

Appendix B: *Transcription of a session in which subjects are trying to define an image, and to associate the image with array "a". Note that the format and notation that we have used first appeared in (Suchman 1987).*

THE USERS

THE MACHINE

#	Not Available to the machine	Available to the machine	Available to the user	Design rationale
1:	B: Ah, Create image. Yeah	Selects "Create image"		
2:	sure.	from "Animation menu		
3:	J: Is it create image?			
4:	B: Ahhhhhhhhhh...		"Create an Image" dialog	User wants to
5:	(.)		box appears	create an image
6:	J: [Enter the val- A, A			
7:	is associated with the			
8:	image]			
9:				
10:	B: Right			
11:				
12:	J: Okay. (.) so oh, Oops. A			
13:				
14:	B: And it will ask you		Cursor turns to pencil	Tell user to click
15:	teh mark the source			on a line of source
16:	line...		Message: "Click on the	code
17:]		line before which the	
18:	J: Okay.		animation occurs"	
19:				
20:	B: Yeah, right there in	Clicks on the blank line.	"A" appears to the left	Show user that an
22:	that blank line right		of the blank line.	animation event has
23:	there.			been defined here.
24:]			
25:	J: Right there.	Drags out black square.	Message "Draw an image."	Tell user to draw
26:				the image.
27:				
28:	J: And now we--Oh this is		Black bounding box	User wants to drag
29:	black.		appears.	out a single
30:				element, filled
31:	B: Yeah, cuz that's the			bounding box
32:	fill color we chose--			
33:				
34:	J: Right.			
35:				
36:	B: I wonder why it didn't		"Image Information"	Have user specify
37:	do that before.		dialog box appears.	image information

THE USERS

THE MACHINE

#	Not Available to the machine	Available to the machine	Available to the user	Design rationale
38:	J: oh, I don't know.			
39:				
40:	B: So we wanted it			
41:	daaa(.) source			
42:	variable dependent.			
43:				
44:	J: For height?			
45:				
46:	B: Mmmm... for			
47:	something.. I remember			
48:	that, ahhhhh. No, the			
49:	under			
50:]			
51:	J: height.... .hh			
52:		Clicks on source variable dependent for height.		
53:	B: Yeah correct. And			
54:	choose (.) n as the			
55:	number of dependents			
56:	it says (.), but I			
57:	don't see that, so we			
58:	must have done			
59:	somethin' wrong.			
60:				
61:	J: Yeah (laughs) I think			
62:	so. (.) Umm.			
63:	(.)			
64:	(inaudible mumbling)			
65:				
66:	B: Well, cancel it.			
67:				
68:	J: Cancel? (.) All right.	Hits cancel button.	"A" to the left of blank line of source code disappears	User wants to cancel image he started to define on this line of code..
69:				
70:	B: Oh, put it on array,	Clicks on button labeled by "Array"	"Array" button changes highlight	
71:	it's still on single.			
72:				
73:	J: Oh.			
74:				
75:	B: There you go. Now	Pulls down "Animation menu"	"Animation" menu appears.	Present "Animation" menu
76:	create the object, and			
77:	we should be in better			
78:	shape.	Chooses "Create Image" from menu	"Create an image" dialog box appears; array/single button toggled to single	User wants to create an image
79:	J: Okay. Animation			

THE USERS

THE MACHINE

#	Not Available to the machine	Available to the machine	Available to the user	Design rationale
80:	[
81:	B: Why you can't			
82:	figure that out from			
83:	the stabs, I don't			
84:	know			
85:				
86:	J: A	Types "A" and clicks OK	Cursor turns to pencil	Tell user to click
87:			Message: "Click on the	on a line of source
88:	B: but apparently there's		line before which the	code
89:	a reason.		animation occurs"	
90:			"A" appears line of code	Show user that
91:	J: Ok, And we'll click	Clicks on blank line in	clicked	animation event has
92:	here	algorithm.		been defined here
93:				
94:	B: Right.		Message: "Draw an image"	Tell user to draw
95:				the single image
96:	J: And, like that.	Drags out a black box		
97:				
98:			"Image Information"	Request information
99:			dialog box appears	on the single image
100:	B: Right. Now you can			
101:	choose source variable			
102:	dependent, and (.)			
103:	whoa!			
104:	[
105:	J: This is the same			
106:	thing			
107:				
108:	B: This isn't doing the			
109:	right thing, and it's			
110:	still set on symb--		"A" next to blank line of	User wants to
111:	single!	Hits "Cancel" in dialog	source code disappears	cancel image he
112:		box		started to define
113:				on this line of
114:	J: Oh. (.) Well, I select	Clicks on button labeled		code..
115:	array.	by "Array"		
116:				
117:	B: Yeah.			
118:				
119:	J: And.			

THE USERS

THE MACHINE

#	Not Available to the machine	Available to the machine	Available to the user	Design rationale
120:	B: N'w, try just draggin'			
121:	out an array right			
122:	there right now.	Tries to drag out a		
123:		bounding box and gets a		
124:		crosshairs cursor, but no		
125:	B: No.	bounding box		
126:				
127:	J: No.			
128:				
129:	B: Hmm. How'd we screw up	Pulls down "Animation"	Animation menu appears	Present Animation
130:	this time?	menu.		menu
131:				
132:	J: Ahh.	Releases button outside	Animation menu disappears	User wants to
133:		of "Animation" menu		cancel Animation
134:	B: "Click on the button			menu
135:	labeled array."			
136:	[
137:	J: I didn't			
138:	mean to do that.			
139:	[
140:	B: Use the first			
141:	mouse button to drag			
141:	out"--you're supposed			
142:	to be able to just			
143:	drag out a thing at			
144:	this point.			
145:				
146:	J: Let's see. "First, at			
147:	the top of the			
148:	palette, click on the			
149:	button (.) labeled by			
150:	a black square. So we			
151:	do this.			
152:				
153:	B: Right.			
154:				
155:				
156:				
157:				
158:				
159:				
160:				
161:				

THE USERS

THE MACHINE

#	Not Available to the machine	Available to the machine	Available to the user	Design rationale
162:	[
163:	J: Ouhla!			
164:				
165:	B: Left-hand bounding	Clicks on button labeled	Button changes highlight	User wants to
166:	box.	by a black square		change fill color
167:				
168:	J: "Next, click on the	Clicks on the button	Button changes highlight	User wants to
169:	button labeled fill."	labeled by "Fill"		change image to
170:				"Fill"
171:	J & B: Okay.			
172:				
173:	B: It's filled.			
174:				
175:	J: "Third, choose an			
176:	appropriate fill			
177:	color." Black.			
178:	[
179:	B: Okay.			
180:				
181:	J: "Click on the button			
182:	whose color pleases			
183:	you." Ooh, ahhh,			
184:	Sssss! (Raises hand to			
185:	screen.)			
186:				
187:	B: Right! That color			
188:	pleases me.			
189:				
190:	J: "Fourth, click on the			
191:	button labeled			
192:	'array'." Alright,			
193:	we've done that. Okay.			
194:	"Finally, you're ready			
195:	to draw the object in			
196:	the white space on the			
197:	right-hand side of the			
198:	Lens window, and use			
199:	the first mouse			
200:	button"			
201:	[
202:	B: "to drag out a			
203:	bounding box."			

THE USERS

THE MACHINE

#	Not Available to the machine	Available to the machine	Available to the user	Design rationale
204:		J Attempts three times to		
205:	(.)	drag out a bounding box;		
206:		cursor turns to		
207:		crosshairs, but nothing		
208:		appears.		
209:	(Sarcastically) Makes a			
210:	nice theory.			
211:				
212:	B: I give up. (laughs)			
213:				
214:	J: (laughs) Don't worry			
215:	about--okay, okay, did			
216:	we do any--			
217:	[
218:	B: Did we?			
219:				
220:	J: Create image. Oh,			
221:	"Choose 'Create Image'	Pulls down "Animation	Animation menu appears	Present animation
222:	from the ana--	Menu" and chooses "Create		menu.
223:		Image"		
224:	B: Yeah, we		"Create Image" dialog box	User wants to
225:	did. And we typed 'A'		appears	create an image
226:	into--			
227:				
228:	J: .hh			
229:				
230:	B: Oh, but it's gone now.			
231:	Ayyy See! I'm			
232:	beginning to see it.			
233:				
234:	J: Type "A"	Types "A" into dialog box		
235:		and clicks "OK"	Pencil cursor appears	Tell user to click
236:			Message: "Click on the	on a line of source
237:			line of source code	code
238:	(.)		before which the	
239:			animation occurs."	
240:				
241:	J: Okay.			
242:		Clicks pencil cursor on		
243:	B: And click the spot.	blank source code line.		
244:	[

THE USERS

THE MACHINE

#	Not Available to the machine	Available to the machine	Available to the user	Design rationale
245:	J: And then we go here.		"A" appears to the left of line clicked	Show user that animation event has been defined here
246:				
247:	B: Right.			Tell user to draw the image
248:			Message: "Draw an Image"	
249:	J: Then we say--			
250:				
251:	B: Box fill array.	Clicks on button labeled	Message "Draw the	User wants to draw
252:	[by "Array"	bounding box for the	an array.
253:	J: Array.		array"	
254:				
255:	B: Okay, choose the			
256:	bounding box for the			
257:	array it says now, so			
258:	now we should be able			
259:	to draw // the			
260:	bounding box for the			
261:	array.			
262:		Drags out dotted line	Dotted lines depict edges	User defining
263:	J: Okay.	bounding box.	of bounding box as it's	bounding box
264:			being dragged	
265:	B: Okay, that was easy.//			
266:	(laughs) The number of		"Image Information"	Request
267:	array elements is n.		dialog box appears.	information on the
268:		Types "n" into dialog		image
269:	J: Okay. (laughs) Right.	box.		
270:				
271:	B: Now things look			
272:	reasonable.			
273:				
274:	J: And--			
275:				
276:	B: And, it's bounding box	Re-clicks the button	Source variable dependent	User wants source
277:	dependent--no, source	labeled by "Source	button remains	variable dependent
278:	variable dependent.	variable dependent" under	highlighted	for height
279:		"Height"		
280:	J: Right.			
281:				
282:	B: Right.			
283:				
284:	J: Is there anything else			
285:	we did in here?			
286:				

THE USERS

THE MACHINE

#	Not Available to the machine	Available to the machine	Available to the user	Design rationale
287:	J: 10. Enter the variable	Enters "10"		
288:	for heigh--The minimum			
289:	was like 0 and 20, or			
290:	something?			
291:				
292:	B: 0 and 20, sure.	Enters 0 into "Minimum		
293:		Value" field.		
294:		Enters 0 into "Maximum		
295:		value" field.		
296:				
297:	J: And what was height?			
298:				
299:	B: No, height, and-- (.)			
300:	"A" for the height			
301:	variable.			
302:				
303:	J: "A"	Types "a" into "Height"		
304:		field		
305:	B: Right.			
306:				
307:	J: OK.	Clicks "OK"	Dialog box disappears	User accepts
308:				settings
309:	B: OK.			
310:				
311:	J: Alright.			