Description: Night Session – Pascal's Identity, Clip 6 of 7: Examples of Pascal's Identity in the notation for combinations **Parent Tape: Night Session – Pascal's Identity** **Date: 1999-05-12** **Location: David Brearley High School** **Researcher: Professor Carolyn Maher**	**Authors: Uptegrove, Elizabeth B.** **Verified: Poprik, Brad** **Date Transcribed: 2003** **Page: 1 of 3**

Line	Time	Name	Transcript	Coding and Explanation
1.	00:00	R1:	While you're up there, Jeff, just ust show me, uh, an addition rule of Pascal's Triangle. Let's say from, give me an example from the third, fourth row to the fifth row.	
2.		Jeff:	Fourth row to this?	
3.		R1:	Fourth row to the fifth.	
4.		Michael:	The three to the four.	
5.		Jeff:	Oh, fourth row. All right. Um.	
6.		R1:	Show me that three plus three is six. Which ones would it be?	
7.		Jeff:	That would, like you're saying from here [3 choose 1] to here [3 choose 2] going to there [4 choose 2]?	
8.		Michael:	Uh-huh.	
9.		R1:	OK, show me. How would you draw your little arrow to shows that?	
10.		Michael:	This one and that one.	
11.		Jeff:	Yeah, is that it? Is that all, so that's all you want?	
12.		Michael:	Yeah.	
13.		R1:	Is that true? Do you believe that?	
14.		Jeff:	Yeah.	
15.		Michael:	Yeah, I believe so.	
16.		R1:	You all believe that?	
17.		Romina:	Yeah.	
18.		Michael:	Uh-huh.	
19.		R1:	No one could persuade you otherwise?	
20.		Ankur:	No.	
21.		Michael:	No.	
22.		R1:	OK, so you're saying three choose one, plus //three choose two equals four choose two. Right?	
23.		Jeff:	//Three choose two should equal four choose two.	
24.		Romina:	Look at all the numbers are added up.	
25.		R1:	OK. So what's four choose two plus four choose three?	

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26.		Jeff:	Four choose two plus four choose three? That would be, [Michael laughs.] that would be five-	
27.		Michael:	Oh, five-	
28.		Ankur:	Five choose-	
29.	00:57	Michael:	Five choose three.	
30.		Ankur:	Yeah.	
31.		Michael:	Right?	
32.		Ankur:	Yeah.	
33.		Jeff:	Yeah.	
34.		R1:	I don't know if Romina's convinced.	
35.		Jeff:	Why is it five choose three?	
36.		R1:	Yeah, I don't think Jeff is either.	
37.		Jeff:	Is this here-	
38.		Romina:	Yeah, I don't really-	
39.		Ankur:	Because it's, it's always the one on the right.	
40.		Michael:	Because, see, this guy gets another topping, I guess, so he turns, he would be a two.	
41.		Jeff:	Uh huh.	
42.		Michael:	Whatever it is in here. And this guy doesn't, so it stays two.	
43.		Jeff:	Ah, it doesn't, so that's two.	
44.		Michael:	So-	
45.		Jeff:	It wasn't that.	
46.		Michael:	Because he's moving up, this bottom number's going to change.	
47.		Jeff:	Oh, all right.	
48.		R1:	Explain that one more time, Michael, please.	
49.		Jeff:	Here.	
50.		Michael:	Um, wherever this guy goes, wherever this guy goes he's going to get another topping because he's moving this way.	
51.		Romina:	Um-hm.	
52.		Jeff:	So that turns it into a two.	

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53.		Michael:	So this bottom number's going to change to two.	
54.		Michael:	This guy's not going anywhere. Cause the bottom number stays the same.	
55.	01:38	Michael:	So it's going to be five. Because you know the next one's going to be five and it, it has to be a two because- You understand why you add? All right. Good.	
56.		Romina:	I'm with you.	