

## **Making form-meaning connections while reading: A qualitative analysis of word processing**

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### **Abstract**

This study was a qualitative exploration of the effect of multiple-choice glosses and periodic second language (L2) text reconstruction on lexical acquisition. L2 readers of German engaged in a think-aloud procedure while reading a short text and retelling its content in German after each of four short sections. In each section, four unfamiliar target words (TWs) were embedded. Half of the participants' passages contained multiple-choice glosses for the TWs. Reading behavior and test scores for the +gloss and no-gloss groups differed, suggesting that a) glosses triggered a search for concrete meaning and firm form-meaning mapping; b) a lack of glosses corresponded with global text processing, skipping of words and shallow meaning mapping; c) multiple encounters helped +gloss readers to gain semantic information and refine their understanding of the TWs; d) for those who established form-meaning connections in the input phase, the output task may have strengthened those connections, e) the post-test designed to measure word recognition may have had a strong learning effect.

*keywords:* vocabulary development, form-meaning mapping, second language acquisition, reading interventions, multiple-choice glosses, input-output cycle tasks, information processing

### **Introduction**

Second language (L2) studies of lexical development have tried to identify cognitive processes involved in establishing form-meaning connections, that is, the initial encoding and subsequent retention of meaning assignment to an unfamiliar word. Two concurrent strands of research have explored the effectiveness of interventions that vary in their degree of explicitness in directing the readers' attention to unfamiliar words in the text. This research can be roughly divided into input-based and output-based studies.

Drawing on findings from cognitive psychology that "nearly every word is focused on and processed when reading sentences for comprehension" (Fender, 2001, p. 320), many input-based studies of lexical L2 learning rest on the assumption that the readers' motivation to comprehend a text triggers the processing of unfamiliar lexical items. Ideally, this may then lead to further processing and integration of new words into the mental lexicon. However, text comprehension may not always require the kind of word processing that results in long-term retention. To increase the salience of new words, a variety of textual enhancements, such as increased word frequency and the provision of glosses, have been explored. The output strand of lexical research has addressed the effect of production tasks, such as L2 writing and passage reconstruction, or post-reading vocabulary activities aimed at explicit word learning. In these studies, there is an assumption that when learners feel the need or receive a prompt to use a new word, they may notice the hole in their interlanguage (Brown, 1993; de la Fuente, 2002; Swain, 1998). *Need*, along with *search* and *evaluation*, is a central component in the construct *involvement load*, upon which, Laufer and Hulstijn (2001; Hulstijn & Laufer, 2001) claim lexical acquisition and retention may depend. *Involvement load* is a construct that describes the motivational and cognitive dimensions of a task, specifically as it affects the processing of individual words. It is based on the belief that deeper and more elaborate processing of words will increase retention. Learners' need for words may focus attention on relevant information in future input or may encourage them to review previous input. Retention of words may be enhanced further when learners reformulate or elaborate the semantic information of a new word ( Craik & Tulving, 1975; Wittrock, 1974).

The current study contained both input enhancement and an output task. Following findings of input-based research, multiple-choice glosses were chosen for the study because glosses, in general, have been shown to aid (Davis, 1989; Jacobs, 1994; Watanabe, 1997) or at least not interfere with text comprehension (Jacobs, Dufon & Fong, 1994; Pak, 1986). However, arguments have also been made against glossing, in particular, that inferred meanings are more likely to be retained than meanings provided by glosses (Hulstijn, 1992; Laufer & Hulstijn, 2001; Nation & Coady, 1988). This view is based on the 'mental effort' hypothesis, which claims that (1) inferring requires mental effort and (2) the greater the mental effort, the better a learner's recall and retention of information acquired through that effort (Hulstijn, 1992, 2001). Studies investigating the relationship between the provision of glosses and word learning that used single L1 glosses have resulted in mixed findings (e.g., Holly & King, 1971; Jacobs, Dufon & Fong, 1994; Ko, 1995). Hulstijn (1992) proposed a solution, which combines the advantages of inferring and glosses: the use of multiple-choice glossing, that is, the provision of several gloss options. He argues that this approach reduces the difficulties presented by insufficient context as well as the possibility of incorrect inferences. At the same time, it requires some degree of mental effort and attention, triggering a deeper level of processing (Craik & Tulving, 1975; Jacoby & Craik, 1979), and enhancing subsequent word recall and retention. This effort also involves some degree of *search* and *evaluation*, the other two components of *involvement load* (Laufer & Hulstijn, 2001). When processing multiple-choice glosses, learners first allocate attention to the search for meaning by consulting the gloss options. Next, they evaluate the different meanings and make a decision as to which fits the TW context best. Thus, the use of multiple-choice glosses may increase the chances of establishing form-meaning connections as compared to single L1 glosses or normal unenhanced reading, potentially leading to lexical acquisition and retention.

The L2 reconstruction task used in the current study engaged readers in four input-output sequences (for further details, see set-up of current study). The purpose was twofold. It was intended to stimulate learners to try to comprehend the text and reproduce the passage they had just read. At the same time, it was intended to prompt learners who had noticed the TWs to either produce them, strengthening the form-meaning connection or, for learners who could not produce them, to 'notice the hole' in their lexicon, in other words, to notice that they did not have productive knowledge of the TW. This in turn might focus learners' attention on the TW during subsequent encounters. This task was expected to enhance word gain in much the same way that Izumi, Bigelow, Fujiwara and Fearnow (1999) found that it facilitated the acquisition of hypothetical conditionals. In that study, participants demonstrated significant gain of the target structure after reading and reconstructing the input passage twice.

The current study is a follow-up investigation of a quantitative study (Rott, Williams & Cameron, 2002), which compared word learning effects of reading under the following conditions: a) a text enhanced with multiple-choice glosses for the TWs, b) a text plus an L2 text reconstruction task, c) a combination of both treatments, and d) a text without glosses and no reconstruction task (control). Findings of this earlier quantitative investigation of fourth-semester learners of German only partially confirmed the anticipated learning effects. Although readers in the multiple-choice gloss reading condition showed significant word gain measured immediately after the reading, these gains were not retained, as measured five weeks after the treatment. Moreover, contrary to the original hypothesis, the L2 passage reconstruction task did not lead to greater word gain than the control condition. However, the combined condition of multiple-choice glosses plus the L2 reconstruction task led to significantly higher receptive and productive word knowledge immediately after the treatment as well as greater receptive word knowledge after five weeks.

This and other quantitative investigations on the effect of input and output on word learning have not led to straightforward, generalizable findings. To date there have been few qualitative studies on lexical development. These few studies have, however, provided important information on L2 learners word processing behavior and the usefulness of textual enhancements and post-reading activities (e.g., Chern, 1993; Paribakht & Wesche, 1999; Parry, 1993; Rott 2000; Wesche & Paribakht, 2000). The current study was undertaken to develop a detailed account of participants' processing strategies while reading an enhanced text, and engaging in an output task, as well as the impact of these interventions on word learning. The goal of this qualitative, introspective exploration was to determine what learners actually do when they choose among glosses and what they notice during input-output cycles. In the previous study, multiple-choice glosses and the requirement for output were both viewed as monolithic variables. In that study, when glosses were ignored, there was no way to separate these individual instances from the overall multiple-choice gloss condition for closer inspection. Similarly, it was unclear exactly what caused readers to choose one gloss over another and how those choices affected subsequent processing of text or subsequent encounters with the TWs. The output portions of the input-output cycle were also something of a black box. The text reconstructions showed whether TWs were used, but little more than that. Only introspective data can reveal the processes that the participants go through in reading the text, confronting unknown words, and attempting to reproduce the text.

The current study was guided by the following questions:

1. How do multiple-choice glosses influence word inferencing strategies and form-meaning mapping?
2. How does the input-output cycle task influence word inferencing strategies and form-meaning mapping?
3. What is the effect of repeated occurrence of TWs on noticing and form-meaning mapping?
4. How does the multiple-choice plus input-output cycle task affect receptive and productive word knowledge gain as compared to the input-output cycle task only?

## Method

### *Participants*

The volunteer participants in this study were 14 fifth-semester L1 English learners of German at a public university in the United States. This course is the first after the completion of the language requirement and is generally taken by students who plan to major or minor in German. All participants had gone through the four-semester basic language sequence. Two participants' data had to be dropped from the final analysis because one tape recording was incomplete and another student wrote the text reconstruction task in English instead of German, leaving twelve participants in the study.

### *Materials*

The input passage was an adaptation of *Shade for Sale: A Chinese Tale* (Dresser, 1994; see Appendix A). The story was translated by a native speaker into German, with some minor modifications: Some low frequency words were replaced with higher frequency words, passive voice was replaced by active voice, and the two main figures were given names in order to clearly distinguish between them. In addition, changes were made to accommodate an equal number of repetitions (four) of each of the TWs. Although sizable word gain may require eight to twelve exposures (e.g., Horst, Cobb & Meara, 1998; Nation, 2001) previous L2 research, which actively manipulated exposure frequency, found that two encounters led to significant word knowledge gain (Hulstijn, Hollander & Greidanus, 1996; Rott, 1999).

The TWs were concrete nouns that were essential to the main ideas of the passage. To increase the likelihood that the TWs were completely unknown to the learners, the following low frequency items were used in the input passage:

**Kaff**-village (colloq.<sup>1</sup>)    **Eiche**-oak tree    **Stube**-parlor    **Vieh**-livestock

Participants' knowledge of these words was also assessed in the pretest (see assessment tasks).

Each of the four TWs appeared four times in the passage. The context of the first occurrence of each TW did not provide many clues to its meaning; however, each successive instance contained an increasing number of contextual clues. For example, the TW **Vieh** (livestock) first appeared in the following context (translated into English). "In the beginning, Poor Klaus rested alone, but later, he began to bring his friends and sometimes even their **livestock**." The second appearance offered more clues as to its meaning:

The chickens sat under the table, the cows sat in the corner of the room, and the pigs lay in front of the sofa. Rich Hans became very angry. 'You can't bring your friends into my mansion! Don't bring your **livestock** into my **parlor**. They will make a mess and eat my furniture!'

## Treatments

There were two treatment groups. One group read the passage with glosses (n=7); the second group read the passage with no glosses (n=5). Participants were randomly assigned to the treatment groups. Both groups wrote periodic L2 text reconstructions.

### *Glosses*

The +gloss text contained multiple-choice glosses for the four TWs and seven additional glosses for distracter words in the margin of the text (See Appendix A). Distracter words were included to discourage intentional learning of the small number of TWs. Readers had four choices: the correct meaning of the word, two additional meanings that would make sense in the present context, and a 'don't know' option. This last option was added to minimize the chance of random correct responses. The glosses appeared only at the first and final encounter with the TW. The TWs were set in boldface in first and last appearances of the +gloss version, thus creating a doubly enhanced text for this group. The second and third appearances of the TW were not enhanced. Again, this was done to achieve a balance between drawing attention to the TWs and discouraging intentional learning. Distracter words were also bolded in the +gloss version, but were only glossed once. No words were bolded in the no-gloss text.

### *L2 Text Reconstruction*

The input passage was divided into four sections, each section on a separate page (see Appendix A). On a blank page, which followed each section, all participants were asked to retell, in German, the ideas of the part of the passage they had just read in as much detail as possible. They were instructed not to turn back to previous pages.

## Assessment Tasks

### *Vocabulary pretest*

To ensure that the TWs were unfamiliar to all participants, a vocabulary checklist test was administered prior to the reading treatment. Students received a list of 20 lexical items including the four TWs and 16 distracters (different from the distracters in the passage). Students were asked to explain what each one meant, even if they had only a vague idea, and to cross out only the words that they did not know at all. None of the participants claimed any knowledge of the TWs.

### *Word gain*

To assess immediate word knowledge gain, two vocabulary tests were administered immediately after reading the input passage. Learners first completed a modified Vocabulary Knowledge Scale (VKS) based on Wesche and Paribakht (1996) (Appendix B)<sup>2</sup>. "This scale ratings range from complete unfamiliarity, through recognition of the word and some idea of its meaning, to the ability to use the word with grammatical and semantic accuracy in a sentence" (p. 29).

Second, learners completed a word recognition test (WRT), which consisted of a sentence from the passage containing the TW and the same multiple-choice glosses (see Appendix B) that were offered to the +gloss readers during the treatment. The score for the WRT was simply the number of correct responses. A correct answer received the score of 1; an incorrect choice received the score of 0.

## Data Elicitation

Think-aloud protocol: To elicit L2 readers' processing behavior, a concurrent, think-aloud procedure (Ericsson & Simon, 1996) was used. Students were asked to verbalize everything that was going through their minds while making sense of the passage, while reconstructing the text, and while completing the vocabulary tests. Only when students paused in verbalizing their thoughts did the researcher intervene and request that the participant continue to say everything aloud. The entire session was tape-recorded.

## Procedure

**Phase 1:** During the third week of the semester, students completed the vocabulary checklist test. Students were informed that this was a study on reading.

**Phase 2:** The treatment session took place two weeks later. First, learners received a practice passage without glosses and were asked to think-aloud while they were trying to make sense of the short text. Then, learners received the treatment passage, read through it silently, and then engaged in a think-aloud procedure as they read it for a second time. To ensure that students read the text for meaning, they were informed that after every paragraph they would have to

reconstruct the passage. Students did not know that they would receive the two vocabulary tests immediately afterwards. Participants completed the treatment one at a time, and were called in to take the test in random order. The first student received a +gloss text, the second, a no-gloss and so forth.

## Results and Discussion

Table 1 presents a summary of the strategies used by individual learners in the +gloss and no-gloss conditions when they encountered the targeted words. For the data analysis, categories from previous word inferencing strategy studies were used (Lee & Wolf, 1997; Paribakht & Wesche, 1999; Rott, 2000). For each subject, the strategy for each of the 16 TW encounters (four times for each of the four TWs) is shown. The first two columns, **use of semantic context** and **grammatical information**, indicate whether the readers verbalized their use of information provided in the text and/or glosses to assign meaning to the TW. The three columns on the right, in contrast, indicate the opposite, if there was no verbalization of whether or how a context was used or whether form-meaning connections were made. Of course, it is possible that participants used clues in the context but did not verbalize this process. In the case of **no elaboration**, +gloss readers stated their choice of the L1 gloss for the TW without verbalizing any reason for doing so; they simply looked to the choices at the right and stated their choice. In the **L2 verbalization** category, readers simply inserted the L2 TW into a largely L1 translation of the text. They did not verbalize any assignment of meaning to the TW, nor did they name their choice of gloss (if provided) aloud. In the **ignore** category, the TW and often the entire chunk of text containing it, were simply skipped and never mentioned.

Table 1: Summary of Strategy Use of +Gloss and No-Gloss Readers

Type of strategy used at each encounter with the TWs						
Participant*	Use of semantic context and gloss	Use of grammatical information	No elaboration (gloss group only)	L2 verbalization of the TW	Ignore	Total
<u>+gloss</u>						
Gerald	14		1	1		16
Hardy	12		1		3	16
Karen	9		2	2	3	16
Nora	11		2	1	2	16
Annie	12		1	2	1	16
Ivan	13		3			16
Cathy	10	1	2		3	16
Total % of strategies used	72%	.08 %	11%	5%	11%	100%
<u>No-gloss</u>						
Edgar				12	4	16
Drew	5	1		3	7	16
Riley	7	1		2	6	16
Reena	1			4	11	16
Lauren	5	1		3	7	16
Total % of strategies used	22%	3.8%		30%	44%	100%

Note: Each participant encountered each TW four times totaling 16 strategies.

\*Names are pseudonyms



## How do multiple-choice glosses influence word inferencing strategies and form-meaning mapping?

One of the goals of this study was to describe more precisely the process of word meaning assignment when readers are provided with multiple-choice glosses as compared to the behavior of readers whose text is not enhanced. In particular, we were interested in describing how readers accessed their existing knowledge sources and integrated clues provided in the text to decide on the most logical gloss option and establish form-meaning connections.

### *Semantic context use*

Although individual readers' interaction with the text varied considerably, there were clear trends in how +gloss readers dealt with the TWs as compared to no-gloss readers. Readers of the +gloss text were at an obvious advantage in connecting a specific meaning to the TW. Provided the glosses were consulted, they presented concrete meaning (though also the opportunity to make a wrong choice). Glosses restricted possible inferences to three meanings and encouraged readers to actively use context. It appears that the initial multiple-choice gloss guided readers' processing strategies during subsequent non-glossed encounters with TWs. Overall, in 72% of the instances, +gloss readers used context to assign meaning whereas no-gloss readers used context in only 22% of the cases (Table 1). Consequently +gloss readers rarely needed the "don't know" option or ignored TWs. However, the provision of glosses sometimes also led readers to simply choose one of the glosses without testing it in the context or verbalizing any kind of decision process (no-elaboration: 11%, Table 1). In only 15% (L2 verbalization and Ignore categories combined, Table 1) of their encounters with TWs, the +gloss readers failed to assign any meaning to the lexical item, far less often than the no-gloss readers (74%; L2 verbalization and Ignore categories combined, Table 1).

The data contain ample evidence that the multiple-choice glosses triggered a search for lexical meaning and an interaction between the various gloss options and the context provided by the passage. In many instances, the provision of multiple gloss meanings led readers from a tentative to a stable form-meaning mapping. Readers verbalized a conscious decision making process, as the examples below demonstrate. This is particularly evident when a reader first chose one gloss and then revised after testing it in context. Sometimes the reader revised immediately when the initial gloss choice no longer fit the context (Ex. 1). On other occasions, the revision was delayed until the next gloss prompted a reconsideration of the initial meaning assignment (Ex. 2).

### *Ex. 1. Gerald*

On his first encounter with the TW, **Vieh**, the reader claimed not to know its meaning. He read the list of glosses and made a guess, but also announced that it was a tentative one:

*"In the beginning, Klaus was alone, but later he brought along sogar Freunde und deren **Vieh** mit. I don't know what sogar and **Vieh** means. Vieh: lice, relatives, livestock. **Relatives** I will say for now." He revised his choice at the next, un-glossed encounter with the TW based on his understanding of the intervening text. "So **Vieh** is not **relatives**; **Vieh** is **livestock**. The chickens sassen--they ate under the table, the cows stood in the corner, the pigs sat on the couch."*

*Ex. 2. Nora*

For this reader, only the second gloss appears to have stimulated correct form-meaning mapping. On her first and second encounters with the TW **Eiche**, she made no comment on it. She circled the gloss, *river*, perhaps prompted by her noticing of the word *Wasser* (water). On the third encounter, she skipped the TW. At the final encounter, where the glosses were offered for the second time, she changed her mind to the correct choice, kind of *tree*. She inserted the new choice into her translation of a sentence in her think-aloud protocol.

*"And all the people are sitting in the barn under the **tree**."*

Later, during the VKS, she explained her choice:

*"**Eiche** I think this means a **tree** because they were talking about sitting under the **tree** at the end of the story."*

The think-aloud protocols did not always make clear what in the context had prompted a given choice or the reassessment of a prior choice. One thing that did emerge from the data is that the use of context was primarily local. That is, the protocols provided little evidence of rereading or the integration of information from the previous and the current paragraph as a goal-oriented strategy. They did not show that these readers were using very much top-down processing (e.g. Swaffar, Arens & Byrnes, 1991) (though see Ex. 3), or that they activated any schemata based on their reading. There were no predictions or statements of expectations. Instead, readers utilized context in a piecemeal fashion and seemed satisfied with comprehending individual propositions, not focusing on developing a coherent story line.

On most occasions, the +gloss readers articulated that they used forward and backward clues in the immediate context to make a determination of meaning. Occasionally, they consulted the meaning of the surrounding sentence (Ex. 3); in other cases, a single word or phrase appeared to stimulate background knowledge, which fostered the meaning mapping (Ex. 4).

*Ex. 3. Hardy*

At his first encounter with the TW, **Eiche**, this reader guessed it might be *tree*, then, *river*. He paused, reading the subsequent sentence, which contained a reference to *Schatten* (shade/shadow), and returned to the correct gloss, kind of *tree*.

*"I think **Eiche** is a **tree**, no **river**.... Or **tree**? In the summer, he sat every day in its shadow. **Tree**"*

*Ex. 4. Nora*

In this example, the reader seems to have been influenced by the proximity of *Freunde* (friends) to the TW **Vieh**, and the fact that the friends are coming for a visit. On her first encounter, she jumped to the conclusion that **Vieh** must therefore mean *relatives*.

*"Klaus brought his friends and **relatives** and Hans got angry."*

She stuck to this choice for the rest of the treatment, demonstrating how the interaction between background knowledge and gloss options can also lead to incorrect form-meaning mapping if the inference is not critically tested in subsequent contexts. During the WRT, she offered the fixed phrase, *friends and **relatives***, as the basis for her decision.

*"This (**Vieh**) means **relatives** because it mentions friends and **relatives** at the same time."*

The above examples indicate that multiple-choice glosses triggered an active decision making process. In almost all of the instances, where +gloss readers made use of context to determine their choice of gloss, they mentioned either a tentative form-meaning mapping, verbalizing some form of "maybe," or a more stable meaning mapping, reiterating the established meaning.

In contrast, the lack of glosses corresponded to a lack of concrete meaning assignment suggesting that no firm form-meaning mapping was made by this group of readers. Instead, the no-gloss readers appeared to be satisfied with a generally vague understanding of the TWs, processing individual sentences for more global comprehension (Ex. 5). This example demonstrates the reader's focus on local context comprehension and strongly suggests that the TW was processed on a superficial level. This may have left a memory trace but did not result in a unique form-meaning mapping. In fact, she assigned the same meaning, *house*, to different TWs. On neither of the vocabulary tests was this reader able to produce or recognize the correct word meaning. She chose the "don't know" option.

#### *Ex. 5. Lauren*

After having skipped the first encounter, in the context of one of the character's sleeping and coming from a village on the other side of the mountain (2<sup>nd</sup> encounter), she interpreted the TW **Kaff** as *house*. *"I can't sleep there and cannot hear myself and I came from to this **Kaff house** and another time I came from the mountains."* She verbalized the TW in German during the third encounter but misinterpreted **Kaff** as *cow* during the fourth encounter, perhaps partly based on its similarity to L1 *calf*. At the third encounter with the TW **Stube**, she tried out *barn* as well as *house* and decided on the meaning *house*. *"You must not have your friends in my **barn Stube house** you must not bring your friends into my **house**."*

No-gloss readers' focus on local context was also evident in that even when they were able to gain an idea of the meaning of a TW, they did not try to confirm or disconfirm their guess at the next encounter with the TW. Such processing behavior again leaves doubt about stable form-meaning mapping (Ex. 6).

#### *Ex. 6. Lauren*

This reader skipped the TW **Vieh** during the first encounter, but during the second encounter, she associated the TW with the animals mentioned in the previous sentence as well as human beings. She did not make a decision on which meaning to assign to the TW verbalizing, *"and do not*

*bring any Vieh with any Vieh barn friends it is all getting dirty."* In the next context, she incorrectly surmised the meaning of the TW to be "those people" and finally failed to assign meaning to the TW at the fourth encounter.

The +gloss readers' interaction with the text focused on content words. The no-gloss readers made use of syntactic clues to assign meaning to the TWs. Even though their use was primarily limited to prepositions and amounted to only 3.8% (Table 1), syntactic clues proved to be useful to narrow down possible meanings. The preposition *in* seems to have encouraged an interpretation of both **Kaff** and **Stube** as an enclosed physical space. During the vocabulary post-test (VKS), several no-gloss readers voiced their notion that **Stube** must be a place, a place to live, a house or a room. Similarly, for one +gloss reader, "in" seems to have narrowed the choice for **Stube** to *barn* or *parlor*. In the case of the TW **Eiche**, all of the no-gloss readers who verbalized *unter* as *under* while reading selected the correct answer on the receptive word test (WRT).

### *L2 verbalization and ignoring*

Unlike the +gloss readers, the no-gloss readers often ignored TWs and chunks (44%; Table 1). This does not necessarily mean that readers did not process the words at all, but it seems unlikely that any form-meaning connections were made. Ignoring was the most frequent strategy for this group of readers. In comparison, their second most frequent strategy, L2 verbalization (Ex. 7), may have led to some initial phonological processing.

#### *Ex. 7. Edgar*

The reader verbalized the TW in German but probably did not infer the meaning. There was no overt attempt to comprehend the proposition. "*Um einst, ich weiss nicht, lived a rich man Hans in a small Kaff, um, next to a great Eiche.*" During the second encounter with the TW **Eiche**, the reader verbalized the TW again. This time he indicated his lack of comprehension adding "ich weiss nicht" (I don't know). At the third encounter, he skipped the part of the sentence containing the TW and finally verbalized it again in German during the fourth encounter. In the vocabulary post-test, he was unable to assign any meaning to the TW.

### **How does the input-output cycle influence word inferencing and form-meaning mapping?**

Our original goal was to determine if and how the requirement for output plus the availability of input establishes or strengthens form-meaning connections. We had hoped that we would find evidence of learners "noticing the hole," in effect, saying, "Oh, what was that word again?" and then anticipating and making use of the next TW encounter. The protocols showed no evidence of this. It became clear during the course of data collection that the output tasks were very challenging for many of the learners. Overall, participants focused on writing down what they easily remembered from the text without attempting a comprehensive reconstruction of the passage. Moreover, the protocols repeatedly showed that the readers were more concerned with grammatical aspects of sentence construction than with searching for words. This may suggest that learners at this proficiency level feel more confident about their lexical than their syntactic

knowledge. As a result, accessing existing grammar knowledge may have exhausted participants' attentional capacity, leaving few resources for noticing what they did not know. This was understandable particularly for the no-gloss readers, who approached the reading task in a more global manner and were less concerned about detail comprehension. Even for many of the +gloss readers, whose protocols showed ample evidence of interaction with context and a stronger focus on content details and individual words, there was little evidence that the participants were searching for the TW or became aware of a need for it in the text reconstruction. In other words, the output requirement in this investigation apparently did not contribute to the **establishment** of form-meaning connections.

That said, some learners did use TWs and synonyms in their reconstructions (Table 2). There seemed to be a strong relationship between awareness raised during the input phase and production during the output phase. The +gloss readers used TWs far more often in their reconstructions than the no-gloss readers. In place of the TWs **Eiche** (kind of *tree*) and **Vieh** (*livestock*), some readers used synonyms and hypernyms in their text reconstructions. This use of hypernyms, such as *Baum* (tree) and *Tiere* (animals) suggests that these readers focused more on text comprehension than on the meaning of individual words. If learners already knew a synonym for a TW, they may have been able to retrieve it faster than the TW and thus, less likely to feel the need for the new word.

Table 2: TW and Synonym Use during the L2 Reconstruction Task

Participant	Reconst. 1	Reconst. 2	Reconst. 3	Reconst. 4
<b>+gloss</b>				
Gerald	Eiche (2)	0	Vieh (2)	Kaff, Eiche
Hardy	Kaff (2)	Stube	Vieh	Kaff
	Baum (4) (tree)	Baum (tree)	Stube (2)	Vieh
Karen	Eiche (2)			
	Eiche (3)	0	Vieh	Eiche
Nora	Kaff	0	Vieh	Vieh
Annie	Eiche (3)	Kaff	0	Eiche Vieh
Ivan	Baum (4) (tree)	Eiche	Stube (2)	Eiche Stube
Cathy	Kaff (2)	Eiche	0	Stube
<b>Total</b>	M= 3.28	M= .71	M= 1.29	M=1.57

TWs used

<b>no-gloss</b>				
Edgar	0	0	Tier (animal)	0
Drew	0	Stube	Stube	0
		Kaff		
Riley	0	0	Tiere (2) (animals)	Vieh
Reena	0	0	Stube	0
Lauren	Eiche	Kaff	0	0
<b>Total</b>	M= .2	M= .6	M= 1	M=.2

TWs used

Note: Number in parenthesis is the number of times TW or synonym was used. If only the TW or synonym appears, it was used just once.

### **What is the effect of repeated occurrence of TWs on noticing and form-meaning mapping?**

One benefit available to both groups of readers was the repeated occurrence of the TWs, each of which appeared four times in the text. Frequency has been singled out as a way of directing attention to new words in the input, a widely acknowledged first step toward acquisition. Some readers explicitly commented during the vocabulary test that they had seen the word in the input passage. No readers reported not having seen the TWs before (a VKS rating of "a", see Appendix B). Repeated encounters with the TWs in varying contexts presented readers with the opportunity to accumulate semantic meaning. In fact, readers in both conditions refined or changed their initial meaning mapping over four encounters. Table 3 presents semantic development for each TW.

Naturally, +gloss readers were at an advantage because their attention was directed to the TWs and multiple-choice glosses triggered their search for a specific meaning. They used these repeated opportunities to establish or revise interpretations of individual TWs. In contrast, most no-gloss readers seemed frustrated by the repeated occurrence of the TWs, and were unable to assign them a precise meaning in spite of their frequency. They approximated the TW **Kaff** (village) as "a very nice place" or "another place" or used the placeholder "something" (Table 3). As mentioned earlier, in many cases, they ignored the TWs during the think-aloud or at most verbalized them without further overt processing. It was only when the receptive post-test presented possible meanings, that they were able to assign meaning (see discussion of this below).

Table 3: Meaning Assignment through Repeated Encounters

Participant WRT responses	Target Words			
	Eiche	Kaff	Stube	Vieh
<b>+Gloss</b>				
Gerald VILLAGE TREE PARLOR LIVESTOCK	river † tree #1 (G)	shack #1 (G) city #2 shack #3 <b>village</b> #4 (G)	barn #2 <b>parlor</b> #4 (G)	relatives #1 (G) <b>livestock</b> #3
Hardy SHACK TREE PARLOR LIVESTOCK	<b>tree</b> † river † tree #1 (G) <b>tree</b> #4 (G)	shack #1 (G)	like a room † <b>parlor</b> #1 (G)	loneliness † <b>livestock</b> #1 (G)
Karen VILLAGE WALL PARLOR RELATIVES	<b>tree</b> #1 (G) wall #4 (G)		DK #1 (G) <b>parlor</b> #4 (G)	relatives #1 (G) DK #4 (G)
Nora VILLAGE TREE BARN RELATIVES	river #1 (G) <b>tree</b> #4 (G)	shack † <b>village</b> #1 (G) valley #4 (G)	driveway #1 (G) barn #4 (G)	relatives #3
Annie VILLAGE TREE PARLOR LIVESTOCK	<b>tree</b> #1 (G)	<b>village</b> #1(G) valley #2	DK #1 (G) farm #2 <b>parlor</b> #4 (G)	animal #3 <b>livestock</b> #4 (G)
Ivan VILLAGE TREE PARLOR LIVESTOCK	<b>tree</b> #1 (G)	<b>village</b> #1 (G) valley #2 village #4 (G)	<b>parlor</b> #1 (G)	animal #2 DK #4 (G)
Cathy RIVER SHACK PARLOR LIVESTOCK	river#1 (G) <b>tree</b> #4 (G)	shack #1 (G) valley #3 shack #4 (G)	<b>parlor</b> #1 (G) this place #2 room #3 <b>parlor</b> #4 (G)	



	Eiche	Kaff	Stube	Vieh
<b>No-gloss</b>				
Edgar SHACK <b>TREE</b> BARN <b>LIVESTOCK</b>	∅	∅	∅	something else #3
Drew SHACK <b>TREE</b> BARN <b>LIVESTOCK</b>	∅	city #3 different place #4	pub #2 barn #4	something #3
Riley VILLAGE RIVER BARN <b>LIVESTOCK</b>	castle #2	very nice place #1 villa #3 another place #4	coming in #2 in there #3	<b>animals</b> #2
Reena VILLAGE <b>TREE</b> <b>PARLOR</b> DK	shade #4	place to live #1	∅	∅
Lauren WALL WALL BARN <b>LIVESTOCK</b>	house #2	house #2 cow #4	house #3	barn † friends #2 those people #3

Note: # indicates the encounter (1 through 4) when the reader either verbalized a gloss choice and/or meaning assignment. For the +gloss readers, encounters #1 and #4 included a multiple-choice gloss, as indicated by (G). DK = reader verbalized some version of "I don't know."

† indicates that the reader made two successive meaning assignments at a single encounter.

∅ indicates no verbalization of any meaning assignment during the entire protocol.

**Words in boldface** indicate correct meaning assignment.

### How do the input and output tasks affect receptive and productive word knowledge?

Table 4 displays the scores of both groups on the two vocabulary post-tests, administered immediately after the treatment. Four levels of form-meaning connections, specifying different aspects of word knowledge, were measured. Research on lexical storage suggests that the more aspects of a word are encoded in the mental lexicon, the better words are retained in long-term memory. Such words are the more easily retrieved because there are multiple retrieval routes.

The VKS and WRT measured increasing levels of word knowledge. The lowest level (level b on the VKS) of receptive word knowledge shows whether readers noticed the TWs while reading. The second level of word recognition was assessed by the WRT.<sup>3</sup> The WRT provided assistance in the form of retrieval clues from the input passage. The TW was presented in a sentence from the text and readers had to identify the correct meaning from three provided meanings. The options were the same as the ones used as multiple-choice glosses for the treatment. The third level (level c on the VKS)--a translation task--demonstrated receptive knowledge without any retrieval clues. The fourth level (level d on the VKS) showed learners' productive knowledge--appropriate use of the TW in a German sentence. This required semantic and syntactic word knowledge. Each level of the VKS entails lower levels; thus, a translation (score of 3) entails noticing (score of 2), etc.

The findings clearly show that +gloss readers outperformed no-gloss readers on the recognition and the production measures. All readers in both conditions indicated that they had noticed all TWs in the text (level b on the VKS), a crucial initial step for lexical development, but here the similarity ends. Although no-gloss readers reported having noticed all of the TWs, in 95% of the cases, they were unable to translate the TW or use it in a sentence. Only one no-gloss learner was able to translate one TW (5%). For the +gloss group, in contrast, 36% of TWs were reported at the *noticing only* level, whereas 64% were reported at levels *above* noticing (32% translation and 32% production; Table 4).

On the WRT, the +gloss readers were clearly at an advantage since they had seen the glosses during the reading phase and had been prompted to make a choice among them. Of the four TWs for the 7 +gloss participants, there were only two cases in which the WRT choice was different from the final meaning assignment made during the treatment (see Table 3: Nora and Cathy). For the no-gloss readers, in contrast, this task was new. For them, there was no apparent relationship between any meaning assigned during the treatment and WRT choice. Surprisingly however, although the +gloss readers did outperform the no-gloss readers on the WRT, the no-gloss readers demonstrated high scores on the WRT (55%; Table 4). This unanticipated good showing for the no-gloss group will be discussed further below. The +gloss readers also outperformed the no-gloss readers on the third level of receptive knowledge, the translation task, as well as the fourth level demonstrating productive word knowledge. At this last level, none of the no-gloss readers was able to use any of the TWs in a sentence.

Table 4: Receptive and Productive Word Acquisition of +Gloss and No-Gloss Readers

Participant	<u>Receptive Word Gain</u> (WRT)	<u>Recognition and Productive Word Gain (VKS)</u>		
		Level b	Level c	Level d
		Noticing	Translation	Production
<b>+gloss</b>				
Gerald	4	0	4	0
Hardy	3	1	0	3
Karen	2	3	1	0
Nora	2	2	0	2
Annie	4	0	1	3
Ivan	4	2	2	0
Cathy	2	2	1	1
<b>Total</b>	M=3 (75%)	M=1.71 (43%)	M=1.43 (36%)	M=1.14 (29%)
<b>no-gloss</b>				
Edgar	2	4	0	0
Drew	3	4	0	0
Riley	2	3	1	0
Reena	3	4	0	0
Lauren	1	4	0	0
<b>Total</b>	M= 2.2 (55%)	M=3.8 (95%)	M= .2 (5%)	

Note: Maximum score for WRT =4; Maximum score for VKS=16 (each TW has a maximum score of 4)

It is unclear whether the superior performance of the +gloss readers was a result of the glosses alone or the combined treatment. Although the protocols do not provide direct evidence that the output task triggered noticing, this does not necessarily mean that the output task had no effect. One problem is that the effect of the reconstruction task cannot be separated from that of glosses. Undoubtedly, the provision of the glosses facilitated the output task, which, in turn may have helped anchor form-meaning connections in long-term memory. Table 5 shows that readers who used a TW appropriately in a reconstruction nearly always scored at least a 3 on the VKS, (i.e., they were able to provide an L1 translation for that word), and they were able to choose the correct meaning on the WRT. This result is limited almost entirely to the +gloss readers.

Table 5: Relationship between TW use in L2 Reconstruction Task and Vocabulary Post-test.

	<u>No. of participants</u>
<b>+gloss readers:</b>	
All four TWs used in reconstruction and correct on post-test	1
Three TWs used in reconstruction and correct on post-test	2
Two TWs used in reconstruction and correct on post-test	1
One TW used in reconstruction and correct on post-test	3
<b>no-gloss readers:</b>	
One TW used in reconstruction and correct on post-test	1

Note: Here "correct" means a score of at least 3 on the VKS and a 1 on the WRT.

It is important to note, however, that although use of the TWs in the reconstruction was linked to successful test performance, there were also 16 cases in which readers successfully completed the WRT without having produced them in a reconstruction task. They were able to do this in spite of the fact that they could not produce a translation on the VKS. The final section explores possible reasons for this performance, which was rather better than expected, based on the think-aloud protocols, in which the participants often claimed no knowledge of the TWs.

### **Post hoc analysis: The impact of the testing phase on form-meaning mapping**

In the first section of the post-test, the VKS, learners had to demonstrate how well they knew the word. No clues were provided. Although some learners had no problem demonstrating that they knew the meaning of the TWs, many other learners professed to have seen the TW before, yet they could not provide a meaning (a score of 2). Interestingly, however, many of these same participants were able to assign a meaning in the second part of the post-test, the WRT. As reported earlier, the WRT presented cues in form of a single sentence from the input passage and four multiple-choice answers. It appears that many no-gloss readers finally made the form-meaning connection at this point. With a reasonable memory and basic, though often shaky understanding of the story, some readers were able to select the correct gloss on the WRT. They were no longer trying to process the whole text at the same time that they were confronting unknown words; rather, they had to process a single sentence and assign word meaning, a much simpler task. This is consistent with the evidence in the protocols, which suggests that some learners processed individual sentences, rather than the text as a whole.

Table 6 shows the cases in which readers initially claimed no knowledge beyond awareness of the TW (a score of 2 on the VKS) yet performed successfully on the recognition task (WRT). These cases are marked with an X. A mark of 0 means that the learner scored a 2 on the VKS but was still unable to assign correct meaning the TW on the WRT. Where there are blanks, the

reader received a score higher than 2 on the VKS and so the data are irrelevant to the issue being discussed here.

Table 6: Relationship between Word Knowledge Demonstrated on the VKS and WRT Vocabulary Post-Tests

Name	Kaff	Eiche	Stube	Vieh
Gerald +G				
Hardy +G	0			
Karen +G		0	X	0
Nora +G			0	0
Annie +G				
Ivan +G	X			X
Cathy +G		0		X
Total X=16%;	Total 0=25%			
Edgar -G	0	X	0	X
Drew -G	0	X	X	X
Riley -G	X	0	0	
Reena -G	X	X	X	0
Lauren -G	0	0	0	X
Total X=50%	Total 0=45%			

Note: X = score of 2 on VKS and correct choice on WRT. 0= score of 2 on VKS but no correct choice on WRT.

It is evident from the number of blanks in the +gloss section of Table 6 that most of the readers in this group made meaning assignments prior to the post-test. +Gloss learners as a group scored at least three on the VKS on 50% of the TWs, compared to 5% of the no-gloss learners. For the no-gloss learners, in contrast, the clues provided in the WRT finally allowed them to move from noticing and vague comprehension to making form-meaning connections. In 50% of all TWs, no gloss learners assigned correct meaning to the TW in the WRT after claiming noticing only on the VKS (Table 4). This compares with 16% of the TWs for the +gloss cases.

## Conclusion and Limitations

The main purpose of the current qualitative investigation was to increase our understanding of L2 readers' word processing behavior as they encounter unknown words under different conditions and the potential effect on the establishment of form-meaning connections. Specifically we wished to explain unexpected findings of an earlier quantitative study (Rott et al., 2002), in which a multiple-choice gloss and a text reconstruction task did not result in significantly more word gain than a normal reading condition. Although the current findings were based on only twelve L2 readers, the qualitative analysis of the reader protocols corroborated some of the quantitative findings from the previous study, namely, that the combination of multiple-choice glosses plus the input-output cycle task resulted in higher receptive and productive word gain than the input-output cycle task alone.

In particular, the transcripts indicated that access to glosses generally triggered learner-text interaction, leading to better comprehension of propositions than that shown by the no-gloss readers, promoting better subsequent gloss choices, better subsequent use of context and completing the circle, increased comprehension of the text. No-gloss readers, in contrast, generally were less engaged with the text and demonstrated lower and vaguer comprehension of ideas, leading to selective and unproductive use of context to assign word meaning, and resultant incomplete comprehension of ideas. These observations suggest that multiple-choice glosses may help intermediate L2 readers to overcome word threshold limitations. Laufer (1992, 1997; see also Nation, 2001) has claimed that the lexical threshold for text comprehension is about 3000 word families and that successful word inferencing from context occurs only when between 95% and 98% of the words in a text are familiar to the reader.

The think-aloud protocols did not provide an exhaustive account of mental activities; however, the data contained examples of a variety of cognitive sub-processes generally considered essential for lexical acquisition. Ellis (1994), for example, suggests that in order for word learning to take place, a set of strategic processes is required: "(i) noticing novel vocabulary, (ii) selectively attending to it, and using a variety of strategies to try (iii) to infer its meaning from the context and (iv) to consolidate the memory for that new word" (p. 40). Our reader profiles showed that most no-gloss readers engaged only in levels (i) and (ii), and only a few in level (iii) processing during the treatment phase; therefore, meaning mapping remained shallow and vague. Glosses, on the other hand, fostered level (iii) or even level (iv) strategies, establishing form-meaning connections that allowed participants to translate or even use the word in a German sentence. Future research needs to assess whether these processing strategies triggered by multiple-choice glosses lead to long-term retention.

Results revealed different patterns of lexical development for +gloss and no-gloss readers. Whereas the no-gloss readers did not gain significant semantic knowledge from the four encounters with the TWs, the +gloss readers, whose search for explicit meaning was stimulated from the first encounter, gained additional semantic knowledge with each appearance of the TW.

The findings also provide support for the reader-based motivational component of involvement load, *need*, (Laufer & Hulstijn, 2001) as a cornerstone for lexical development. Multiple-choice glosses presented an extrinsic need to assign a concrete meaning to the TWs, which in turn led readers to continue processing the TW by searching for meaning in the text and testing their hypotheses. The no-gloss readers did not experience this same need and search condition. Their global approach to text comprehension mitigated their need to understand specific words.

In spite of the unfavorable conditions for the no-gloss readers, it appears that with the help of the multiple-choice options on the post-test measure (WRT), even these readers were eventually able to assign a concrete meaning to some of the TWs. In effect, the post-test functioned as a post-reading vocabulary activity. The usefulness of such exercises has been established in a number of investigations (e.g., Wesche & Paribakht, 2000). Further investigations need to also look at the effect of these tasks on long-term word retention.

The effect of the text reconstruction task on word learning is less clear. Data from learner protocols during the reconstruction phases suggest that readers did not make initial form-

meaning connections during the output task, nor did they verbalize any knowledge gap. Because there was no group without an output requirement (though see Rott et al., 2002), the effect of the output requirement alone is unclear. However, the protocols point to a synergy between the input and output tasks. The +gloss readers were more likely to verbalize the form-meaning connections they made for the TWs during the input phase. Those who made these connections were more likely to use the TWs in their reconstructions, and those who used TWs in the output task almost always had correct scores on the post-test. Thus, although we cannot conclude that the *requirement* for output made a difference since all participants were equal in this regard, we can say that the *actual use* of TWs in the reconstruction task appeared to be related to correct performance on the post-test. It is possible that the glosses facilitated the initial form-meaning connection, making the TWs available for use in reconstructions, and that the output requirement strengthened this connection. The input-output cycle task may have also increased the readers' perceived need and triggered a subsequent search for meaning (i.e., intrinsic motivation) to result in further processing of the TWs. However, this possibility is not articulated by any of the learners in their protocols.

In spite of the fact that +gloss learners appeared to benefit from the text reconstruction tasks, a less demanding task may have been a better choice. Specifically, the task may have been too open-ended: The need to retrieve the TW meaning during the four text reconstructions was left up to the individual learner. An easier and more structured output task, prompting learners to retrieve and use the TWs, but not in full sentences, may be more appropriate for this proficiency level. For example, learners could be asked to engage in a pre-writing task--to write words or chunks they consider essential for reconstruction of the paragraph (Rott, 2002). Future introspective studies of this type of task may provide deeper insight into learner processes as they encounter unknown words during reading.

It may not be feasible to develop multiple-choice glosses for pedagogical purposes because the creation of appropriate gloss distracters is time consuming and requires pilot testing. However, the current study generated characteristics of reading behavior that not only fostered form-meaning mapping but also text comprehension. Future research needs to develop and assess test enhancements that trigger a) the search for concrete word meaning, and b) the accumulation, refinement and testing of semantic information during repeated encounters.

## Notes

1. One reviewer pointed out that "Kaff" has a negative connotation (very small village whose inhabitants are small-minded). However, this was neither clear from the passage nor were participants expected to gain this aspect of its meaning.
2. Based on a pilot study the following changes were made on the VKS: Category I: the original VKS states "I don't remember having seen this word before." During the pilot study, students were confused. They asked whether "before" referred to the treatment or any time prior the treatment. Therefore, the word "before" was taken out. Categories III and IV in the original VKS make a distinction between whether students "think" or "know" the meaning of the TW. In the pilot study, students voiced their uncertainty about the difference between these two options,

claiming they could not be certain. Therefore, the current study provided only the "I think" option. Category V of the original VKS assessed students' productive word knowledge with the following prompt "I can use this word in a sentence." Again, during the pilot study, students indicated that they were insecure about their productive abilities and opted to not write a sentence unless they were not absolutely certain. Therefore, in the current study we formulated a more challenging prompt: "Try to use the word in a sentence." Finally, only sentences that demonstrated clear knowledge of the meaning of the TW were awarded a score of 4. For example, a sentence such as *Er hat Vieh* (He has livestock) would only be given a score of 2.

3. We have integrated the results of the two measures in our discussion. However, the WRT was administered on a separate page *after* the VKS was completed since the retrieval clues it offered would have influenced performance on the VKS.

4. During the course of data analysis, we realized that context did not sufficiently differentiate between the gloss choices of *village* and *valley*. We therefore accepted both of these choices as correct in our scoring of the responses.

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## Appendix A

### Passage in German

Target words are bolded. They were bolded at the first and the fourth encounter in the +gloss reading condition but not in the no-gloss condition.

Additional distracter glosses are bolded and in italics. They were only highlighted in the +gloss reading condition.

The four text passages after which readers were prompted to retell the content are marked as "RECONSTRUCTION."

#### Schatten zu Verkaufen

Einst lebte ein reicher Mann, Hans, in einem kleinen **Kaff**. Er baute eine Villa neben eine große **Eiche**. Im Sommer saß er jeden Tag in ihrem Schatten. An einem besonders heißen Sommertag, kam ein armer Mann, Klaus, die Straße entlang und sah den schattigen Platz. Er legte sich in den Schatten und war fast eingeschlafen, als der reiche Hans rief: "Hey, hau ab! Du kannst hier nicht schlafen. Geh weiter!"

"Warum kann ich hier nicht schlafen? Ich bin sehr müde und will mich nur im Schatten ausruhen. Ich komme aus dem **Kaff** auf der anderen Seite des Berges und es ist zu weit, um zurückzulaufen", antwortete der arme Klaus.

"Dies ist meine **Eiche**. Ich *kümmere mich* um sie. Ich gebe ihr Wasser. Ich sitze unter ihr. Deshalb *gehört* mir auch ihr Schatten", antwortete der reiche Hans.

RECONSTRUCTION

“Also gut. Warum verkaufst du mir nicht den Schatten und behälst die **Eiche**”, sagte der arme Klaus. “Ich habe Geld bei mir.”

Als der reiche Hans das Wort “Geld” hörte, wurde er neugierig. Die beiden Männer sprachen über den Preis und **einigten sich**. Am Ende waren beide glücklich. Der arme Klaus wollte den ganzen Sommer im **Kaff** bleiben.

Jeden Tag kam der arme Klaus und ruhte sich in dem Schatten, der ihm gehörte, aus. Manchmal fiel der Schatten in den Garten des reichen Hans, und so ruhte sich der arme Klaus dort aus. Manchmal fiel der Schatten in die **Stube** des reichen Hans, und so ruhte sich der arme Klaus dort aus.

#### RECONSTRUCTION

Anfänglich war der arme Klaus alleine, aber nach einiger *Zeit* **brachte** er Freunde und sogar deren **Vieh** mit. Oft kamen sie in die **Stube** des reichen Hans, um sich im Schatten des armen Klaus auszuruhen. Die Freunde legten sich auf das Sofa und schliefen. Die Hühner saßen unter dem Tisch, die Kühe standen in einer Ecke und die Schweine saßen vor dem Sofa. Der reiche Hans wurde sehr **wütend**: “Du darfst deine Freunde nicht in meine **Stube** mitbringen. Und bringt auch kein **Vieh** in meine Villa. Es macht alles schmutzig und frißt meine Möbel. Dies ist meine Villa, und ihr habt kein Recht hier zu sein!”

Der arme Klaus hörte höflich zu. Aber er erinnerte den reichen Hans daran, daß der Schatten ihm gehöre. “Ich folge meinem Schatten wo auch immer er hinfällt, sogar in deine Villa”, sagte der arme Klaus.

#### RECONSTRUCTION

Was sollte der reiche Hans machen? Er hatte den Schatten verkauft ohne an die Konsequenzen zu denken.

Bald darauf, als der reiche Hans mit guten Freunden zu Mittag aß, kam der arme Klaus mit zwei Freunden und deren **Vieh** in die Villa. Sie legten sich hin und schliefen. Die Freunde des reichen Hans waren überrascht **Vieh** in der **Stube** zu sehen. Der reiche Hans erklärte seinen Freunden, daß der arme Klaus den Schatten gekauft hatte. Die Freunde lachten über den reichen Hans und sagten, daß er dumm sei. Der reiche Hans **schämte sich** sehr vor seinen Freunden und dachte daran in ein anderes **Kaff** zu ziehen.

Nachdem der reiche Hans weggezogen war, zog der arme Klaus in die Villa. Er lebte dort viele Jahre. Alle Leute durften sich im Schatten unter der **Eiche** ausruhen.

#### RECONSTRUCTION

### Shade for Sale

Once there lived a rich man named Hans in a small **village**. He built a mansion next to a large **maple**. He spent each summer day sitting in its cool shade. One hot, summer day, a poor man, named Klaus, came along the road and saw the shady spot. He lay down and was almost asleep when Rich Hans yelled, 'Hey! Get away from here! You can't sleep there. Go on!'

'Why can't I sleep here? I am tired and the shade feels very good,' replied Poor Klaus. 'I come from a **village** on the other side of the mountain. It is too far to return tonight.'

'This **maple** is mine. I take care of it. I give it water. I sit under it. Therefore the shade is mine too,' said Rich Hans.

'If this is true,' why don't you sell me the shade and you can keep the **maple**?' suggested Poor Klaus. 'I have a little money.'

Well, when Rich Hans heard the word, 'money,' he became very interested. The two men discussed the price, and finally they came to an agreement. Each of them was very happy and Poor Klaus decided to stay in the **village** for the rest of the summer.

Everyday during that summer, Poor Klaus rested in the shade that he owned. Sometimes the shade fell across Rich Hans's garden, so Poor Klaus rested there. Sometimes, however, the shade fell inside Rich Hans's **parlor**, so Poor Klaus rested there.

In the beginning, Poor Klaus rested alone, but later, he began to bring his friends and sometimes even their **livestock**. They often came into Rich Hans's **parlor** and rested in the shade that Poor Klaus now owned. The friends lay down on the furniture and went to sleep. The chickens sat under the table, the cows sat in the corner of the room, and the pigs lay in front of the sofa. Rich Hans became very angry. 'You can't you bring your friends into my mansion! Don't bring your **livestock** into my **parlor**. They will make a mess and eat my furniture! This is my mansion. You have no right to be here!'

Poor Klaus listened politely, but he reminded Rich Hans that he owned the shade. 'I will follow the shade wherever it goes, even if it is inside your mansion,' said the poor Klaus.

What could Rich Hans do? He had sold the shade without thinking about the consequences.

Soon after this, when Rich Hans was having lunch with guests, Poor Klaus walked in with two friends and their **livestock**. They all lay down and soon were fast asleep. His friends were surprised to see **livestock** in the **parlor**. Rich Hans explained to his friends about the agreement he had made with Poor Klaus. They laughed and laughed and told Rich Hans that he was very stupid. Rich Hans was so ashamed that he decided to move to a new **village**, far, far away.

After Rich Hans left, Poor Klaus moved into the mansion, where he lived happily for many years. And he always allowed anyone to rest in the shade of his **maple**.

## Appendix B

### Word Recognition Test (WRT)

Please choose the correct meaning of the following words in boldface:

1) Einst lebte ein reicher Mann in einem kleinen **Kaff**<sup>4</sup>.

- a) village
- b) shack
- c) valley
- d) don't know

2) Er baute eine Villa neben eine grosse **Eiche**.

- a) river
- b) wall
- c) kind of tree
- d) don't know

3) Manchmal fiel der Schatten in die **Stube** des reichen Hans, und so ruhte sich der arme Klaus dort aus.

- a) driveway
- b) barn
- c) parlor
- d) don't know

4) Anfänglich war der arme Mann alleine, aber nach einiger Zeit lud er Freunde ein, und sogar deren **Vieh**.

- a) relatives
- b) livestock
- c) lice
- d) don't know

## Adapted VKS scoring categories and meaning of scores

Categories	Possible Score	Meaning of Scores
a) I don't remember having seen this word.	→ 1	The word is not familiar at all.
b) I have seen this word but I do not know what it means.	→ 2	The word is familiar but its meaning is not known.
c) I <i>think</i> it means _____ (English translation).	→ 2 → 3	A correct synonym or translation is given.
d) Try to use this word in a sentence in German.	→ 2 → 3 → 4	The word is used appropriately in a sentence.

Note: Adapted from Wesche and Paribakht (1996).

The self-reported categories, a-d, were counted as follows: (a) and (b) lead to level 1 and 2 scores respectively. Category (c) could lead either to a score of 2, if the translation provided by the learner was wrong, or to a score of 3, if the translation was correct. Likewise, wrong responses in (d) resulted in a score of 2. If a learner demonstrated correct knowledge of the TW but did not use the word appropriately in the sentence, a score of 3 was given. A score of 4 was given, if the word was used correctly in a sentence.

### About the Authors

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