

# La'ò Hamutuk

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## Further explanation of the D'Hondt method

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For more information about the 2018 Early Parliamentary Election, see  
<http://www.laohamutuk.org/Justice/2018/EIPar/18AntElec.htm>

This method is based on the following formula:

$$N = \frac{V}{s+1}$$

Where:

N = the number of votes to decide whether a party or coalition will get the seat to be allocated in a given calculation round

V = the total number of votes a party received

s = the number of seats which were already allocated to the party in previous calculation rounds.

This formula is used in a series of calculation rounds, which continue until all 65 Parliamentary seats have been allocated. In each round, if the party won the seat in the previous round, the bottom of the fraction on the right side of the equation goes up, so the value of that party's N in the next round goes down. Thus, for every seat that a party wins, it has a reduced ability to get another seat. A party's N value does not go down in a given round if it did not win the seat in the preceding round.

The method described in RDTL Law No. 6/2006 is a shorter, faster way of getting the same answer.

The example table below only shows the four parties and coalitions which got more votes than the 4% threshold, and it only shows the process to get eleven parliamentary seats to make it simpler to understand.

Seat	PD	FRETILIN	FDD	AMP	The round's winner	Explanation
1	50,370	213,324	34,301	<b>309,663</b>	AMP	The 1 <sup>st</sup> seat goes to AMP, who has the highest number of votes
AMP's next number is based on this formula: $N(\text{AMP}) = \frac{309,663}{1+1} = 154,832$						
2	50,370	<b>212,324</b>	34,301	154,832	Fretilin	The 2 <sup>nd</sup> seat goes to Fretilin, who has the highest number of votes
Fretilin's next number is based on this formula: $N(\text{Fretilin}) = \frac{212,324}{1+1} = 106,662$						
3	50,370	106,662	34,301	<b>154,508</b>	AMP	The 3 <sup>rd</sup> seat goes to AMP
AMP's next number is based on this formula: $N(\text{AMP}) = \frac{309,663}{2+1} = 103,221$						
4	50,370	<b>106,662</b>	34,301	103,221	Fretilin	The 4 <sup>th</sup> seat goes to Fretilin
Fretilin's next number is based on this formula: $N(\text{Fretilin}) = \frac{212,324}{2+1} = 71,108$						
5	50,370	71,108	34,301	<b>103,221</b>	AMP	The 5 <sup>th</sup> seat goes to AMP
AMP nia númeru tun bazeia ba formula: $N(\text{AMP}) = \frac{309,663}{3+1} = 77,416$						
6	50,370	71,108	34,301	<b>77,416</b>	AMP	The 6 <sup>th</sup> seat goes to AMP
7	50,370	<b>71,108</b>	34,301	61,993	Fretilin	
8	50,370	53,331	34,301	<b>61,993</b>	AMP	
9	50,370	<b>53,331</b>	34,301	51,611	Fretilin	
10	50,370	42,665	34,301	<b>51,611</b>	AMP	
11	<b>50,370</b>	42,665	34,301	44,238	PD	
... 65						The formula continues until all 65 seats are allocated

AMP won the first seat because it had the most votes, but then its N value went down to half of its total, so Fretilin won the second round. When Fretilin's N value then down to half in the third round, AMP's was the biggest, so AMP won the third round. After 10 rounds, both AMP's and Fretilin's had gone down enough that PD's was the highest, so it won round 11. The process continues like this until all 65 seats are allocated.

La'o Hamutuk has made a short video to explain the above table in more detail. You can watch it streaming at <https://www.youtube.com/watch?v=q9zr-nsR82I> or download the 15 MB file from <http://www.laohamutuk.org/Justice/2018/EIPar/LHdHondt.mp4>.

You can also watch a short Tetum video from CNE/STAE at <https://www.youtube.com/watch?v=9pAQFc5zvUQ> for a brief explanation of the D'Hondt Method. It uses the same method, but does not show the rounds of the calculation. It divides every party's total by all the numbers 1 through 5, and then it picks the largest numbers to get the each party's number of seats in its example. The same outcome would result from doing it by rounds, as in the following table:

Round	Rock	Paper	Scissors	This round's winner
1	100	80	70	Rock
2	50	80	70	Paper
3	50	40	70	Scissors
4	50	40	35	Rock
5	33	40	35	Paper