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DEPARTMENT OF GERMANIC AND SLAVIC LANGUAGES AND LITERATURES

THE EFFECTIVENESS OF ANIMACY DISTINCTIONS FOR LEARNING CASE  
MARKING IN SECOND LANGUAGE GERMAN INSTRUCTION

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### ABSTRACT

Many studies have shown that L2 learners can use syntactic as well as semantic cues to determine sentence arguments during comprehension (e.g., Kempe & MacWhinney, 1998). For instance, animacy has been shown to assist in distinguishing agent-patient roles in sentences with mixed word order (Kempe & MacWhinney, 1998; Mak, Vonk, & Schriefers, 2002; Weckerly & Kutas, 1999). At the same time, the First Noun Principle, as a part of Processing Instruction (PI) (VanPatten, 2004), says that learners will process the first noun in a sentence as the agent, which leads learners to incorrectly process object-first sentences. PI also argues that all non-target cues, including semantic cues, must not be included in the input to encourage learners not to rely on the First Noun Principle and apply more optimal processing strategies, like using case marking to identify the agent and patient in a sentence. Using the framework of PI, this study investigated whether animacy distinctions can help German L2 learners overcome the First Noun Principle to learn object-first word order. The experiment was split between two groups of second semester German learners and conducted over two class sessions. The independent variable between both groups was animacy on the first noun phrase (NP1) in an in-class training unit. During training, participants heard object-first sentences accompanied by a set of two pictures, one of which correctly matched the sentence.

- +ANIM: OVS: Den<sub>ACC</sub> Wolf<sub>+ANIM</sub> tötet der<sub>NOM</sub> Jäger<sub>+ANIM</sub>.  
*The<sub>ACC</sub> wolf<sub>+ANIM</sub> kills the<sub>NOM</sub> hunter<sub>+ANIM</sub>.*  
*“The hunter kills the wolf.”*
- ANIM: OVS: Den<sub>ACC</sub> Ball<sub>-ANIM</sub> wirft der<sub>NOM</sub> Junge<sub>+ANIM</sub>.  
*The<sub>ACC</sub> ball<sub>-ANIM</sub> throws the<sub>NOM</sub> boy<sub>+ANIM</sub>.*  
*“The boy throws the ball.”*

A sentence interpretation task and a written production task, both administered prior to and immediately after the training was used to measure the effectiveness of the training. The results revealed no statistically significant difference between groups on the posttest, however the descriptive results show evidence for improvement in the -ANIM group over the +ANIM group. The results suggest that an animacy distinction may help L2 German learners acquire and process case marking.

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## Introduction

In Second Language Acquisition (SLA), there is much debate about the way in which learners process and acquire target grammatical forms. One theory, put forth by VanPatten (1993), is Input Processing (IP). IP deals with making form-meaning connections in the L2. A form-meaning connection would entail, for example, learning to use *-s* to mark third person singular in English and using this morphological marker on a verb to identify the subject of a sentence. This is achieved through learning to process input, i.e. through listening or reading, in a manner that promotes attention to grammatical forms in the input. The strategies learners use to process utterances are summarized by two main principles and their subprinciples laid out by VanPatten (2004). Principle 1 states that learners process input for meaning before processing it for form, otherwise called the Primacy of Meaning Principle. Its subprinciples state the following: (a) learners process content words in the input before anything else; (b) learners will tend to rely on lexical items as opposed to grammatical form to ascertain meaning when both encode the same semantic information; (c) learners are more likely to process non-redundant meaningful grammatical forms before they process redundant meaningful forms; (d) learners are more likely to process meaningful grammatical forms before non-meaningful forms irrespective of redundancy; (e) for learners to process either redundant meaningful grammatical forms or non-meaningful forms, the processing of overall sentential meaning must not drain available processing resources; (f) learners tend to process items in sentence initial position before those in final position and those in medial position. Principle 2 is the First Noun Principle, which states that learners tend to process the first noun or pronoun they encounter in a sentence as the subject/agent. Its subprinciples stipulate that learners will rely on lexical semantics or event probabilities, where possible, instead of word order to interpret sentences. Alternatively, they may rely on preceding context that constrains the possible interpretation of an utterance.

Processing instruction (PI) (VanPatten, 2004) is a method of pedagogical instruction built on the principles of the Input Processing Model that focuses on teaching L2 learners to map form onto meaning. PI seeks to understand how structured input can facilitate the comprehension and

acquisition of grammatical forms by training learners to adopt more optimal processing strategies. By manipulating types of input, PI trains learners to use a different processing strategy. PI uses structured input (SI) activities in order to push learners away from inefficient processing strategies. SI makes use of morphosyntactic cues to guide the learner into better processing strategies. By giving them structured input in which the only cue they are given is, for example, a morphological cue, SI trains learners to notice and process the target morphological cue, and thereby comprehend a given sentence.

To showcase how a learner might initially use bad processing strategies, and how SI can teach learners to replace these strategies with more optimal ones, I will use German case marking as an example. In German, word order is flexible. Unlike English, which is strictly Subject-Verb-Object (SVO), both SVO and OVS word orders are grammatical in German. This is because of the case system in German. German differentiates between the nominative and accusative masculine article with  $der_{NOM}$  and  $den_{ACC}$ . German can express the same meaning with object-first word order, as seen (1).

- (1) SVO:  $Der_{NOM}$  Jäger tötet  $den_{ACC}$  Wolf.  
*The<sub>NOM</sub> hunter kills the<sub>ACC</sub> wolf.*  
*“The hunter kills the wolf.”*
- OVS:  $Den_{ACC}$  Wolf tötet  $der_{NOM}$  Jäger.  
*The<sub>ACC</sub> wolf kills the<sub>NOM</sub> hunter.*  
*“The hunter kills the wolf.”*

In (1), the SVO example means the same thing as the OVS example, “The hunter kills the wolf,” only the word order is inverted. OVS word order is grammatical in German because of its case marking system. The article *der* denotes nominative case on the noun it occurs with, and the article *den* denotes accusative case. Because of case marking, OVS structure in German can be grammatical.

Case and case marking is hard for L1 English learners of German to acquire, because English does not use case marking to identify grammatical roles. Additionally, sentences presented to beginning German L2 learners are generally SVO. Thus, it is easy for learners to all but ignore function words, relying instead on the First Noun Principle, which falsely guides them to interpret the first noun as the agent. SI activities guide the learner into using a more optimal processing strategy; in this case, the SI activity is designed to make learners pay attention to and



process case marking for meaning. The SI activity does this by presenting the learner with sentences in which the only reliable cue by which the sentences can be understood is case marking. Non-target cues are eliminated because they would distract from the grammatical construction that the activity is attempting to teach. For example, an SI activity would present learners with a sentence spoken aloud, along with an accompanying PowerPoint slide which depicts two illustrations, “A” and “B”. One of these illustrations correctly represents the sentence that the learners hear, the other differs in a way that the learner has to process the target grammatical concept. If a learner were presented with an item including either the SVO or OVS sentence from example (1), its accompanying slide would depict, in one illustration, a hunter killing a wolf. The other illustration would depict the wolf killing the hunter. After the sentence has been played, and time has passed for the learner to record her answer, the next slide shows which of the options was correct, and the learner notes whether she answered the item correctly or incorrectly. Then learners move on to a new sentence and accompanying pictures, and the process repeats until the activity has finished. Because of the First Noun Principle (VanPatten 2004), when listening to sentences like in example (1), learners usually correctly interpret the subject-first sentence, but struggle with the object-first sentence. The goal of the SI activity is to encourage the learner to alter her processing strategy during the activity, so that by the time the activity has finished, she has understood the target structure.

PI traditionally includes explicit information (EI) (VanPatten, 2004), which is meant to supplement SI activities. EI is information intended to tell the learner explicitly what processing strategies to use, and which ones to avoid during the treatment. EI is presented to the learner before the SI activity so that the learner understands the target grammatical structure and the processing problems they will be presented. It has been debated whether explicit information is a necessary component of PI. Henry, Culman, and VanPatten (2009) showed that EI, when combined with SI activities, can help students learn to process case marking in L2 German, thus giving them an edge over the group who did not receive EI. Other research, like VanPatten, Collopy, Price, Borst, and Qualin (2013) and Fernández (2008), has shown that the inclusion of EI has no effect in other languages, including Spanish and Russian. Results from both +EI and –EI groups in these studies suggest that EI plays little if any role in the ultimate understanding of the target structure. +EI groups were able to acquire the target structure more quickly during treatment, but both groups demonstrated understanding of the target structure on the post-test.

Another fundamental part of PI is that learners should be able to process and understand target sentences without non-target cues. That is, assistance from cues that are not the focus of what the SI activity is trying to teach are expressly forbidden in the model. With that said, a non-target cue, such as a prosodic cue, has been shown to help comprehension in PI activities. Henry (2015) showed that placing a pitch accent on a target cue, like the patient in a sentence with Object-Verb-Subject (OVS) word order, can help learners understand the target grammatical structure more quickly, regardless of whether they received EI. In Henry (2015), participants determined which of two pictures matched the sentence spoken aloud. Prosody trained them to notice the definite article and its morphological form, which lead to better processing.

According to Processing Instruction, another critical non-target cue to avoid is real world knowledge and lexical semantics. Evidence to support why the inclusion of such information can hinder the accurate processing of case marking in German comes from Jackson (2007), who found that L2 German learners relied on semantic information and word order strategies over case marking when assigning grammatical roles. More specifically, learners successfully interpreted sentences with an inanimate subject and animate patient, regardless of word order. However, learners resorted to adopting a subject-first interpretation strategy when interpreting sentences with two animate nouns, leading to low comprehension accuracy on OVS sentences with two animate nouns.

At the same time, animacy is an excellent way to distinguish who does what to whom in a sentence, given that agents (or grammatical subjects) are more often animate and, conversely, patients (or direct objects) are more often inanimate. Animacy bootstraps well into case marking roles because of their mutual relation to agents and patients. Kempe and MacWhinney (1998) showed that, in a picture choice task conducted in German, an inanimate first noun of an OVS clause can help learners determine agent-patient roles more quickly. Similarly, in an ERP study, Weckerly and Kutas (1999) found that an inanimate patient can help readers assign grammatical roles even at the first word in OVS sentences. In an eye-tracking study, Mak, Vonk, and Schriefers (2002) also found that reading times decreased during sentences with an animate and an inanimate noun instead of two animate nouns. All of these studies show that an animacy distinction on the first noun can facilitate the correct processing an object-first sentence. If such animacy distinctions facilitate processing of object-first sentences among L1 and proficient L2 speakers, this then raises the question of whether the manipulation of animacy could similarly

facilitate the acquisition of case marking among less-proficient L2 German learners. If a non-target cue such as an animacy distinction can help learners process new grammatical structures, then this would contradict a central tenant of PI, that non-target cues must be avoided.

## **Present Study**

This study's research question is this: can real-world knowledge, as operationalized by animacy distinctions, help learners learn case marking via object-first sentences in L2 German? By including non-target cues, this study expands on the findings of Henry (2015) by relying on animacy distinctions as a variable to help facilitate the acquisition of case marking. As target sentences, this study uses object-first sentences in which the first noun is inanimate and the second noun is animate for the testing group, e.g., *Den Ball wirft der Mann*. "The man throws the ball." For the control group, both nouns are animate in all of the sentences, meaning there is no assistance from the animacy of the two nouns, as the sentences are reversible, e.g., *Den<sub>ACC</sub> Jäger tötet der<sub>NOM</sub> Wolf* "The<sub>NOM</sub> wolf kills the<sub>ACC</sub> hunter", as has been done in previous PI studies with L2 German learners (e.g., Henry, 2015; Henry et al., 2009; VanPatten et al., 2012). If the underlying principles of Processing Instruction (VanPatten, 2004) are correct, that learners should not need assistance from non-target cues, then the control group should exhibit better results than the testing group. If learners do indeed receive assistance from non-target cues, such as prosody (Henry, 2015) or animacy, then the testing group should exhibit better results.

## Methods

### Participants

The initial participant pool consisted of 21 participants enrolled in one of two sections of a second semester German course at the Pennsylvania State University. In order to be included in the data analysis, participants had to (1) be a native speaker of English with no advanced proficiency in a second language, (2) score less than 50% on the pretest, to ensure they had no knowledge of the target form, and (3) complete all tasks of the experiment. After excluding those that did not meet the criteria, the final participant pool consisted of 15 participants (6 female; 9 male). All participants were between 18 and 22 years old ( $M = 19.36$ ;  $SD = 1.51$ ). Participants were grouped into either “plus animacy” (-ANIM,  $n = 7$ ) or “minus animacy” (-ANIM,  $n = 8$ ) depending on the section in which they were enrolled. Biographical information about the participants is presented in Table 1.

**Table 1.** Biographical information

	+ANIM ( $n = 7$ )		-ANIM ( $n = 8$ )	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	19.14	0.690	19.38	1.506
Years Learning German	4.57	2.637	3.38	2.615
Proficiency Test Scores	10.69	4.31	9.14	2.52

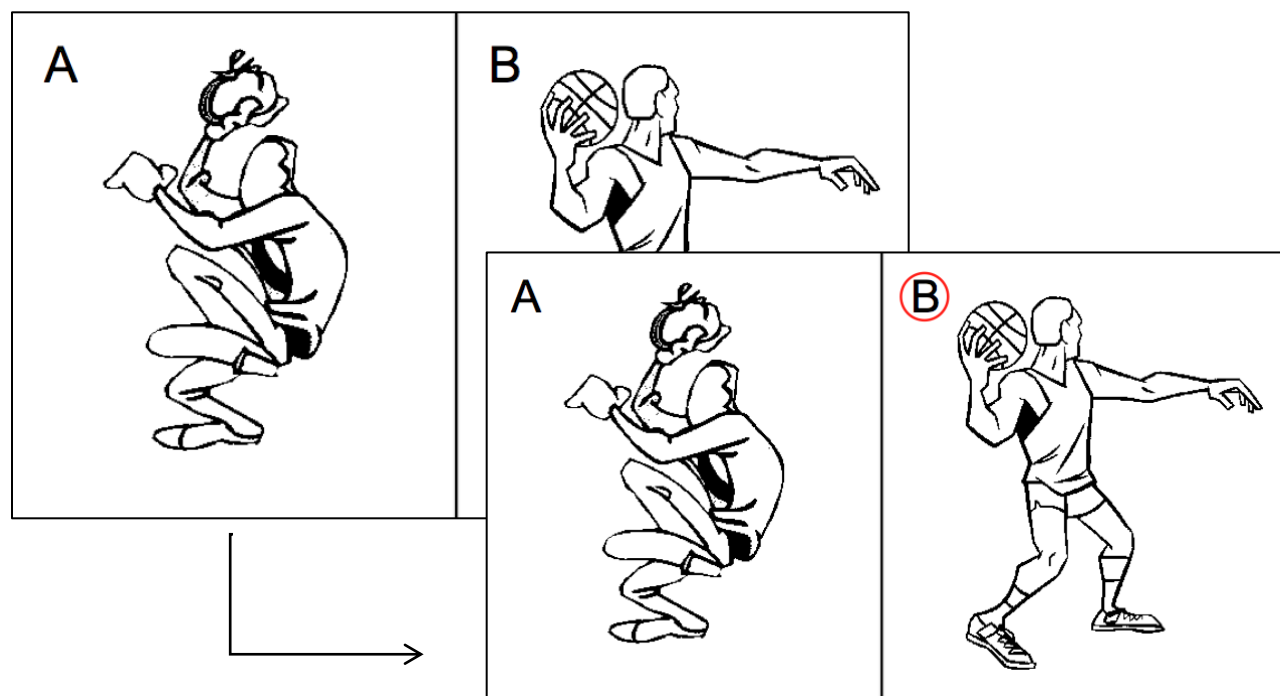
## Materials

*PI Treatment.* Participants were split into two groups, with one set of stimuli being –ANIM and another being +ANIM. Training sentences in the –ANIM condition contained one inanimate noun and one animate noun, as in example (2a) and (2b). Training sentences in the +ANIM condition contained two animate nouns, as in (3a) and (3b).

- (2a) OVS/-ANIM    Den<sub>ACC</sub> Ball wirft der<sub>NOM</sub> Mann.  
*The ball<sub>ACC</sub> throws the<sub>NOM</sub> man.*  
*“The man throws the ball.”*
- (2b) SVO/-ANIM    Der<sub>NOM</sub> Soldat trägt den<sub>ACC</sub> Helm.  
*The<sub>NOM</sub> soldier wears the<sub>ACC</sub> helmet.*  
*“The soldier wears the helmet.”*
- (3a) OVS/+ANIM    Die<sub>ACC</sub> Katze beißt der<sub>NOM</sub> Hund.  
*The<sub>ACC</sub> cat bites the<sub>NOM</sub> dog.*  
*“The dog bites the cat.”*
- (3b) SVO/+ANIM    Der<sub>NOM</sub> Affe kratzt den<sub>ACC</sub> Jungen.  
*The<sub>NOM</sub> monkey scratches the<sub>ACC</sub> boy.*  
*“The monkey scratches the boy.”*

The training consisted of 50 slides. Each slide contained two pictures. In the –ANIM stimuli, each slide contained a picture that accurately depicted the sentence with which it was presented, and another picture which was similar in all aspects except that the representation of the patient of the sentence differed, such that, for example, the ball in (2a) was switched with a tomato. The +ANIM stimuli were set up similar to the –ANIM stimuli, except that the agent and patient roles were reversed. For instance, participants listened to a target sentence, like (2a) – (3b), and then had to choose which picture best represented the meaning of the sentence they heard. They then saw the correct answer on a follow-up slide. This repeated until all 50 slides were presented. The stimuli were shown on a projector screen at the front of the participants’ normal classroom and participants wrote down their responses on their individual score sheets.

**Figure 1.** Sample item from the treatment task. The sentence that accompanied this item was “Den.ACC Ball wirft der.NOM Mann,” The man throws the ball.



*Assessment Measures.* Learning outcomes were assessed through a pretest and posttest. The pretest and posttest both contained an interpretation task and a production test.

*Interpretation Task.* The interpretation task contained six SVO sentences, six OVS sentences, and 12 filler sentences (taken from Henry, 2015). As seen in (4), each target sentence was followed by a yes/no comprehension question in English that required participants to analyze the grammatical roles.

- (4) Die<sub>ACC</sub> Klasse grüßt der<sub>NOM</sub> Lehrer am Morgen.  
*The<sub>NOM</sub> class greets the<sub>ACC</sub> teacher in the morning.*  
*“The teacher greets the class in the morning.”*

Does the teacher greet the students?

Yes

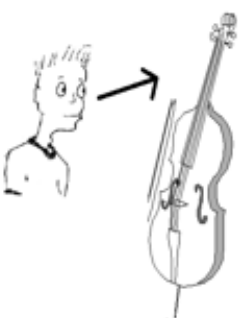
No

*Production Test.* The production test contained four separate pictures sets, each of which consisted of three pictures (taken from Henry, 2015). Participants were given a verb bank suited to the pictures to complete sentences describing the pictures. This task was designed to elicit production of accusative case marking. Two of the four picture sets were fillers. The two target picture sets depicted people or objects interacting with other people or objects, and each sentence had between 1 and 2 masculine nouns, in order to elicit the masculine case markers *der* and *den*. Participants wrote one sentence per figure in response to a prompt, but were not limited to this amount, nor were they explicitly instructed to use the verb bank. (See Figure 5)


**Figure 2.** Example from production test

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What is the boy doing with the double bass (der Bass)?



1



2



3

Verbs

sehen

kaufen

spielen

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## Procedure

The experiment was carried out over the course of two regular class periods. On Day 1, participants signed the consent form, filled out the language background questionnaire, and completed the production and interpretation pretests, and the proficiency task. On Day 2, which occurred two days after Day 1, participants completed the PI treatment in the production and

interpretation posttests. Participants were given packets containing all of the tasks for that day. Except for during the treatment, participants worked at their own pace.

## Scoring

Participants' responses for the treatment task were scored according to two measures: (1) Trials to criterion and (2) Accuracy post-criterion. Trials to criterion measured when participants began to correctly process OVS sentences. Criterion was reached when a participant answered three target OVS items and one filler SVO item in a row. This is to say that if a participant answered the first four items correctly, she reached criterion at 0; if she answered items 23 through 26 correctly, she reached criterion at 22. Participants who never reached criterion were assumed to have been able to reach it after the end of the task, and were given a score of 50. Accuracy after criterion was measured by the percentage of all items answered correctly after that participant reached criterion. If a participant reached criterion at 10, the number of correctly answered items after item 10 would be divided by 40, the number of remaining items. Those who did not reach criterion received no accuracy score, and were treated as missing data for the analysis.

The interpretation task was scored by giving one point for each correctly answered target item. The scores for SVO and OVS sentences were computed separately. The production task was scored by giving one point per correctly produced nominative or accusative masculine article, *der* or *den*, and the total number these was divided by the number of obligatory occasions. Other words that mark case, such as pronouns or possessive pronouns were accepted as long as they correctly marked case for the given noun. An obligatory occasion is a point in the sentence at which an article or pronoun was needed to produce a complete and grammatical sentence. An example where a participant might not produce an obligatory occasion would be when a participant used a proper name, or otherwise did not include a word. These instances were not considered in the data.



## Results

Initial analyses revealed a non-normal distribution of the data. Therefore, all results are reported using non-parametric tests. For all analyses, I used Mann-Whitney tests to compare the –ANIM and +ANIM groups to each other. Effect sizes are interpreted according to benchmarks established by Plonsky and Oswald (2014). Effect sizes were considered large when  $d > 1.00$ , medium when  $d = 0.70$  and small when  $d < 0.40$ .

### Training

Descriptive results from the training detailing trials to criterion and comprehension accuracy post-criterion are presented in Table 2. Mann-Whitney tests revealed a statistically significant difference groups for trials to criterion, because the –ANIM group reached criterion faster than the +ANIM group ( $U = 0.00, z = -3.12, p = .001, d = -1.77$ ). Mann-Whitney test revealed no significant difference between groups for accuracy post-criterion ( $U = 15.00, z = -0.17, p = .865, d = 0.38$ ).

### Interpretation Task

Descriptive results from the interpretation section of the pretest and the posttest (comprehension of SVO and OVS sentences) are presented in Table 2. Mann-Whitney tests revealed a statistically significant difference between groups for SVO sentences in the pretest, because the –ANIM answered more SVO items correctly on the pretest ( $U = 8.00, z = -2.45, p = .014, d = 0.55$ ). There was no significant difference between groups for OVS sentences on the pretest. ( $U = 25.00, z = -0.37, p = .714, d = -0.08$ ). Like the pretest, there was a significant difference between groups for SVO sentences on the posttest ( $U = 7.50, z = -2.50, p = .012, d = -1.50$ ), but not OVS sentences ( $U = 16.50, z = -1.41, p = .159, d = 0.64$ ). On the posttest,

however, the -ANIM group correctly answered more SVO sentence items than the +ANIM group.

**Table 2.** Descriptive results from the interpretation task

	OVS Sentences			SVO Sentences		
	<i>M (SD)</i>	<i>Mdn</i>	<i>IQR</i>	<i>M (SD)</i>	<i>Mdn</i>	<i>IQR</i>
+ANIM						
Pretest	1.57 (0.8)	2.0	1	3.57 (4.0)	4.0	2
Posttest	1.14 (1.5)	1	2	5.71 (0.5)	6.0	1
-ANIM						
Pretest	1.50 (1.0)	1.0	2	5.13 (0.6)	5.0	1
Posttest	2.13 (1.6)	1.0	3	4.13 (1.4)	4.5	2

### Production Task

Descriptive results from the written production task (correct production of *der* articles with subjects and *den* articles with objects) are presented in Table 5. Mann-Whitney tests revealed a no statistical differences between groups for any of the measures: *der* articles on the pretest ( $U = 24.00$ ,  $z = -1.07$ ,  $p = .285$ ,  $d = -1.06$ ), *den* articles on the pretest ( $U = 15.50$ ,  $z = -1.53$ ,  $p = .125$ ,  $d = -1.03$ ), *der* articles on the posttest ( $U = 20.00$ ,  $z = -1.57$ ,  $p = .117$ ,  $d = -0.10$ ) and *den* articles on the posttest ( $U = 16.00$ ,  $z = -1.47$ ,  $p = .141$ ,  $d = -0.46$ ).

**Table 3.** Ratio of correctly produced definite articles relative to the number of attempts on the written production test

	<i>den</i> with direct objects			<i>der</i> with subjects		
	<i>M (SD)</i>	<i>Mdn</i>	<i>IQR</i>	<i>M (SD)</i>	<i>Mdn</i>	<i>IQR</i>
+ANIM						
Pretest	.84 (.21)	1	.4	.90 (.25)	1.0	0
Posttest	.88 (.19)	1	0	.90 (.16)	1.0	.33
-ANIM						
Pretest	.46 (.48)	.33	1	.52 (.44)	.52	1
Posttest	.52 (.44)	.50	1	1.0 (.00)	1.0	0

## Discussion

This study investigated whether animacy distinctions could help German L2 learners learn case marking using object-first sentences. I compared two groups of second-semester German learners who each completed a treatment task inspired by Henry (2015). The treatment either contained OVS sentences with animate subjects and inanimate direct objects (-ANIM group) or OVS sentences with animate subjects and animate direct objects (+ANIM group). The -ANIM group reached criterion notably faster than the +ANIM group during the treatment, but there was no difference between groups for accuracy post-criterion. The results from the interpretation task showed a significant difference between groups on the pretest for SVO sentences in favor of the +ANIM group, but not OVS sentences. On the posttest, there was a significant difference between groups for SVO sentences in favor of the -ANIM group, but not a significant difference for OVS sentences. There was no significant difference between groups for any of the measures on the production task.

The statistical results show that there was no significant difference between groups for the posttest OVS sentences, suggesting that animacy distinctions did not help L2 German learners learn case marking. Despite the results of the statistical analyses, the descriptive data show some signs of improvement for individual participants in the -ANIM group. Over the two-session course of the experiment, only the -ANIM group made gains in the recognition of object-first sentences in the interpretation from the pretest to the posttest (Pretest  $M = 1.50$ , Posttest  $M = 2.13$ ), while the +ANIM group actually declined in this aspect (Pretest  $M = 1.57$ , Posttest  $M = 1.14$ ).

Previous PI research which has studied L2 German case marking acquisition found significant improvement in testing groups which included EI as a variable. Henry, DiMidio and Jackson (2017) found robust effects for the inclusion of explicit information (EI), with each +EI group outperforming each -EI group, concluding that the inclusion of EI aided the learning of case marking. While the present study included prosodic cues, it did not include EI. Henry et al. (2017) suggested that the strong effects of EI masked the potential effect of prosodic cues in their +P+EI group, while their +P-EI group also showed significant improvements. In contrast, the results of the present study suggest that prosodic cues had little to no effect, as both groups' stimuli had prosodic cues attached to each sentence in the treatment and yet the increase in

comprehension accuracy on the interpretation task from pretest to posttest was minimal. I hypothesize that by not including EI in either group, each group had a smaller chance to learn the target structure, perhaps leading to the overall smaller gains in the present study.

Although there was no statistical advantage for the -ANIM group, the advantage found in the descriptive results of this group provide at least limited evidence to support the notion that semantic cues facilitate learning. Given the lack of statistically significant differences, one cannot conclusively reject the central tenet of Processing Instruction (VanPatten, 2004) that states that the inclusion of non-target cues—like disambiguating lexical-semantic information—should be avoided altogether. However, these results do suggest that non-target cues may support the development of form-meaning connections between case marking and grammatical roles.

Compared to Henry (2015), the sample size of this study was not large (15 compared to 80). The results of this study are, thus, certainly limited by the low number of participants. Further, the students tested in this study were in second semester German at the time of testing, whereas previous studies investigating the acquisition of German case marking have involved third and fourth semester learners (Henry et al., 2009; Henry, 2015; Henry et al., 2017). Even though lower level German learners are taught case marking in their first semester, by their second semester they still may not have had sufficient experience with case marking, or not know how to use this information effectively to understand complex sentences, which could be a contributing factor to participants' overall performance in the present study, even after training. Future research should investigate the potential impact of proficiency level on the effectiveness of PI.

## **Conclusion**

Non-target cues, like lexical-semantic information and prosody, have been shown to facilitate the comprehension of case marking and word order (e.g., Henry, 2015; Henry et al., 2017; Kempe & MacWhinney, 1998). Though this study does not convincingly show that the inclusion of non-target cues can benefit the learning of case marking in L2 German, it does hint that these cues may facilitate learning. Future studies should test the role of animacy distinctions in learning case marking and how the inclusion of animacy cues may interact with other

variables known to positively influence the acquisition of German case marking among less-proficient L2 learners. As such, this study highlights the ways in which, moving forward, researchers should consider a wider range of ways to manipulate target language input, and the way such manipulations impact learning.

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