(L) Easy-Peasy-Malagasy (1/5)

L1.

   a. fito
   b. valo amby enimpolo sy sivinjato sy dimy arivo sy alina
   c. telo amby fitopolo sy dimanjato sy sivy arivo sy sivy alina
   d. valo amby telopolo sy eninjato sy valo alina
   e. fito ambin'ny folo sy valonjato

The solved crossnumber puzzle:

|				
¹7	²7	■	³1	⁴7
⁵9	0	⁶3	6	4
⁷7	1	2	1	5
⁸1	5	9	8	6
⁹1	0	■	¹⁰7	1

Further Explanation

This chart shows how to say all pertinent place values in Malagasy:

Digit	x 1	x 10	x 100	x 1,000	x 10,000
1	iray/iraika	folo	zato	arivo	alina
2	roa	roapolo	roanjato	roa arivo	roa alina
3	telo	telopolo	telonjato	telo arivo	telo alina
4	efatra	efapolo	efajato	efatra arivo	afatra alina
5	dimy	dimampolo	dimanjato	dimy arivo	dimy alina
6	enina	enimpolo	eninjato	enina arivo	enina alina
7	fito	fitopolo	fitonjato	fito arivo	fito alina
8	valo	valopolo	valonjato	valo arivo	valo alina
9	sivy	sivifolo	sivinjato	sivy arivo	sivy arivo

Other notes

- Digits are written from left to right with the digit of lowest magnitude coming first.
- Between each digit is a connecting word, chosen as follows:
  - If the word is connecting the ones place and the tens place, and if the tens place is 1, then the word used is *ambin'ny*.
  - If the word is connecting the ones place and the tens place, and if the tens place is not 1, then the word used is *amby*.
  - In all other cases, *sy* is used.
- 1 is *iray* on its own but *iraika* when it is the ones digit of a larger number.
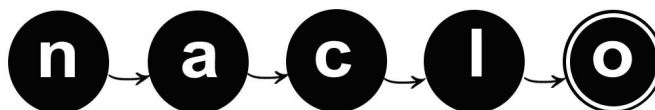
(L) Easy-Peasy-Malagasy (2/5)

Simple Path to the Solution

(1) Note that the answer to Sivy-Across is *folo*, which is also the number for a different across answer. Because all answers are at least 2 digits long, and because 10 is the only answer number that is not a single digit, *folo* must mean 10. Since this is 2 digits long, Sivy-Across has to be 1-Across, 3-Across, 9-Across, or 10-Across. It cannot be 1- or 3- Across because that would mean that 2- or 4-Down would start with a zero (which is not allowed, as stated in the directions), and it cannot be 10-Across because we know that *folo* (not *sivy*) means 10. Therefore, *sivy* must mean 9, and we can fill in that answer in the grid:

1	2		3	4
5		6		
7				
8				
9 1	0		10	

(2) Notice that two numbers, 1 and 3, appear as the numbers for both an Across and a Down answer. *Iray* and *telo* are the only Malagasy answer numbers that appear in both Across and Down, so they must correspond to 1 and 3 (though we do not know yet which is which). The remaining three Across numbers (5, 7, and 8) must correspond to *dimy*, *fito*, and *valo*, in some unknown order.

(3) Notice that every answer follows the form [Word that is also an answer number] [*amby* or *ambin'ny*] [*folo* or word ending in -*polo*] [*sy*] [*zato* or word ending in -*jato*] [*sy*] [*arivo* or two words, the second of which is *arivo*] [*sy*] [*alina* or two words, the second of which is *alina*]. Note that not all answers include all slots, but when present the slots are always in this order. From this pattern, it is likely that *amby/ambin'ny* and *sy* act as connectors, probably meaning "and," and that the other five slots correspond to the (at most) five digits present in the answers.

(4) The next big discovery that the solver must make is that the digits are listed in reverse order--i.e., 1,234 is spelled out as "four and thirty and two hundred and one thousand." There are many ways to figure this out, but here is one example of how to do so: Notice that, from the number template in (3), the last few slots are always null in any two-digit numbers. That is, no two-digit answers have anything in the [*zato* or word ending in -*jato*] slot or the [*alina* or two words, the second of which is *alina*] slot or the [*arivo* or two words, the second of which is *arivo*] slot. This means that the later slots probably stand for the higher digits because those are the digits that are not present in 2-digit numbers. It also makes sense that the first slot [Word that is also an answer number] is the ones digit, since the answer numbers (except for 10) are all the single digits; in addition, we know that *folo* means ten, so it makes sense that the second slot [*folo* or word ending in -*polo*] is the tens place. Thus, we can conclude that the digits are listed from lowest power of ten to highest. This gives us the following correspondences between slots and powers of 10:
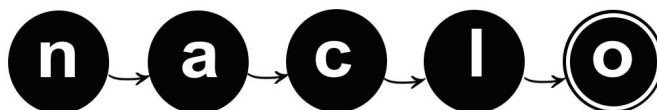
(L) Easy-Peasy-Malagasy (3/5)

1: [Word that is also an answer number]
10: [*folo* or word ending in *-polo*]
100: [*zato* or word ending in *-jato*]
1,000: [*arivo* or two words, the second of which is *arivo*]
10,000: [*alina* or two words, the second of which is *alina*]

(5) Remember from (2) that *iray* and *telo* stand for 1 and 3, not necessarily in that order. We already know that the last digit of 1-Down is 1 (because we filled in 9-Across as 10). Since 1 is the last digit in the numeral, we know it will be the first digit listed in the spelled-out number. The first digits of Iray-Down and Telo-Down are *iraika* and *fito*, respectively, so one of those must mean 1. Since we know that either *telo* or *iray* means 1 and that either *iraika* or *fito* means 1, it makes the most sense to say that the similarly spelled *iray* and *iraika* are two forms of 1. This also means that *telo* is 3.

(6) 10-Across is *iraika amby fitopolo* which means that its ones digit is 1. 4-Down has to have the same ones digit as 10-Across, and since Efatra-Down is the only down answer starting with *iraika* (other than Iray-Down, which we already know is 1-Down), *efatra* must mean 4. We can now also fill in that 1 in the grid:

1	2		3	4
5		6		
7				
8				
9 1	0		10	1

(7) The two Down numbers left to identify are 6-Down (which is 3 digits long) and 2-Down (which is 5 digits long), which must match up to Enina-Down and Roa-Down. Both Enina- and Roa-Down only seem to list 3 digits. However, Roa (unlike Enina) includes an *alina* digit, which from the template we know to be the ten thousands digit. Therefore, Roa must be the 5-Digit one. This means *roa* is 2 and *enina* is 6. We can now fill in the ones digit of Enina-Down, since we know *sivy* means 9.

1	2		3	4
5		6		
7				
8		9		
9 1	0		10	1

(8) Valo-Across has a hundreds digit of *sivinjato*, and no other Across answers have this same hundreds digit. Since *sivy* means 9, *sivinjato* is probably 900. With the 9 we just added in (7), this tells us that *valo* means 8.
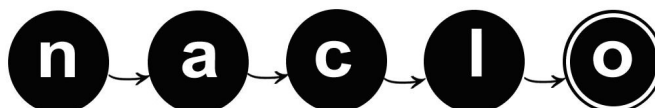
(L) Easy-Peasy-Malagasy (4/5)

The hundreds digit of Dimy-Across (*telonjato*) matches the hundreds digit of 6-Down, and 5-Across has the same hundreds digit as 6-Down, so *dimy* must mean 5. This leaves *fito* to mean 7. We now know all the digits from 1 to 10:

- 1 = iray/iraika
- 2 = roa
- 3 = telo
- 4 = efatra
- 5 = dimy
- 6 = enina
- 7 = fito
- 8 = valo
- 9 = sivy
- 10 = folo

(9) We can now fill in all the ones digits of all the answers:

1	2 7		3	4 7
5		6		4
7				5
8		9		8
9 1	0		10 7	1

(10) Now 4-Down is completely filled in and can be used to understand the higher-valued digits (if the solver didn't figure this out already). The tens digit is *folo* (for ten) or, for a number (k * 10), it is the word corresponding to the digit k followed by the suffix -*polo* (possibly with some phonological changes at morpheme boundaries). The hundreds digit is similar, except with *zato* as the base word (meaning 100) which becomes the suffix -*jato*. Lastly, the thousands and ten thousands place are denoted by [number] *arivo* or [number] *alina*, where [number] is null if the digit is one but is the name of that single digit otherwise. At this point, it is also worth noticing that the connector *ambin'ny* is used between the ones and tens places if the tens place is 1; the connector *amby* is used between the ones and tens places otherwise; and the connector *sy* is used between all other decimal places. Using this, we can fill in the rest of the grid:

1 7	2 7		3 1	4 7
5 9	0	6 3	6	4
7 7	1	2	1	5
8 1	5	9	6	8
9 1	0		10 7	1

n → a → c → l → o
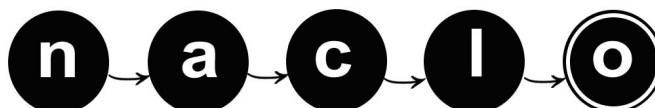
(11) Answering the questions:
- *a* and *b* are both numbers taken from the grid; thus, we can already answer those immediately.
- *c* is a new number, but each separate digit has been seen before: 90,000 is *sivy alina*, 9,000 is *sivy arivo*, 500 is *dimanjato*, 70 is *fitopolo*, and 3 is *telo*. Thus, this overall number is *telo amby fitopolo sy dimanjato sy sivy arivo sy sivy alina*
- For *d* and *e*, there are values we have not seen yet. It is helpful to refer to this table of the values we have seen:

Digit	× 1	× 10	× 100	× 1,000	× 10,000
1	iray/iraika	folo	zato	arivo	alina
2	roa	roapolo	roanjato		
3	telo		telonjato		
4	efatra			efatra arivo	
5	dimy	dimampolo	dimanjato	dimy arivo	
6	enina	enimpolo		enina arivo	
7	fito	fitopolo	fitonjato		fito alina
8	valo	valopolo			
9	sivy		sivinjato	sivy arivo	sivy arivo

- In *d*, we have 80,000; 600; and 30 as unfamiliar digits. The ten thousands place is formed very regularly as [digit] *alina*, so it is easy to see that 80,000 is *valo alina*. 600 is trickier: we have to notice that 50 and 500 are *dimampolo* and *dimanjato*, respectively, and therefore the fact that 60 is *enimpolo* means that 600 is likely *eninjato* (rather than, say, *eninanjato*). Lastly, since digits written as 3 seem to follow the same pattern as digits written as 7 or 8, it is most likely that 30 is *telopolo*. This gives a final answer of *valo amby telopolo sy eninjato sy valo alina*.
- In *e*, 800 is new, but comparison with 700 and 300 give us *valonjato* as a likely representation of it. Remembering from (10) that *ambin'ny* is used as the connector when forming a number in the teens, we get *fito ambin'ny folo sy valonjato*.