

Supporting Information for: Curcic, M., Andringa, S., & Kuiken, F. The role of awareness and cognitive aptitudes in L2 predictive language processing. Article accepted in *Language Learning* on 2 August 2018.

Appendix S1: Target Language Words Used in the Exposure

	Word	Meaning	Gender
<i>Nouns - consistent</i>			
1.	ganeuk	boy	masc.
2.	taganuk	man	masc.
3.	karetuk	bird	masc.
4.	dawauk	cat	masc.
5.	iseleuk	horse	masc.
6.	oseuk	ball	masc.
7.	vuakuk	car	masc.
8.	kumiuk	window	masc.
9.	maramis	girl	fem.
10.	jalewis	woman	fem.
11.	burogis	dog	fem.
12.	araris	mouse	fem.
13.	sitois	rabbit	fem.
14.	eulis	bicycle	fem.
15.	salis	chair	fem.
16.	ikais	computer	fem.
<i>Nouns – inconsistent</i>			
1.	touk	goat	masc. (reliable input) fem. (unreliable input)
2.	senikauk	book	masc. (reliable input) fem. (unreliable input)
3.	vonuis	turtle	fem. (reliable input) masc. (unreliable input)
4.	ligis	box	fem. (reliable input) masc. (unreliable input)
<i>Verbs (3rd person singular)</i>			
1.	sisilit	swims	-
2.	gadet	runs	-
3.	bulat	sleeps	-
4.	na	is	-
<i>Adjectives</i>			
1.	duka	broken/torn	-
2.	kamusu	dirty	-
3.	vinake	yellow	-
4.	matene	blue	-
5.	galile	red	-
6.	ramase	green	-

Determiners

- | | | | |
|----|-----|-----|-------|
| 1. | lep | the | masc. |
| 2. | ris | the | fem. |

Appendix S2: Target Structure Exposure Items

1) Determiner + noun items

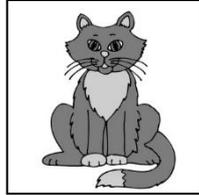
Items with consistent nouns



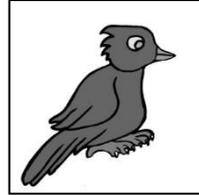
Lep ganeuk
"The boy"



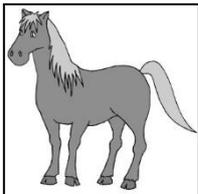
Lep taganuk
"The man"



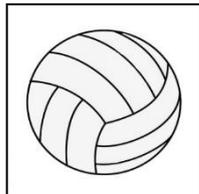
Lep dawauk
"The cat"



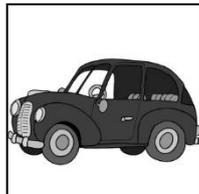
Lep karetuk
"The bird"



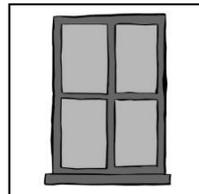
Lep iseulek
"The horse"



Lep oseuk
"The ball"



Lep vuakuk
"The car"



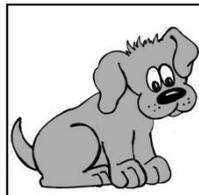
Lep kumiuk
"The window"



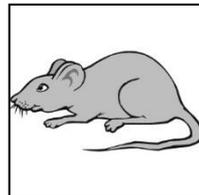
Ris maramis
"The girl"



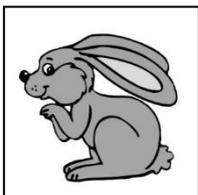
Ris jalewis
"The woman"



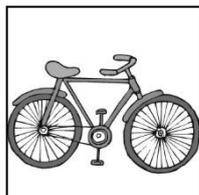
Ris burogis
"The dog"



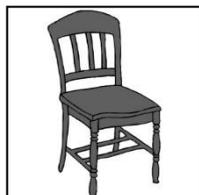
Ris araris
"The mouse"



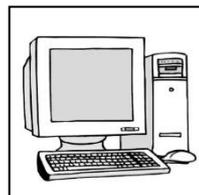
Ris sitois
"The rabbit"



Ris eulis
"The bicycle"

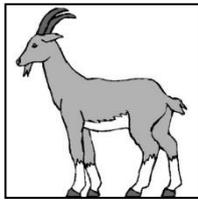


Ris salis
"The chair"

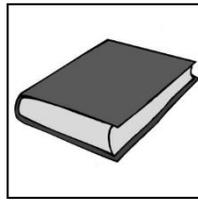


Ris ikais
"The computer"

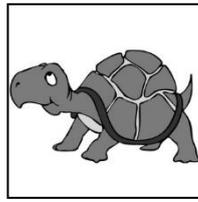
Items with inconsistent nouns



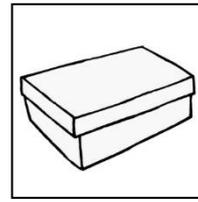
Lep/ris touk
"The goat"



Lep/ris senikauk
"The book"



Ris/lep vonuis
"The turtle"



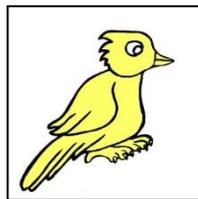
Ris/lep ligis
"The box"

2) Determiner + adjective_{color} + noun items¹

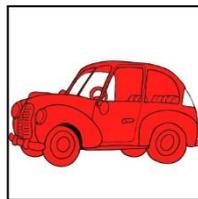
Items with consistent nouns



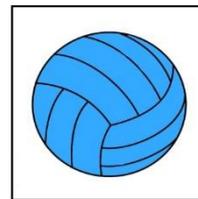
Lep ramase ganeuk
"The green boy"



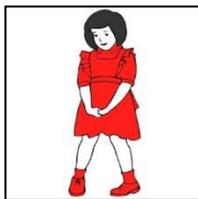
Lep vinake karetuk
"The yellow bird"



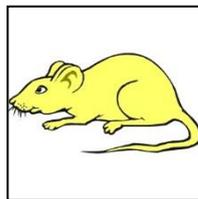
Lep galile vuakuk
"The red car"



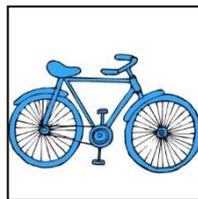
Lep matene oseuk
"The blue ball"



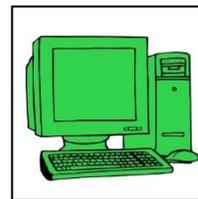
Ris galile maramis
"The red girl"



Ris vinake araris
"The yellow mouse"

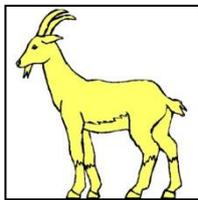


Ris matene eulis
"The blue bicycle"

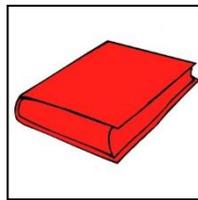


Ris ramase ikais
"The green computer"

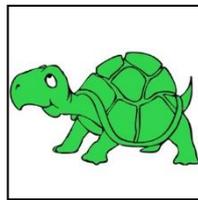
Items with inconsistent nouns



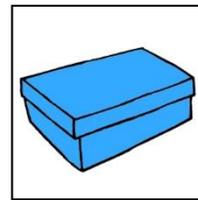
Lep/ris vinake touk
"The yellow goat"



Lep/ris galile senikauk
"The red book"



Ris/lep ramase vonuis
"The green turtle"



Ris/lep matene ligis
"The blue box"

3) Intransitive sentences: determiner + animate noun + verb_{intransitive}

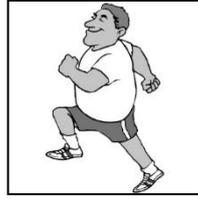
Items with consistent nouns



Lep ganeuk gadget.
 "The boy is running."



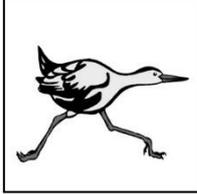
Lep ganeuk sisilit.
 "The boy is swimming."



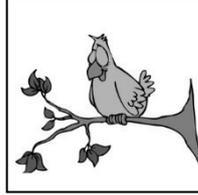
Lep taganuk gadget.
 "The man is running."



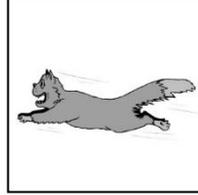
Lep taganuk bulat.
 "The man is sleeping."



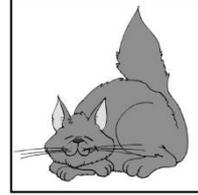
Lep karetuk gadget.
 "The bird is running."



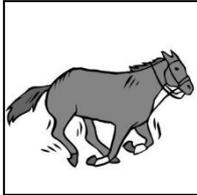
Lep karetuk bulat.
 "The bird is sleeping."



Lep dawauk gadget.
 "The cat is running."



Lep karetuk bulat.
 "The cat is sleeping."



Lep iseleuk gadget.
 "The horse is running."



Lep iseleuk sisilit.
 "The horse is swimming."



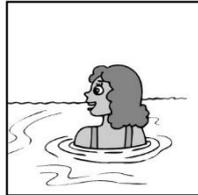
Ris maramis gadget.
 "The girl is running."



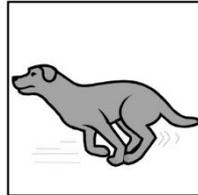
Ris maramis bulat.
 "The girl is sleeping."



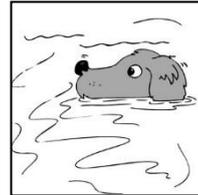
Ris jalewis gadget.
 "The woman is running."



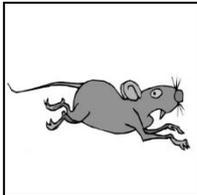
Ris jalewis sisilit.
 "The woman is swimming."



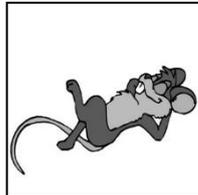
Ris burogis gadget.
 "The dog is running."



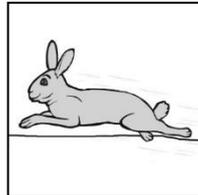
Ris burogis sisilit.
 "The dog is swimming."



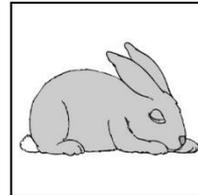
Ris araris gadget.
 "The mouse is running."



Ris araris bulat.
 "The mouse is sleeping."

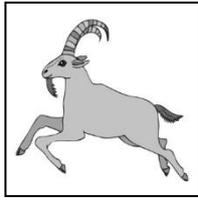


Ris sitois gadget.
 "The rabbit is running."

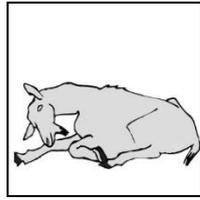


Ris sitois bulat.
 "The rabbit is sleeping."

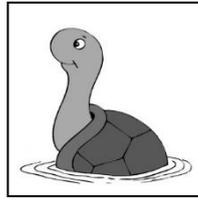
Items with inconsistent nouns



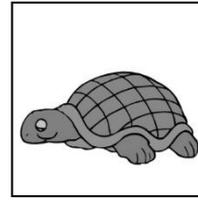
Lep/ris touk gadet.
“The goat is running.”



Lep/ris touk bulat.
“The goat is sleeping.”



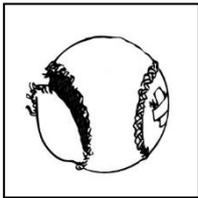
Ris/lep vonuis sisilit.
“The turtle is swimming.”



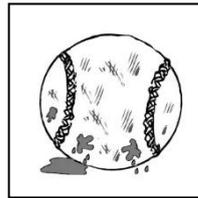
Ris/lep vonuis bulat.
“The turtle is sleeping.”

4) Intransitive sentences: determiner + inanimate noun + is + adjective

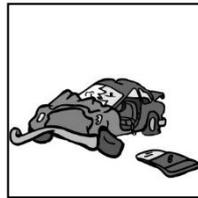
Items with consistent nouns



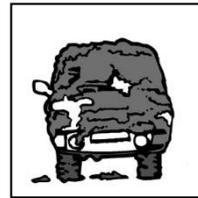
Lep oseuk na duka.
“The ball is torn.”



Lep oseuk na kamusu.
“The ball is dirty.”



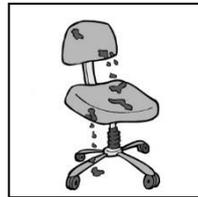
Lep vuakuk na duka.
“The car is broken.”



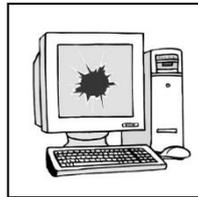
Lep vuakuk na kamusu.
“The car is dirty.”



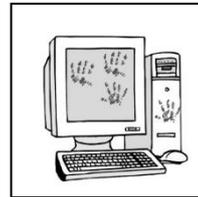
Ris salis na duka.
“The chair is broken.”



Ris salis na kamusu.
“The chair is dirty.”



Ris ikais na duka.
“The computer is broken.”

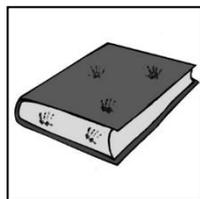


Ris ikais na kamusu.
“The computer is dirty.”

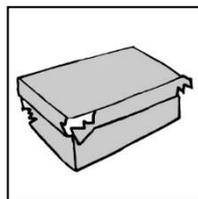
Items with inconsistent nouns



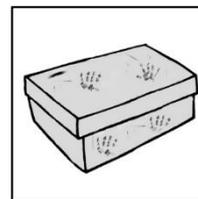
Lep/ris senikauk na duka.
“The book is torn.”



Lep/ris senikauk na kamusu.
“The book is dirty.”



Ris/lep ligis na duka.
“The box is torn.”



Ris/lep ligis na kamusu.
“The box is dirty.”

1 These are example items. All 20 nouns were combined with each of the four color adjectives.

Appendix S3: Items of the Test with Eye-Tracking

		Target gender	
		Masculine	Feminine
Trial Type	Same	1. <i>Lep ramase karetuk/iseleuk</i> “The yellow bird /horse” 2. <i>Lep matene dawauk/karetuk</i> “The blue cat /bird” 3. <i>Lep galile iseleuk/dawauk</i> “The red horse /cat” 4. <i>Lep ramase oseuk/vuakuk</i> “The green ball /car “ 5. <i>Lep matene vuakuk/kumiuk</i> “The blue car /window“ 6. <i>Lep galile kumiuk/oseuk</i> “The red window /ball“ 7. <i>Lep vinake taganuk/ganeuk</i> “The yellow man /boy“ 8. <i>Lep vinake ganeuk/taganuk</i> “The yellow box /man“ Inconsistent items: 9. <i>Lep/Ris vinake touk/karetuk</i> “The yellow goat /bird” 10. <i>Lep/Ris ramase senikauk/kumiuk</i> “The green book /window”	1. <i>Ris ramase araris/sitois</i> “The green mouse /rabbit” 2. <i>Ris matene burogis/araris</i> “The blue dog /mouse” 3. <i>Ris galile sitois/burogis</i> “The red rabbit /dog” 4. <i>Ris ramase eulis/salis</i> “The green bicycle /chair” 5. <i>Ris matene salis/ikais</i> “The blue chair /computer” 6. <i>Ris galile ikais/eulis</i> “The red computer /bicycle” 7. <i>Ris vinake maramis/jalewis</i> “The yellow girl /woman” 8. <i>Ris vinake jalewis/maramis</i> “The yellow woman /girl” Inconsistent items: 9. <i>Ris/Lep matene ligis/eulis</i> “The blue box /bicycle” 10. <i>Ris/Lep galile vonuis/araris</i> “The red turtle /mouse”
	Different	1. <i>Lep galile karetuk/sitois</i> “The red bird /rabbit” 2. <i>Lep ramase dawauk/burogis</i> “The green cat /dog” 3. <i>Lep matene iseleuk/araris</i> “The blue horse /mouse” 4. <i>Lep galile oseuk/ikais</i> “The red ball /computer” 5. <i>Lep ramase vuakuk/eulis</i> “The yellow car /bicycle” 6. <i>Lep matene kumiuk/salis</i> “The blue window /chair” 7. <i>Lep vinake taganuk/maramis</i> “The yellow man /girl” 8. <i>Lep vinake ganeuk/jalewis</i> “The yellow boy /woman” Inconsistent items: 9. <i>Lep/Ris ramase touk/sitois</i> “The green goat /rabbit” 10. <i>Lep/Ris vinake senikauk/salis</i> “The yellow book /chair”	1. <i>Ris galile araris/karetuk</i> “The red mouse /bird” 2. <i>Ris ramase burogis/dawauk</i> “The green dog /cat” 3. <i>Ris matene sitois/iseleuk</i> “The blue rabbit /horse” 4. <i>Ris galile eulis/oseuk</i> “The red bicycle /ball” 5. <i>Ris ramase salis/vuakuk</i> “The green chair /car” 6. <i>Ris matene ikais/kumiuk</i> “The blue computer /window” 7. <i>Ris vinake maramis/ganeuk</i> “The yellow girl /boy” 8. <i>Ris vinake jalewis/taganuk</i> “The yellow woman /man” Inconsistent items: 9. <i>Ris/Lep galile ligis/oseuk</i> “The red box /ball” 10. <i>Ris/Lep matene vonuis/iseleuk</i> “The blue turtle /horse”

Appendix S4: Debriefing Protocol¹

Please note that the eye-tracking data presented in this study were collected for the purposes of two other studies (see also footnote 1). In these studies, participants were also given grammaticality judgment tasks to probe their knowledge. This was done after the picture matching task with eye-tracking. These data are not reported in this article.

Debriefing consisted of a series of questions designed to probe learners' awareness of different aspects of the target pattern (i.e., awareness of the gender distinction, awareness of the target agreement pattern), the moment at which learners developed the awareness (during the instruction, the picture matching task with eye-tracking, the novel items grammaticality judgment task (GJT) or the familiar items GJT), as well as how learners approached tests (e.g., using or not using determiners strategically to predict the correct answer during the multiple choice eye-tracking test).

Q1. During the instruction, what did you learn about the language?

- In response to this question, learners normally mentioned having learned different nouns, adjectives, verbs.
- Some of the learners also mentioned noticing the gender distinction and/or the target agreement pattern in the language. If this was the case, we asked the learners to explain the gender pattern and/or target agreement pattern. If learners could verbalize the gender distinction and/or the agreement pattern, they were classified as gender aware and/or pattern aware during the exposure and all subsequent stages of the experiment (i.e., eye-tracking test, GJT with novel nouns, GJT with familiar nouns). If learners verbalized gender distinction or agreement

¹ The debriefing of the participants was conducted in Dutch (participants' L1). This is the English translation of the debriefing protocol.

pattern only partially (e.g., that *ris* is a feminine determiner, or *ris –is* pattern), they were still classified as gender and/or pattern aware.

Q2. What did you learn about the structure of the language during the instruction?

- This question was asked only if learners reported no pattern/gender awareness in response to Q1.
- If in response to this question learners reported awareness of gender distinction/agreement pattern, and could verbalize it, they were classified as gender/pattern aware during the instruction and all subsequent stages of the experiment.
- If learners still reported no gender and/or pattern awareness, we went to the Q3.

Q3. After the instruction you did a test in which you heard a phrase and you had to choose the correct image representing what you had heard. Which knowledge was useful for you during this test?

- Most learners reported that knowledge of nouns was useful, whereas knowledge of colors was not because colors were always the same in the two images.
- Some learners also reported that they found that the determiners were useful to get at the correct answer more quickly. These learners were classified as prediction aware.
- If learners did not mention that determiners were useful in response to Q3, we probed deeper with Q4.

Q4. Was anything else apart from nouns/adjectives useful during this test?

- Some learners responded with “no, nothing else”—they were classified as prediction unaware.
- If learners responded with ‘yes’, and if they also mentioned determiners, they were classified as prediction aware.

- If, during Q3 or Q4, learners reported any awareness related to gender distinction/target pattern and could verbalize these, they were asked about when they developed the awareness. If they said that they noticed the gender distinction/agreement pattern during exposure already, they were classified as gender/pattern aware from exposure onwards. If they said that they developed the awareness during the eye-tracking test, they were classified as gender/pattern aware from the eye-tracking test onwards.

Q5. Next, you did a test in which you heard novel phrases in the language, and you had a task to decide for each phrase if it was good or not in the language. Based on what did you decide?

- Some learners reported that had focused on nouns only and decided based on that—these learners were classified as having a wrong focus during the GJT with novel nouns.
- Some learners reported that they were guessing or using feeling/intuition—they were classified as guessing during the GJT with novel nouns or using intuition during the GJT with novel nouns respectively.
- Some learners reported having used a rule, after which we probed deeper and asked about the rule they used:
 - If learners reported using a wrong (non-target) rule, they were classified as using a wrong rule during the GJT with novel nouns
 - If learners reported using the correct rule, they were classified as using the correct pattern during the GJT with novel nouns
 - If during this question learners reported gender distinction/agreement pattern awareness for the first time, we asked them about *when* they became aware of the gender distinction/agreement pattern. For instance, if learners reported that

the awareness developed during the exposure already -> they were classified as gender/pattern aware during the exposure and all subsequent experiment parts (i.e., eye-tracking test, GJT with novel nouns, GJT with familiar nouns).

If learners reported that the awareness only developed during the GJT with novel nouns, they were classified as gender/pattern unaware during the exposure and the eye-tracking test, but gender/pattern aware from the GJT with novel nouns onwards.

Q6. Next, you did a test similar to the previous one, with the only difference that the phrases were familiar to you. Based on what did you decide if the phrases were good or not in the language?

- The system of classification was identical to the one for Q5, with the only difference that learners here often reported memory as a source of reliance, in which case they were classified as using memory during the GJT with familiar nouns.

If learners at this point still had not reported gender/pattern awareness, we told them that there was a particular pattern in the language, and we invited them to guess what it was.

- If learners still reported no gender/pattern awareness, they were classified as gender/pattern unaware at all stages of the experiment (i.e., exposure, eye-tracking test, GJT with novel nouns, GJT with familiar nouns, after experiment).
- If learners at this point correctly verbalized the gender distinction/agreement pattern, we asked them when in the experiment they had noticed it. We then did the classification according to their response. For instance, if they said they had noticed the gender distinction/pattern during the exposure already, we classified them as gender/pattern aware from the exposure onwards. If they reported that they developed

awareness only when invited to guess, we classified them as gender/pattern aware after the experiment but unaware in all previous stages of the experiment.

Finally, learners were told that the language they had learned was a non-existing language based on Fijian. The pattern was also explained if learners had not already noticed it before.