

## Appendix A

### *Think-aloud protocol instructions and coded sample*

#### **Think-aloud protocol instructions**

In this experiment I am interested in what you think about when you complete these tasks. In order to find out, I am going to ask you to THINK ALOUD as you work through the maze. What I mean by “think aloud” is that I want you to verbalize your thoughts the entire time you are working on the tasks. I would like you to talk CONSTANTLY. Do not plan out what you are saying or explain what you’re saying. Just act as if you are alone in the room talking to yourself while you complete the tasks. What is most important is that you keep talking throughout and talk clearly into the microphone. You can speak in English. Just say whatever passes through your mind as you complete the tasks.

#### **Coded sample**

Okay, this is Mark (not real name), I’m back and on this one. Let’s see. Next, next. There we go. ¿Cómo se dice I like Spanish? A mí, I don’t know why this option’s correct, no. I thought it was yo. Oh they’re not gonna tell me. Okay. Uh *a mí, me*, I don’t know why this option’s correct either. Uh I’m gonna say *gusto el español*. *Gusto* is not used to indicate, oh really? I don’t know why that’s correct again. Oh here.

Up to this point, Mark is processing L2 input from an L1 perspective using the first noun strategy, and realizes that this type of processing is not Spanish.

(Mumbling) that may be helpful to you. Yes. *A mí* I didn’t know *a mí* refers to either. I probably should know that by now in this semester shouldn’t I? Um,

okay. Close. I like the houses. *A mí* because it means, *a mí*. *A mí* is I [hypothesis formulation]. Okay, I like the houses. *Me*. Yeah, they mean the same thing. Why do they use them twice then? I don't know [notices and comments on the redundancy]. *Gustan*. I chose this option because the *n* indicates plural [rule formulation]. I like Spanish and French. *A mí*, I [reinforces the form-meaning connection], *me*, *gustan* because it's gonna be plural [rule formulation]. All right. Let's keep going. All right. Technology and I just do not get along today. I like soccer. *A mí*, *me*, *gusta* because *gusto* does not indicate liking [reinforces rule]. I'm not sure why, but it doesn't. I like my classes. *A mí* is I, *me* for some reason, *gusta*. Ooo. I like my classes. Oh. *A mí*, *me*, *gustan*. I am getting the hang of it [metacognition]. I like my subjects this semester. *A mí*, *me* is gonna be *gustan* because it's plural [rule formulation].

Up to this point, Mark is fairly sure of the verbal agreement but is not quite sure why only the third person of the verb is being used. Neither is he sure of the reason for the dative and dative clitic but he is well aware of these differences as he is transported to Level 2.

Oh did I actually make it to the second level? This is exciting. You like the house. *A ti*. I did, see I got that from number one [activation of recent prior knowledge]. *Te*. *La casa* is gonna be *gusta*. I'm gonna say *a nosotros*. Oh! Is it because it's the ob- no, it's not the object. It's the subject. I'm not even gonna ask why [hypothesis formulation]. *Gusta?* *Gustamos?* No. I'm gonna say *el español* is *gusta*. You like the houses. *A ti*, *te*, *gustan* the *casas*. We like mass. Math. *A nosotros*, *nos*, haha oh and *los ma- las matemáticas* is plural [rule formulation].

You like the class. *A ti, te, a ti te, gusta, la class.* We like books. *A nosotros, nos, gustan* because it's plural [rule formulation]. Yes.

At this level, Mark is relying on what he noticed and processed on Level 1 with specific reference to the dative usage and especially the verbal agreement. It appears he is gaining some deeper knowledge of the construction of *gustar*.

Okay, Level three. Okay, let's see. Next. Haha I'm getting so lost in this maze.

There we go. She likes Spanish. *A ella* because it's gonna follow the same pattern as the last levels [activation of recent prior knowledge], still get that [metacognition]. *Le* because we need some kind of thing there [prior knowledge], *el español* it's gonna be *gusta* because it's singular [rule formulation]. All right, so I know at least that. Makes me feel somewhat good about myself I guess [metacognition]. He likes the house. *A él, le, gusta la casa.* *Gusta* is singular. She likes the houses. *A ella, le, gustan las casas.* *¿Cómo se dice en español* He likes Spanish and French? *A él, a,* whatever [appears to notice the accusative *a*], *él* uh *le gustan* because it's plural. Once again *gustan* the verb to like agrees with what is being liked and not necessarily the people [rule formulation]. She likes the class. *A ella,* they put the *a* there [comments on the accusative *a* again]. The reason, I'm confused why they put the *a* because we just learned that means it's an object. Ohhh! It is an object! Because, that's why *gustan* agrees with the subject. The class is pleasing to her making her the object and the class the subject. That's why it doesn't follow a literal English translation! There we go. I just had a breakthrough. Thank God. And that's why I'm also doing the Spanish lab now while we're learning all about this...

Mark has come up with the general rule of *gustar* and he has become aware of the use of the accusative *a* needed before the human object. Note how aware he is as he continues the game.

All right. Level four. How many levels are there? Whoops. Um, hold on I'm lost. There we go. There we go! Mary likes Spanish music. So *a* Mary because she's the object [rule formulation], *le, gusta la música español*. I wish I could pronounce any of this. That would be nice too. John likes sports. *A John, le, gustan*. *A* John and Mary, oooh it's gonna be *les* plural. [This is the first exposure to multiple nouns. Note that he does not repeat the accusative *a* before the second noun.] Aha. Because that agrees with them. Oh. This makes sense now. *¿Cómo se dice en español* John and Mary like fast food? *A* John, oh. I didn't realize there was an *a* before Mary too [now he notices the second accusative *a*] I didn't do that last time [metacognition]. Uh *les* plural, *gusta*. All right. *¿Cómo se dice* The students like? *A los estudiantes, les, gustan*. One more sentence and you are out of the maze. One slip and slide back. Oh no. All right here goes nothing. All right. So, the students like this game. *A los estudiantes* because they are the object, *les*, and *este juego* is *gusta*. It's singular. I'm out of the maze. Good. Haha yeah. Perfect, thank you.