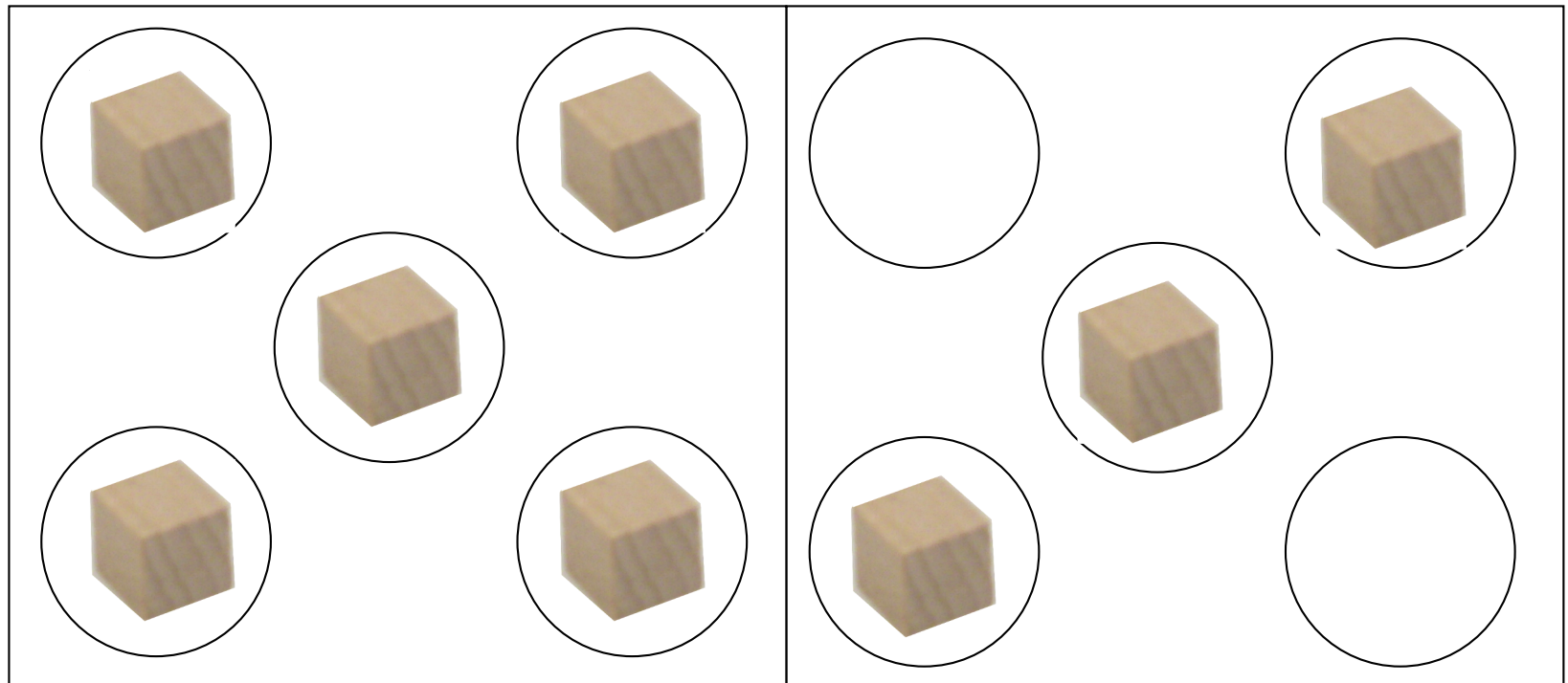


Die Zehnerbündelung als strukturierendes Prinzip des dekadischen Zahlenraumes

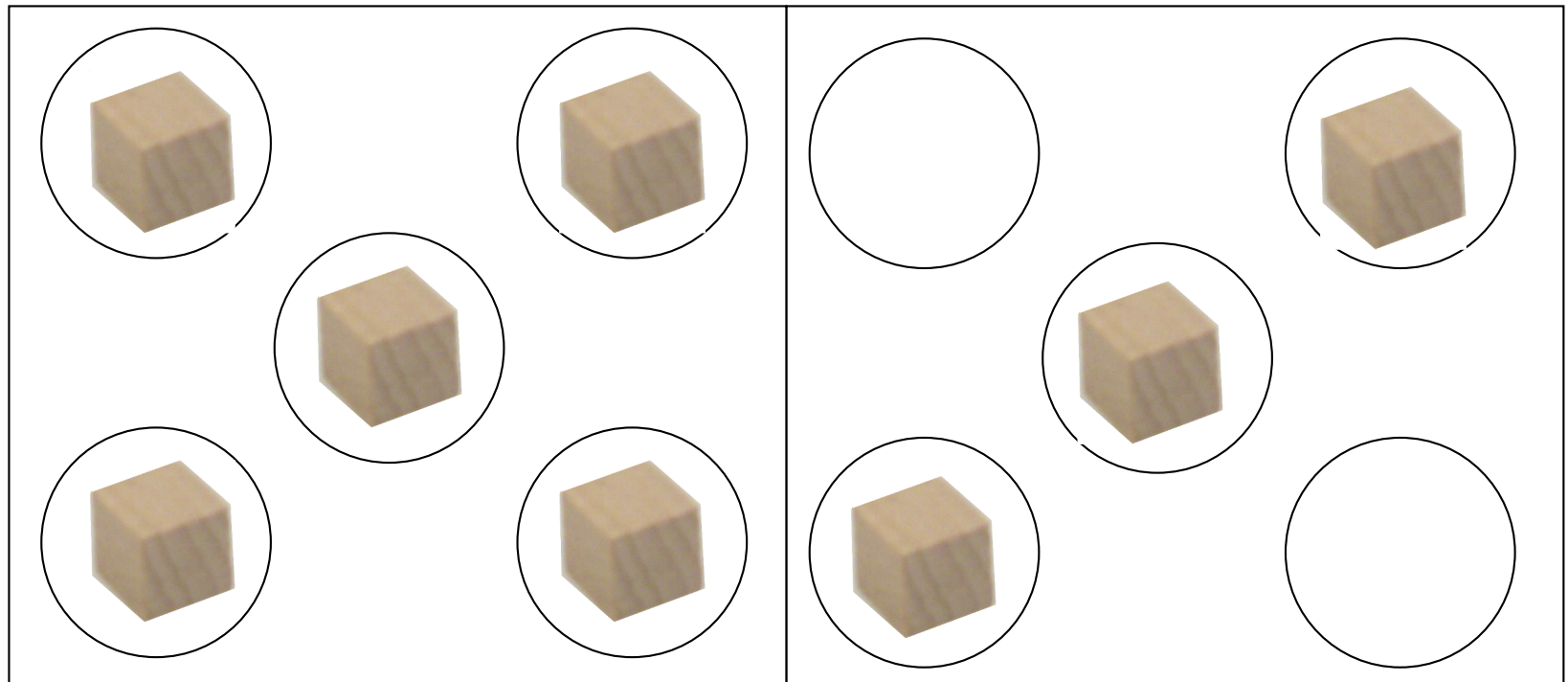
Die Bündelung verstehen bedeutet zu verstehen, dass eins zehn ist und zehn eins ist.

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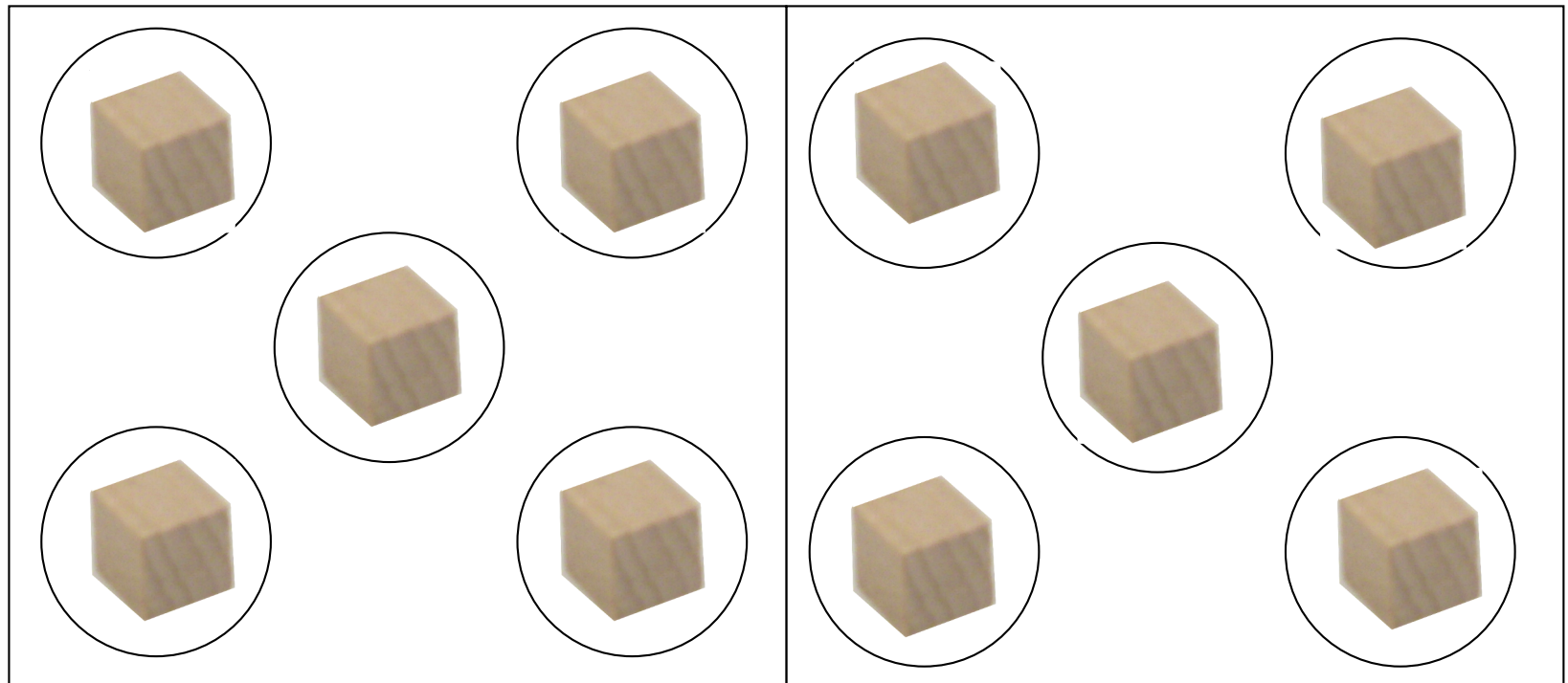
Dies verdichtet sich in der Aussage
„ein Zehner“



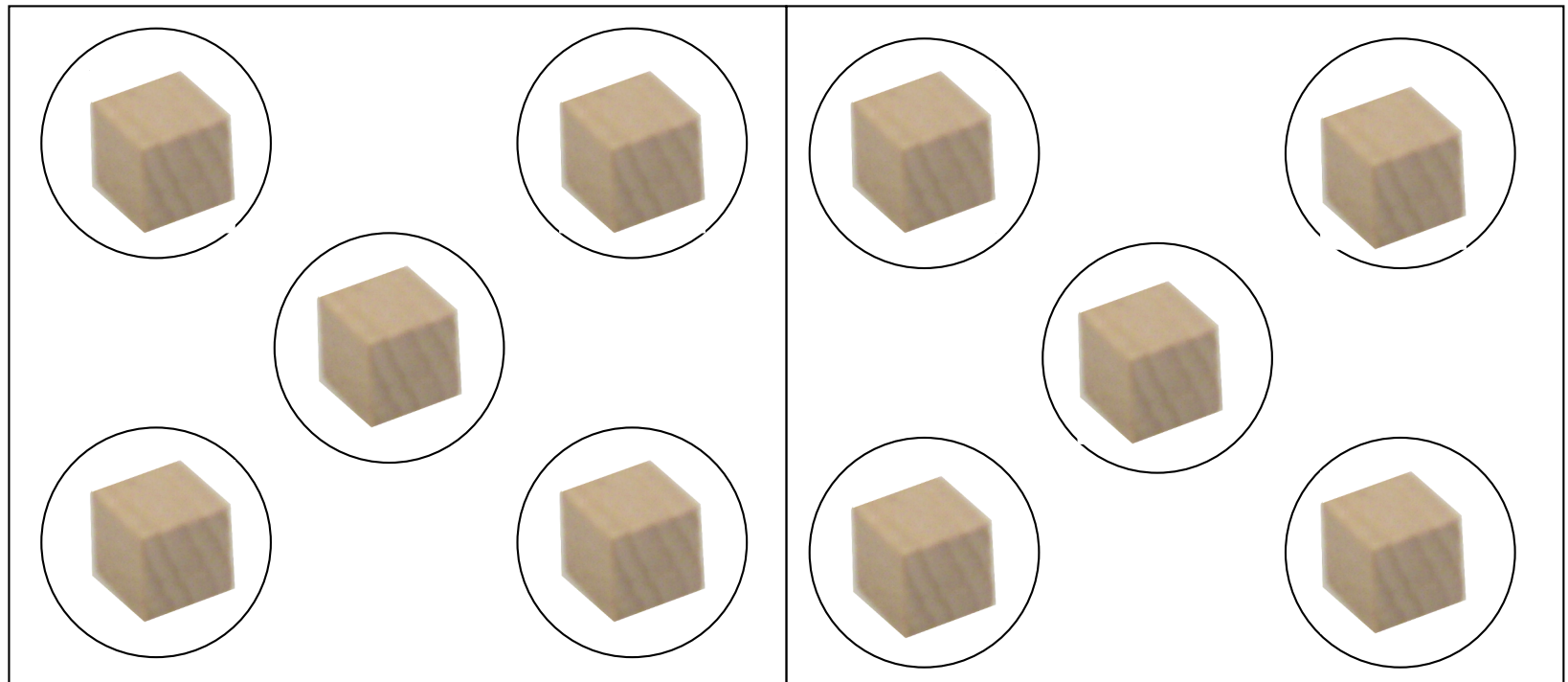
$$8 + 4 =$$



$$8 + 4 =$$

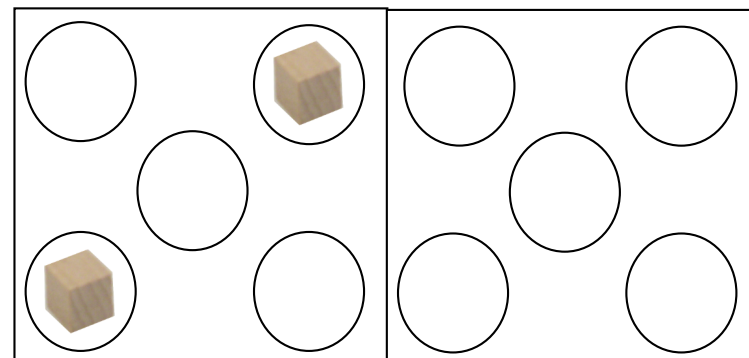
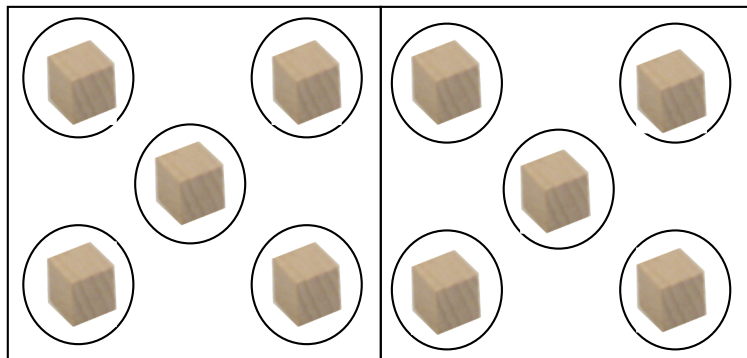


$$8 + 4 =$$



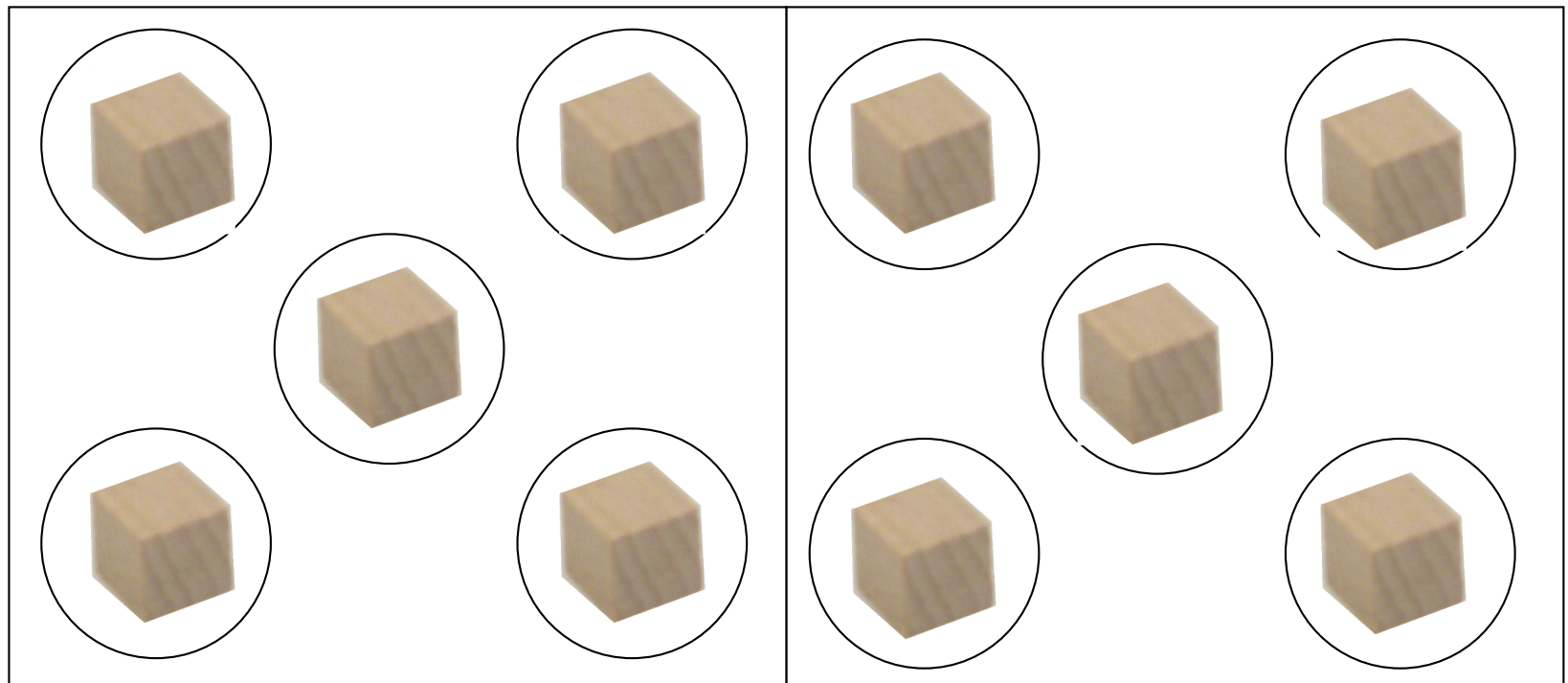
$$8 + 4 = 12$$

Option 1: Erweiterung des Zahlenraums ohne Bündelung

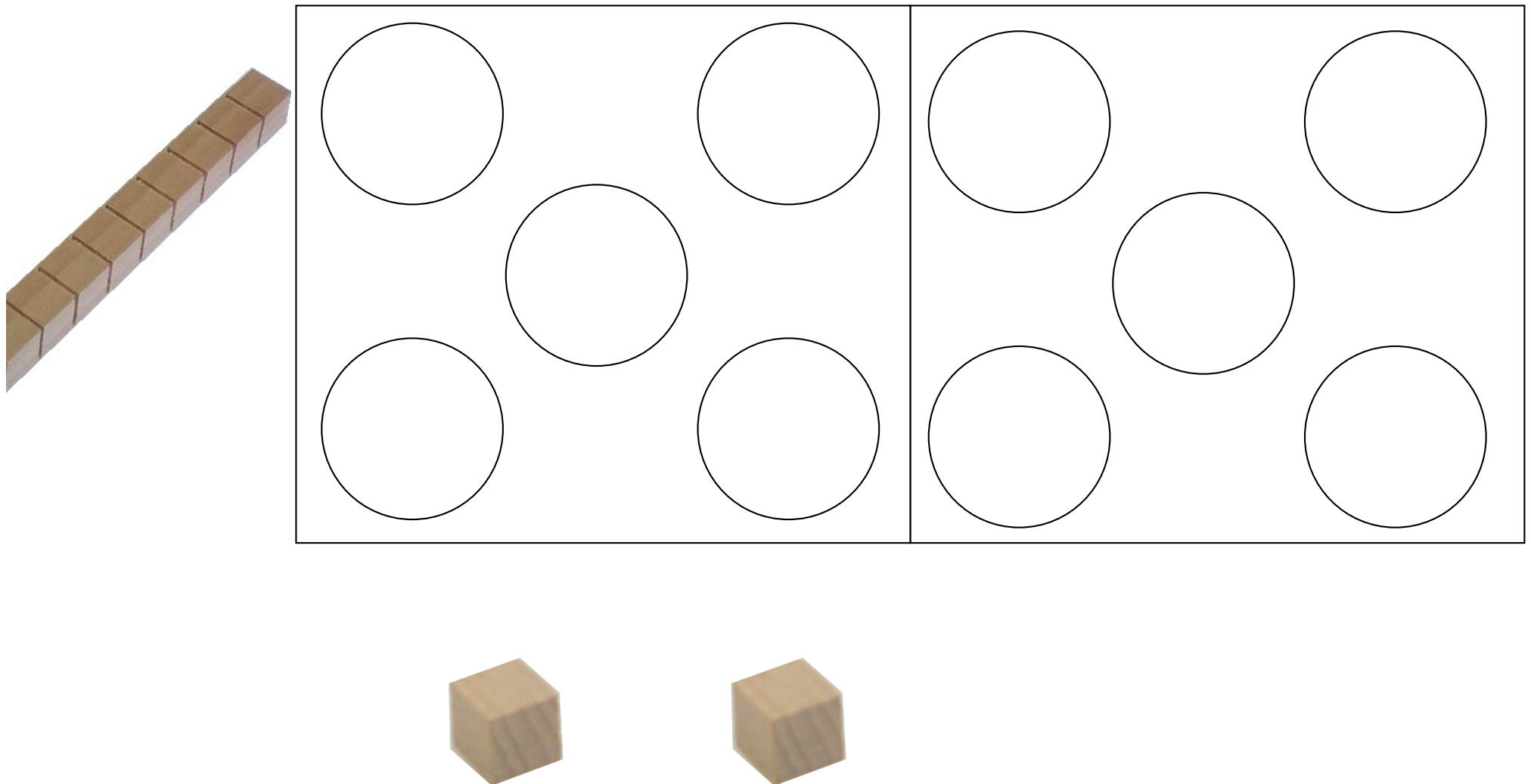


$$8 + 4 =$$

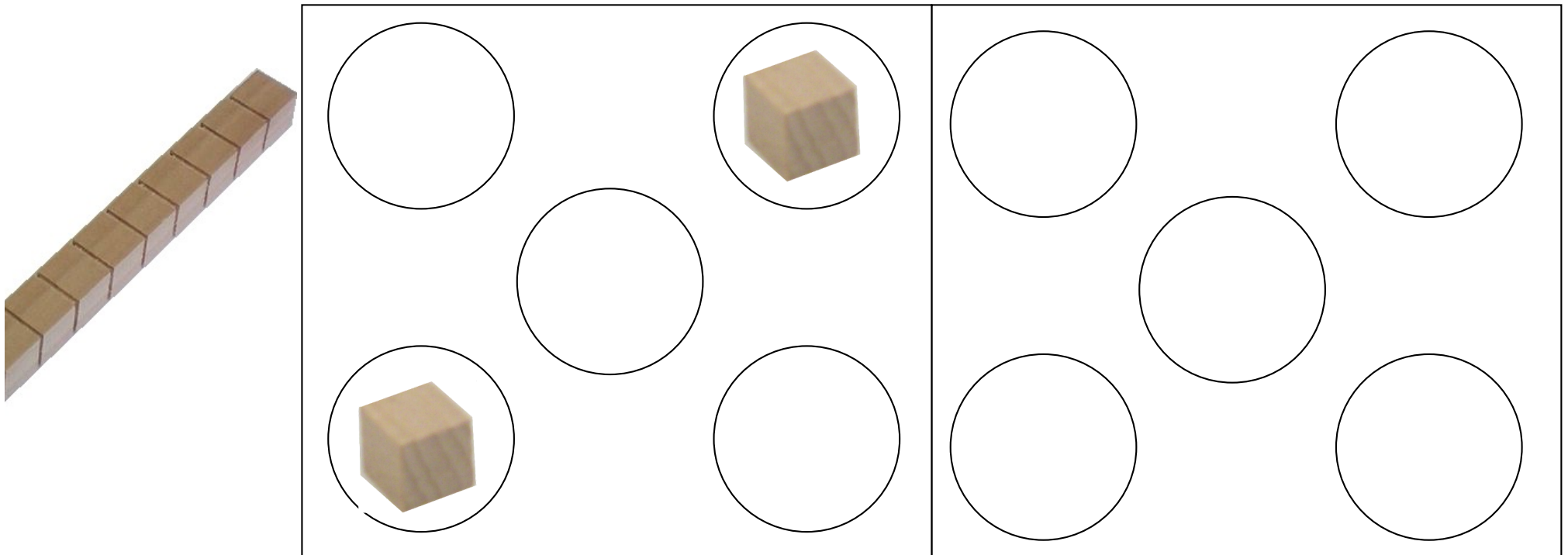
Option 2: Erweiterung des Zahlenraums mit Bündelung



$$8 + 4 =$$

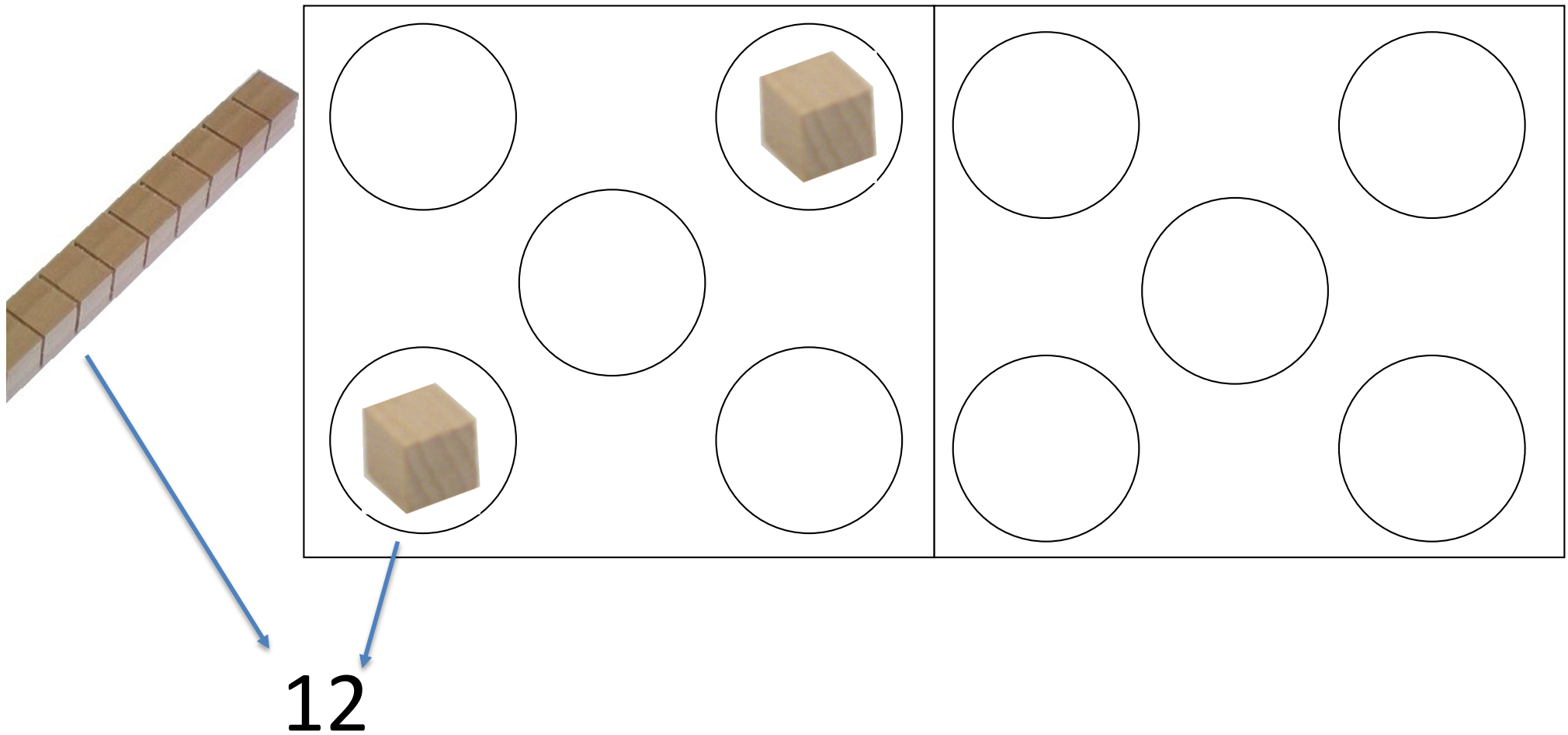


$$8 + 4 =$$



The image shows a visual math problem. On the left, there is a row of 12 wooden blocks. To the right, a large rectangle is divided into two equal halves. The left half contains 8 circles, with 2 of them containing a wooden block. The right half contains 6 empty circles.

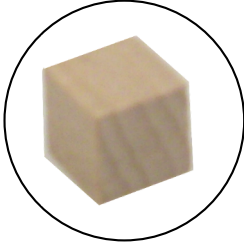
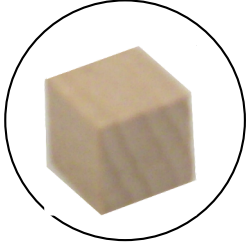
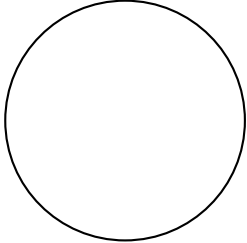
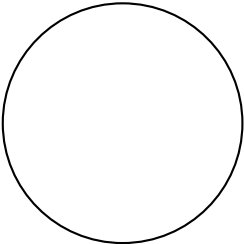
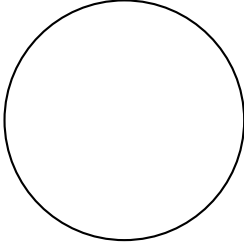
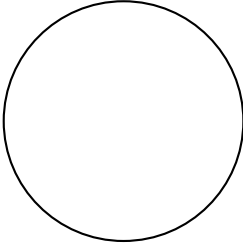
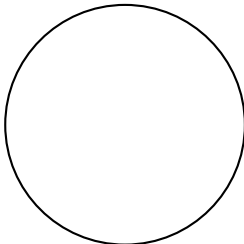
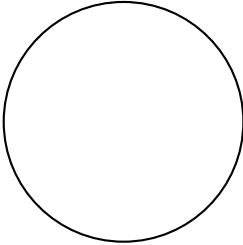
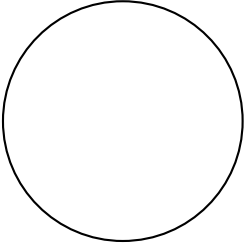
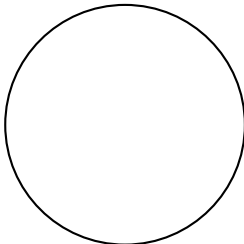
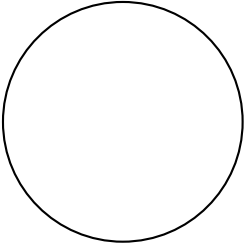
$$8 + 4 =$$

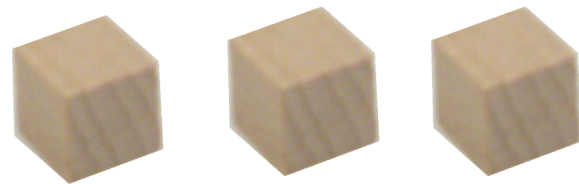


12

$$12 + 3 =$$

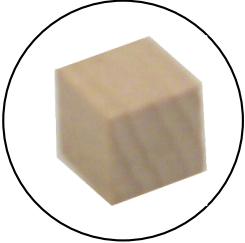
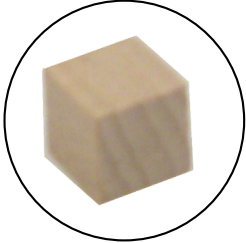
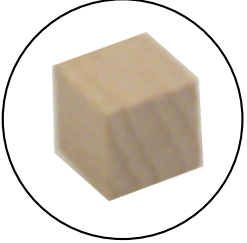
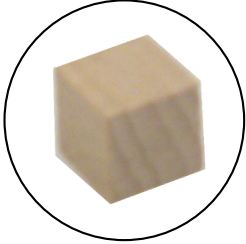
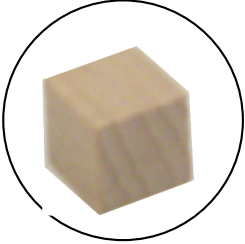
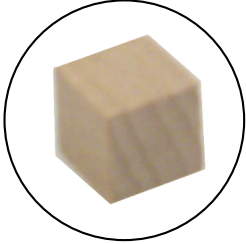
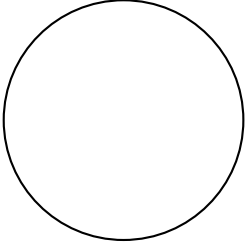
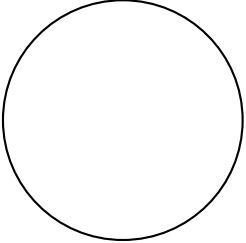
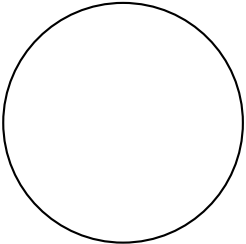
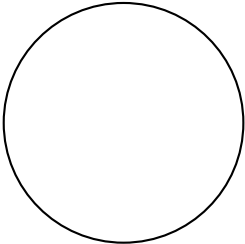
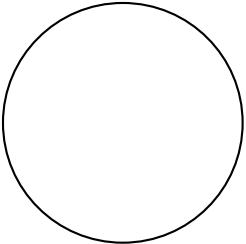


 	  	  	  
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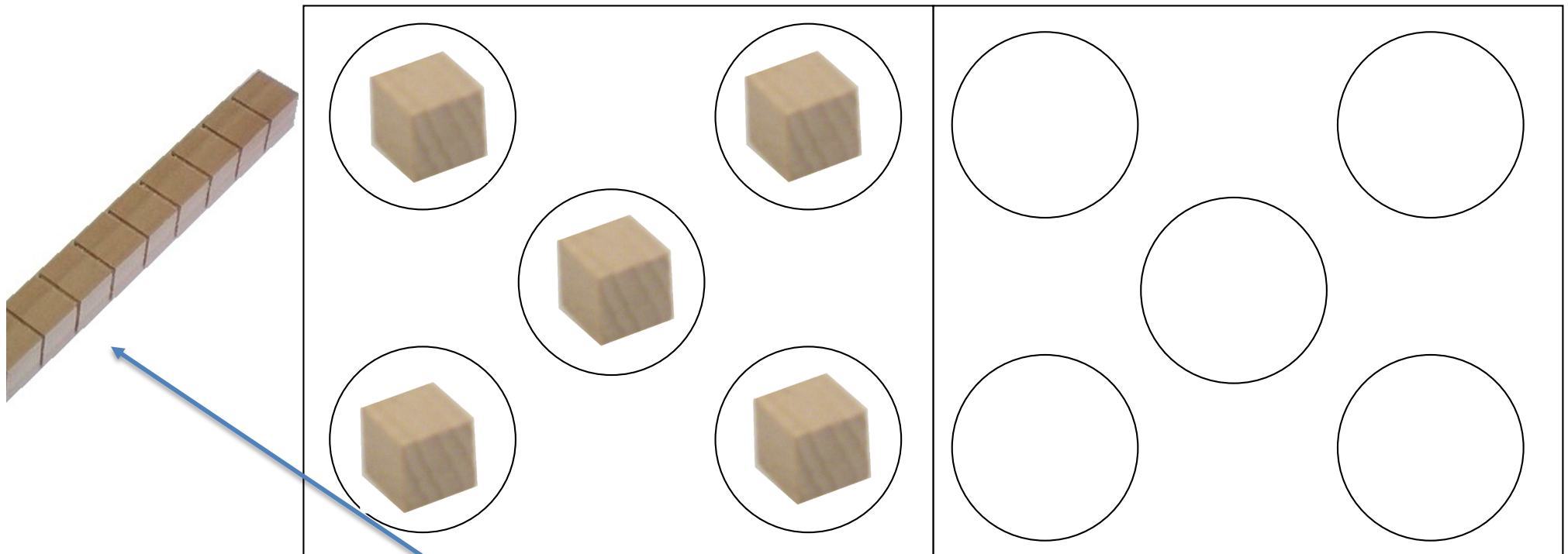


$$12 + 3 =$$



     	    
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$$12+3=$$



$$12+3=15$$

$$11 - 3 =$$



A ten-frame diagram for subtraction. The frame is a large rectangle divided into two equal halves by a vertical line. Each half contains five empty circles arranged in two rows of two. In the middle circle of the left half, there is a small wooden block, representing the number 11. The right half is empty, representing the number 3 to be subtracted.

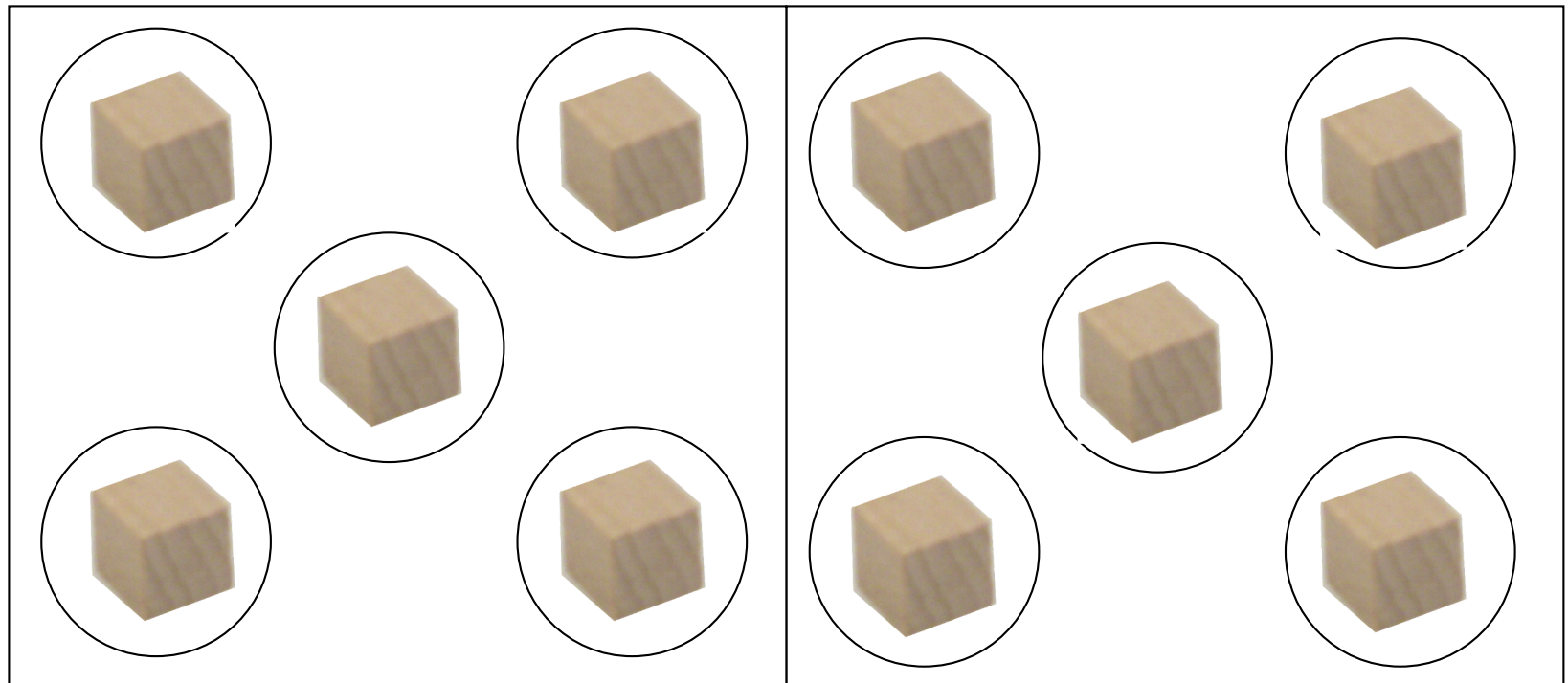
$$11 - 3 =$$



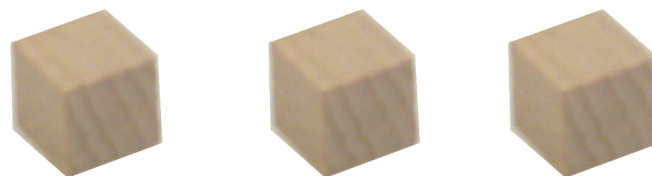
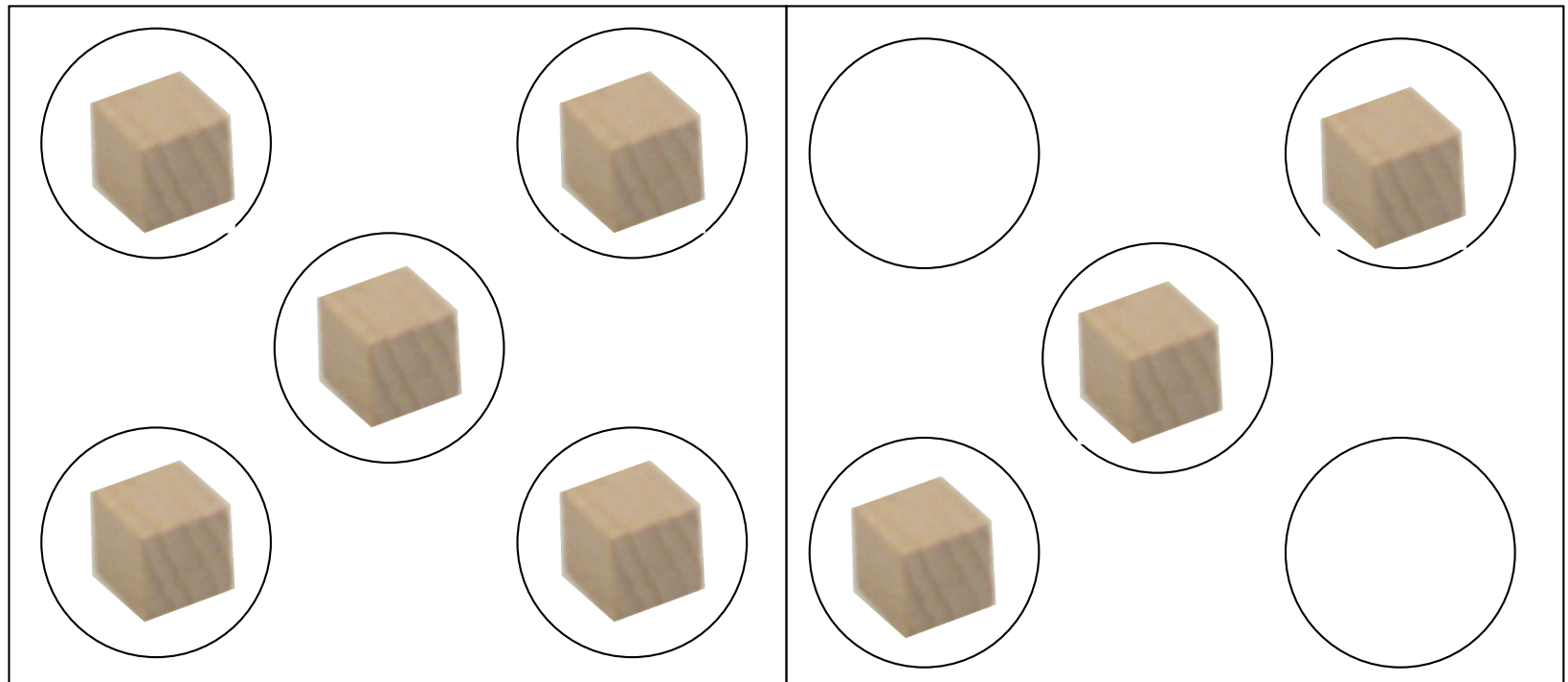
A large rectangular frame divided into two halves by a vertical line. The left half contains 6 empty circles, and the right half contains 5 empty circles. This layout is designed for a subtraction activity where students use the blocks to represent the equation 11 - 3 =.



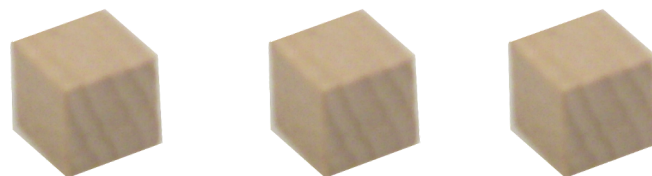
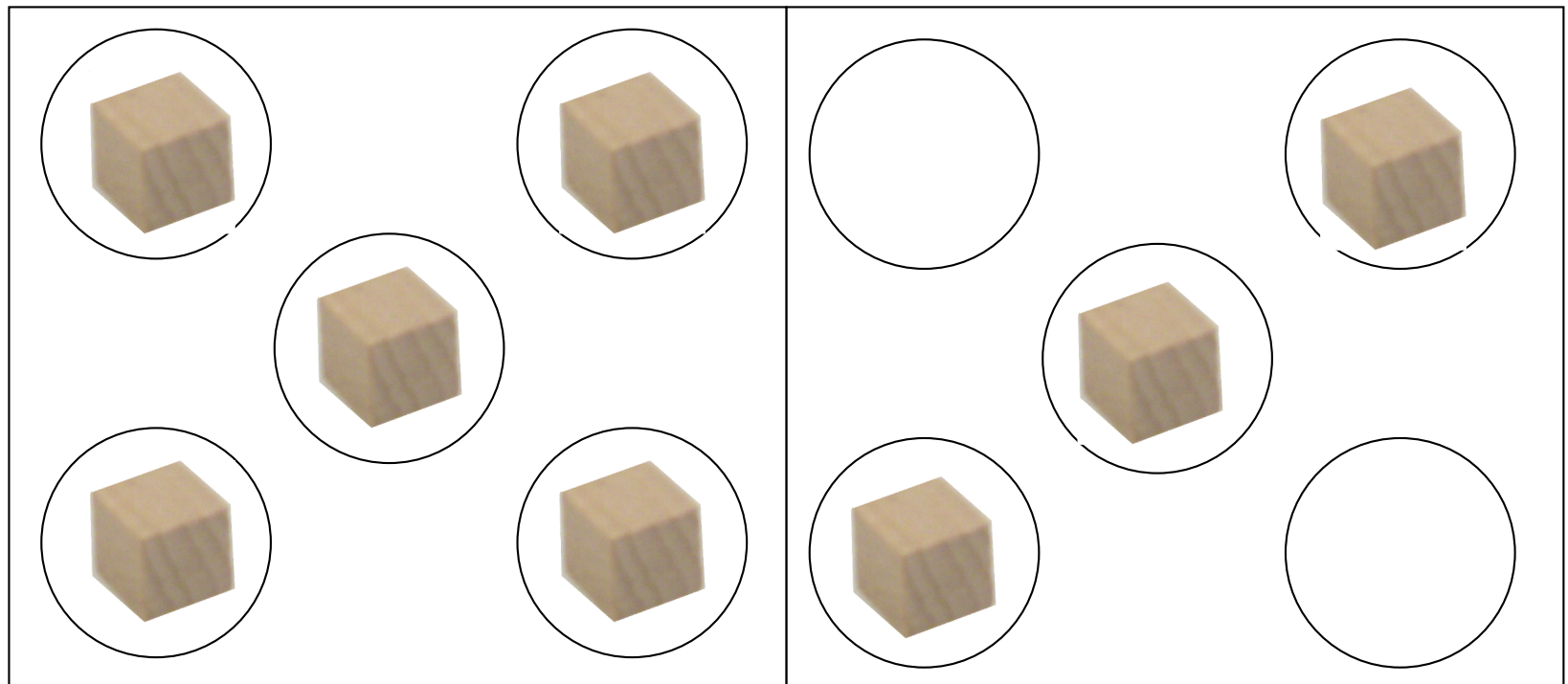
$$11 - 3 =$$



$$11 - 3 =$$



$$11 - 3 = 8$$



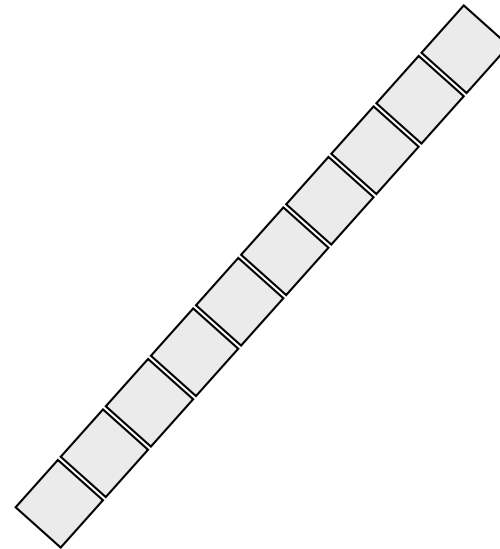
Hinweis: Das Spiel „Zwanzig gewinnt“ verwendet stapelbare Spielsteine und keine Holzwürfelchen und Zehnerstangen



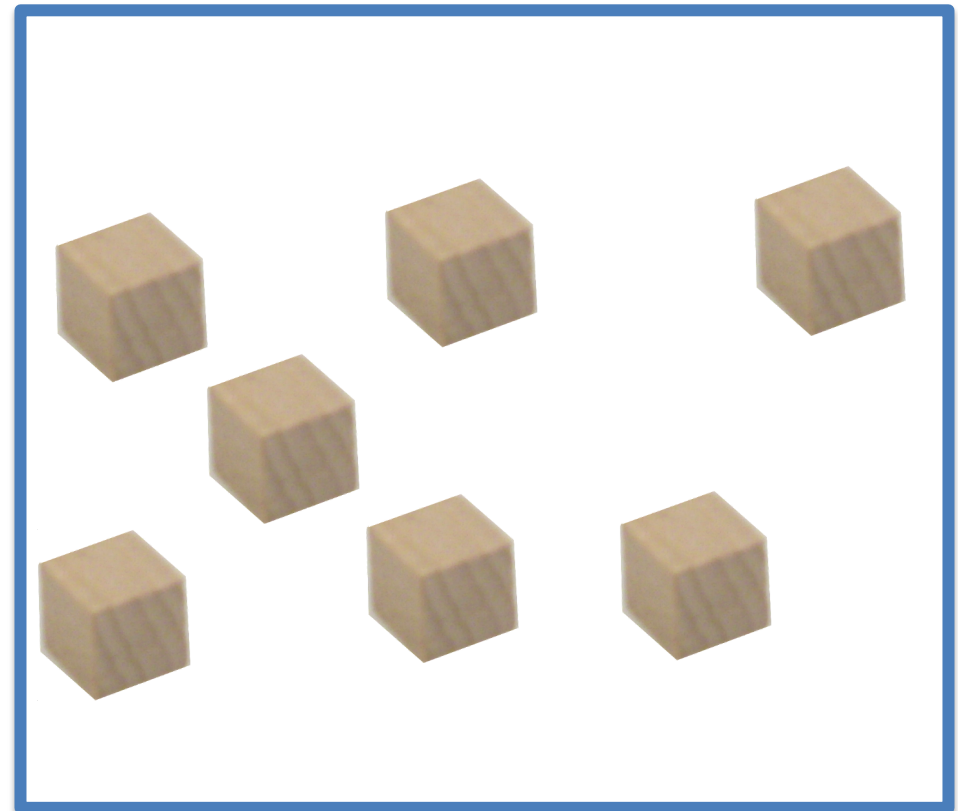
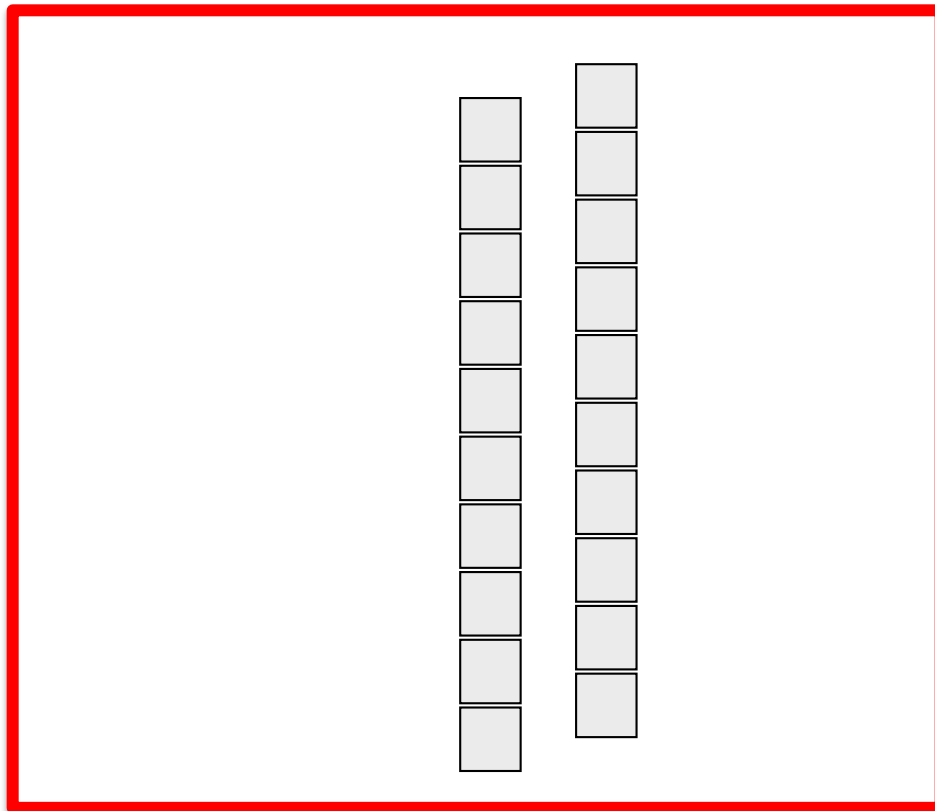
Darstellungswechsel



=



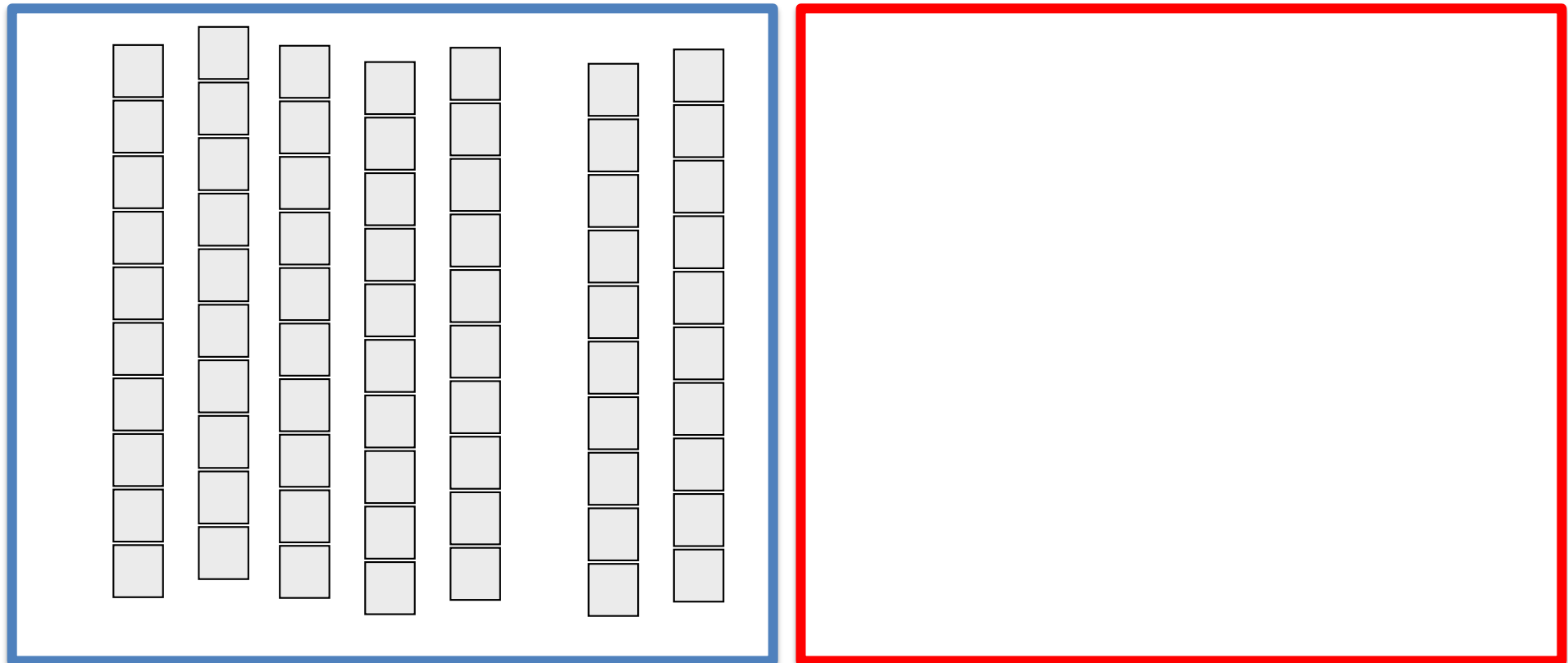
Die dekadische Struktur des Zahlensystems (Spiel Zahlenhüpfer)



$$25 - 2 = 23$$

$$23 + 4 = 27$$

Spiel Zahlenhüpfer:



The image shows a number hopper game board. It consists of two main rectangular areas. The left area is enclosed in a blue border and contains 10 vertical columns of 10 small squares each, arranged in a 10x10 grid. The right area is enclosed in a red border and is currently empty.

$$50 - 20 = 30$$

$$30 + 40 = 70$$

Strukturelle Kenntnisse der dekadischen Struktur
werden als „Übertragungswissen“ bezeichnet.
(Spiel Triolett)

Wenn ich

$$5+3$$

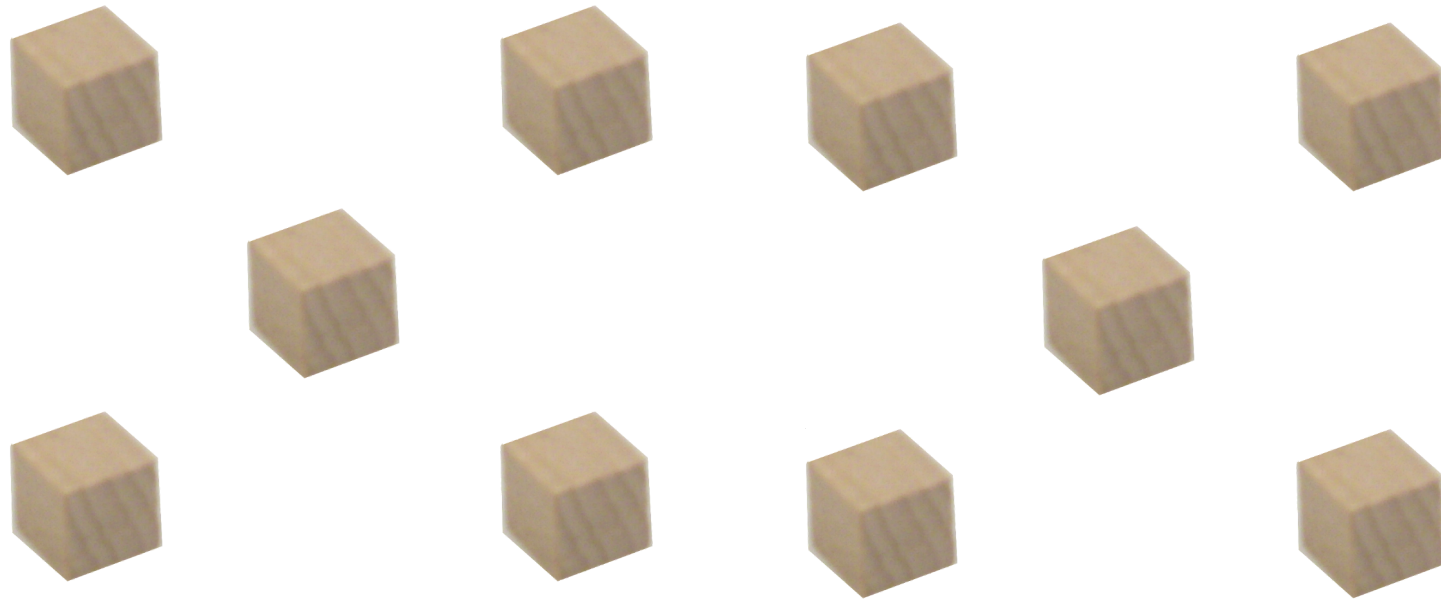
Rechnen kann, dann kann ich auch

$$25+3$$

und sogar

$$50+30$$

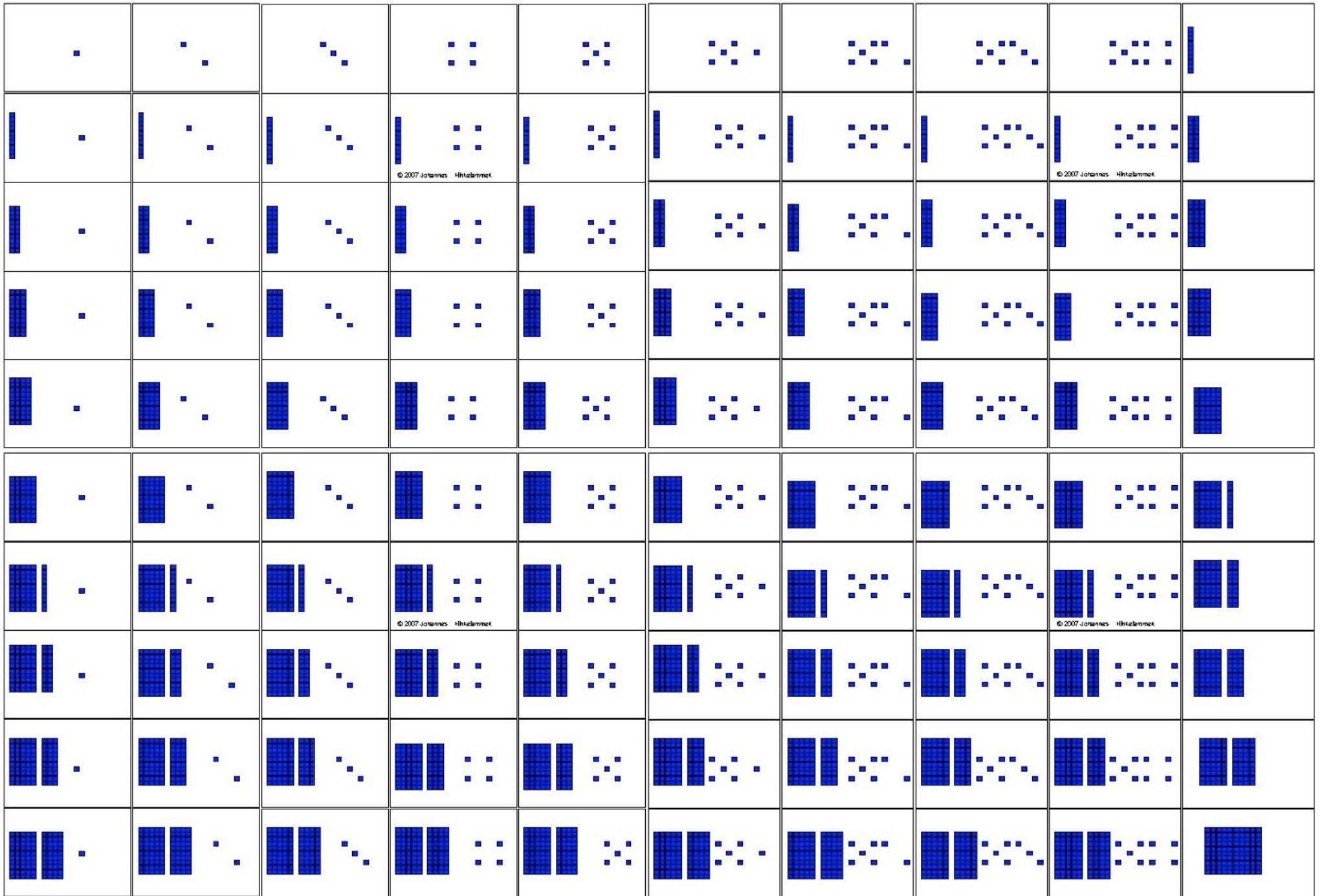
Rechnen.



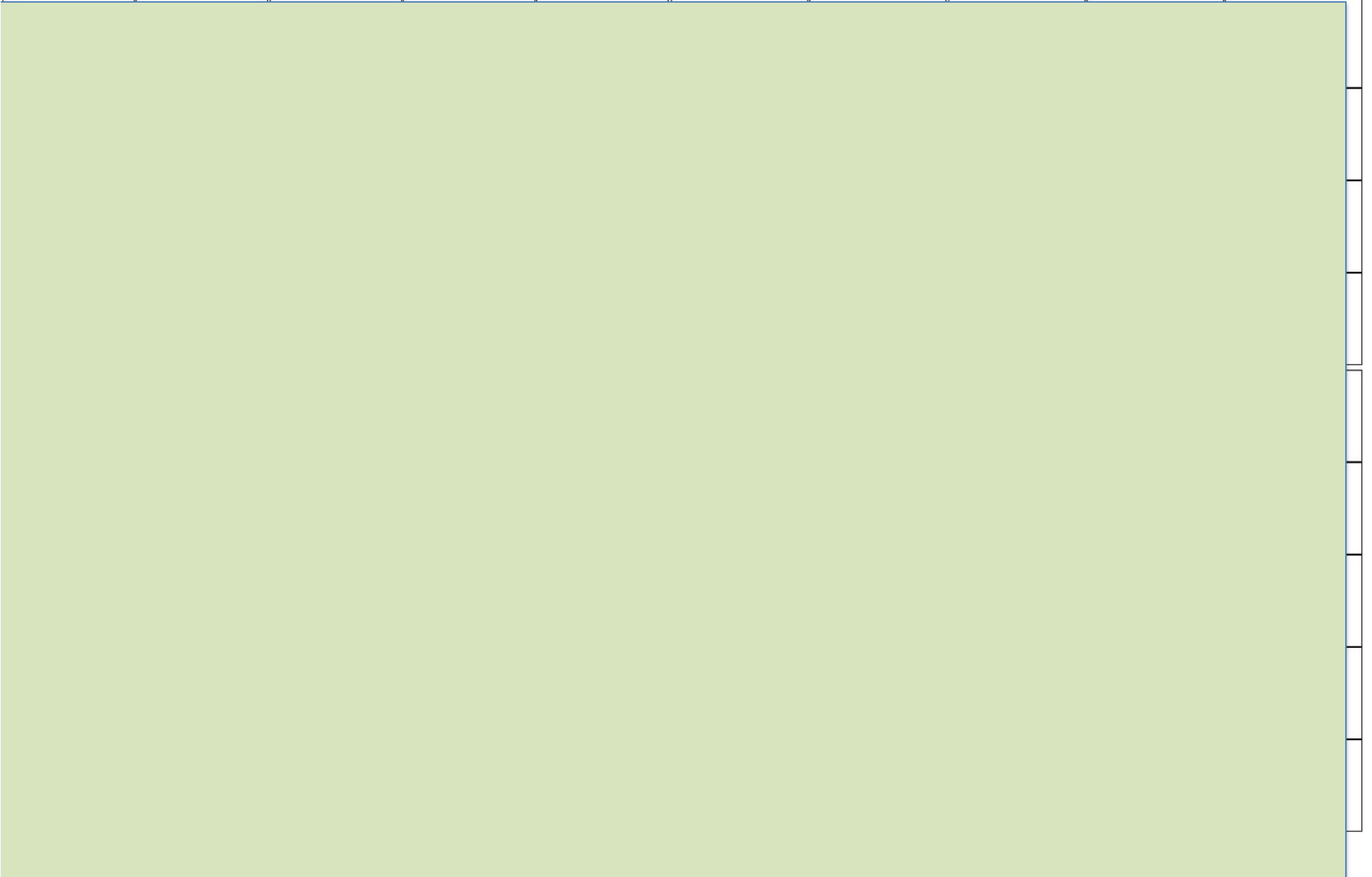
Johannes Hinkelammert
Fachbereich Erziehungswissenschaft und Psychologie
Arbeitsbereich Grundschulpädagogik

















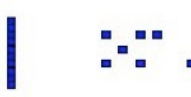
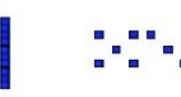
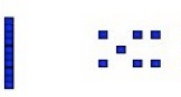



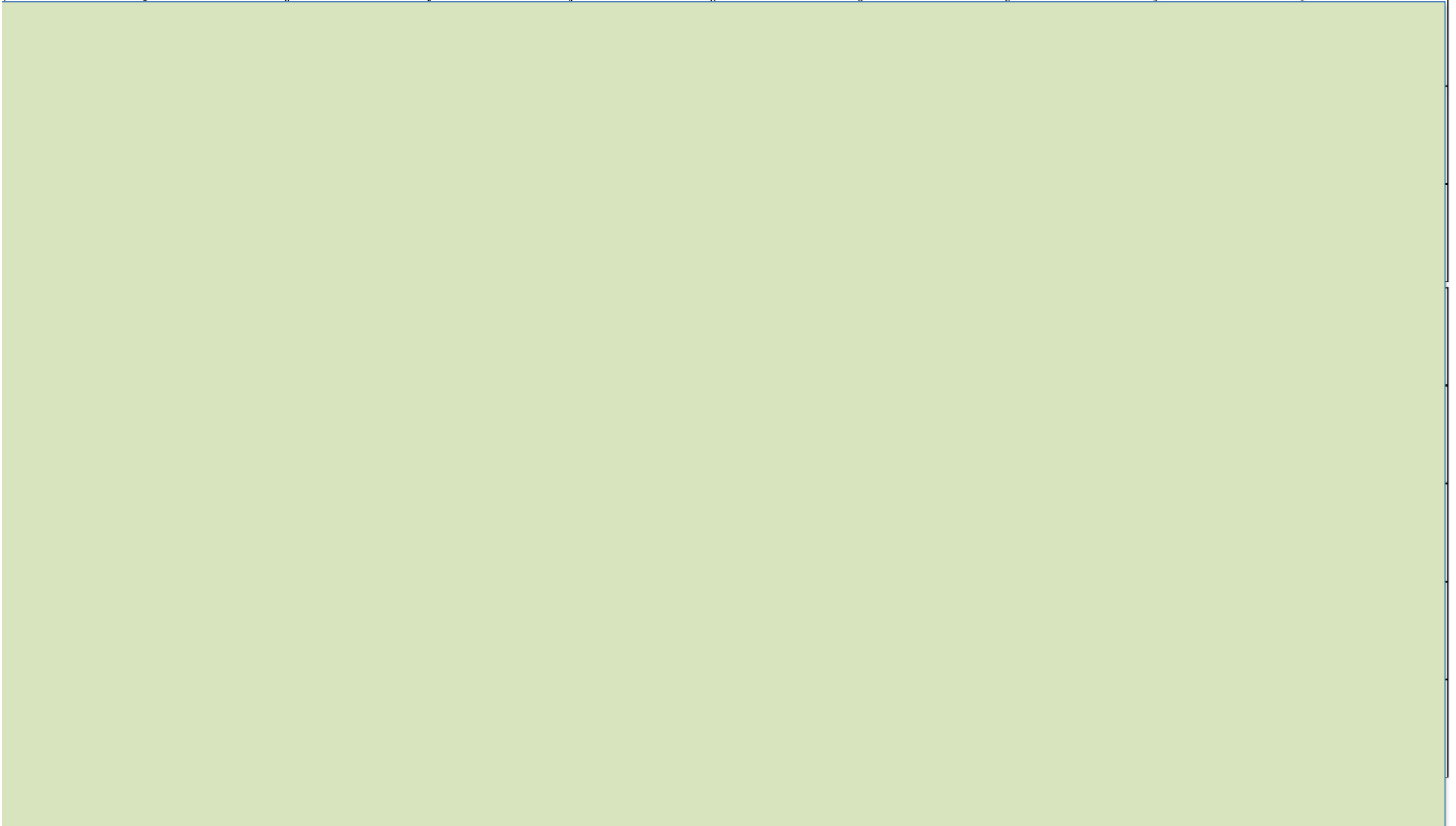
Zehn ist eins und Eins ist Zehn























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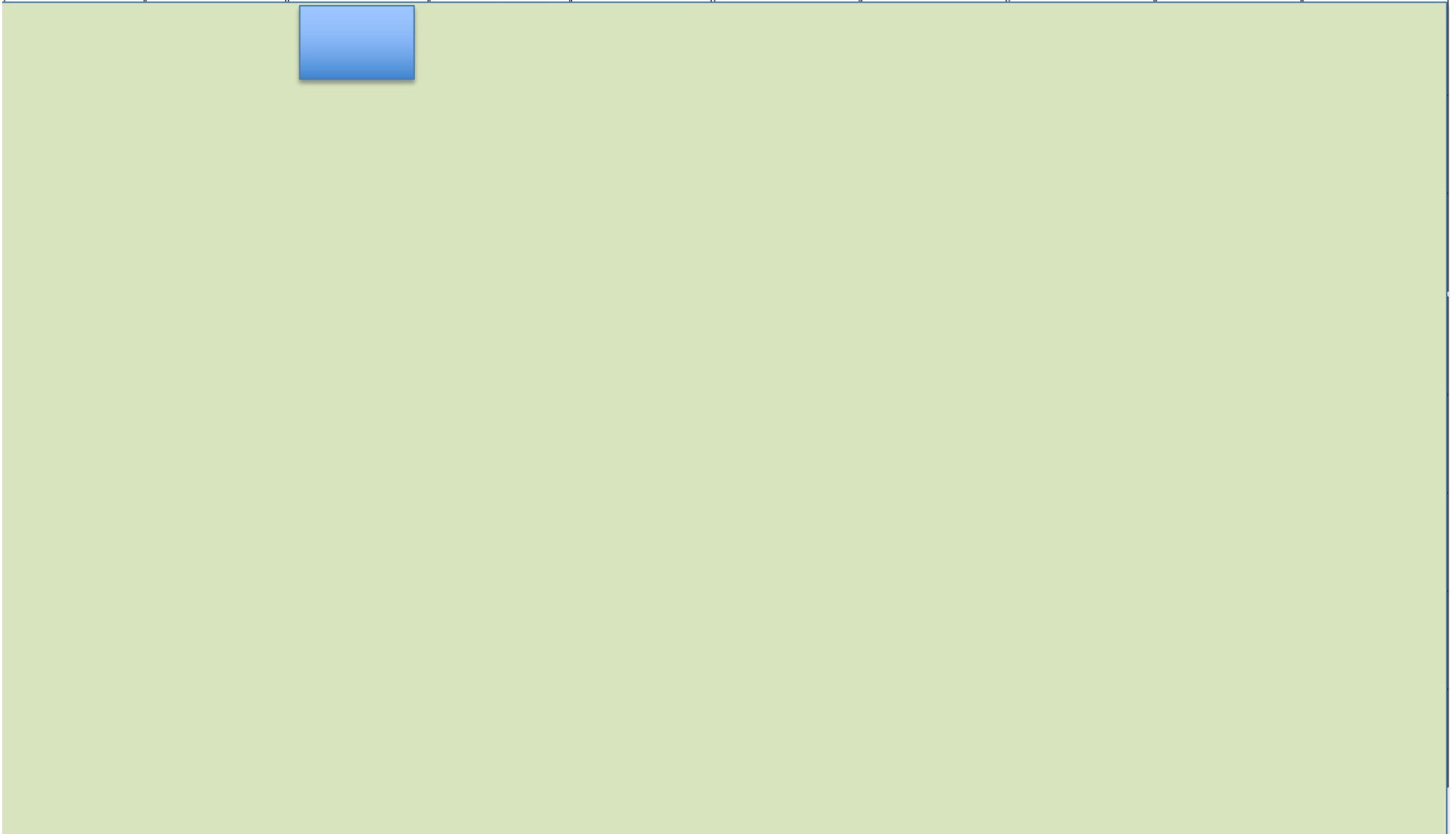
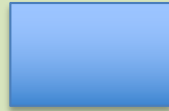
									
			 <small>© 2007 Johannes Hinkelmet</small>					 <small>© 2007 Johannes Hinkelmet</small>	

















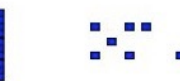
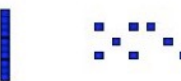
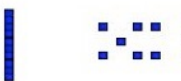



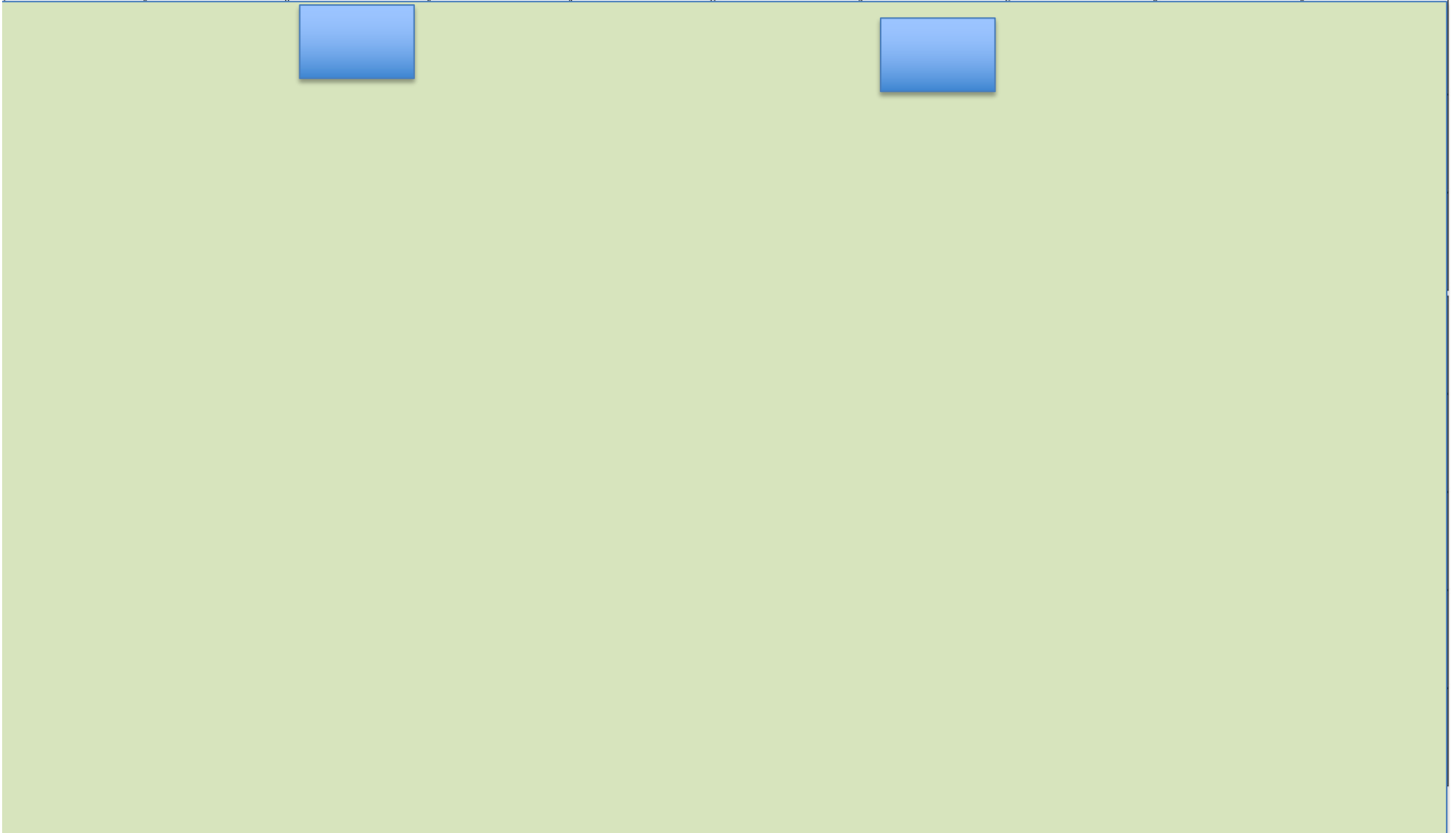
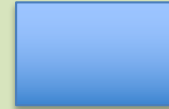
									
									









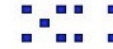











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