Basic Probability Primer for ASL

(von Marwitz)

Knowlegde about the basic probabilities of a dice roll (DR in ASL terms) is absolutely crucial if you want to get anywhere playing ASL. Time and again you need to know just how your chances are to get a NMC result for your attack on that pesky enemy unit. Of course, as soon as two dice are involved, there is *not* the same chance to roll a 7 or a 3 nor 7 or less or 3 or less to make an example. The following is to help you understand the very basics of the probabilities involved.

If you roll two six-sided dice, a DR in ASL terms, you have a 100% chance - of course - to roll one of 6 x 6 = 36 possible combinations or ways of pip values. 100,0% divided by 36 gives you a 2,8% chance for each possible pip value combination (rounded). To come to grips with probablities for a (single!) DR it is all about understanding/adding up those 2,8% portions of probability for your result. To visualize this, refer to the tables below.

W1/C6, W2/C5, W3/C4, W4/C3, W5/C2, W6/C1 W=White Die, C= Colored Die
Chances to roll **exactly 7**: 6 ways x 2,8% = 16,7%

W1/C2, W2/C1 W = White Die, C = Colored Die
Chances to roll **exactly 3**: 2 ways x 2,8% = 5,6%

Above you see that there are a lot more possible combinations for adding up the pips of two dice for a result of exactly 7 than for a result of exactly 3. A 7 is about three times as probable as a 3.

Most of the time in ASL you are not interested in rolling an *exact* result but rather rolling *less or equal* to a certain number with a DR. To figure out the chances to roll less or equal to 3, you basically add up the chances to roll exactly 2 plus the chances to roll exactly 3. There is one way to roll (W1/C1 - 2,8%) plus two ways to roll 3 (W1/C2, W2/C1 - 5,6%), so three ways altogether for 3 x 2,8% = 8,3% (rounded). That way, rolling less or equal to 7 is about seven times as probable as rolling less or equal to 3. That is a most significant insight especially if you need a low roll for a possible effect.

Pip Value		Colored Die					
		1	2	3	4	5	6
White Die	1	■	■	■	■	■	■
	2	■	■	■	■	■	
	3	■	■	■	■		
	4	■	■	■			
	5	■	■				
	6	■					
Chances to roll **7 or less**: 21 ways x 2,8% = 58,3%							

Pip Value		Colored Die					
		1	2	3	4	5	6
White Die	1	■	■				
	2	■					
	3						
	4						
	5						
	6						
Chances to roll **3 or less**: 3 ways x 2,8% = 8,3%							

What helped me a lot in my play is putting the follwing table next to my gaming board until I roughly memorized the values:

Sum of Spots	Ways to get this sum	Probability of each sum	Total # of ways	Cumulative probability	Times CD<WD	Total # of ways	Cumulative probability
2	1	2,8%	1	2,8%	0	0	0,0%
3	2	5,6%	3	8,3%	1	1	2,8%
4	3	8,3%	6	16,7%	1	2	5,6%
5	4	11,1%	10	27,8%	2	4	11,1%
6	5	13,9%	15	41,7%	2	6	16,7%
7	6	16,7%	21	58,3%	3	9	25,0%
8	5	13,9%	26	72,2%	2	11	30,6%
9	4	11,1%	30	83,3%	2	13	36,1%
10	3	8,3%	33	91,7%	1	14	38,9%
11	2	5,6%	35	97,2%	1	15	41,7%
12	1	2,8%	36	100,0%	0	15	41,7%

The most interesting column is the fifth one which displays the chances to roll less or equal the sum of spots for a DR. A very relevant observation is the following:

In ASL there are modifiers to DRs abound: TEM, Hindrances, FFMO, FFNAM, and TH modifiers just to name the most prominent ones. But for the purposes of getting a result, for example a -1 FFMO, modifier is not always equally effective.

Let's assume you need a DR of 3 or less to effect a NMC on a unit. Referring to the above table, we see that there's a 8,3% chance for that. In case we could add the -1 FFMO modifier, a DR of 4 or less (16,7% chance) would be enough. In this case the advantage of having the -1 FFMO modifier is 16,7% less- 8,3% = extra 8,4% chance of effecting the NMC.

However in the middle range of possible DR results, this advantage is much more pronounced: If you need a DR of 6 or less to effect a NMC, chances are 41,7%. Calculating in that extra -1 FFMO modifier a DR of 7 or less (58,3% chance) would suffice for the NMC effect. Here we have 58,3% less 41,7% = extra 16,6% chance of effecting the NMC.

So DRM are most powerful if they help shifting the Final DR you need into the middle range of possible dice results on the attack or out of the middle range on the defence.

Columns 6 to 8 of the above table give probabilities of the colored die being less than the white die. These chances are useful to know for attacks vs. HD targets for example.

The advice I can give you for getting the most out of probablities with the least effort regarding ASL is to memorize the percentages of rolling less or equal to a DR result of column 5 of tehe above table.

Chances are, that this will help your play significantly.

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