the following text is a sample from the topic "Yahoo! Auction," in which the word *auction* appeared twice: once as a topic title (underlined) and once as a part of the sentence in the question (bolded).

> Yahoo! オークション
> **オークション**の出品物にアクセスした人が誰か（ＩＤ）判るのですか？
> 入札した人か質問した人しか分かりませんよ。第三者に分かるのは入札と、回答を 貰った質問者だけ。アクセスとウォッチリストは件数のみ。
>
> Yahoo! Auction
> Can people see who (ID) accessed [viewed] the items in the **auction**?
> You can only see people who bid on the item and asked questions. A third party can only see the bidders and the people who received answers to their questions. As for accessing [viewing] and watch-list, you can only see the numbers [of people].

Since the topic titles are automatically included in the text, not produced by the author, their occurrences should not be counted. Thus, in order to only count the occurrences of words that authors intentionally used, I excluded the occurrences of words that appeared as topic titles in Yahoo! Chiebukuro.

Stage 2: Extracting katakana words and high-frequency ELWs. The next step was to investigate the overall size of katakana words by extracting the katakana words and identifying their frequencies in each modified corpus. In order to identify katakana words, I first sorted the words by the word type (語種) and identified gairaigo (foreign words), which included both katakana and non-katakana loan words. For example, words that originate from Sanskrit and Ainu (the language used by the native Ainu people in Japan) are considered gairaigo. These gairaigo, however, are not written in katakana, but typically in kanji instead, as in 奈落 (*naraku*) from the Sanskrit word *naraka*. In order to separate katakana and non-katakana words, I sorted the gairaigo by the lexeme (語彙素) and removed all non-katakana words based on the script type in the lexeme column. The remaining gairaigo constituted the katakana list, which contained all the occurrences of katakana words.

After katakana words were extracted, I identified the raw counts of katakana words in each register and identified the normed frequency per one million words. Next, I counted the number of distinct katakana words and their frequencies. After obtaining the frequencies for each distinct katakana words, I compared the three registers and determined the frequency level that would constitute the high-frequency word group based on the following two factors: 1) there should be substantial number of words from

each corpus for register comparison, and 2) the number of words feasible for further analyses. As a result, I determined the high-frequency level to be a normed frequency of 30 times or more per million words.

Subsequently, I evaluated the high-frequency katakana words for their language origin in order to eliminate non-English loan words. To do this, I removed ones that are not included in contemporary English vocabulary, such as *arbeit* (German) and *konbinat* (Russian). Words that originate from non-English language, but are considered a typical vocabulary item in English, remained in the list (e.g. *tobacco, beer*). The remaining katakana words constituted the high-frequency ELWs, which would be further analyzed in the next stages.

Additionally, in order to identify the diversity of katakana words and high-frequency ELWs, I calculated their type-token-ratio (TTR) by dividing the number of distinct vocabulary items by the raw counts of katakana and high-frequency ELWs.

Stage 3: Analyzing types of borrowing. In order to characterize the types of borrowing for the high-frequency ELWs, I adapted the core/cultural distinction described by Myers-Scotton (2006) and used the following definitions: 1) Core borrowing: Loan words that duplicate elements of Japanese words already in existence and 2) *Cultural*: Words that fill gaps in Japanese vocabulary because they stand for objects or concepts new to Japanese culture. For instance, the ELW *drink* (noun) refers to beverages in general, for which Japanese already had its own word, *nomimono*. Therefore, I categorized *drink* as a core borrowing. In contrast, the ELW *beer* refers to a specific kind of drink that was new to Japanese culture. Therefore, I categorized *beer* as a cultural borrowing.

However, the distinction between core and cultural borrowing was not always clear-cut; ELWs that stand for objects or concepts that are roughly equivalent of what already exist in Japanese, but only refer to the "Western-style" versions of them, have characteristics of both core and cultural borrowing. For example, the ELW *hotel* is a core borrowing in the sense that the concept of lodging and words that stand for it already existed in Japanese culture. However, the specific type of lodging that *hotel* refers to was new to Japan; *hotel* is only used to refer to a western-style lodging with western-furniture and utilities, such as a bed and an individual shower room, whereas the Japanese word *ryokan* generally refers to a traditional Japanese-style lodging with futon mattress on the floor and a public bath. In this sense, the elements of *hotel* do not duplicate those of the Japanese-style lodging, *ryokan*, hence the ELW *hotel* is a cultural borrowing. In order to account for ELWs that have the characteristics of both core and cultural borrowing, I created the third type of borrowing: 3) *Core-Western*: Words that duplicate the general elements that already exist in Japanese, but only refer to the western-versions of them.

For words that convey multiple meanings that include both existing and new objects or concepts, I created a fourth category: 4) *Core/Cultural*: Words that refer to multiple objects or concepts, some of which are core borrowings and some are cultural borrowings. For example, the ELW *address* is a Core/Cultural borrowing because it can refer to a physical location and/or a virtual destination, such as *IP address* and *email address*. It is a core borrowing in a sense that the concept of physical location is a duplicate of the Japanese word *jusho*. However, it is a cultural borrowing when it is referring to *IP address* or *email address* because there is no Japanese word to replace it.

Summing up, the following four definitions guided my analysis of the type of borrowing:

1) Core borrowing: Words that duplicate elements of Japanese words already in existence
2) Cultural borrowing: Words that fill gaps in Japanese vocabulary because they stand for objects or concepts new to Japanese culture
3) Core-Western borrowing: Words that duplicate general elements of Japanese words already in existence, but only refer to the western-versions of them
4) Core/Cultural borrowing: Words that refer to multiple objects or concepts, some of which are core borrowings and some of which are cultural borrowings

Stage 4: Analyzing semantic categories of high-frequency ELWs. In this stage, in order to describe the semantic characteristics of the high-frequency ELWs, I created the semantic categories through an inductive process, and then compared their proportions.

To create the semantic categories, I first surveyed the high-frequency ELWs list and identified their basic semantic properties, such as people, food, concept, and place, based on my cultural knowledge of the words' common meanings in the Japanese context. Additionally, I also consulted with the Sanseido Japanese Dictionary, which is considered one of the standard Japanese dictionaries, in order to get a sense of how these ELWs are commonly used. Then, based on these meanings, I identified the themes and contexts with which the word is most likely to be associated, and created the theme-based categories. For instance, food-related words, such as restaurant, wine, and cheese, are

most likely to be used in association with dining experiences; therefore, I created the category Dining and Food.

While many of the high-frequency ELWs had identifiable themes and contexts, some of them were ambiguous in two ways. The first was when the ELW's meaning was so general that there was no single theme-based category to assign them. For example, the ELW advice is not attached to any theme or context; whatever the situation is, advice maintains one general meaning. Therefore, I created a non-theme-based category, General Meaning. Also, function words, such as pronouns, prepositions, and conjunctions are used regardless of contexts, and their basic meanings and functions remain the same, so I categorized these ELWs in the General Meaning category.

The second type of semantic ambiguity was due to the polysemous nature of certain words. In this case, the ELWs had multiple meanings that were distantly related, but conveyed different meanings depending on the context. For example, the ELW window could possibly refer to two items: a panel with a sheet of glass or the popular operating system, Microsoft Windows. For such ELWs, I created another non-theme-based category, Multiple Meanings.

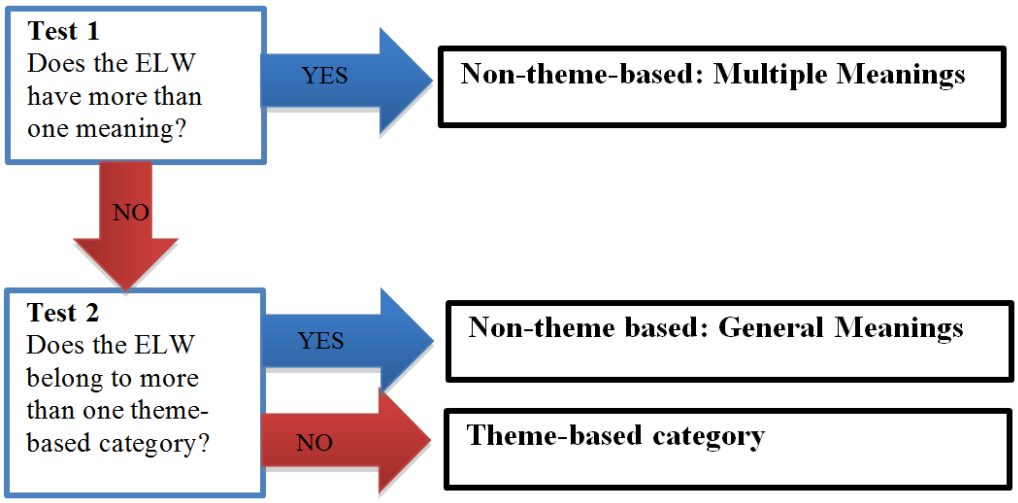
In order to determine the semantic categories for the ELWs in a principled manner, I applied two tests:

Test 1: Does the ELW have more than one meaning?

Test 2: Does the ELW belong to more than one theme-based category?

Figure 4 illustrates how the results of these tests determined the semantic categories of the high-frequency ELWs.

Figure 4: Semantic category assignment tests



Stage 5: Identifying comprehension rates of high-frequency ELWs. The final stage of this study was to investigate the extent to which Japanese people over 60 years old are likely to comprehend the high-frequency ELWs. To do this, I used the existing study results from *Gairaigo teichakudo chousa* (NINJAL, 2006), which, as discussed in the literature review, identified people's comprehension rates for approximately 400 loan words. In order to identify the comprehension rates for the high-frequency ELWs, I compared the two lists of ELWs: the high-frequency ELW list in the present study and the NINJAL survey list, and identified the ELWs found in both lists. Then, I analyzed these ELWs with respect to the rates of comprehension, their types of borrowing, and semantic categories.

Chapter Summary

This chapter has presented the data and the analysis procedures for the study. All stages described here were sequential, each preparing itself for the next stages of analysis. The first stage, in which I used *UniDic* to transform texts into units and organize them, prepared the data for all the subsequent stages. The second stage, in which I

analyzed the frequencies of katakana words and the high-frequency ELWs, identified ELWs commonly used in each register and how they compared across three registers. The third and fourth stages, in which I analyzed the types of borrowing and semantic categories of the high-frequency ELWs, provided information that characterized commonly used ELWs in each register. In the fifth stage, I analyzed the high-frequency ELWs with respect to the comprehension rates and investigated how they compare among the registers. The results of the analyses are presented in the next chapter.

Chapter 4

Results and Discussion

This chapter presents the results of the study. As outlined in the previous chapter, the analyses were focused on the following:

1) Frequencies and diversity of katakana words and high-frequency ELWs
2) Types of borrowing of high-frequency ELWs
3) Semantic categories of high-frequency ELWs
4) Comprehension rates of high-frequency ELWs

Katakana Words and High-frequency ELWs

Frequency: Katakana words. The frequencies of katakana words as a whole were extremely high for all three registers: 21,500 times per one million words (21,500/M) for white papers, 20,400/M for books, and 36,000/M for internet texts (Table 6). In comparison to some of the very common words in English, words that occur at the frequency of around 20,000/M include *a, of,* and *in* (Davis, 2012). Such high frequencies of katakana words, most of which are ELWs, supported both the common perception and the previous reports about the prevalence of ELWs.

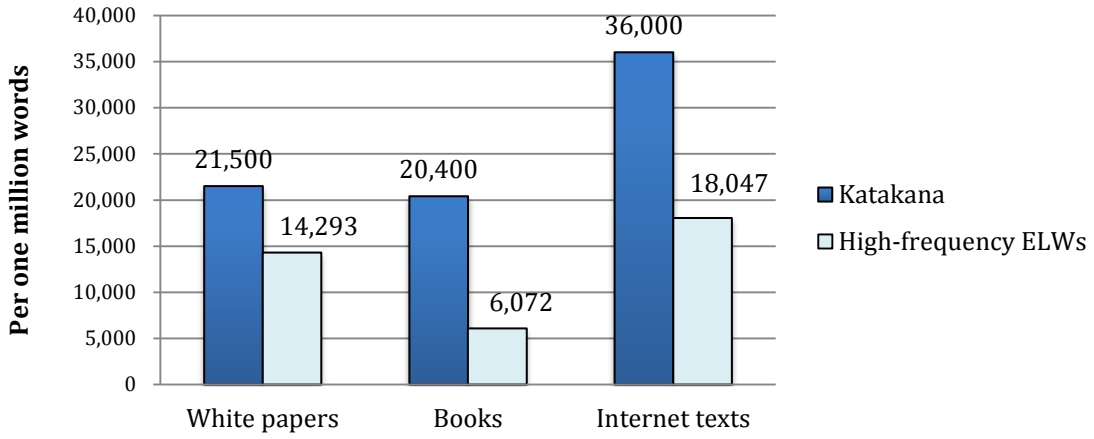
Frequency: High-frequency ELWs. As discussed in the previous chapter, a high-frequency word in this study means any word that recurs 30 or more times per one million words (>30/M). I found 128 high-frequency ELWs in white papers, 106 in books, and 254 in internet texts, and 338 overall. The frequency of the high-frequency ELWs per register was highest in internet texts (18,047/M), followed by white papers (14,293/M), and books (6,072/M) (Table 6).

Table 6: Diversity and frequency of katakana words and high-frequency ELWs

	White Papers	Books	Internet Texts	Overall
Katakana word frequency	21.500/M	20,400/M	36,000/M	24,800/M
Distinct katakana words	1,553	9,494	6,551	10,854
High-freq. ELW frequency	14,293/M	6,072/M	18,047/M	9,778/M
Distinct high-freq. ELWs	128	106	254	338

Figure 5 illustrates the frequencies of katakana words and high-frequency ELWs. As shown, the orders of the frequencies were the same for katakana words and high-frequency ELWs; however, the differences among the registers were much greater for high-frequency ELWs than those of katakana words.

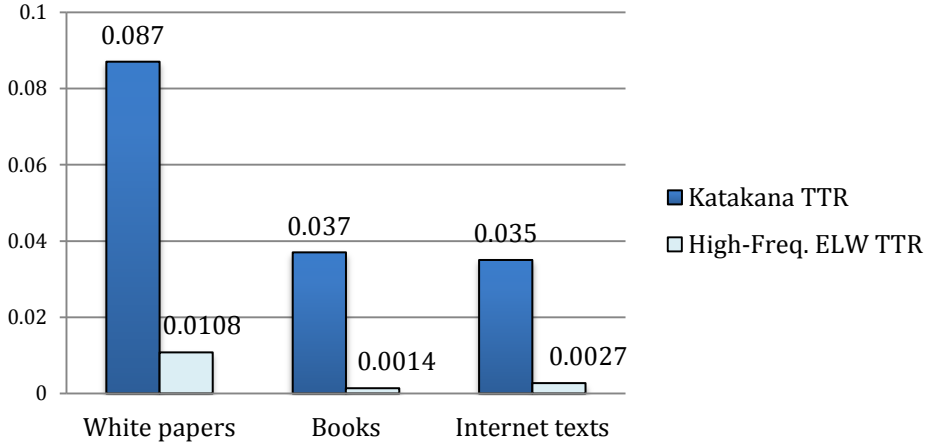
Figure 5: Frequencies of katakana words and high-frequency ELWs



For white papers, approximately 66% of the katakana word occurrences were also high-frequency ELWs, while only 30% in books and 50% in internet texts were. In other words, the majority of katakana word occurrences in books were instances of non-frequent ELWs, which readers are less likely to encounter repeatedly. On the other hand, the majority of katakana word occurrences in white papers were instances of high-frequency ELWs, which readers are likely to encounter again and again. For internet texts, only half of the katakana words were high-frequency ELWs, although given their overall frequencies, readers are still likely to encounter these ELWs at a very high rate.

Lexical diversity. I also found that there were noticeable differences in the lexical diversity among the registers, which provided additional information helpful for characterizing ELWs in each register. Figure 6 shows the Type-Token-Ratio (TTR) of katakana words and high-frequency ELWs. As shown, the TTR for katakana words was the highest in white papers (0.087), followed by books (0.037) and internet texts (0.035), which meant that katakana words in white papers were much more diverse than ones in other registers. The same was true for high-frequency ELWs; the TTR was the highest in white papers (0.0108), followed by internet texts (0.0027) and books (0.0014). Thus, white papers, though their overall frequency is not as high as internet texts, had a much more diverse group of ELWs than internet texts. Internet texts, on the other hand, had the highest overall frequency but their lexical diversity was not as great as white papers. ELWs in books were neither frequent nor diverse.

Figure 6: TTR comparison of katakana words found in three registers



Register-specific ELWs. Some high-frequency ELWs were found in multiple registers, while some were exclusively found in one register. Table 7 presents the distribution of individual high-frequency ELW occurrences in the three registers. As shown, only 10% of the high-frequency ELWs appeared exclusively in books, which

means that the vast majority of the ELWs in books were commonly used in other registers as well. In contrast, for internet texts, the majority (62%) of the high-frequency ELWs were exclusive to internet texts. This means that the internet texts tend to contain ELWs that are not used in any other registers. For white papers, the distribution was relatively moderate, as about a half (46%) of the high-frequency ELWs appeared only in white papers, while the rest were commonly used in other registers as well. In sum, the distributions of the individual high-frequency ELWs across registers suggests that some ELWs are register-free, while some are likely to be used only in a specific register. Most ELWs in books were found to be register-free, while ELWs in internet texts had a tendency to generally be register-specific. ELWs in white papers almost equally distributed between register-specific and register-free.

Table 7: Distribution of high-frequency ELWs

	White papers		Books		Internet texts	
	# of ELWs	%	# of ELWs	%	# of ELWs	%
Exclusive to this sub-corpus	59	(46%)	11	(10%)	157	(62%)
In WP & BK	14	(11%)	14	(13%)	----	----
In WP & IT	17	(13%)	----	----	16	(6%)
In BK & IT	----	----	42	(40%)	42	(17%)
In all three sub-corpora	38	(30%)	38	(37%)	38	(15%)
Total	128	(100%)	106	(100%)	254	(100%)

Summary: Katakana words and high-frequency ELWs. As discussed so far, both katakana words and high-frequency ELWs were found most frequently in internet texts, followed by white papers, and finally books. In addition, ELWs in each register exhibited unique characteristics with regard to their lexical diversity and specificity. White papers, though their ELW frequency was not the highest, had the most diverse collection of ELWs, half of which were unique to white papers while the other half appeared in other registers as well. In other words, high-frequency ELWs in white papers

were moderately frequent, diverse, and a mixture of register-specific and non-register-specific. On the other hand, high-frequency ELWs in internet texts were highly frequent, though their lexical diversity was not as great as white papers, and the majority of their ELWs were found only in internet texts. Thus, high-frequency ELWs in internet texts can be characterized as a group of words that are not very diverse or common in other registers but their frequency as a whole is extremely high. Lastly, high-frequency ELWs in books were the least frequent and diverse, but were the most commonly used across registers.

Types of Borrowing

As discussed in the previous chapter, types of borrowing indicate the loan word's function and its relationship with its Japanese equivalent, if there is any. The sorting of the types were based on the following classifications:

1) *Core borrowing*: Words that duplicate elements of Japanese words already in existence

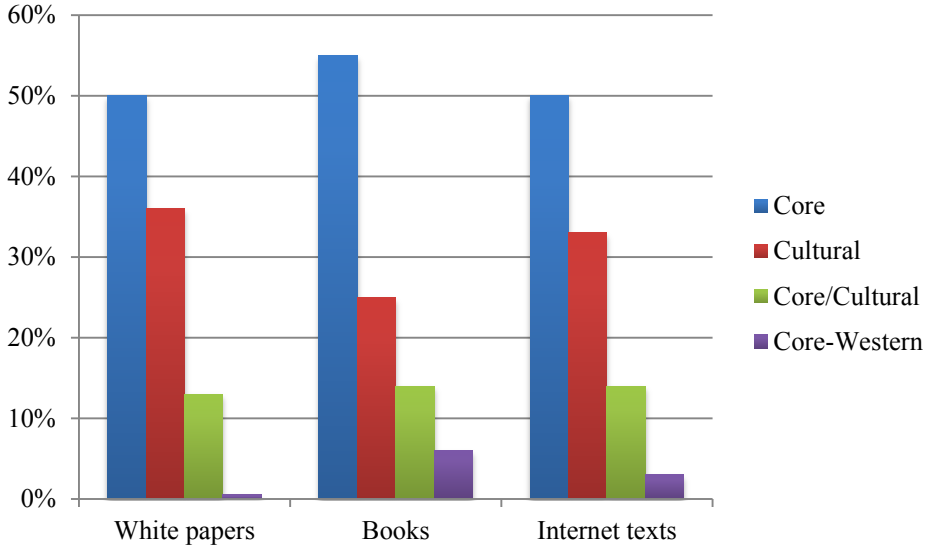
2) *Cultural borrowing*: Words that fill gaps in Japanese vocabulary because they stand for objects or concepts new to Japanese culture

3) *Core-Western borrowing*: Words that duplicate general elements of Japanese words already in existence, but only refer to the western-versions of them

4) *Core/Cultural borrowing*: Words that refer to multiple objects or concepts, some of which are core borrowings and some of which are cultural borrowings

Distribution of the types of borrowing. Overall, the most common type of borrowing was core borrowing (196 ELWs, 5,079/M), followed by cultural (91 ELWs, 2,928/M), core/cultural (35 ELWs, 1,370/M), and core-western (16 ELWs; 401/M). Figure 7 illustrates the proportions of the types of borrowing based on the frequency.

Figure 7: Proportions of the types of borrowing by register



As illustrated in Figure 7, the order of frequencies was the same for all registers, with core borrowings being the most frequent, followed by cultural, core/cultural, and core-western. The proportions of the types were also similar across registers, except for books, in which cultural borrowings were approximately 10% less common than books and internet texts. For all other types, the differences were within 5%.

Although core borrowing as a whole was the most common type of borrowing, I found that some cultural and core/cultural borrowing ELWs occurred much more frequently than core borrowing ELWs (Table 8). For example, the cultural ELW *percent* in white papers had the highest frequency (2,841/M) in any type of borrowing or register, and was considerably higher than the most frequent core borrowing ELW, *system* (782/M). Similarly, in the books and internet texts, the most frequent cultural borrowing ELWs had a higher frequency than the most frequent core borrowing ELWs. These ELWs are bolded in Table 8. To sum, there were small groups of cultural and

core/cultural ELWs that occurred exceptionally frequently, especially in internet texts, while the overall frequency was the highest for core borrowing ELWs.

Table 8: Three most frequent ELWs

	White papers	Books	Internet texts
Core	*system* (782/M) *service* (596/M) *center* (410/M)	*system* (181/M) *service* (164/M) *model* (120/M)	*auction* (294/M) *maker* (193/M) *talent* (179/M)
Cultural	***percent* (2841/M)** *Internet* (346/M) *digital* (194/M)	***percent* (341/M)** *meter* (114/M) *television* (101/M)	***mail* (804/M)** ***site* (392/M)** ***percent* (337/M)**
Core/Cultural	*network* (363/M) *data* (251/M) *home* (176/M)	***page* (270/M)** *data* (129/M) *image* (86/M)	***soft* (299/M)** *page* (256/M) *card* (203/M)
Core-Western	*building* (53/M) (none other)	*hotel* (85/M) *door* (68/M) *bed* (60/M)	*hotel* (111/M) *bar* (74/M) *door* (62/M)

Core borrowing ELWs and their Japanese equivalents. As defined above, core borrowing ELWs duplicate elements of Japanese words that already existed before the importation, which suggests either that they are used interchangeably or in distinct manners. It was beyond the scope of this study to differentiate the use of all core borrowings ELWs I found, but in my preliminary observation, I found both cases. An example of core borrowing ELW being used interchangeably with its Japanese equivalent is the ELW アドバイス ‚*advice*' (adobaisu), whose Japanese equivalent is 助言 (jogen):

> …専門家の*アドバイス*を受けながら…プログラムづくりを進めていきました
> (…senmonka no *adobaisu* o ukenagara…puroguramu zukuri o susumeteikimashia)
> „… ‟receiving *advice* from experts…(we) created the program'
>
> …筆者の*助言*を受けながら…研究と実践を行った
> (…hissha no *jogen* o ukenagara…kenkyuu to jissen o okonatta)
> „… ‟receiving *jogen* from the author…(they) conducted research and implemented (it)'

In the above sentences, the ELW *advice* and the Japanese word *jogen* occurr in a very similar manner, both semantically and structurally. In both sentences, someone received *advice* or *jogen* from an authority (the expert/author) as he or she worked on a task (creating the program/conducting research), and what they received, whether a piece of *advice* or *jogen,* mean the same thing. Other evidence for *advice* and *jogen* sharing a similar property as a word is that they can form a verb (*to advise*) with the addition of *する* (suru, *'to do'*) in the exact same manner, as in *アドバイスする* (adobaisu suru, *'to advise'*) and 助言する (jogen suru, *'to advise'*). Thus, core borrowing ELWs can indeed coexist alongside their Japanese equivalents and be used interchangeably.

However, some core borrowing ELWs and their Japanese equivalents were not always used in the same manner. For instance, the ELW ベスト (besuto) *'best'* as an adjective is 最良の (sairyou-no). While I found many instances of the ELW *best* modifying both ELWs (e.g. ベストテン, besuto ten, *'best ten,'; ベストプラクティス,* besuto purakuteisu, *'best practice'*) and Japanese words (e.g. ベストの状態, besuto no joutai, *'the best condition'*; *ベストな車,* besuto na kuruna, *'the best car'*), it was used overwhelmingly more with Japanese words, as in 最良の方法 (sairyou-no houhou) *'the best method'* and 最良の治療 (sairyou-no chiryou) *'the best treatment.*' Thus, although the core borrowing ELWs and their Japanese equivalents were synonymous, the ELWs were more flexible with what they could co-occur with than their Japanese equivalents, which preferred co-occurring with other Japanese words.

Semantic Categories of the High-Frequency ELWs

The semantic categories of the high-frequency ELWs provided additional characteristics for the three registers. As mentioned in Chapter 3, I identified the semantic categories based on the theme and context with which the ELW is most likely associated.

Theme-based semantic categories. I found thirteen theme-based semantic categories that include the following: Building & Furniture; Dining & Food; Economy & Business; Material & Substance; Measurements & Units; Media & Entertainment; Medical, Health, & Beauty; Numeral & Math; Personal & Family Life; Science & Technology; Social & Public Life; Sports; and Vehicles. Table 9 presents the operational definitions and examples of ELWs in each theme-based category. As the names suggest, theme-based categories cover a very wide variety of themes, most of which are applicable to one's day-to-day life, ranging from family to society, economy, health, sports, numbers, and science and technology.

Non-theme-based semantic categories. As discussed in Chapter 3, ELWs with no identifiable theme or context with which they are likely to be associated with were categorized into one of the two non-theme-based categories, General Meaning and Multiple Meanings. Table 10 presents the operational definitions and example ELWs in the two non-theme-based categories, General Meaning and Multiple Meanings.

Table 9: Thirteen theme-based semantic categories, their operational definitions, and example ELWs

Category	Operational definitions	Example ELWs	Katakana form
Building & Furniture	Building Furniture	building door	ビルディング、ドア
Dining & Food	Food/drinks Places, items, or concepts related to dining	curry, coffee, salad	カレー、コーヒー、サラダ
Economy & Business	Business concepts, activities, or practice	auction, claim, cost	オークション、クレーム、コスト
	Individuals, companies, or organizations that conduct business	convenience store, shop	コンビニ(エンスストア)、ショップ
	Currency or any form of monetary fund	dollar, bonus	ドル、ボーナス
Material & Substance	Physical matter, material	ion, uranium, gas, gasoline	イオン、ウラン、ガス、ガソリン
Measurements & Units	Extent, size, volume	calorie, gram	カロリー、グラム
	Counting unit	percent	パーセント
Media & Entertainment	Forms and/or types of entertainment/media	anime, gamble, rock	アニメ、ギャンブル、ロック
	Participants of entertainment/media	talent, band	タレント、バンド
	Places, occasions, or mediums for entertainment/media	show, tour, channel	ショー、ツアー、チャンネル
Medical, Health & Beauty	Medical terminologies and healthcare related words	allergy, virus, stress	アレルギー、ウイルス、ストレス
	Skincare, cosmetic, and hair treatment	care, cosmetic, shampoo	ケア、コスメティック、シャンプー
Numeral & Math	Numbers Concepts of mathematics	eight, zero, plus, minus	エイト、ゼロ、プラス、マイナス
Personal & Family Life	Family relationships, concepts, and household items	pet, baby, mama	ペット、ベビー、ママ
	Relational concepts, activities, events, and items	kiss, date, love,	キス、デート、ラブ
	Clothing and fashion	Shirt, suit	シャツ、スーツ
Science & Technology	Physical devices/inventions	camera, cable	カメラ、ケーブル
	Tools, products, concepts, and participants of technology	analog, install, web	アナログ、インストール、ウェブ
Social & Public Life	Communal/social concepts, activities, events, and items	event, manner	イベント、マナー
	Public/political concepts, activities, events, and items	initiative, guide, guideline	イニシアチブ、ガイド、ガイドライン
Sports	Events, objects, and place for sports	Olympic, ball	オリンピック、ボール
	Types of sports	soccer	サッカー
Vehicle	Parts or types of vehicles	engine, car	エンジン、カー
	Operation or operator of vehicles	driver	ドライバー

Table 10: Two non-theme-based semantic categories, their operational definitions, and example ELWs

Category	Operational definitions	Example ELWs	Katakana form
General Meaning	Words that 1) Belong to none of the theme-based categories or more than one category AND 2) Refer to one general meaning regardless of the context	answer, advice, error, OK, up, and, in, or, my	アンサー、アドバイス、エラー、 オーケー、アップ、アンド、イン、オア, マイ
Multiple Meanings	Words that 1) Belong to none of the theme-based categories or more than one category AND 2) Convey different meanings depending on the context	window, green, sheet, soft	アルバム、ウィンドウ、グリーン、シート、ソフト

Overall distribution of semantic categories. Overall, there was a high concentration of ELWs in Multiple Meanings, General Meaning, and Science & Technology, both in terms of the number of ELWs and the frequency (Table 11). These three categories alone comprised approximately 60% of the occurrences and 55% of the individual ELWs. The rest of the categories comprised less than 10% of the overall frequency, although some of them were higher in certain registers.

Table 11: Overall distribution of semantic categories in the order of frequency

Semantic category	# of ELWs	%	Frequency	%
Multiple Meanings	60	18%	2,393 M	24%
General Meaning	85	25%	2,338/M	24%
Science & Technology	40	12%	1,277/M	13%
Measurements & Units	13	4%	881/M	9%
Economy & Business	23	7%	631/M	6%
Media & Entertainment	16	5%	388/M	4%
Building & Furniture	8	2%	300/M	3%
Social & Public Life	28	8%	275/M	3%
Dining & Food	14	4%	267/M	3%
Material & Substance	11	3%	216/M	2%
Vehicle	8	2%	191/M	2%
Medical, Health & Beauty	9	3%	184/M	2%
Personal & Family Life	11	3%	158/M	2%
Sports	5	1%	143/M	1%
Numeral & Math	7	2%	135/M	1%
Total	338	100%	9,778/M	100%

Distributions of semantic categories within registers. Table 12 presents the semantic categories that comprised 5% or more of the occurrences in at least one of the registers. Categories that did not comprise 5% were grouped together as "Other." In addition, categories over 1,000/M are bolded as a frequent category.

Table 12: Distribution of semantic categories per register

	White papers		Books		Internet texts	
	# of ELWs	Frequency	# of ELWs	Frequency	# of ELWs	Frequency
Multiple Meanings	25 (20%)	**3494/M (24%)**	23 (22%)	**1670/M (27%)**	51 (20%)	**3973/M (22%)**
General Meaning	25 (20%)	**2382/M (17%)**	30 (28%)	**1541/M (25%)**	72 (28%)	**4252/M (24%)**
Science & Technology	18 (14%)	**1490/M (10%)**	7 (7%)	381/M (6%)	31 (12%)	**3411/M (19%)**
Measurement & unit	7 (5%)	**3294/M (23%)**	7 (7%)	701/M (12%)	11 (4%)	935/M (5%)
Economy & business	12 (9%)	871/M (6%)	6 (6%)	377/M (6%)	14 (6%)	**1205/M (7%)**
Social & Public Life	23 (18%)	**1779/M (12%)**	5 (5%)	201/M (3%)	5 (2%)	217/M (1%)
Media & Entertainment	3 (2%)	123/M (1%)	3 (3%)	131/M (2%)	15 (6%)	**1054/M (6%)**
Building & Furniture	2 (2%)	121/M (1%)	7 (7%)	333/M (5%)	4 (2%)	249/M (1%)
Other	13 (10%)	723/M (6%)	18 (15%)	729/M (14%)	51 (20%)	2752/M (15%)

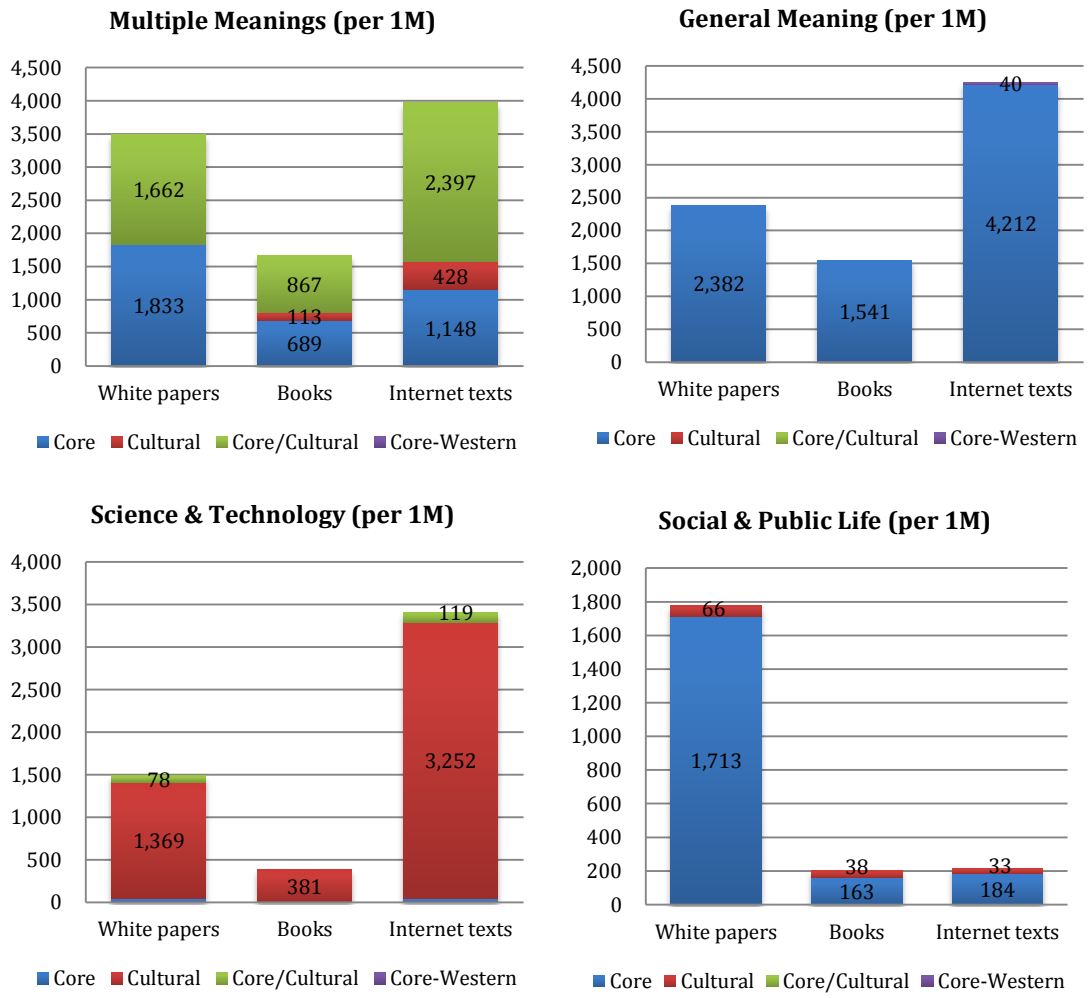
There were both similarities and differences in the distributions of the semantic categories among the three registers. As for similarities, Multiple Meanings and General Meaning ELWs were consistently frequent in all registers. Science & Technology was also frequent in white papers (1,490/M) and in internet texts (3,411/M). As for differences, some categories were frequent only in certain register, but not in others, such as Measurements & Units, which had a high frequency in white papers (3,294/M), but was much less frequent in books and internet texts. Similarly, Social & Public Life was exclusively frequent in white papers, and Economy & Business and Media & Entertainment were exclusively frequent in internet texts. For books, there was no other

category above 1,000/M, which indicated that high-frequency ELWs in books are relatively neutral when it comes to semantic category.

Semantic categories and the types of borrowing. Three registers had almost identical patterns with respect to the distribution of the types of borrowing within a semantic category, except for Multiple Meanings. Figure 8 illustrates the proportions of the types of borrowing in Multiple Meanings, General Meaning, Science & Technology, and Social & Public Life.

As shown in Figure 8, the proportions of the types of borrowing in the three registers were very similar for General Meaning, in which almost all occurrences were core borrowings (e.g. *system, level, type, group*); Science & Technology, in which the vast majority was cultural borrowing (e.g. *mail, television, personal computer*); and Social & Public Life, in which the vast majority was core borrowing (e.g. *message, communication, rule, needs*). However, there were noticeable variations for Multiple Meanings. In white papers, the majority (52%) of Multiple Meanings ELWs were core borrowings, such as *center,* which could refer to either the central part of something (中心, chuushin) or a place for gathering (～会館, ～kaikan). However, core borrowings were less dominant in books (41%) and in internet texts (29%). Instead, books and internet texts contained more core/cultural borrowings (e.g. *key, card, address*) and cultural borrowing (e.g. *cream, button*).

Figure 8: Proportions of the types of borrowing in major semantic categories



Register characteristics: White papers. As shown in Table 12, the most common category for white papers was Multiple Meanings (3,494/M), followed by Measurements & Units (3,294/M), General Meaning (2,382/M), Social & Public Life (1,779/M), and Science & Technology (1,490/M) .

One of the unique aspects of white papers was that it had exceptionally high frequencies for Measurements & Units (3,294/M) and Social & Public Life (1,779/M). I found that the high frequency for Measurements & Units was due to one ELW, *percentage* (2,841/M), which alone accounted for nearly 20% of the overall frequency.

Such frequent use of *percent* is most likely due to the reporting nature of white papers, which often includes descriptions of data, such as demographic, budget, and results of assessments, as in this example:

> …農地費が最も大きな割合（５２．２％）を占め、以下、林業費（２２．９％）、水産業費（１２．７％）、農業費（１０．０％）の順となっている。
>
> …the farmland expenses accounted for the largest proportion (52.2%), followed by forestry expenses (22.9%), fishery expenses (12.7%), and agriculture expenses (10.0%).

Similarly, the frequent use of ELWs in Social & Public Life reflected the nature of white papers, which is to report social and public affairs to the citizens. For example, *initiative* and *volunteer* were some of the frequent Social & Public Life ELWs in white papers:

> …地域の***イニシアティブ***の下で…構成される…システム…
> …a system…that is developed…under the ***initiative*** of the local municipalities…
>
> …大規模災害等が発生した場合、県と***ボランティア***団体などが連携して…「神奈川県災害救援***ボランティア***支援センター」を設置することとされており…
> …in the case of large-scale disaster, it has been decided that the prefecture and ***volunteer*** organizations are to collaborate…to set up the "Center for Disaster Relief ***Volunteer*** Support in Kanagawa Prefecture "…

I found another interesting aspect of white papers in the Multiple Meanings category. As mentioned earlier, Multiple Meaning ELWs potentially refer to multiple different meanings depending on the context. However, I found that many of the Multiple Meanings ELWs in white papers typically referred to only one of the meanings. For instance, the ELW *center* in white papers almost exclusively referred to an organization

or facility that offers some type of public service, rather than something located in the middle, as in:

障害者職業センター *'center* for handicapped workers'
ボランティアセンター „volunteer *center'*
アジア防災センター „Asian Disaster Reduction Center'

Another example of Multiple Meaning ELW being used for only one of the meanings is the ELW *service,* which in Japanese could potentially imply "to offer (something) for free", as in "ケーキをサービスする" („to *service* [offer] a piece of cake [for free]'). However, *service* in white papers only referred to public services offered by companies or institutions, such as: 介護サービス („nursing-care *services*'); 医療福祉サービス („medical welfare *services*); and 子育て支援サービス („parenting support *services'*).). In addition, the Multiple Meanings ELWs *barrier* and *free* were almost always used in terms of accessibility, as in "*交通バリア・フリー法*" („*Barrier-Free* Transportation Act').

In sum, the ELWs in white papers reflected the communicative purpose of white papers, as seen in the frequent use of ELWs in Measurements & Units (e.g. *percent*) and Social & Public Life, as well as the selective use of Multiple Meanings ELWs.

Register characteristics: Books. The most common semantic categories for books were Multiple Meanings (1,670/M) and General Meaning (1,541/M). Other semantic categories in books were relatively infrequent, occurring at 700/M or lower.

Unlike the Multiple Meaning ELWs in white papers that tended to be used only in specific terms (e.g. *service, barrier, free*), I found that the Multiple Meanings ELWs in

books were used for diverse meanings. For example, *service* in books was used in the following ways:

> 医療サービス ‚medical *services'*
>
> ビール一杯サービスされました ‚(I) received a *service* of a glass of beer (for free)'

In the first example, *service* is used to refer to services offered by organizations or companies, similar to the ones in white papers. In the second example, *service* is referring to the act of "offering something for free," with the addition of the Japanese verb *suru* (‚to do').

As mentioned earlier, the vast majority of the ELWs in books were also found in other registers. In fact, of the 106 ELWs, only 11 ELWs were unique to books: *ion, Islam, member, staff, pattern, table, house, bed, hormone, restaurant,* and *wine*. This extremely high rate of overlap with other registers seems to indicate that the ELWs found in books are not specific to the book register, but instead very common across the three registers. The fact that the ELWs in books were common across the three registers and that nearly half of them were non-theme-specific suggests that books tended to contain ELWs that are broadly used in a variety of situations. This broadness contrasts with other two registers, which had more specific uses for ELWs than white papers.

Register characteristics: Internet texts. For internet texts, the most common semantic category was General Meaning (4,252/M), followed by Multiple Meanings (3,973/M) and Science & Technology (3,411/M).

The most characteristic aspect of General Meaning ELWs in internet texts was the frequent appearances of function words, such as prepositions (e.g. *to, off, by*), pronouns (e.g. *my*), and conjunctions (e.g. *or, and*). Typically, these function words appeared in English phrases, such as *'oh my god'* and *'in my heart,'* which were often direct quotes from an English song or movie. However, there were also plenty of cases where ELWs were used in a Japanese phrase, replacing their Japanese equivalents, for example:

日曜日 or 月曜日 (Sunday or Monday)

In this example, the Japanese equivalent of the ELW *'or'* is か (ka), which, if used, would be in the exact same location as *'or'* as in 日曜日か月曜日. The precise motivation for choosing to use the ELW rather than the Japanese word is unknown, but some possible reasons might be that the ELW is becoming so common that the writer felt free to choose to use it, or that he or she wanted to sound "western." Nevertheless, such usages of ELWs were only found in internet texts.

The ELWs in Science & Technology in internet texts were predominantly related to information technology, such as *pasokon* (*perso[nal] com[puter]), mail, site, internet, net, click, install,* and *download.* Other Science & Technology ELWs were mostly related to entertainment, such as *television, radio, video,* and *camera,* for example:

液晶*テレビ*とプラズマ*テレビ*の違いを教えてください。
What is the difference between LCD ***televi(sion)*** and plasma ***televi(sion)*** ***(?)***

*パソコン*から携帯に*メール*送信ができません。

I am unable to send ***mail*** from a ***pasokon*** to a cell phone.

*ダウンロード*というところから*クリック*すれば、*ダウンロード*できます。
‚If you ***click*** where it says ***download***, you can ***download*** (it).'

As can be observed in the examples above, I found that Science & Technology ELWs in internet texts tended to co-occur in the same sentence, which contributed to the high frequency of this semantic category. A possible explanation for the co-occurrences is that Science & Technology ELWs, most of which were related to newly introduced information technology, required other ELWs to describe the concepts related to them.

Section summary: Semantic categories. So far, I have discussed the major characteristics of the common semantic categories in each register: white papers, books, and internet texts. I found that Multiple Meanings and General Meaning had the highest percentage of the high-frequency ELW occurrences in all three registers. In addition to these two categories, white papers also contained many ELWs in Measurements & Units and Social & Public Life, which were used to describe social and public matters. I also found that Science & Technology ELWs were particularly common in internet texts, and they were mostly related to computer and information technology. Internet texts also exhibited nontraditional use of function word ELWs. In addition, I found that ELWs in books were the least context-specific, and that most of them were commonly used in all three registers. Lastly, the types of borrowing in the semantic categories were fairly identical across registers, except for Multiple Meanings, which tended to include more elements of cultural borrowing in books and internet texts than in white papers.

Comprehension Rates of the High-frequency ELWs

This section reports the rates at which people over 60 years old comprehended the high-frequency ELWs based on the findings from NINJAL's *Language Attitude and Pervasion Survey* (NINJAL 2006). The results will then be compared with the register characteristics previously discussed, which will answer the second research question, *how do the comprehension rates of high-frequency ELWs compare across registers?*

Of the original 398 loan words surveyed in the NINJAL study, I found 52 ELWs that had been identified as high-frequency ELWs in this study. In the 52 ELWs, three types of borrowings (core, cultural, core/cultural) and seven semantic categories (Multiple Meanings; General Meaning; Science & Technology; Social & Public Life; Economy & Business; Media & Entertainment; Medical, Health & Beauty) were represented. Table 13 presents the 52 high-frequency ELWs, their types of borrowing, semantic categories, and the comprehension rates based on the NINJAL survey.

Overall comprehension. As shown in Table 13, the comprehension rates of the 52 high-frequency ELWs for people over 60 years or above (60+) ranged from 1.1% (*literacy)* to 82.9% (*stress*) with the average of 43.9%. The average difference between the two groups was 19.5%; that is, nearly 20% more people over 60 years old were likely to have difficulty comprehending high-frequency ELWs than the overall group. The differences in comprehension rates between the two groups were generally greater for ELWs with lower comprehension rates for the older age group.

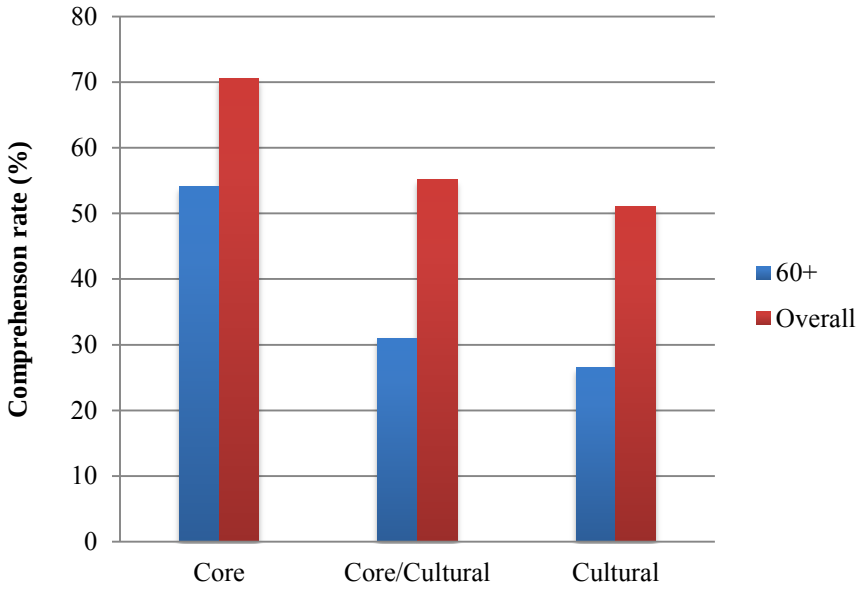
Table 13: High-frequency ELWs Comprehension List based on Language Attitude and Pervasion Survey (NINJAL 2006)

Japanese	English	Semantic category	Loan Type	Overall (%)	60+ (%)	Difference (%)
ストレス	stress	Medical, Health & Beauty	Core	92.6	82.9	9.7
リサイクル	recycle	Social & Public Life	Core	91.1	82.8	8.3
トラブル	trouble	General	Core	92.3	81.1	11.2
ボランティア	volunteer	Social & Public Life	Core	90.8	80.2	10.6
リハビリ	rehabili(tation)	Medical, Health & Beauty	Core	87.3	79.6	7.7
ルール	rule	Social & Public Life	Core	90.1	77.0	13.1
キャンセル	cancel	General	Core	88.7	75.2	13.5
テーマ	theme	General	Core	88.2	74.9	13.3
メッセージ	message	Social & Public Life	Core	88.4	74.2	14.2
スタッフ	staff	General	Core	83.4	67.8	15.6
ネットワーク	network	Multiple	Core/Cultural	81.4	63.9	17.5
イベント	event	Social & Public Life	Core	82.2	63.5	18.7
メリット	merit	General	Core	82.7	61.1	21.6
プロジェクト	project	General	Core	78.2	60.3	17.9
ピーク	peak	General	Core	77.4	59.7	17.7
インターネット	internet	Science & Technology	Cultural	78.3	58.7	19.6
ケア	care	Medical, Health & Beauty	Core	75.6	58.1	17.5
クリア	clear	Multiple	Core	79.1	58.0	21.1
コスト	cost	Economy & business	Core	74.8	57.5	17.3
ハイテク	high-tech	Science & Technology	Cultural	77.1	55.4	21.7
リスク	risk	General	Core	71.5	49.7	21.8
シンポジウム	symposium	Social & Public Life	Core	60.8	49.5	11.3
ガイドライン	guideline	Social & Public Life	Core	56.0	45.9	10.1
マニュアル	manual	Multiple	Core/Cultural	74.4	44.0	30.4
ニーズ	needs	Social & Public Life	Core	64.9	43.6	21.3
デジタル	digital	Science & Technology	Cultural	68.1	42.8	25.3
パートナーシップ	partnership	Social & Public Life	Core	55.0	41.3	13.7
データ	data	Multiple	Core/Cultural	65.5	41.2	24.3
コミュニティー	community	Social & Public Life	Core	57.7	40.1	17.6
ユーザー	user	General	Core	65.4	39.1	26.3

マネージメント	management	General	Core	60.0	37.4	22.6
メディア	media	Media & Entertainment	Core	63.2	35.8	27.4
セキュリティー	security	General	Core	65.6	35.8	29.8
シェア	share	Economy & business	Core/Cultural	50.9	35.2	15.7
プログラム	program	Multiple	Core/Cultural	61.7	31.6	30.1
フォーラム	forum	Social & Public Life	Core	46.8	31.6	15.2
アクセス	access	Multiple	Core/Cultural	57.7	31.3	26.4
ソフト	soft	Multiple	Core/Cultural	58.6	30.4	28.2
ハード	hard	Multiple	Core/Cultural	53.4	25.1	28.3
ネット	net	Science & Technology	Cultural	60.3	23.8	36.5
ディスク	disk	Science & Technology	Cultural	55.5	22.8	32.7
データーベース	database	Science & Technology	Cultural	45.6	21.5	24.1
ツール	tool	Multiple	Core/Cultural	40.9	18.7	22.2
グローバル	global	Social & Public Life	Core	41.3	18.7	22.6
プロバイダー	provider	Science & Technology	Cultural	40.6	15.2	25.4
イニシアチブ	initiative	Social & Public Life	Core	27.4	15.0	12.4
リンク	link	Science & Technology	Core/Cultural	38.5	10.4	28.1
バイオマス	biomass	Science & Technology	Cultural	9.1	8.9	0.2
コンテンツ	contents	Science & Technology	Core/Cultural	23.0	8.8	14.2
ダウンロード	download	Science & Technology	Cultural	40.6	8.2	32.4
サイト	site	Science & Technology	Cultural	34.4	7.8	26.6
リテラシー	literacy	General	Core	6.3	1.1	5.2
			Average	**63.5**	**43.9**	**19.5**

Comprehension by the types of borrowing. In terms of types of borrowing, I found that the best comprehended ELWs were core borrowings, followed by core/cultural, and cultural (Figure 9). The difference between 60+ and the overall age group was the greatest for cultural borrowings, followed by core/cultural, and core.

Figure 9: Comprehension rates by the type of borrowings



One possible explanation for the low comprehension rate for cultural borrowings is the complex process of learning cultural borrowing ELWs. In order to understand cultural borrowing ELWs, one must first learn the content of the referent itself before being able to connect the meaning and the word, which is quite different from applying prior knowledge about the referent to make sense of the ELW, as would be the case for core borrowings. For example, if one does not know what the ELW *database* means, he or she must first learn the meaning of *database*, then remember the new vocabulary データベース (deetabeesu). On the other hand, the ELW *trouble* is a core borrowing because the general concept of *trouble* already existed in Japanese (e.g. 難儀, nangi) before the

ELW was introduced. Thus, all that is necessary is to remember the new vocabulary トラブル (toraburu) and to link it to the core meaning of 難儀. Therefore, because it takes more learning to comprehend cultural borrowing ELWs, it is understandable that the comprehension rate was lower for cultural borrowings than core borrowings.

Comprehension of core/cultural borrowing ELWs has its own complex process as well. For example, the ELW *network* (ネットワーク, nettowaaku) is a core/cultural borrowing that can refer to both a network of human connections (core) and/or a digital network (cultural), which are distantly related but are used in contrasting contexts. Because the concept of *network,* as in human connections, already exists in Japanese, one must learn the ELW in two different ways: one as a core borrowing by applying the existing knowledge and then remembering the word ネットワーク, and the other as a cultural borrowing by first learning the concept and remembering that it is called ネットワーク. Finally, they would need to store the ELW as a polyseme in their mental lexicon.

Thus, comprehension rates for ELWs seem to be influenced by the existence or the absence of prior knowledge about the word and the process of learning the ELW. The fact that the difference between the two age groups was greater for cultural and core/cultural borrowings than core borrowings suggests that people over 60 years old were less likely to have learned the concepts or objects that cultural ELWs refer to.

Comprehension by the semantic category. In addition to the process of learning mentioned above, the amount of exposure to and motivation for learning new ELWs likely influence one's comprehension of ELWs. As previously discussed, the semantic categories represent the contexts in which the ELWs are likely used; therefore, the

comprehension differences may be in part due to the exposure to the context or lack thereof. For instance, if one does not use a computer, there are little opportunities and/or motivation to learn the ELW *download.* Thus, a comparison of comprehension rates by the semantic category may indicate the varying amount of exposure that people over 60 years old have with certain contexts.

Given the small number of ELWs, it was not possible to obtain sizable samples for each semantic category. Media & Entertainment and Economy & Business only had one and two ELWs, respectively. Because they were too small to suggest any patterns for the category, I excluded these two categories from this part of analysis. Table 14 presents the ELWs in the remaining semantic categories: Medical, Health & Beauty; Multiple Meanings; General Meaning; Social & Public Life; and Science & Technology.

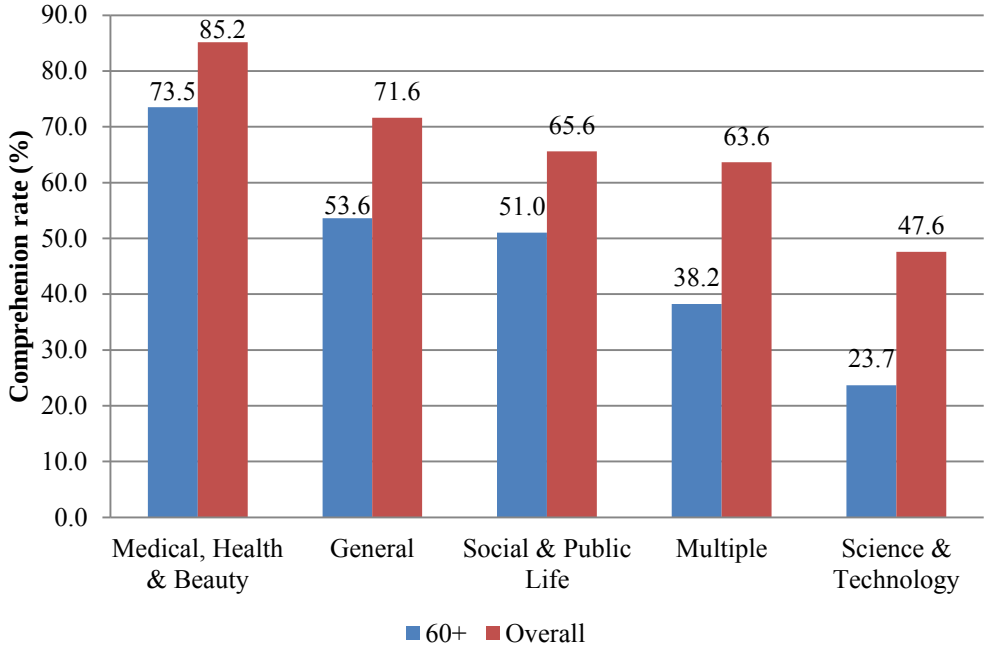
Table 14: High-frequency ELW comprehension list by the semantic category

Semantic category	ELWs
Medical, Health & Beauty	stress, rehabilitation, care
Multiple Meanings	access, clear, data, hard. manual, network, program, soft, tool
General Meaning	cancel, literacy, management, merit, peak, project, risk, security, staff, theme, trouble, user
Social & Public Life	community, event, forum, global, guideline, initiative, message, needs, partnership, recycle, rule, symposium, volunteer
Science & Technology	biomass, contents, database, digital, disk, download, high-tech, internet, link, net, provider, site

Figure 10 presents the average comprehension rates for the five semantic categories. For the 60+ group, the best comprehended semantic category was Medical, Health & Beauty (73.5%), followed by General Meaning (53.6%), and Social & Public Life (51%). The lowest comprehension occurred in Science & Technology (23.7%), and Multiple Meanings (38.2%). The difference of comprehension between the 60+ group

and the overall age group was the greatest in Multiple Meanings (-25.4%), followed by Science & Technology (-23.9%).

Figure 10: Comprehension rates by the semantic categories



It makes sense that the Medical, Health & Beauty category was best comprehended considering that the ELWs (*stress, rehabilitation, care*) were core borrowings and also because people are likely to have high exposure to situations related to health. Also, all of the ELWs in General Meaning and Social & Public Life were core borrowings, which likely explains their relatively high comprehension rates. Particularly, the 60+ group comprehended ELWs that are directly related to day-to-day life, such as *trouble* (81.1%), *recycle* (82.8%), and *volunteer* (80.2%), much better than ELWs that are context-specific, such as *forum* (31.6%), *global* (18.7%), and *initiative* (15%).

For Multiple Meanings, on the other hand, the vast majority of the ELWs were core/cultural borrowings: *tool, hard, soft, access, program, data, manual,* and *network.* The meanings on the cultural side of these ELWs were mostly related to computer

technology, as in *tool bar*, *hardware,* and *software*. Similarly, the ELWs in Science & Technology were also mostly computer/information technology related, such as *contents, site, link, provider, download, database, disk,* and *net.* Therefore, not only are these words cultural borrowings, they are also heavily context-laden, which means that people would need to be exposed to such contexts enough to learn these ELWs. Since computer technology is a relatively new aspect of one's day-to-day life experience, it makes sense that these ELWs were less comprehended than other semantic categories. In particular, the difference between the two groups were even greater for Multiple Meanings and Science & Technology, which indicated that people over 60 years old are less familiar with technology related ELWs than the overall age group.

Section summary: comprehension rates and registers. In sum, based on the NINJAL survey results for the 52 high-frequency ELWs, I found that more than half of the people over 60 years old did not comprehend the high-frequency ELWs, which is astonishing. The results also indicated that comprehension rates are likely influenced by the types of borrowing and the semantic categories. The low comprehension of Science & Technology ELWs indicated that people are most likely to encounter comprehension problems with internet texts because the frequent use of Science & Technology ELWs was one of the characteristic features of internet texts. In addition, the finding that internet texts had the highest frequency of cultural borrowings in Multiple Meanings, which was one of the most dominant semantic groups in all of the registers, also pointed to the same conclusion that ELWs in internet texts would be most difficult to comprehend.

The relatively low comprehension rates for ELWs in Social & Public Life, which was uniquely frequent in white papers, indicated that ELWs in white papers were also difficult to comprehend. Especially, ones that are not directly related to one's day-to-day routine are likely to cause comprehension problem.

Chapter Summary

In this chapter, I have reported the overall frequencies and diversities of katakana words and high-frequency ELWs, and the attributes of high-frequency ELWs with regard to their types of borrowing and semantic categories in three distinct registers of Japanese written texts. I have also reported the comprehension rates for the high-frequency ELWs, with particular attention to those over 60 years old. These results provided answers the research questions of the study:

RQ1.1: Frequencies and diversity of katakana words and high-frequency ELWs. The frequencies of both katakana words and high-frequency ELWs were highest in internet texts, followed by white papers and books. Meanwhile, white papers contained the most diverse group of katakana words and high-frequency ELWs.

RQ1.2: Types of borrowing of high-frequency ELWs. For all three registers, core borrowings were the most common type of borrowing, followed by cultural, core/cultural, and core-western.

RQ1.3: Semantic categories of high-frequency ELWs. For all three registers, Multiple Meanings and General Meaning were very common. In addition, Science & Technology was common in white papers and internet texts. Social & Public Life was also common in white papers, while Economy & Business and Media & Entertainment

were common in internet texts. Books did not have any other semantic categories that were particularly frequent.

RQ 2. The study showed that more than 50% of the people over 60 years old do not comprehend the 52 high-frequency ELWs. Internet texts are likely to be the most problematic register, as it frequently includes ELWs related to Science & Technology, which are least comprehended by people over 60 years old. In addition, white papers can also be problematic, especially when Social & Public Life ELWs are used to describe concepts that are not directly related to the reader's day-to-day routine. Books are likely the least problematic register because the overall frequency of ELWs is much lower than in the other two registers, and also most of the ELWs are commonly used across registers, which suggests their stable status within the Japanese vocabulary.

Chapter 5

Conclusion

In this study, I found that high-frequency ELWs in government white papers, books, and internet texts are similar with respect to the distribution of types of borrowing and the common dominant semantic categories. I also found that they are distinctly different in terms of the overall frequency and the distribution of non-dominant semantic categories. These differences projected varying degrees of hardship that people over 60 years old are likely to experience when reading texts in the three registers. Table 15 summarizes the results.

Table 15: Summary of study results

		Govt. white papers	Books	Internet texts	Overall
RQ 1	Katakana word frequency	21,500/M	20,400/M	36,000/M	24800/M
	Katakana word types	1,553	9,494	6,551	10,854
	Katakana words TTR	0.087	0.037	0.035	0.023
	Frequency of High-freq. ELWs	14,293/M	6,072/M	18,047/M	9,778/M
	High-freq. ELW types	128	106	254	338
	High-freq. ELW TTR	0.0108	0.0014	0.0027	0.0018
	The most common type of borrowing based on the number of occurrences	Core	Core	Core	Core
	The most common type of borrowing based on the number of ELW types	Core	Core	Core	Core
	The most common semantic category based on the frequency	Multiple	Multiple	General	Multiple
	The most common semantic category based on the number of ELW types	General & Multiple	General	General	General
RQ 2	Number of high-frequency ELWs included in NINJAL survey	40	17	26	55
	Type of borrowing that received the highest comprehension rate	Core	Core	Core	Core
	Type of borrowing that received the lowest comprehension rate	Cultural	Core/Cult	Cultural	Cultural
	Best comprehended semantic category	Med, Health, & Beauty	Social & Public Life	Med, Health, & Beauty	Med, Health, & Beauty
	Least comprehended semantic category	Science & Tech	Science & Tech	Science & Tech	Science & Tech

Considering Previous Research

The results of my study are similar to findings by Kiryuu (2007) in some ways. In her analysis of loan words in different sections of newspapers, Kiryuu found that the majority of loan words in sections with assigned topics, such as sports and entertainment, occurred only in that particular section (e.g. *home team* in sports, *late show* in entertainment). On the other hand, loan words in sections without a pre-assigned topic, such as front page and editorial sections were mostly section-free, that is, these loan words occurred across multiple sections. Similarly, for government white papers, whose topic areas are limited to public affairs, I found that 46% of the high-frequency ELWs were register-specific and most of them were related to public affairs (e.g. *volunteer, recycle, terrorism*). For books, on the other hand, whose topic areas are much broader than white papers, only 10% of the high-frequency ELWs were register-specific and the rest appeared in multiple registers. However, this pattern did not apply to internet texts, which had the broadest range of topics of all, but also had the highest percentage of register-specific high-frequency ELWs. Therefore, while there seems to be some kind of relationship between topic specificity and the use of topic-specific ELWs, register difference, rather than topics, appears to be a larger factor for the different patterns of ELW occurrences.

By adopting Biber and Conrad's functional interpretation approach (Biber & Conrad, 2009), which takes situational features of the register to provide explanations for the linguistic features, I was able to identify a few features that may have contributed to the high frequency of ELWs in internet texts. One of the contrasting situational features among the registers is their production circumstances; while white papers and books

require careful review and editing, internet texts, particularly texts in *Yahoo! Chiebukuro*, are usually written quickly with no editing.

Another contrasting situational feature is the authors' social accountabilities; while white papers and books have identifiable authors or agencies that are held accountable for the outcome of the texts, internet text authors are anonymous and have freedom to write anything they wish without any real-life consequences. Therefore, it seems reasonable to assume that authors of internet texts have the freedom to be creative in their language use, including ELWs.

Furthermore, the three registers most distinctly differed in their mediums of distribution and participants. While white papers and books are disseminated mostly in paper, and available for the general public, internet texts are available only on the Internet; hence, only those who are proficient users of computer technology can access them, which might explain why Science & Technology ELWs were frequent.

Implications

It was especially clear from the study that people over 60 years old are much more likely to encounter comprehension problems with computer technology related ELWs than the younger generation would. The reason for this could be as simple as the fact that the younger generation is likely more exposed to technology than the older generation, or that the older generation's negative attitude towards the rise of technology-dependent life style itself is preventing their acquisition of these ELWs. Nevertheless, the lack of knowledge of technology related ELWs could cause serious problems not only on communication level but also on functional level in contemporary Japan. For example, in an effort to promote online tax filing, the National Tax Agency distributed a flyer which I

found on a local bus in Tokyo (Figure 11). In a form that mimics a website with a „search' box with a cursor-like arrow next to it, the flyer contains eleven distinct ELWs: *net, smart, homepage, corner, recycle, e-tax, IC, card, reader, writer,* and *speedy.* Considering that this was found on a local bus, it seems clear that the flyer was intended for the general public to see. Particularly, the top of the flyer reads, "netto de smaato!" („smart [tax filing] on the net!'), which is a typical pattern of ELW incorporation into Japanese where ELWs are embedded in the Japanese syntax. However, based on the NINJAL survey (2006), the comprehension rates for the ELW *net* by people over 60 years old was merely 23%, and the comprehension rate for *smart* is unknown. Thus, it is questionable whether people over 60 years old who look at the flyer would understand the main message of it at all.

Figure 11: A flyer promoting online tax filing, found on a local bus in Tokyo (photo taken by Horikawa, 2011)

The implications of instances like the above can be either pessimistic or optimistic. The pessimistic view, perhaps also realistic, is that the mainstream public does not sufficiently take into account the ELW comprehension problems among people, especially among those over 60 years old, which causes them to be excluded from resources and information otherwise available. The optimistic view, on the other hand, might be that the ELW-filled environment provides more exposure to ELWs, hence urging people to learn them. The latter might have some grounds, according to the reports from the Ministry of Internal Affairs and Communications (2006, 2011), which indicated that internet use percentages for ages 65 older increased by 16% between 2005 and 2010. The increase of computer use among the older generation is likely to improve their knowledge of ELWs related to computer, and by extension, their comprehension of internet texts.

If the knowledge of ELWs is a matter of personal preference or interest, the damage of not knowing them would be minimal. However, as the example of the flyer on the bus and the frequent use of high-frequency ELWs in white papers (14,293/M) illustrate, ELWs are frequently used to communicate practical information; thus, lack of knowledge of such ELWs could result in impairing one's civic life. One of the first steps to prevent such problems from spreading could be to periodically assess people's comprehension rates of frequently-occurring ELWs, and have the government use the results to select appropriate vocabulary for public materials. Such an approach would efficiently address the problem areas and keep track of the changes in the uses of ELWs.

Also, it is important to increase younger people's awareness of the comprehension rate gap---an average 20% difference---between them and the older generation. Such gap

is likely to continue to exist as long as the younger generation plays an active role in the process of incorporation and creative modification of new ELWs. By understanding the current state of the comprehension gap and the consequences of non-comprehension, the younger generation could begin to monitor their use of ELWs.

On a sociological note, the increasing number of ELWs and the low comprehension by the older people might signify the elevated status of the younger generation, as knowledge of any kind often translates to social power. While this view is controversial, given the traditional Japanese values in which younger people are to remain subordinate to their elders, it is true that the elder's low comprehension of ELWs could keep them from accessing valuable information that the younger people have. There are a series of events and social changes that might have contributed to this social change. The economic boom in the 60's and the 70's led to the increase of nuclear families, which led to the aging society, gradually changing the former providers of the family to the ones in need of care. In addition, the recent advancement of information technology has changed the manners in which people are expected to communicate with one another. In present Japan, it would be difficult for one to gain social status if he or she does not know how to perform basic computer tasks, such as to *download digital contents* on the *web.* Thus, the implications of ELW low comprehension rates are not only practical, but also social.

Limitations to the Study and Suggestions for Future Research

One of the limitations to this study was the age of the data. The corpus data was taken from texts produced between 2001 and 2005, which is nearly a decade ago, and some of the information may no longer be relevant to the present day. In particular, the

comprehension rates are likely to have changed in the past 10 years, considering the rapid increase of Internet usage among the older generation (Ministry of Internal Affairs and Communications, 2011).

In addition, because the loan words surveyed in the NINJAL comprehension study only included 52 of the high-frequency ELWs, it was not possible to analyze the comprehension rates for all of the semantic categories. Although I was able to observe some general trends of comprehension by the semantic categories, additional data is needed in order to confirm these trends.

Therefore, one of the suggestions for future studies is to conduct a new comprehension study that specifically targets high-frequency ELWs, which would improve the validity of the results. In addition, surveys that would elicit the nature of comprehension, such as multiple questions and true-or-false questions, are likely to provide more accurate information about the respondent's true understanding of ELWs.

Another suggestion is to explore the relationship between topics and registers, and investigate how the two interplay with respect to language features. When language features vary across topics, and also across registers, which one is it that influences the language features more than the other? What happens to the language features in varying registers when topics are the same?

Conclusion

My personal gain from this research was the realization of the magnitude: the magnitude of the prevalence of ELWs, the magnitude of the comprehension gap between the 60+ group and the overall age group, and the magnitude of the implications that the comprehension gap could have. With an average 20% comprehension difference for

words that occur frequently, it is no wonder that people with low ELW comprehension might feel discouraged, upset, and even excluded from society. It is my hope that my study findings will somehow contribute to the efforts being made to alleviate problems caused by low comprehension of ELWs, especially in public settings where information should reach all ages.

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Appendix A: High-frequency ELWs

ELW ID	語彙素 (338 Types)	English (original form)	Semantic category	Loan Type	WP	BK	IT
1	アウト	out	General (Function word)	Core	x	x	o
2	アクセス	access	Multiple	Core/Cultural	o	x	o
3	アップ	up	General (Function word)	Core	o	o	o
4	アドバイス	advice	General	Core	x	x	o
5	アドレス	address	Multiple	Core/Cultural	x	x	o
6	アナログ	analog	Science & Technology	Cultural	o	x	x
7	アニメ	anime	Media & Entertainment	Cultural	x	x	o
8	アパート	apartment	Building & Furniture	Core	x	x	o
9	アルバム	album	Multiple	Cultural	x	x	o
10	アレルギー	allergy	Medical, Health & Beauty	Core	x	x	o
11	アンサー	answer	General	Core	x	x	o
12	アンド	and	General (Function word)	Core	o	o	o
13	イオン-Ion	ion	Material & substance	Cultural	x	o	x
14	イスラム	Islam	Social & Public Life	Cultural	x	o	x
15	イニシアチブ	initiative	Social & Public Life	Core	o	x	x
16	イベント	event	Social & Public Life	Core	o	x	x
17	イメージ	image	Multiple	Core/Cultural	o	o	o
18	イン-in	in	General (Function word)	Core	o	o	o
19	インストール	install	Science & Technology	Cultural	x	x	o
20	インターネット	internet	Science & Technology	Cultural	o	o	o
21	インフラ	infrastructure	Social & Public Life	Core	o	x	x
22	ウイルス	virus	Medical, Health & Beauty	Cultural	x	x	o
23	ウィン-win-	win	Science & Technology	Cultural	x	x	o
24	ウインドー	window	Multiple	Core/Cultural	x	x	o
25	ウェブ	web	Science & Technology	Cultural	x	x	o
26	ウラン	uranium	Material & substance	Cultural	o	x	x
27	エアー	air	Multiple	Core/Cultural	x	x	o
28	エアコン	air conditioner	Science & Technology	Cultural	x	x	o
29	エイト	eight	Numeral & Math	Core	o	x	x
30	エクセル	excel	Science & Technology	Cultural	x	x	o
31	エネルギー	energy	Multiple	Core	o	o	x
32	エラー	error	General	Core	x	x	o
33	エリア	area	Social & Public Life	Core	o	x	x
34	エンジン	engine	Vehicle	Cultural	x	x	o
35	オア	or	General (Function word)	Core	x	x	o
36	オイル	oil	Multiple	Core	x	x	o
37	オークション	auction	Economy & business	Core	x	x	o
38	オーケー	OK	General	Core	x	x	o
39	オフ	off	General (Function word)	Core	x	x	o
40	オブ	of	General (Function word)	Core	o	o	o
41	オフィス	office	Economy & business	Core	o	x	x
42	オプション	option	General	Core	x	x	o
43	オン	on	General (Function word)	Core	o	o	o
44	カー	car	Vehicle	Cultural	x	x	o
45	カード	card	Multiple	Core/Cultural	x	o	o
46	ガイド	guide	Social & Public Life	Core	o	x	x
47	ガイドライン	guideline	Social & Public Life	Core	o	x	x
48	ガス	gas	Material & substance	Core	o	o	o

49	ガソリン	gasoline	Material & substance	Cultural	x	x	o
50	カット	cut	General	Core	x	x	o
51	カップ	cup	Multiple	Core/Cultural	x	x	o
52	カテゴリー	category	General	Core	x	x	o
53	カバー	cover	Multiple	Core	x	x	o
54	カメラ	camera	Science & Technology	Cultural	x	o	o
55	カラー-color	color	General	Core	x	x	o
56	ガラス	glass	Material & substance	Core	x	o	o
57	カレー	curry	Dining & food	Cultural	x	x	o
58	カロリー	calorie	Measurement & unit	Cultural	x	x	o
59	キー	key	Multiple	Core/Cultural	x	o	o
60	キス	kiss	Personal & Family Life	Core	x	x	o
61	ギター	guitar	Media & Entertainment	Cultural	x	x	o
62	キャラ	character	Multiple	Core	x	x	o
63	キャンセル	cancel	General	Core	x	x	o
64	キロ	kilo	Measurement & unit	Cultural	x	o	o
65	キログラム	kilogram	Measurement & unit	Cultural	o	x	o
66	キロメートル	kilometer	Measurement & unit	Cultural	o	x	o
67	クエスチョン	question	General	Core	x	x	o
68	クラス	class	Multiple	Core	x	o	o
69	クラブ	club	Multiple	Core/Cultural	o	o	o
70	グラム	gram	Measurement & unit	Cultural	x	o	o
71	クリア	clear	Multiple	Core	x	x	o
72	クリーム	cream	Multiple	Cultural	x	x	o
73	グリーン	green	Multiple	Core	o	x	x
74	クリスマス	Christmas	Social & Public Life	Cultural	x	x	o
75	クリック	click	Science & Technology	Cultural	x	o	o
76	グループ	group	General	Core	o	o	o
77	クレーム	claim	Economy & business	Core	x	x	o
78	クレジット	credit	Economy & business	Cultural	x	x	o
79	グローバル	global	Social & Public Life	Core	o	x	x
80	ケア	care	Medical, Health & Beauty	Core	o	o	x
81	ケーキ	cake	Dining & food	Core-Western	x	x	o
82	ケース	case	Multiple	Core	o	o	o
83	ケーブル	cable	Science & Technology	Cultural	o	x	o
84	ゲーム	game	Media & Entertainment	Core	x	o	o
85	コース	course	Multiple	Core	x	o	o
86	コード-code	code	Multiple	Core/Cultural	x	x	o
87	コーヒー	coffee	Dining & food	Cultural	x	o	o
88	コスト	cost	Economy & business	Core	o	o	x
89	コピー	copy	General	Core	x	x	o
90	コミュニケーション	communication	Social & Public Life	Core	o	o	x
91	コミュニティー	community	Social & Public Life	Core	o	x	x
92	ゴム	gum	Material & substance	Cultural	x	x	o
93	コメント	comment	General	Core	x	x	o
94	コンクリート	concrete	Material & substance	Cultural	o	x	x
95	コンテンツ	contents	Science & Technology	Core/Cultural	o	x	x
96	コントロール	control	General	Core	x	o	o
97	コンビニ	convenience store	Economy & business	Cultural	x	x	o
98	コンピューター	computer	Science & Technology	Cultural	o	o	o
99	ザ	the	General (Function word)	Core	x	o	o
100	サーバー	server	Science & Technology	Cultural	x	x	o
101	サービス	service	Multiple	Core	o	o	o

102	サイエンス	science	Science & Technology	Core	o	x	x
103	サイクル	cycle	Multiple	Core/Cultural	o	x	x
104	サイズ	size	General	Core	x	x	o
105	サイト	site	Science & Technology	Cultural	o	x	o
106	サッカー	soccer	Sports	Cultural	x	x	o
107	サミット	summit	Social & Public Life	Cultural	o	x	x
108	サラダ	salad	Dining & food	Core-Western	x	x	o
109	シート-sheet	sheet	Multiple	Core/Cultural	o	x	o
110	シール	seal	General	Core	x	x	o
111	シーン	scene	General	Core	x	x	o
112	シェア	share	Economy & business	Core/Cultural	o	x	x
113	システム	system	General	Core	o	o	o
114	シャツ	shirt	Personal & Family Life	Core-Western	x	x	o
115	シャンプー	shampoo	Medical, Health & Beauty	Core-Western	x	x	o
116	ショー	show	Media & Entertainment	Core	x	x	o
117	ショック	shock	General	Core	x	x	o
118	ショップ	shop	Economy & business	Core	x	x	o
119	シリーズ	series	General	Core	x	x	o
120	シンポジウム	symposium	Social & Public Life	Core	o	x	x
121	スーツ	suit	Personal & Family Life	Cultural	x	x	o
122	スーパー-super	super	Multiple	Core/Cultural	x	x	o
123	スープ	soup	Dining & food	Core-Western	x	x	o
124	スタート	start	General	Core	x	o	o
125	スタイル	style	Multiple	Core	x	o	o
126	スタッフ-staff	staff	General	Core	x	o	x
127	ストック-stock	stock	Economy & business	Cultural	o	x	x
128	ストレス	stress	Medical, Health & Beauty	Core	x	o	o
129	スピード	speed	General	Core	x	o	o
130	スポーツ	sports	Sports	Core	o	o	o
131	セキュリティー	security	General	Core	x	x	o
132	セックス	sex	Personal & Family Life	Core	x	x	o
133	セット	set	Multiple	Core	x	x	o
134	セミナー	seminar	Social & Public Life	Core	o	x	x
135	セル-cell	cell	Science & Technology	Cultural	x	x	o
136	ゼロ	zero	Numeral & Math	Core	o	x	x
137	センター	center	Multiple	Core	o	o	o
138	センチ	centimeter	Measurement & unit	Cultural	x	o	o
139	センチメートル	centimeter	Measurement & unit	Cultural	x	o	o
140	ソース-sauce	sauce	Dining & food	Core-Western	x	x	o
141	ソフト	soft	Multiple	Core/Cultural	o	o	o
142	ダイエット	diet	Medical, Health & Beauty	Core	x	x	o
143	タイトル	title	Multiple	Core	x	x	o
144	タイプ-type	type	General	Core	x	o	o
145	タイミング	timing	General	Core	x	x	o
146	タイム-time	time	General	Core	o	o	o
147	タイヤ	tire	Vehicle	Cultural	x	x	o
148	ダウン	down	General (Function word)	Core	x	x	o
149	ダウンロード	download	Science & Technology	Cultural	x	x	o
150	タオル	towel	General	Core-Western	x	x	o
151	タバコ	Tabaco	Material & substance	Cultural	x	o	o
152	タレント	talent	Media & Entertainment	Core	x	x	o
153	チーズ	cheese	Dining & food	Cultural	x	x	o
154	チーム	team	General	Core	o	o	o

155	チェック	check	General	Core	x	o	o
156	チケット	ticket	General	Core	x	x	o
157	チャリティー	charity	Social & Public Life	Core	o	x	x
158	チャンス	chance	General	Core	x	o	o
159	チャンネル	channel	Media & Entertainment	Cultural	o	x	o
160	ツアー	tour	Media & Entertainment	Core	x	x	o
161	ツー-to	to	General (Function word)	Core	x	x	o
162	ツー-two	two	Numeral & Math	Core	x	x	o
163	ツール	tool	Multiple	Core/Cultural	x	x	o
164	ディーラー	dealer	Economy & business	Core	x	x	o
165	ディスク	disk	Science & Technology	Cultural	x	x	o
166	ディテール	detail	General	Core	x	x	o
167	デー	day	General	Core	x	x	o
168	データ	data	Multiple	Core/Cultural	o	o	o
169	データーベース	database	Science & Technology	Cultural	o	x	x
170	デート	date	Personal & Family Life	Core	x	x	o
171	テープ	tape	Multiple	Core/Cultural	x	x	o
172	テーブル	table	Building & Furniture	Core-Western	x	o	x
173	テーマ	theme	General	Core	o	o	x
174	デザイン	design	General	Core	o	o	o
175	デジカメ	digital camera	Science & Technology	Cultural	x	x	o
176	デジタル	digital	Science & Technology	Cultural	o	x	o
177	デスクトップ	desktop	Science & Technology	Cultural	x	x	o
178	テスト	test	General	Core	x	o	o
179	デフレ	deflation	Economy & business	Core	o	x	x
180	テレビ	television	Science & Technology	Cultural	o	o	o
181	テレビジョン	television	Science & Technology	Cultural	o	x	x
182	テロ	terrorism	Social & Public Life	Core	o	x	x
183	ドア	door	Building & Furniture	Core-Western	x	o	o
184	トイレ	toilet	Building & Furniture	Core	x	o	o
185	トップ	top	Multiple	Core	x	o	o
186	ドライバー	driver	Vehicle	Cultural	x	x	o
187	ドライブ	drive	Vehicle	Cultural	x	x	o
188	トラブル	trouble	General	Core	x	x	o
189	ドラマ	drama	Media & Entertainment	Core	x	x	o
190	ドル	dollar	Economy & business	Cultural	o	o	o
191	トン	ton	Measurement & unit	Cultural	o	x	x
192	ナンバー	number	Numeral & Math	Core	x	x	o
193	ニーズ	needs	Social & Public Life	Core	o	o	x
194	ニュー	new	General	Core	x	x	o
195	ニュース	news	Media & Entertainment	Core	x	o	o
196	ネット	net	Science & Technology	Cultural	o	x	o
197	ネットワーク	network	Multiple	Core/Cultural	o	o	x
198	ノウハウ	knowhow	General	Core	o	x	x
199	ノー	no	General (Function word)	Core	x	x	o
200	ノート	note	General	Core	x	x	o
201	バー	bar	Dining & food	Core-Western	x	x	o
202	バージョン	version	General	Core	x	x	o
203	パーセント	percent	Measurement & unit	Cultural	o	o	o
204	ハード	hard	Multiple	Core/Cultural	o	x	x
205	パート-part	part	Multiple	Core	o	x	o
206	パートナーシップ	partnership	Social & Public Life	Core	o	x	x
207	バイ-by	by	General (Function word)	Core	x	x	o

208	ハイ-high	high	General	Core	x	x	o
209	バイオマス	biomass	Science & Technology	Cultural	o	x	x
210	バイク	bike	Vehicle	Cultural	x	x	o
211	ハイテク	high-tech	Science & Technology	Cultural	o	x	x
212	ハウス	house	Building & Furniture	Core	x	o	x
213	バス-bus	bus	Vehicle	Cultural	o	o	o
214	パスワード	password	Science & Technology	Core	x	x	o
215	パソコン	personal computer	Science & Technology	Cultural	o	o	o
216	パターン	pattern	General	Core	x	o	x
217	バック	back	General (Function word)	Core	x	x	o
218	パック-pack	pack	Multiple	Core	x	x	o
219	バッテリー	battery	Science & Technology	Cultural	x	x	o
220	パトロール	patrol	Social & Public Life	Core	o	x	x
221	バブル	bubble	Economy & business	Core	o	x	x
222	バランス	balance	General	Core	o	o	o
223	バリア	barrier	Multiple	Core	o	x	x
224	パワー	power	Multiple	Core	x	x	o
225	バンク	bank	Economy & business	Core	x	x	o
226	パンツ	pants	Personal & Family Life	Core-Western	x	x	o
227	バンド-band	band	Media & Entertainment	Core-Western	x	x	o
228	パンフレット	pamphlet	Social & Public Life	Core	o	x	x
229	ピアノ	piano	Media & Entertainment	Cultural	x	x	o
230	ピーク	peak	General	Core	o	x	x
231	ビール	beer	Dining & food	Cultural	x	o	o
232	ビジネス	business	Economy & business	Core	o	o	x
233	ビタミン	vitamin	Material & substance	Cultural	x	x	o
234	ビデオ	video	Science & Technology	Cultural	o	x	o
235	ビル-building	building	Building & Furniture	Core-Western	o	o	x
236	ファースト-first	first	General (Function word)	Core	x	x	o
237	ファイル	file	Multiple	Cultural	x	o	o
238	ファン-fan（熱狂者）	fan	Media & Entertainment	Core	x	x	o
239	フォーラム	forum	Social & Public Life	Core	o	x	x
240	フォルダー	folder	Multiple	Cultural	x	x	o
241	プラス	plus	Numeral & Math	Core	x	x	o
242	プラスチック	plastic	Material & substance	Cultural	o	x	x
243	プラン	plan	General	Core	o	x	x
244	ブランド	brand	Economy & business	Core	x	o	o
245	フリー-free	free	Multiple	Core	o	x	o
246	プリンター	printer	Science & Technology	Cultural	x	x	o
247	フル	full	General	Core	o	x	o
248	ブルー	blue	Multiple	Core	x	x	o
249	プレー	play	Multiple	Core/Cultural	x	x	o
250	プレーヤー	player	Multiple	Core/Cultural	x	x	o
251	プレゼント	present	Social & Public Life	Core	x	x	o
252	プロ-pro	pro	General	Core	x	o	o
253	フロー	flow	Economy & business	Core	o	x	x
254	プログラム	program	Multiple	Core/Cultural	o	o	o
255	プロジェクト	project	General	Core	o	o	x
256	プロセス	process	General	Core	o	o	x
257	ブロック-block	block	Multiple	Core/Cultural	o	x	x
258	プロバイダー	provider	Science & Technology	Cultural	x	x	o
259	ページ	page	Multiple	Core/Cultural	o	o	o
260	ベース-base	base	Multiple	Core/Cultural	o	o	x

261	ヘクタール	hectare	Measurement & unit	Cultural	o	x	x
262	ベスト-best	best	General	Core	x	x	o
263	ベッド	bed	Building & Furniture	Core-Western	x	o	x
264	ペット-pet	pet	Personal & Family Life	Core	x	x	o
265	ベビー	baby	Personal & Family Life	Core	x	x	o
266	ヘリコプター	helicopter	Vehicle	Cultural	o	x	x
267	ポイント	point	Measurement & unit	Core	o	o	o
268	ボーナス	bonus	Economy & business	Core	x	x	o
269	ホーム-home	home	Multiple	Core/Cultural	o	o	o
270	ボール-ball	ball	Sports	Core	x	o	o
271	ボタン	button	Multiple	Cultural	x	o	o
272	ボックス	box	Multiple	Core	x	x	o
273	ホテル	hotel	Economy & business	Core-Western	x	o	o
274	ボランティア	volunteer	Social & Public Life	Core	o	x	x
275	ホルモン	hormone	Medical, Health & Beauty	Cultural	x	o	x
276	マーク	mark	General	Core	x	x	o
277	マイ	my	General (Function word)	Core	x	x	o
278	マイナス	minus	Numeral & Math	Core	x	o	o
279	マウス	mouse	Science & Technology	Cultural	x	x	o
280	マス	mass	Media & Entertainment	Core	o	x	x
281	マップ	map	Social & Public Life	Core	o	x	x
282	マナー	manner	Social & Public Life	Core	x	x	o
283	マニュアル	manual	Multiple	Core/Cultural	o	x	x
284	マネージメント	management	General	Core	o	o	x
285	ママ	mama	Personal & Family Life	Core	x	o	o
286	マン	man	General	Core	x	o	o
287	マンション	mansion	Building & Furniture	Core	o	o	o
288	ミー-me	me	General (Function word)	Core	x	x	o
289	ミサイル	missile	Science & Technology	Cultural	o	x	x
290	ミス-mistake	mistake	General	Core	x	x	o
291	ミニ	mini	General	Core	x	x	o
292	ミルク	milk	Dining & food	Core	x	x	o
293	メーカー	maker	Economy & business	Core	o	o	o
294	メーク	make	Medical, Health & Beauty	Core	x	x	o
295	メートル	meter	Measurement & unit	Cultural	o	o	o
296	メール-mail	mail	Science & Technology	Cultural	x	o	o
297	メーン	main	General	Core	x	x	o
298	メガバイト	mega bite	Measurement & unit	Cultural	x	x	o
299	メッセージ	message	Social & Public Life	Core	x	o	o
300	メディア	media	Media & Entertainment	Core	o	o	o
301	メニュー	menu	Dining & food	Core	x	o	o
302	メモリー	memory	Science & Technology	Core/Cultural	x	x	o
303	メリット	merit	General	Core	o	x	o
304	メンバー	member	General	Core	x	o	x
305	モード	mode	Multiple	Core	x	x	o
306	モデル	model	Multiple	Core	o	o	o
307	ユー	you	General (Function word)	Core	x	x	o
308	ユーザー	user	General	Core	o	x	o
309	ライセンス	license	Economy & business	Core	o	x	x
310	ライフ	life	Personal & Family Life	Core	o	x	x
311	ライブ	live	Media & Entertainment	Core	x	x	o
312	ライン	line	Multiple	Core/Cultural	o	o	o
313	ラジオ	radio	Science & Technology	Cultural	x	x	o

314	ラブ-love	love	Personal & Family Life	Core	x	x	o
315	ランド-land	land	General	Core	x	x	o
316	リーグ	league	Sports	Core	x	x	o
317	リサイクル	recycle	Social & Public Life	Core	o	x	x
318	リスク	risk	General	Core	o	o	x
319	リスト-list	list	General	Core	x	x	o
320	リチウム	lithium	Material & substance	Cultural	o	x	x
321	リテラシー	literacy	General	Core	o	x	x
322	リハビリテーション	rehabilitation	Medical, Health & Beauty	Core	o	x	x
323	リンク-link	link	Science & Technology	Core/Cultural	x	x	o
324	リンク-rink	rink	Sports	Cultural	x	x	o
325	ルート-route	route	General	Core	o	x	x
326	ルール	rule	Social & Public Life	Core	o	o	o
327	レシピ	recipe	Dining & food	Core	x	x	o
328	レストラン	restaurant	Dining & food	Core-Western	x	o	x
329	レベル	level	General	Core	o	o	o
330	レンジ	range	Multiple	Core/Cultural	x	x	o
331	レンタル	rental	Economy & business	Core	x	x	o
332	ローン-loan	loan	Economy & business	Core	o	x	o
333	ログ	log	Multiple	Core/Cultural	x	x	o
334	ロケット-rocket	rocket	Science & Technology	Cultural	o	x	x
335	ロック-rock（音楽）	rock	Media & Entertainment	Cultural	x	x	o
336	ワード	word	Multiple	Core/Cultural	x	x	o
337	ワイン	wine	Dining & food	Cultural	x	o	x
338	ワン	one	Numeral & Math	Core	x	o	o

Appendix B: High-frequency ELWs by Semantic Categories

語彙素 (338 Types)	English (original form)	Loan Type	WP	BK	IT
Building & Furniture					
アパート	apartment	Core	x	x	o
テーブル	table	Core-Western	x	o	x
ドア	door	Core-Western	x	o	o
トイレ	toilet	Core	x	o	o
ハウス	house	Core	x	o	x
ビル-building	building	Core-Western	o	o	x
ベッド	bed	Core-Western	x	o	x
マンション	mansion	Core	o	o	o
Dining & Food					
カレー	curry	Cultural	x	x	o
ケーキ	cake	Core-Western	x	x	o
コーヒー	coffee	Cultural	x	o	o
サラダ	salad	Core-Western	x	x	o
スープ	soup	Core-Western	x	x	o
ソース-sauce	sauce	Core-Western	x	x	o
チーズ	cheese	Cultural	x	x	o
バー	bar	Core-Western	x	x	o
ビール	beer	Cultural	x	o	o
ミルク	milk	Core	x	x	o
メニュー	menu	Core	x	o	o
レシピ	recipe	Core	x	x	o
レストラン	restaurant	Core-Western	x	o	x
ワイン	wine	Cultural	x	o	x
Economy & Business					
オークション	auction	Core	x	x	o
オフィス	office	Core	o	x	x
クレーム	claim	Core	x	x	o
クレジット	credit	Cultural	x	x	o
コスト	cost	Core	o	o	x
コンビニ	convenience store	Cultural	x	x	o
シェア	share	Core/Cultural	o	x	x
ショップ	shop	Core	x	x	o
ストック-stock	stock	Cultural	o	x	x
ディーラー	dealer	Core	x	x	o
デフレ	deflation	Core	o	x	x
ドル	dollar	Cultural	o	o	o
バブル	bubble	Core	o	x	x
バンク	bank	Core	x	x	o
ビジネス	business	Core	o	o	x
ブランド	brand	Core	x	o	o
フロー	flow	Core	o	x	x
ボーナス	bonus	Core	x	x	o
ホテル	hotel	Core-Western	x	o	o
メーカー	maker	Core	o	o	o
ライセンス	license	Core	o	x	x
レンタル	rental	Core	x	x	o
ローン-loan	loan	Core	o	x	o
General Meaning					
アドバイス	advice	Core	x	x	o
アンサー	answer	Core	x	x	o
エラー	error	Core	x	x	o
オーケー	OK	Core	x	x	o
オプション	option	Core	x	x	o

カット	cut	Core	x	x	o
カテゴリー	category	Core	x	x	o
カラー-color	color	Core	x	x	o
キャンセル	cancel	Core	x	x	o
クエスチョン	question	Core	x	x	o
グループ	group	Core	o	o	o
コピー	copy	Core	x	x	o
コメント	comment	Core	x	x	o
コントロール	control	Core	x	o	o
サイズ	size	Core	x	x	o
シール	seal	Core	x	x	o
シーン	scene	Core	x	x	o
システム	system	Core	o	o	o
ショック	shock	Core	x	x	o
シリーズ	series	Core	x	x	o
スタート	start	Core	x	o	o
スタッフ-staff	staff	Core	x	o	x
スピード	speed	Core	x	o	o
セキュリティー	security	Core	x	x	o
タイプ-type	type	Core	x	o	o
タイミング	timing	Core	x	x	o
タイム-time	time	Core	o	o	o
タオル	towel	Core-Western	x	x	o
チーム	team	Core	o	o	o
チェック	check	Core	x	o	o
チケット	ticket	Core	x	x	o
チャンス	chance	Core	x	o	o
ディテール	detail	Core	x	x	o
デー	day	Core	x	x	o
テーマ	theme	Core	o	o	x
デザイン	design	Core	o	o	o
テスト	test	Core	x	o	o
トラブル	trouble	Core	x	x	o
ニュー	new	Core	x	x	o
ノウハウ	knowhow	Core	o	x	x
ノート	note	Core	x	x	o
バージョン	version	Core	x	x	o
ハイ-high	high	Core	x	x	o
パターン	pattern	Core	x	o	x
バランス	balance	Core	o	o	o
ピーク	peak	Core	o	x	x
プラン	plan	Core	o	x	x
フル	full	Core	o	x	o
プロ-pro	pro	Core	x	o	o
プロジェクト	project	Core	o	o	x
プロセス	process	Core	o	o	x
ベスト-best	best	Core	x	x	o
マーク	mark	Core	x	x	o
マネージメント	management	Core	o	o	x
マン	man	Core	x	o	o
ミス-mistake	mistake	Core	x	x	o
ミニ	mini	Core	x	x	o
メーン	main	Core	x	x	o
メリット	merit	Core	o	x	o
メンバー	member	Core	x	o	x
ユーザー	user	Core	o	x	o
ランド-land	land	Core	x	x	o
リスク	risk	Core	o	o	x

リスト-list	list	Core	x	x	o
リテラシー	literacy	Core	o	x	x
ルート-route	route	Core	o	x	x
レベル	level	Core	o	o	o
アウト	out	Core	x	x	o
アップ	up	Core	o	o	o
アンド	and	Core	o	o	o
イン-in	in	Core	o	o	o
オア	or	Core	x	x	o
オフ	off	Core	x	x	o
オブ	of	Core	o	o	o
オン	on	Core	o	o	o
ザ	the	Core	x	o	o
ダウン	down	Core	x	x	o
ツー-to	to	Core	x	x	o
ノー	no	Core	x	x	o
バイ-by	by	Core	x	x	o
バック	back	Core	x	x	o
ファースト-first	first	Core	x	x	o
マイ	my	Core	x	x	o
ミー-me	me	Core	x	x	o
ユー	you	Core	x	x	o
Material & Substance					
イオン-Ion	ion	Cultural	x	o	x
ウラン	uranium	Cultural	o	x	x
ガス	gas	Core	o	o	o
ガソリン	gasoline	Cultural	x	x	o
ガラス	glass	Core	x	o	o
ゴム	gum	Cultural	x	x	o
コンクリート	concrete	Cultural	o	x	x
タバコ	Tabaco	Cultural	x	o	o
ビタミン	vitamin	Cultural	x	x	o
プラスチック	plastic	Cultural	o	x	x
リチウム	lithium	Cultural	o	x	x
Measurements & Units					
カロリー	calorie	Cultural	x	x	o
キロ	kilo	Cultural	x	o	o
キログラム	kilogram	Cultural	o	x	o
キロメートル	kilometer	Cultural	o	x	o
グラム	gram	Cultural	x	o	o
センチ	centimeter	Cultural	x	o	o
センチメートル	centimeter	Cultural	x	o	o
トン	ton	Cultural	o	x	x
パーセント	percent	Cultural	o	o	o
ヘクタール	hectare	Cultural	o	x	x
ポイント	point	Core	o	o	o
メートル	meter	Cultural	o	o	o
メガバイト	mega bite	Cultural	x	x	o
Media & Entertainment					
アニメ	anime	Cultural	x	x	o
ギター	guitar	Cultural	x	x	o
ゲーム	game	Core	x	o	o
ショー	show	Core	x	x	o
タレント	talent	Core	x	x	o
チャンネル	channel	Cultural	o	x	o
ツアー	tour	Core	x	x	o
ドラマ	drama	Core	x	x	o
ニュース	news	Core	x	o	o

バンド-band	band	Core-Western	x	x	o
ピアノ	piano	Cultural	x	x	o
ファン-fan（熱狂者）	fan	Core	x	x	o
マス	mass	Core	o	x	x
メディア	media	Core	o	o	o
ライブ	live	Core	x	x	o
ロック-rock（音楽）	rock	Cultural	x	x	o
Medical, Health, and Beauty					
アレルギー	allergy	Core	x	x	o
ウイルス	virus	Cultural	x	x	o
ケア	care	Core	o	o	x
シャンプー	shampoo	Core-Western	x	x	o
ストレス	stress	Core	x	o	o
ダイエット	diet	Core	x	x	o
ホルモン	hormone	Cultural	x	o	x
メーク	make	Core	x	x	o
リハビリテーション	rehabilitation	Core	o	x	x
Multiple Meanings					
アクセス	access	Core/Cultural	o	x	o
アドレス	address	Core/Cultural	x	x	o
アルバム	album	Cultural	x	x	o
イメージ	image	Core/Cultural	o	o	o
ウインドー	window	Core/Cultural	x	x	o
エアー	air	Core/Cultural	x	x	o
エネルギー	energy	Core	o	o	x
オイル	oil	Core	x	x	o
カード	card	Core/Cultural	x	o	o
カップ	cup	Core/Cultural	x	x	o
カバー	cover	Core	x	x	o
キー	key	Core/Cultural	x	o	o
キャラ	character	Core	x	x	o
クラス	class	Core	x	o	o
クラブ	club	Core/Cultural	o	o	o
クリア	clear	Core	x	x	o
クリーム	cream	Cultural	x	x	o
グリーン	green	Core	o	x	x
ケース	case	Core	o	o	o
コース	course	Core	x	o	o
コード-code	code	Core/Cultural	x	x	o
サービス	service	Core	o	o	o
サイクル	cycle	Core/Cultural	o	x	x
シート-sheet	sheet	Core/Cultural	o	x	o
スーパー-super	super	Core/Cultural	x	x	o
スタイル	style	Core	x	o	o
セット	set	Core	x	x	o
センター	center	Core	o	o	o
ソフト	soft	Core/Cultural	o	o	o
タイトル	title	Core	x	x	o
ツール	tool	Core/Cultural	x	x	o
データ	data	Core/Cultural	o	o	o
テープ	tape	Core/Cultural	x	x	o
トップ	top	Core	x	o	o
ネットワーク	network	Core/Cultural	o	o	x
ハード	hard	Core/Cultural	o	x	x
パート-part	part	Core	o	x	o
パック-pack	pack	Core	x	x	o
バリア	barrier	Core	o	x	x
パワー	power	Core	x	x	o

ファイル	file	Cultural	x	o	o
フォルダー	folder	Cultural	x	x	o
フリー-free	free	Core	o	x	o
ブルー	blue	Core	x	x	o
プレー	play	Core/Cultural	x	x	o
プレーヤー	player	Core/Cultural	x	x	o
プログラム	program	Core/Cultural	o	o	o
ブロック-block	block	Core/Cultural	o	x	x
ページ	page	Core/Cultural	o	o	o
ベース-base	base	Core/Cultural	o	o	x
ホーム-home	home	Core/Cultural	o	o	o
ボタン	button	Cultural	x	o	o
ボックス	box	Core	x	x	o
マニュアル	manual	Core/Cultural	o	x	x
モード	mode	Core	x	x	o
モデル	model	Core	o	o	o
ライン	line	Core/Cultural	o	o	o
レンジ	range	Core/Cultural	x	x	o
ログ	log	Core/Cultural	x	x	o
ワード	word	Core/Cultural	x	x	o
Numeral & Math					
エイト	eight	Core	o	x	x
ゼロ	zero	Core	o	x	x
ツー-two	two	Core	x	x	o
ナンバー	number	Core	x	x	o
プラス	plus	Core	x	x	o
マイナス	minus	Core	x	o	o
ワン	one	Core	x	o	o
Personal & Family Life					
キス	kiss	Core	x	x	o
シャツ	shirt	Core-Western	x	x	o
スーツ	suit	Cultural	x	x	o
セックス	sex	Core	x	x	o
デート	date	Core	x	x	o
パンツ	pants	Core-Western	x	x	o
ペット-pet	pet	Core	x	x	o
ベビー	baby	Core	x	x	o
ママ	mama	Core	x	o	o
ライフ	life	Core	o	x	x
ラブ-love	love	Core	x	x	o
Science & Technology					
アナログ	analog	Cultural	o	x	x
インストール	install	Cultural	x	x	o
インターネット	internet	Cultural	o	o	o
ウィン-win-	win	Cultural	x	x	o
ウェブ	web	Cultural	x	x	o
エアコン	air conditioner	Cultural	x	x	o
エクセル	excel	Cultural	x	x	o
カメラ	camera	Cultural	x	o	o
クリック	click	Cultural	x	o	o
ケーブル	cable	Cultural	o	x	o
コンテンツ	contents	Core/Cultural	o	x	x
コンピューター	computer	Cultural	o	o	o
サーバー	server	Cultural	x	x	o
サイエンス	science	Core	o	x	x
サイト	site	Cultural	o	x	o
セル-cell	cell	Cultural	x	x	o
ダウンロード	download	Cultural	x	x	o

ディスク	disk	Cultural	x	x	o
データーベース	database	Cultural	o	x	x
デジカメ	digital camera	Cultural	x	x	o
デジタル	digital	Cultural	o	x	o
デスクトップ	desktop	Cultural	x	x	o
テレビ	television	Cultural	o	o	o
テレビジョン	television	Cultural	o	x	x
ネット	net	Cultural	o	x	o
バイオマス	biomass	Cultural	o	x	x
ハイテク	high-tech	Cultural	o	x	x
パスワード	password	Core	x	x	o
パソコン	personal computer	Cultural	o	o	o
バッテリー	battery	Cultural	x	x	o
ビデオ	video	Cultural	o	x	o
プリンター	printer	Cultural	x	x	o
プロバイダー	provider	Cultural	x	x	o
マウス	mouse	Cultural	x	x	o
ミサイル	missile	Cultural	o	x	x
メール-mail	mail	Cultural	x	o	o
メモリー	memory	Core/Cultural	x	x	o
ラジオ	radio	Cultural	x	x	o
リンク-link	link	Core/Cultural	x	x	o
ロケット-rocket	rocket	Cultural	o	x	x
Social & Public Life					
イスラム	Islam	Cultural	x	o	x
イニシアチブ	initiative	Core	o	x	x
イベント	event	Core	o	x	x
インフラ	infrastructure	Core	o	x	x
エリア	area	Core	o	x	x
ガイド	guide	Core	o	x	x
ガイドライン	guideline	Core	o	x	x
クリスマス	Christmas	Cultural	x	x	o
グローバル	global	Core	o	x	x
コミュニケーション	communication	Core	o	o	x
コミュニティー	community	Core	o	x	x
サミット	summit	Cultural	o	x	x
シンポジウム	symposium	Core	o	x	x
セミナー	seminar	Core	o	x	x
チャリティー	charity	Core	o	x	x
テロ	terrorism	Core	o	x	x
ニーズ	needs	Core	o	o	x
パートナーシップ	partnership	Core	o	x	x
パトロール	patrol	Core	o	x	x
パンフレット	pamphlet	Core	o	x	x
フォーラム	forum	Core	o	x	x
プレゼント	present	Core	x	x	o
ボランティア	volunteer	Core	o	x	x
マップ	map	Core	o	x	x
マナー	manner	Core	x	x	o
メッセージ	message	Core	x	o	o
リサイクル	recycle	Core	o	x	x
ルール	rule	Core	o	o	o
Sports					
サッカー	soccer	Cultural	x	x	o
スポーツ	sports	Core	o	o	o
ボール-ball	ball	Core	x	o	o
リーグ	league	Core	x	x	o
リンク-rink	rink	Cultural	x	x	o

Vehicles					
エンジン	engine	Cultural	x	x	o
カー	car	Cultural	x	x	o
タイヤ	tire	Cultural	x	x	o
ドライバー	driver	Cultural	x	x	o
ドライブ	drive	Cultural	x	x	o
バイク	bike	Cultural	x	x	o
バス-bus	bus	Cultural	o	o	o
ヘリコプター	helicopter	Cultural	o	x	x