

# How to Get a Date in Malagasy

*and other useful things you can do with numbers*


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## 1. Introduction


Numbers are a part of everyday life in just about every human society. From currency to pets, humans tend to count the things around them. The Malagasy are no exception to this pattern and their language has a rich and interesting number system. In this paper, I will catalogue the cardinal units, enumerate the ordinals, and show how smaller numbers are combined to form larger numbers. I will also give a few examples of the uses of numbers in day-to-day existence. Along the way, expect to find commentary on interesting phonological processes that occur when the numeric forms are brought into each other's vicinity.

## 2. Cardinals 1 - 10

The table below shows the cardinal numbers from one to ten. Like all Malagasy words, in normal speech, numbers can be quite reduced. On the other hand, Noro has said that number words are the less likely to reduce than other classes of words. 

<i>English</i>	<i>full form</i>	<i>common form</i>
one	iráj	raj
two	rúa	row
three	télu	telu
four	efat'	efat'
five	dimi	dimj
six	énina	jenna
seven	fítu	fítu
eight	válu	valu
nine	sívi	sivj, siiv
ten	fúlu	fulu

It is interesting, perhaps, that the reduced form of *iraj* is [raj]---interesting in that it is the initial vowel that is elided whereas the other forms all display weakening of the final vowel. Certainly this

difference is related to the stress (final on *iraj*, initial on the others), but it *iraj* is so often pronounced [raj] that one begins to doubt that the initial vowel is even there at all.  section 7.3 I discuss some evidence that shows we really need to take the initial [i] seriously, but at this point I would like to point out that there is a similar phenomenon with the [i] of *Ikutu*, which normally is only heard as palatalization on the [k].


### 3. Ordinals

The ordinal numbers in Malagasy are formed with the prefix/wordlet *fah*. The first ordinal has a suppletive, which is *voa-lua-n*, or “from the head.”

<i>English</i>	<i>Malagasy</i>
first	voaluan
second	fah ru
third	fah telu
fourth	fah efat <sup>r</sup>
10,000 <sup>th</sup>	fah fularivu



### 4. Larger Cardinals

#### 4.1 Multiples of Ten


The multiples of ten are formed with the affix /-pulu/, which seems to be a variant of *fulu* 'ten'. 

<i>English</i>	<i>Malagasy</i>
ten	fulu
twenty	ruapulu
thirty	telupulu
forty	efatpulu
fifty	dimapulu
sixty	jen(i)pulu
...	...
ninety	siv(i)fulu
hundred	zatu

A few interesting things happens here. In *efatpulu* 'forty', the [t<sup>r</sup>] that appears in other forms of 'four' is replaced with a plain [t]. This alternation is seen elsewhere in the language in allomorphs of different verbs forms (e.g., *manuratra* 'to write' / *suratu* 'write!'); here it is perhaps a case of assimilation in manner by the [t<sup>r</sup>] to the [p]. In *dimapulu* 'fifty', the vowel seems to have

inexplicably dropped; I worry that one of my transcriptions is in error, but I have double-checked both forms. Finally, there is *sivifulu*---it appears with [fulu] instead of [pulu]  the likely cause of this is the preceding [v]; similar things in proximity often become more similar. Like *efatpulu*, this involves would involve assimilation in manner, but in the opposite direction. Noro occasionally says [sivipulu], so I suspect that the spirantization only occurs when the [v] and [p] are immediate neighbors (i.e., when the intermediate [i] is missing). 


## 4.2. The Awkward Teens (and Onward Towards 100)


In the teens, Malagasy introduces the morpheme *ambi*. Many numbers with multiple components use this morpheme to combine their parts. According to Noro this morpheme is not related to *manampi* 'to add', but I suspect that these forms are connected as I know no other meaning for *ambi* other than to combine numbers. 

<i>English</i>	<i>Malagasy</i>
eleven	iraj kambi fulu
twelve	ruw ambi fulu
thirteen	telu ambi fulu

The interesting thing in this part of the number line is eleven, which has a variant of *ambi*, [kambi]. I currently have no hypothesis as to the nature of this variation. After eleven, the numbers from twelve to 99 are (to my best knowledge) completely regular and of the form UNITS *ambi* TENS. As an example, 23 is *telu ambi ruapulu*.

## 4.3. Multiples of 100

The multiples of 100 are formed by adding combining the units with *zatu* 'hundred'. In general the combination is done with a particle [n], which is possibly a short form of *aman* 'times'.  *ndzatu* '100' is the result of [raj] + [n] + [zatu], with a regular, “post-lexical” process in Malagasy that changes [z] to [dz] after [n]. This pattern would also match 200 (*rua + n + zatu = ruandzatu*) and in this case one can also say *ru'amandzatu*. The problematic form is [efadzatu] '400'. Here not only is the [n] missing (as well as the final [tʰ] of *efatr*), but the normal process of [nz] → [ndz] has taken

place. An explanation for the absence of [t]---and so, indirectly, additional evidence for this analysis---might come from the alternation in the forms of *latabatr* 'table': [latábat'u] 'my table' and [latábani] 'his table', where it seems that [t] has deleted before [n]. 

<i>Numeric</i>	<i>Malagasy</i>
100	rajndzatu
200	ruandzatu
400	efadzatu
...	...
1000	arivu

#### 4.4. The Land of 1000 Dances

Perhaps because it is a vowel-initial word, *arivu* plays relatively well with the other morphemes. The interesting thing here is that there is an alternate morpheme apparently in free variation with *arívu*: *álima*. Noro states confidently that there is no difference between the two, and I have not observed her favoring one form over the other. On the other hand, the stress is different in the two forms, so one might imagine that certain prosodic contexts might bias the selection one way or the other.

<i>Numeric</i>	<i>Malagasy</i>
1000	rajarívu, rajálima
2000	rowarívu, rowálima
4000	efat'arívu, efat'álima
10000	fularívu, fulálima

#### 4.5. Yet Larger Numbers


I know of three very large cardinals: *jetsi* '100,000'; *tapitris* '1,000,000'; and *lavitris* '1,000,000,000'.

Unfortunately, I do not know how they combine with other numbers.


### 5. Putting It All Together

#### 5.1. Adding things up under 1000

The numbers between 100 and 999 are formed in much the same way as the teens. The order is extended in a straight-forward way; just as the numbers less than 100 were UNITS *ambi* TENS, the numbers from 100 to 999 are UNITS *ambi* TENS *ambi* HUNDREDS. For example, 123 can be

said *telu ambi ruapulu ambi zatu* or *telu ambi ruapulu ambi rajndzatu*; ch I imagine correspond fairly well to English “a hundred twenty-three” and “one hundred and twenty-three.”

## **5.2. If You Happen upon a Small, Green Portrait of Grover Cleveland (and some Change)...**

...or a purplish picture of a man playing a wooden flute, chances are you have over a thousand monetary units; if you want to discuss them with someone else, you will have to use a different way of putting numbers together. After the lesser triple (ones, tens, hundreds) has been added up, the thousands are added in with with normal conjunction *si* 'and'. us *telu ambi ruapulu ambi zatu si efatralina* is 4123.

## **6. How to Get a Date (as Promised)**

So what good are these numbers if you are not using them in the real word. To this end, I will demonstrate the process of getting a date in Malagasy:

**Q:** *Inuna ni dati andrwani?*

What the date today

What is the date today?

**A:** *Fah telupulu ni vulana andrwani.*

ORD thirty the month today

Today is the 30<sup>th</sup> of the month.



## **7. Other Useful Things to do with Numbers**

I promised these, too.

### **7.1. Add Them**

Like English, Malagasy has sentences like “one and one are two”---*iraj si iraj rua*---as well as sentences like “one plus one is two”: *irai ampi iraj rua*.

### **7.2. Multiply Them**

To express multiplication, use *aman*: *rua aman telu enina* “two times three is six.”

### 7.3. Talk about Quantities

In the following conversation, we see that when answering questions about quantities, the numbers take on a special form involving the prefix *anak-*. This is the one form where I have been consistently able to hear the [i] in *iraj*, but it is audible and consistent to a degree that I now feel confident that the [i] is really there in the mental representation.

**Q:** *Firi ni alikja itanaw?*

How many ? dog see-2S

How many dogs did you see?

**A:** *Ni anakrua amni nu itaku.*

? two “among” FOCUS see-1S

I saw two of them.



## 8. Conclusions

This paper has shown Malagasy has given strong evidence that Malagasy can express any integer. Although I have shown no cardinals longer one billion, I submit that the results of this squib support Leston Buell's claim that “EXPRESS INTEGER” is an undominated constraint in the world's languages. Numbers in Malagasy can be used for many practical tasks, such as inquiring for the current date and determining the number of dogs that just went by. To further this research, one would ideally find forms for the cardinals larger than one billion and determine how they combine with the lower forms.

