with numbers?Date Transcribed: Fall 2010Parent Tape: Early Algebra IdeasPage: 1 of 4About Binomial Expansion, Stephanie'sPage: 1 of 4Interview One of SevenDate: 1995-11-08Location: Harding Elementary SchoolResearcher: Professor Carolyn Maher	About Binomial Expansion, Stephanie's Interview One of Seven Date: 1995-11-08 Location: Harding Elementary School	Transcriber(s): Aboelnaga, Eman Verifier(s): Yedman, Madeline Date Transcribed: Fall 2010 Page: 1 of 4
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Okay – as we do these examples. Did you do anything like this? $[a(x + y)]$ 2Stephanie3R1No, what do you think that could possibly mean?4StephanieIt's any number times two other variables that could also stand for any number – so – can you get a number that's like $ax + ay$?5R1Let's think about that? Why don't you write –6Stephanie'Cause that's what it's telling you to do. It's telling you.7R1So you think that's going to be [Stephanie writes $ax + ay$].8StephanieThat's what it's telling you.9R1That's an a, right? [corrects Stephanie's handwriting]10StephanieYeah.11R1Okay – So your conjecture is that – why don't you test it? Why don't you try some numbers for $a, x,$ and y ? And see if it works?12StephanieAlright [2(3 + 4)] is six plus eight is fourteen.13R1Does that work?14StephanieI well.16StephanieI have to just plug in one number and then – what 1 really have is go like equals fourteen and then plug in – if I just plugged in like the two.17R1Okay. So what you're saying here – two – is18StephanieI torms out to be the same – I mean, I guess you could put a variable with another variable and multiply it.19R1Right.	1	D 1	01 II 1 41° 1° 1° 40°
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	19	R1	
	20	Stephanie	We just never did it before.

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21	R1	So, Let's think about this. What did you use for <i>a</i> ? What did you use for <i>x</i> ? And what did you use for <i>y</i> ?
22	Stephanie	Um two for <i>a</i> .
23	R1	And
24	Stephanie	Three for <i>x</i> .
25	R1	For <i>x</i> .
26	Stephanie	And four for <i>y</i> .
27	R1	Okay, so um your conjecturing is that is, it <i>ax</i> plus <i>ay</i> and so <i>ax</i> would be six and <i>ay</i> would be eight.
28	Stephanie	Oh, I see.
29	R1	Okay, so is it-
30	Stephanie	What I should have done is $-$ [writes $2 \cdot 3 + 2 \cdot 4$ between her steps] 'Cause I just leave that step out. Like sometimes too.
31	R1	That's okay. That doesn't bother me. Um but that's if you distribute, right?
32	Stephanie	Yes.
33	R1	If you don't distribute, what do you get?
34	Stephanie	If you don't distribute?
35	R1	If you did it without distributing.
36	Stephanie	You get twelve plus two – fourteen.
37	R1	You get two times seven, right?
38	Stephanie	Yeah?
39	R1	So it still worked for two, three, and four?
40	Stephanie	Yeah, it worked the same way.
41	R1	Okay, now do you think it's always going to work? <i>[pause]</i> For any choice of
42	Stephanie	I don't know.
43	R1	Of <i>a</i> , <i>x</i> and <i>y</i> .
44	Stephanie	I think we might of – we went over something like this, but it was with um exponents and I don't remember if it'll work every time. Should I try it with different variables?

Description: Distributing a variable	Transcriber(s): Aboelnaga, Eman
over other variables. Does it check out	Verifier(s): Yedman, Madeline
with numbers?	Date Transcribed: Fall 2010
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45	R1	Okay. What's your intuition on it?
46	Stephanie	Um, I don't know. If it works every time, I don't
		understand why they make us um distribute in the
		first place – if it works every time. So I don't
		think – I think there's going to be a problem
		<i>(inaudible)</i> I mean 'cause – it's pretty dumb then if
		we always have to distribute – you know.
47	R1	Um hm. Do you think you always have to
		distribute?
48	Stephanie	Well, obviously not in this problem.
49	R1	Um hm.
50	Stephanie	So I mean
51	R1	You know you could've gotten the answer without
		distributing, if that were true.
52	Stephanie	Yeah, I could've just
53	R1	If that were true. If they were equivalent, you
		didn't have to, did you?
54	Stephanie	Well actually I shouldn't have – I should've just
		distributed after I added those two.
55	R1	Well no. I don't know that you should've
56	Stephanie	I mean – it doesn't matter. Like it I had
57	R1	Let me ask you a question? Does it matter?
58	Stephanie	If I had a variable. Like if it was (writes) $[2(x +$
		4)]. $2(x + 4)$ right. I have to distribute first 'cause
		I can't add four to <i>x</i> .
59	R1	Okay, so what would that look like?
60	Stephanie	So that would have to be $2x + 8 = 14$.
61	R1	Where did you get the fourteen from?
62	Stephanie	Well, fourteen was my answer up here. I'm just
		doing – using
63	R1	That's if you don't know what <i>x</i> is?
64	Stephanie	Yeah.
65	R1	Okay.
66	Stephanie	Eight minus eight. [writes $2x + 8 - 8 = 14 - 8$]
		equals (inaudible) [continues "figuring"] x equals
		three. It worked.

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67	R1	Interesting.
68	Stephanie	This problem's working out.
69	R1	What's the it that worked? What were you
		thinking when you did it?
70	Stephanie	Well, um I was just try – 'cause like here I didn't
		have to distribute, but if I had a problem where I
		had a variable in the inside of the parentheses I
		would have to distribute.
71	R1	Um hm.
72	Stephanie	Because I can't combine like terms if they're not
		the same so
73	R1	Um hm.
74	Stephanie	I was just saying that you know if you have a
		variable, you have to distribute first.