Description: The Distributive Property: Distributing a number over variables **Parent Tape: Early Algebra Ideas About Binomial Expansion, Stephanie's Interview One of Seven** **Date: 1995-11-08** **Location: Harding Elementary School** **Researcher: Professor Carolyn Maher**	**Transcriber(s): Aboelnaga, Eman** **Verifier(s): Yedman, Madeline** **Date Transcribed: Fall 2010** **Page: 1 of 4**

1	R1		Did you do anything like this? Question – yet –
2	Stephanie		Okay.
3	R1		Okay so you did $2(w + l)$ and that's kind of perimeter stuff. Could you do 3 times the expression $(w + l)$ and 5 times $(w + l)$?
4	Stephanie		I think we did a couple three – like towards the end of the problems. Like with the red problems.
5	R1		But if we just did something like this for a minute.
6	Stephanie		Um hm.
7	R1		You can do that? *[5(w + l)]*
8	Stephanie		Yeah.
9	R1		Right.
10	Stephanie		Yeah.
11	R1		And that's?
12	Stephanie		It would be $5w + 5l$.
13	R1		Right? You could actually imagine why that works.
14	Stephanie		Um hm. Yes.
15	R1		If I said – you know – to convince yourself that why this rule sorta – this rule works?
16	Stephanie		You're only saying that you're multiplying – you're taking any number "w" and you're um I guess – if you're going to do it like how the $2x$ was – um – any number twice, you can do the $5w$ – any number five times. And the $5l$.
17	R1		Um hm.

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18	Stephanie		Um – any number 5 um *l* five times but – and the distributive part is just because that's all the parentheses (inaudible) mess the problem up. I guess that's how you…
19	R1		So I think of if I was this little kid, if you tell me I have five of something, right?
20	Stephanie		Um hm.
21	R1		5*(w + l)*. I'm this little kid and I say well you have one of them, you have two of them.
22	Stephanie		(inaudible) whatever you think you…
23	R1		You have three of them. I'm just trying to think it in the most elementary way. Right?
24	Stephanie		And that's the same thing.
25	R1		And I'm adding all this right.
26	Stephanie		I guess that's what…
27	R1		Which gives you this. That's the way I was thinking about it.
28	Stephanie		That's the same thing.
29	R1		So you're saying that's all the – and that's always going to work.
30	Stephanie		Yeah. I just always put the varia –that's how –but I understand –
31	R1		You just skip that step it seems.
32	Stephanie		I skip that step.
33	R1		But you see that – does that?
34	Stephanie		Yeah. But I understand.
35	R1		Have you ever thought about it that way?
36	Stephanie		I – When – I guess way when we first…

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37	R1		A long time ago.
38	Stephanie		'Cause I think we first took uh little steps in sixth grade with Mr. Poe.
39	R1		Um hm. Um hm. I see. I remember, um a long time ago in Kenilworth, actually, Harding School.
40	Stephanie		Um hm.
41	R1		That um you used to do some of this without *x*'s. You used to use boxes. Do you remember that?
42	Stephanie		And triangles and stuff.
43	R1		Do you remember that?
44	Stephanie		Yes.
45	R1		Okay.
46	Stephanie		That, that I remember.
47	R1		What, what would I have to do with something like this? I mean would you think about this if you had to explain it with boxes and triangles?
48	Stephanie		Well, you… a box is good 'cause it's always like a blank.
49	R1		Um hm.
50	Stephanie		You know and you can put any number in the box.
51	R1		Um hm.
52	Stephanie		And multiply it by two and you're going to get two of those boxes.
53	R1		Okay.
54	Stephanie		You know and the same thing with like the five.
55	R1		Um hm.

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56	Stephanie		Big um.
57	R1		So does that help you to think about it that way? About the meaning of the *x*'s and the *a*'s and *w*'s and *r*'s and *p*'s?
58	Stephanie		I guess.
59	R1		Um hm.
60	Stephanie		I mean, I haven't thought about the boxes.
61	R1		You haven't thought about the boxes?
62	Stephanie		I never thought about the boxes. But I guess it – it's basically the same thing – no matter what variable you use – a triangle or an *x* or …
63	R1		Um hm.
64	Stephanie		It's still saying that you have any number.
65	R1		Um hm.
66	Stephanie		So…