28 Malagasy (Austronesian)

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1 Background

Malagasy is a West Austronesian language spoken by over 12 million people throughout the island of Madagascar. Its closest relatives (Dahl 1951) are the South-East Barito languages such as Maanjan in Kalimantan (Borneo). Dahl (1951, 1988) and Simon (1988) argue that around AD 400 the proto-Malagasy migrated north from Kalimantan, their language undergoing modest phonological influence from Sanscrit, then moved along the coast of the Indian Ocean, down the east coast of Africa, across the Mozambique Channel into the Comoro Islands, with significant Bantu influence on both phonology and syllable structure. Then they moved into the northern part of Madagascar, spreading thence throughout the island in two main dialect groups, Western and Eastern.

The earliest writing in Malagasy was in an Arabic script, but it was only with the formal adoption of a Latin script (minus C, Q, U, W and X) by King Radama I and the establishment of schools in the early 1820s that writing became widespread. The first Malagasy newspaper appeared in 1826. The large Richardson Malagasy–English dictionary appeared in 1885, and the standard, excellent Malagasy–French dictionary of Abinal and Malzac (henceforth A&M) appeared in 1888. By the late nineteenth century a tradition of high-quality grammar writing had been established, notably Cousins 1894, Ferrand 1903, Malzac 1926, Rajaobelina 1960, Rahajarizafy 1960, Rajemisa-Raolison 1971, and Rabenilaina and Razafindrakoto 1987, 1989.

Typologically Malagasy is both verb-initial and subject-final; it exhibits the major properties of head-initial languages: it is exclusively prepositional; complementizers and subordinate conjunctions precede their clause; adjectives, quantifiers, and possessors follow the noun, though definite articles and proper name articles precede, and demonstrative adjectives flank, the noun. NP objects follow verbs of all voices; prepositional phrases occur between direct objects and the subject. Negation is preverbal, and manner adverbs, homophonous with adjectives in simple cases, occur postverbally, often separating a transitive

verb and its object. Yes–no question particles occur just before the subject. Temporal adverbs usually occur after the subject.

Morphologically Malagasy presents significant suffixing, but, as expected of head-initial languages (Greenberg 1966, Hawkins and Cutler 1988), is dominantly prefixing. There is some infixing and a little circumfixing.

Malagasy presents an extensive system of verb-based derivational morphology, specifically the same rich voicing system with the same functional load that we see in the languages of the Philippines and Sabah (N. Borneo). Any major NP of a clause – Agent, Theme, Patient, Benefactee, Instrument, etc. – can be presented as the subject (variously called "nominative," "external," or "in focus"); only the subject relativizes (and, with some qualifications, extracts). Imperatives also have distinctive voice morphology. Also in common with other West Austronesian languages, reduplication is prominent in Malagasy, feeding in particular the voicing and nominalization systems.

1.1 Phonology

Our study is based on "official Malagasy," the form of the language in which most newspapers and government documents are printed. It draws heavily on the Merina dialect spoken in and around the capital, Antananarivo, but has incorporated various elements from regional varieties. Rajaona (1977) provides an informative discussion of the historical morphology of Malagasy which draws significantly on dialect variation. Verin et al. 1969 is a glottochronological study of dialect relatedness.

Malagasy has a four-vowel system: /i/, /u/, /e/, and /a/, noted *i*, *o*, *e*, and *a* respectively in Malagasy orthography – which we use in this study, occasionally augmented with stress diacritics. Word-final /i/ is written *y*. The diphthongs *ai*/*ay* and *ao* (the latter often pronounced /o/) are frequent, *oi*/*oy* less so. The consonants are shown in table 28.1. *dz* is written *j*. t^r, written *tr*, sounds much like the initial consonant in *church*, but the blade of the tongue just touches the upper part of the alveolar ridge, not the palate. d^r, written *dr*, is the voiced counterpart of *tr*, but its point of articulation seems to be slightly lower.[1] The *s* and *z* are closer to š and ž than the corresponding English phonemes. The prenasalized consonants ^{n}C/^{m}C are graphed nC/mC or n-C/m-C, where the orthographic hyphen indicates a morpheme boundary. *h* is often not sounded, but can be in slow speech; and even in rapid speech surfaces as [k] or [g] in various derived forms (below). Voiceless prenasalized consonants do not occur word-initially. (Many words begin orthographically with *mp-* and a few with *nt-*, but the nasal is not heard.[2]) In other positions the nasal of a prenasalized stop is sounded, even when the stop itself is voiceless. In all cases (Keenan and Razafimamonjy 1996a, henceforth K&R 96a) the distinction between C and ^{n}C/^{m}C is phonemic: for example, *tápoka* 'dilute' versus *támpoka* 'suddenly', *éto* 'here' versus *énto* 'carry (imper.)', *atráno* 'be prepared (imper.)' versus *an-tráno* 'at home'.

Table 28.1 Consonants in Malagasy

	Bilabial	*Labio-dental*	*Dental*	*Alveolar*	*Post-alveolar*	*Velar*	*Glottal*
Stops	p, b ^{m}p, ^{m}b		t, d ^{n}t, ^{n}d			k, g ^{n}k, ^{n}g	
Fricatives		f, v		s, z			h
Affricates				ts, dz ^{n}ts, ^{n}dz	t^{r}, d^{r} $^{n}t^{r}$, $^{n}d^{r}$		
Nasals	m			n			
Lateral				l			
Trill				r			

Syllables are of the form (C)V, where V is a vowel or a diphthong, though some nonfinal consonant clusters are heard in borrowings: *repoblika* 'republic'. Borrowings of longer standing tend to assimilate to the (C)V pattern: *dokotera* 'doctor', but there is much individual variation. Arguably (Dahl 1988) the Malagasy (C)V syllable pattern is a result of the early Bantu contact. It is not shared by Malagasy's Austronesian relatives, and it was characteristic of East Bantu during the contact period.

Stress is phonemic. We write 'for main stress,' for secondary stress, and leave unstressed syllables unmarked. Dipthongs do not occur preceding a syllable with main stress. Unstressed vowels other than *e*, especially word-finally, are often devoiced.

2 Morphology

The formation of words and phrases in Malagasy rides on the extensive and productive system of derivational morphology. We note first, however, a small amount of typologically interesting inflectional morphology. It occurs exclusively in deictic categories. There are no classical agreement phenomena, such as verbs agreeing with their arguments or nouns with their possessors. Nor are nouns inflected for number, class (gender), or case.

2.1 Inflectional morphology

Location names are obligatorily accompanied by a locative deictic which codes up to seven degrees of distance from the speaker as well as visible–nonvisible to speaker and past–nonpast. Contrast (1a, b):

(1) (a) Tsy eto an-tsekoly izy tompoko.
not here at-school he Sir
'He isn't here (close, non-past, visible) in school, Sir.'

(b) Niakatra tany Antananarivo izy omaly.
went + up there [far, past, non-visible] Antananarivo he yesterday
'He went up to Antananarivo yesterday.'

The full, nonpast series marking relative distance from the speaker and visibility is given in (2), with main stress penultimate unless marked otherwise:

(2)

NEAR				FAR			
etý	eto	eo	etsy	eny	eroa	erý	visible nonpast
atý	ato	ao	atsy	any	aroa	arý	nonvisible nonpast

Clearly the initial *e-/a-* contrast triggers the visible versus nonvisible to speaker interpretation.[3] Moreover, these forms, along with interrogative *aiza?* 'where?', accept an active verbal prefix *-ank-* meaning 'goes here/there/where?' as in (3), yielding verbal forms that inflect internally for visibility and relative distance:

(3) (a) H + ank + eto izy
fut. + act. + here he
'He will come here.'

(b) N + ank + any izy
past + act. + there he
'He went there.'

(c) M + ank + aiza ianao?
pres. + act. + where you (sg.)
'Where are you going?'

+ here and later marks morpheme boundaries and is not part of Malagasy orthography. To obtain the correct orthographic forms, erase + and concatenate. So *H + ank + eto* is *Hanketo*. Tense inflection on verbs is discussed later. The locative forms in (2) also combine with the root *hatra* to form binary locatives:

(4) Firy metatra hatreto ka hatrany?
how + many meters from + here and up + to-there
'How many meters is it from here to there?'

To form the past-tense series in (2), prefix the forms with *t-*, as in (5a). So here *t-* contrasts with ∅- in (5b). *t-* also marks past tense on some prepositions, notably the ubiquitous *amina* (accompaniment, instrument, source, goal, etc.):

(5) (a) N + iresaka t + amin-dRabe t + any Antsirabe izy.
past + spoke past + with-Rabe past + there Antsirabe he
'He spoke with Rabe in Antsirabe.'

(b) H + iresaka ∅ + amin-dRabe ∅ + any Antsirabe izy
Fut. + speak nonpast + with-Rabe nonpast + there Antsirabe he
'He will speak with Rabe in Antsirabe.'

Verbal tense marking and that on locatives and prepositions must agree. Replacing any of the ∅'s in (5b) with a *t-* results in ungrammaticality. *aoriana/taoriana* 'after' and *aloha/taloha* 'before', both of which function as prepositions, adverbs, and subordinate conjunctions, also inflect for *past* with *t-*, as does the interrogative *Aiza* 'Where? (nonpast)' versus *Taiza* 'Where? (+past)'.

(6) (a) Aiza i Baholy no m + itoetra?
Where art Baholy Foc pres. + live
'Where does Baholy live?'

(b) T + aiza i Baholy no n + itoetra?
past + where art Baholy Foc past + live
'Where did Baholy live?'

Again, replacing the verbal past tense *n-* in (6b) with future *h-* is ungrammatical.

Returning to (2) we see that demonstrative determiners are built on the same seven member series using *i-* in the place of *e-/a-*:

(7)

THIS		THAT		YONDER		
ity	ito	io	itsy	iny	iroa	iry

These forms normally flank the noun they specify (those in (2) may do so as well); sometimes they lack the postnominal copy, in which case, like definite articles, they reidentify something previously mentioned but not necessarily given in the nonlinguistic context.

(8) (a) ity bokin-dRabe ity
this book-of-Rabe this
'this book of Rabe's at hand'

(b) iry tanan-dehibe iry
yonder village-big yonder
'that large village very far away'

The demonstrative adjectives do not inflect for tense, but, unusually in Malagasy, they do for number, infixing a plural morpheme *-re-* after the initial *i-*.

(9) (a) io trano io
this house this
'this house'

(b) ireo trano ireo
these house these
'these houses'

(c) iny trano iny
that house that
'that house (far)'

(d) ireny trano ireny
those house those
'those houses (far)'

Note that the noun itself does not inflect for number; only its demonstrative does. In fact *-re-* is the only number inflection in the entire language, and the

only place it occurs besides the demonstratives is in the second-person pronoun: *ianao* (sg., nom.) versus *janareo* (pl., nom.). See table 28.2.

There are two other post *i-* infixes in the demonstratives, both somewhat less productive than *-re-*. The first is *-za-*, as in the adjectives/pronouns *izato*, *izao*, and *izany*, built from *ito*, *io*, and *iny*. The reference of these forms is not concrete and visible.[4]

(10) (a) amin'izao fotoana izao
prep'this time this
'at the present time'

(b) Tsy tsara izany
not good that (perhaps some general circumstance)
'That isn't good.'

The second inserts a prenasalized dental following *i-* with a presentative meaning 'Here it/he/she is': *inty* from *ity*, *intsy* from *itsy*, *indro* from *io*, *indry* from *iry*, and 'Here they are': *indreo* from *ireo* and *indreny* from *ireny* (both with the *-re-* infix).

2.2 Derivational morphology

Words and phrases in Malagasy are built from roots by a large variety of morphological operations: affixing, reduplication, and incorporation. By roots, we mean expressions which are not derived from other expressions. Many roots are words, but a nontrivial number are not. Our presentation broadly follows the derivational complexity of expressions: (1) roots, (2) reduplication, (3) noun-based morphology, (4) verb-based morphology, and (5) generalized incorporation.

2.2.1 Roots We use the several thousand roots in A&M together with the very many derived forms they present. Erwin (1996) presents an interesting alternative analysis of a sample of roots. We do not adopt that analysis here, as it lacks the extensive empirical coverage of A&M, but we will point out properties of A&M's "standard" analysis that motivate Erwin's proposals.

2.2.1.1 Prosodic properties of roots These are crucial to understanding Malagasy morphology and concern stress and syllabicity (see K&R 96a). One stress-level distinction is phonemic both in roots and in derived forms, and in each root just one syllable carries the main stress.

(11) Roots *tánana* 'hand', *tanána* 'village'; *lálana* 'path', *lalána* 'law'; *irý* 'there (far)', *íry* 'desire'; *áty* 'liver, interior', *atý* 'here' [close, not visible, nonpast]

Derived *manása* 'is washing', *manasá* 'Wash! (imper.); *míditra* 'is entering', *midítra* 'is being stubborn, ill-behaved'

2.2.1.2 One-syllable roots These are fairly numerous. Most are words. Those in (12) and (13) are grammatical morphemes, free standing in (12), bound in (13). Those in (14) are content words. (Stress marking on dipthongs is on the dominant vowel.)

(12) *sa* 'or (in questions)'; *fa* 'that (complementizer), but'; *na* 'whether'; *i* and *ry* 'proper noun articles'; *sy* 'and (phrasal)'; *ny* 'definite article'; *no* 'focus particle'; *ho* 'future'; *ka* 'and so'; *ve*, *va* 'question particle'; *tsy* 'not'; *mba* 'in order to'; *ao* 'there + nonvisible'; *táo* 'there + nonvisible + past'; *sáo* 'lest'; *háy/káy* 'exclamation'

(13) *-ko* 'my', *-náo* 'your (sg.)', *-ny* '3gen. (his, her, their)', *-náy* 'our (excl.)', *a-* 'passive', *ma-* 'adjective former'

(14) *fe* 'thigh'; *fy* 'delicious'; *fo* 'heart'; *be* 'big, many, very'; *ra* 'blood'; *lo* 'rotten, spoiled'; *la* 'refusal', *mby* 'arrived'; *re* 'heard'; *ro* 'sauce'; *to* 'true, just'; *vy* 'metal'; *zo* 'rights'; *tsy* 'steel'; *py* 'a blink'; *ráy* 'father'; *ráy* 'grasp'; *fóy* 'abandoned'; *vóy* 'action of rowing'; *hóy* 'is said'; *tóy* 'like'; *ndre/ndry* 'interjection of surprise or pain'; *táy* 'excrement'; *máy* 'burnt, hurried'; *láy* 'tent'; *mbáy* 'step aside'; *váy* 'a boil'; *ndáo* 'let's go'; *jáy* 'pride'; *jáo* 'big, a big steer with long horns'

2.2.1.3 Two-syllable roots (as well as $n > 2$ syllable roots) These overwhelmingly have penultimate main stress: *léla* 'tongue', *vády* 'spouse', *vítsy* 'few', *fótsy* 'white'. There are two sorts of exceptions: some borrowings: *zomá* 'Friday', *dité* 'tea' (< Fr. *du thé*), *diváy* 'wine' (< Fr. *du vin*), and some native roots, especially demonstratives, ending in /i/ or /i/-final diphthongs: *itý* 'this (near)', *intý* 'here is', *erý* 'there (far, visible, nonpast)', *izáy* 'that/comp.', *iráy* 'one', *iláy* 'the aforementioned'.

2.2.1.4 Three-syllable roots These are usually stressed on the penultimate syllable (15), unless they end in one of the "weak" syllables: *-na/-ny*, *-ka*, *-tra* (16).

(15) *omály* 'yesterday', *karáma* 'salary', *tanóra* 'young', *atsímo* 'south'

(16) *tánana* 'hand', *tápaka* 'broken', *vóhitra* 'hill', *ídina* 'descend', *íditra* 'enter', *sásany* 'some', *tókony* 'should', *fárany* 'finally', *tápany* 'half'

Roots ending in a weak syllable and having antepenultimate stress will be called "weak roots."[5] They figure prominently (K&R 96a) in Malagasy morphology. While synchronically arbitrary, their behavior receives a historical

account first presented and supported empirically by Dahl (1951: 105–15). Malagasy's close relatives, like Maanjan, present a variety of closed syllables. Dahl confirms that the shift to open syllables in Malagasy took place under Bantu influence when the Malagasy began settling in Madagascar. Certain word-final consonants, such as *h*, *s*, and *l*, were generally dropped, but words ending in *k*, *t*, *n*, and *r* added an *a* in conformity with the open-syllable pattern of Eastern Bantu. (Other changes also took place during this period, e.g. final $t \Rightarrow tr$.) We note that Erwin (1996) analyzes weak roots as consonant-final, lacking the final *-a*, which is later epenthesized (accompanied with certain consonant changes) in contexts in which the root is not suffixed or compounded.

Finally, there are a very few three-syllable roots with weak endings that are stressed penultimately (and so are not weak roots, as defined above):

(17) *tanána* 'village', *lalána* 'law', *rehétra* 'all', *baríka* 'barrel' (< Fr. barrique)

2.2.1.5 Roots of four or more syllables These assign secondary stress to every second syllable working back from the main stress. Within this group we distinguish: (1) borrowings: *làvarángana* 'verandah' (< Fr. 'la varangue'), *pàtalóha* 'pants' (< Fr. 'pantalon'); (2) words built from a root by the addition of a synchronically nonproductive) affix: *sarítaka* 'disorder' (prefix *sa-*), *sòmarítaka* 'preoccupied' (infix *-om-*); (3) frozen compounds: *àntsipíka* 'pocket knife' (< *ántsy* 'knife' + *píka* 'click'), *fàravòdilánitra* 'horizon' (< *fára* 'limit' + *vódy* 'posterior' + *lánitra* 'sky'); and (4), frozen reduplications where the base is no longer a root: *tàbatába* 'noise', *sàlasála* 'hesitation'. These reduplications are always of the form CV̀C'V' + CV́C'V', whereas productively formed reduplications have other shapes as well. Impressionistically, the secondary stress in frozen reduplications is stronger than that in the other types of $n>3$ syllable roots, but we know of no convincing way to show this, as these stresses are predictable from primary stresses and so are not phonemic.

2.2.1.6 Grammatical categories of roots These are very unevenly instantiated. There are many nouns, some adjectives (*manga* 'blue', *fohy* 'short'), several passive verbs (below), and smatterings of numerals, prepositions, and adverbs. There are virtually no active verbs and no circumstantial verbs at all. Active verbs are morphologically derived from roots (nouns, adjectives, passives, or just bases which are not themselves words), and circumstantial verbs are derived from roots + active prefixes. Many nominals are morphologically derived from verbs. We turn now to these morphological operations.

2.2.2 Reduplication

This is formally defined in Keenan & Razafimamonjy 1996a, c. Here we summarize its main features. It applies to roots preserving their category: reduplicated nouns are nouns, adjectives are adjectives, passives are passives, and verb bases are verb bases. In addition there are two listable cases in which reduplication applies to derived active verbs yielding active

verbs. The most common use of reduplication is to adjectival and verbal roots (whether passives or verbal bases). Its interpretation, as per our translations, is usually one of attenuation or diminution. Thus *fòtsifótsy* 'white white' means somewhat less white than simple *fótsy* 'white'. When applied to activity verbs, the result is sometimes frequentative: *mitény* 'speak' ⇒ *mitènitény* 'jabber'. Applied to nouns, which is less frequent, reduplication often has a pejorative effect: *latábatra* 'table' ⇒ *latàbatábatra* 'something approximating a table'. Also reduplication is used optionally without a weakening effect in the formation of comparatives.

(18) Faly (or falifaly) kokoa noho Rabe Rakoto 'Rakoto is happier than
happy *inten. against Rabe Rakoto* Rabe'

To reduplicate an expression *d*, first copy the right-hand part of *d* to its right, beginning with the stressed syllable. Then combine *d* and its (partial) copy, the "reduplicant," according to the general rules of combination (called "Basic" in K&R 96a). We exemplify the range of core cases below.

Roots with final stress:[6]

(19)

root	reduplicant	derived form
bé 'big, numerous'	*bé*	*bèbé* 'fairly big, numerous'
ló 'rotten'	*ló*	*lòló* 'somewhat rotten'
ráy 'grasp'	*ráy*	*ràiráy* 'touch everything'
indráy 'again'	*ndráy*	*indràindráy* 'sometimes'
vovó 'barking'	*vó*	*vovòvó* 'bark occasionally'
lèhibé 'big'	*bé*	*lèhibèbé* 'biggish'

So in this case we just suffix the reduplicant to the root, reducing the main stress in the root to secondary. The main stress in the derived form is inherited from the reduplicant. This pattern of copying, stress reduction, and inheritance holds for all the other cases of reduplication as well, a point we shall not repeat.

Roots with penultimate stress:

(20)

root	reduplicant	derived form
fótsy 'white'	*fótsy*	*fòtsifótsy* 'whitish'
máimbo 'stinky'	*máimbo*	*màimbomáimbo* 'somewhat stinky'
háfa 'different'	*háfa*	*hàfaháfa* 'somewhat different'
hadíno 'forget'	*díno*	*hadìnodíno* 'forget a bit'
saláma 'healthy'	*láma*	*salàmaláma* 'fairly healthy'
àlahélo 'sadness'	*hélo*	*àlahèlohélo* 'little sadness'

Roots with antepenultimate stress:

If the reduplicant is vowel-initial, the final vowel of the root elides (henceforth we only translate reduplicated forms if their meaning is exceptional):

(21)	root	reduplicant	derived form
	áloka 'shade'	*áloka*	*àlokáloka*
	évotra 'bouncing back'	*évotra*	*èvotrévotra*
	éntana 'baggage'	*éntana*	*èntanéntana*
	ántitra 'old'	*ántitra*	*àntitrántitra*
	ólika '(a) twist'	*ólika*	*òlikólika*

But if the first syllable of the reduplicant is consonant-initial, then the root endings *-ka* and *-tra* are deleted, and if the reduplicant begins with a continuant, it changes to its corresponding stop or fricative as given by the general correspondences in stop:

(22) stop f > p s > ts h > k r > d^r v > b z > dz l > d

Henceforth "stop" will refer to the replacement of the consonants to the left of the > by the ones to the right, keeping any other consonants unchanged.

(23)	root	reduplicant	derived form
	fántatra 'known'	*fántatra*	*fàntapántatra*
	sóratra 'writing'	*sóratra*	*sòratsóratra*
	héloka 'fault'	*héloka*	*hèlokéloka*
	résaka 'conversation'	*résaka*	*rèsadrésaka*
	várotra 'selling'	*várotra*	*vàrobárotra*
	závatra 'thing'	*závatra*	*zàvajávatra*
	lávitra 'far'	*lávitra*	*làvidávitra*

Finally, if a weak root ends in *-na*/*-ny*, drop *-na*/*-ny*, apply the stop to the initial consonant of the reduplicant, and then replace the resulting consonant by its prenasalized counterpart in table 28.1 if it has one, otherwise make no further change. This latter process will be called "nasal."

(24)	root	reduplicant	derived form
	sítrana 'cured'	*sítrana*	*sìtrantsítrana*
	sásany 'some'	*sásany*	*sàsantsásany* 'a few'
	vélona 'alive'	*vélona*	*vèlombélona*
	háingana 'quickly'	*háingana*	*hàingankáingana*
	làvarángana 'verandah'	*rángana*	*làvaràngandrángana*
	vòalóhany 'first'	*lóhany*	*vòalòhandóhany*
	antóniny 'average'	*tóniny*	*antònintóniny*
	másina 'holy'	*másina*	*màsimásina*

The examples in (19)–(24) cover the main cases of root reduplication. Three special cases (K&R 96c) should be mentioned: (1) a few vowel-initial reduplicants prefix a *k-*, reduplication then proceeding as for consonant-initial reduplicants:

(25)	root	reduplicant	derived form
	íditra 'enter'	*k* + *íditra*	*ìdikíditra*
	ádana 'slow'	*k* + *ádana*	*àdankádana*
	ídina 'descend'	*k* + *ídina*	*ìdinkídina*

(2) a certain number of two-syllable words with weak endings behave as weak roots with respect to stop and nasal, the derived forms tolerating stress clash:

(26)	*zátra* 'accustomed'	⇒	*zàjátra* 'slightly accustomed'
	fóka 'absorb'	⇒	*fòpóka* 'absorb a little'
	léna 'wet, fresh'	⇒	*lèndéna* 'somewhat fresh'

(3) vowel elision is often optional, or does not take place at all with bisyllabic vowel-initial penultimately stressed reduplicants.

(27)	*óva* 'change'	⇒	*òvaóva, òvóva*
	ívy 'spit'	⇒	*ìviívy, ìvívy*
	ósa 'coward'	⇒	*òsaósa*
	ázo 'understood, gotten'	⇒	*àzoázo*
	ávo 'high'	⇒	*àvoávo*

2.2.2.1 Domain of reduplication This includes a considerable range of roots (and, erratically, two types of active verbs, discussed later). If a morphological operation applies to X, it also applies to the reduplication of X, the only systematic exceptions being reduplication itself and *tafa* prefixation, below. Even frozen reduplications do not reduplicate: *sàlasála* 'hesitation', but **sàlasàlasála*.[7] Also numerals do not reduplicate. We find no reason why, for example, *telotelo* 'three-three' could not mean 'about three'. Perhaps the existence of distributive numerals *tsitelotelo* 'in threes' which combine the prefix *tsi-* with a reduplicated numeral has preempted the bare reduplication of the numeral.

2.2.2.2 Reflection Malagasy reduplication is similar to that in most (but not all) languages, in that material is copied to the side it is copied from (the right in Malagasy). But the copying may be either complete or partial, as determined by the stress pattern. So reduplication in Malagasy, in contrast to that of its many relatives, is not subject to a fixed-weight condition. It may copy one, two, or three syllables, according as main stress is final, penultimate, or antepenultimate.

Clearly CV-type templates (Marantz 1982) yield incorrect results in Malagasy. If we use a simple CV template, we miss the cases where $n \geq 2$ syllables have been copied. If we use a CVCV template, we wrongly represent the words of two or more syllables with main stress on the last (*vovo, indray, lehibe*), as they copy only one syllable.

But equally, Malagasy reduplication is *prima facie* problematic for the Optimality Theoretic approach sketched in McCarthy and Prince (1995a). They assume that derived forms can be simply deconcatenated into a "base" and a reduplicant. It is natural to take the reduplicant as the copied part, as we have done. But McCarthy and Prince assert as a meta-constraint that Reduplicant–Base Identity universally outranks Reduplicant–Input Identity. This seems false for reduplications of weak roots in *-ka* and *-tra*, such as *tolo + tolotra*, with input *tolotra* 'offer', base *tolo*, and reduplicant *tolotra*. Even when the initial consonant of the reduplicant undergoes stop, as in *fanta + pantatra* from input *fantatra* 'known', we still find that Input–Reduplicant identity is better satisfied – it misses only the identity of initial consonant, *f* versus *p* – than Base–Reduplicant identity, which misses a final syllable and main stress correspondence. For all forms, reduplicants match the input with respect to main stress, and the input and the reduplicant always mismatch the base in that respect. So a proper Optimality Theoretic analysis of reduplication in Malagasy remains to be worked out.

3 Noun-based morphology

3.1 Nominal expressions

Noun-based morphology is constituted essentially by the formation of genitive expressions. They consist of a head bound in a complicated way to a following genitive NP. The binding draws significantly on stop and nasal, seen in reduplication. Head + NP_{gen} is the major head-complement relation in Malagasy. It is used when (1) Head = Noun, and NP_{gen} is its possessor; (2) Head = V[–active] and NP_{gen} is its Agent Phrase; (3) Head = Preposition, and NP_{gen} is its object; and (4) Head = Adjective, and NP_{gen} is an Agent or (indirect) Cause. Our description follows Paul 1996a.

3.1.1 Genitive formation Form Gen(w,w') from a head w and a following nominal w' (not a pronoun) as follows:

Case 1 w is not weak.

(1) If w' begins with a vowel, v, then prefix v with *n-* and concatenate, reducing any primary stresses in w to secondary ones. (The use of apostrophes and hyphens here and later is part of Malagasy orthography).

w	w′	Gen(w,w′)
tráno ‘house’	*andríana* ‘noble’	*tràno n′andríana* ‘a noble’s house’
akánjo ‘clothes’	*ólona* ‘person’	*akànjon′ólona* ‘someone’s clothes’
vóla ‘money’	*i Váo* ‘art name’	*vòlan′i Váo* ‘Vao’s money’

(2) If w′ begins with a consonant, c, first apply stop to c and then nasal. Again, primary stresses in w reduce to secondary ones, a pattern common to all cases of genitive formation, which we shall not restate in each case that follows.

w	w′	Gen(w,w′)
tráno ‘house’	*soavály* ‘horse’	*tràno n-tsoavály* ‘house for horses’
tráno ‘house’	*bíby* ‘animal’	*tràno m-bíby* ‘house for animals’
ráy ‘father’	*Rabé* ‘name’	*ràin-dRabé* ‘Rabe’s father’ = /rai.^{n}d^{r}a.be/
aróso ‘served’	*Rabé* ‘name’	*aròso n-dRabé* ‘served by Rabe’
páiso ‘peach’’	*vazáha* ‘foreigner’	*pàiso m-bazáha* ‘plum’
híta ‘is seen’	*Rabé* ‘name’	*hìtan-dRabé* ‘seen by Rabe’
ázo ‘received’	*Rasóa* ‘name’	*àzon-dRasóa* ‘received by Rasoa’
adála ‘crazy’	*laláo* ‘games’	*adàlan-daláo* ‘crazed by games’
ré ‘heard’	*ny záza* ‘the child’	*rèn′ny záza* ‘heard by the child’ = /re.ni.za.za/
máty ‘dead’	*ny jírika* ‘the brigands’	*màtin′ny jírika* ‘killed by the brigands’
jámba ‘blind’	*ny vóla* ‘the money’	*jàmban′ny vóla* ‘blinded by the money’
tandrífy ‘opposite’	*ny tráno* ‘the house’	*tandrìfin′ny tráno* ‘opposite the house’
imáso ‘in view of’	*ny vahóaka* ‘the public’	*imàson′ny vahóaka* ‘in view of the public’

Despite the spelling of the last five examples, Malagasy has no geminate consonants.

In a few cases when the initial consonant of w′ is one that does not change under stop or nasal, we find a morpheme *na* optionally separating w from w′. Gen(*trano* ‘house’, *miaramila* ‘soldier’) = *trano* (*na*) *miaramila* ‘barracks’.

Case 2 w is weak.

(1) If w′ begins with a vowel, then drop the final vowel of w and concatenate:

w	w′	Gen(w,w′)
tóngotra ‘foot’	*akóho* ‘chicken’	*tòngotr′akóho* ‘chicken’s foot’
tóngotra ‘foot’	*i Kóto* ‘art name’	*tòngotr′i Kóto* ‘Koto’s foot’
sóroka ‘shoulder’	*i Sóa* " "	*sòrok′i Sóa* ‘Soa’s shoulder’

sāsána 'washed'	*i Sóa* 'art name'	*sāsàn'i Sóa* 'washed by Soa'
vonóina 'killed'	*ólona* 'people'	*vonòin'ólona* 'killed by people'
áraka 'according to'	*ólona* "	*àrak'ólona* 'according to people'

(2) w′ begins with a consonant.

(2.1) w ends in *-na* (or *-ny*[8]). Then *-na* is dropped, and Gen(w, w′) is formed as in Case 1. This process may lead to ambiguities of analysis, as in the first example below.

w	w′	Gen(w,w′)
vóla 'money'	*Rabé* 'name'	*vòlan-dRabé* 'Rabe's money'
vólana 'month'	*Rabé* 'name'	*vòlan-dRabé* 'Rabe's month'
órona 'nose'	*ólona* 'person'	*òron'ólona* 'a person's nose'
órona 'nose'	*sáka* 'cat'	*òron-tsáka* 'a cat's nose'
námana 'friend'	*Rabé* 'name'	*nàman-dRabé* 'friend of Rabe'
námana 'friend'	*ny talé* 'the boss'	*nàman'ny talé* 'friend of the boss'
ámina 'with'	*hafalíana* 'happiness'	*àmim-kafalíana* 'with happiness'
àoríana 'after'	*ny sakáfo* 'the mean'	*àorìan'ny sakáfo* 'after the meal'
táolana 'bones'	*bíby* 'animal'	*tàolam-bíby* 'bones of animals'
kapóhina 'is beaten'	*soavály* 'horse'	*kapòhin-tsoavály* 'beaten by a horse'
vonóina 'is hit'	*Rabé* 'name'	*vonòin-dRabé* 'is hit by Rabe'
sasána 'is washed'	*Rabé* 'name'	*sasàn-dRabé* 'is washed by Rabe'
lazáina 'is said'	*Rabé* 'name'	*lazàin-dRabé* 'said by Rabe'

As in reduplication, certain roots ending in *-na* (*-ka* or *-tra*, but never *-ny*) stressed on the penultimate behave as weak: e.g. *lena* 'moisten'; we have *len-dRabe* 'moistened by Rabe', and it reduplicates to *len-dena*. By contrast, *tena* 'body, self' is not weak: we have *tenan-dRabe* 'Rabe's body' (not **ten-dRabe*), and it reduplicates to *tenatena*. But passives like *sasana* and *lazaina* formed by suffixing *-ina*/*-ana* to *laza* and *sasa* respectively, have penultimate stress (*ai* is a diphthong in *lazaina*). Genitive formation treats the passive form as if its main stress were still that of the root. Note that stress is antepenultimate in *kapohina* and *vonoina* (= /vo.no.i.na/; *oi* is not a diphthong here).

(2.2) w ends in *-ka* or *-tra*

(2.2.1) w′ begins with the definite article *ny*. Then *-ka* ⇒ *ky* and *-tra* ⇒ *try*.

w	w′	Gen(w,w′)
sóroka 'shoulder'	*ny záza* 'the child'	*sòroky ny záza* 'the child's shoulder'
tóngotra 'foot'	*ny fàrafára* 'the bed'	*tòngotry ny fàrafára* 'foot of the bed'

Table 28.2 Core pronouns

Person	*NOM*	*ACC*	*GEN$_1$* / *GEN$_2$*
1sg.	áho	áhy	-ko / -o
2sg.	ianáo	anáo	-náo / -áo
3sg. or pl.	ízy	ázy	-ny / -ny
1pl., incl.	isíka	antsíka	-ntsíka / -tsíka
1pl., excl.	izaháy	anáy	-náy / -áy
2pl.	ianaréo	anaréo	-naréo / -aréo

It is the presence of the definite article /ni/, not simply the phonology of the initial syllable of the possessor that triggers *-ka* ⇒ *ky* and *-tra* ⇒ *try*. Thus, from *tapaka* 'broken' + *nify* 'tooth', one does not say **tapaky nify* 'broken toothed', but rather *tapa-nify* as in *Tapa-nify Rabe* 'Rabe has a broken tooth/is broken-toothed'.

(2.2.2) w' does not begin with *ny* 'the'. Then *-ka* and *-tra* are dropped, and stop applies (but nasal does not):

w	w'	Gen(w,w')
sóroka 'shoulder'	*záza* 'child'	*sòro-jáza* 'a child's shoulder'
tápaka 'broken'	*Rabé* 'name'	*tàpa-dRabé* 'broken by Rabe'
tóngotra 'foot'	*fàrafára* 'bed'	*tòngo-pàrafára* 'foot of a bed'
fántatra 'known'	*Rabé* 'name'	*fànta-dRabé* 'known by Rabe'

So genitive formation is sensitive both to prosodic properties of the head (weak vs nonweak) and to the internal syntactic structure of the possessor: namely, whether it begins with the definite article *ny*. Nominals governed by other articles, such as the proper-noun article *i* and the previously mentioned article *ilay*, behave like ordinary vowel-initial forms: *tranon'ilay olona* 'house of that (aforementioned) person'.

3.2 Pronominal genitives

Table 28.2 gives the core pronouns in all three cases. In addition, we note that Malagasy presents one third-person form *rizaréo* 'they distant' and several second-person singular familiar forms – *isé, ialáhy, indrý* – all of which behave like nouns in genitive formation.

The genitive forms are all morphologically dependent. All forms except first-person singular *-ko*/*-o* and third-person *-ny* carry their own stress, so after

suffixation in these cases the main stress on the host reduces to secondary stress. *-ko/-o* and *-ny* do not induce stress shift. Those listed under GEN_1 suffix both to nonweak forms, as in (28), and to the root of weak forms ending in *-na*, as in (29).

(28) *tránoko* 'my house', *tranonáo* 'your (sg) house', *tránony* 'his/her/their house', *tranontsíka* 'our (incl.) house', *tranonáy* 'our (excl.) house'

(29) *sasána* 'washed': *sásako* 'washed by me', *sasanáo* 'washed by you (sg)', *sásany* washed by him/her/them', *sasantsíka* 'washed by us (incl.)', *sasanáy* 'washed by us (excl.)'.

The forms under GEN_2 combine somewhat idiosyncratically with weak heads ending in *-ka* or *-tra*.

(30)

person	*sóroka* 'shoulder'	*tóngotra* 'foot'
1sg.	sóroko	tóngotro
2sg.	sorokáo	tongotráo
3sg. or pl.	sórony	tóngony
1pl., incl.	sorotsíka	tongotsíka
1pl., excl.	sorokáy	tongotráy
2pl.	sorokaréo	tongotraréo

As (30) shows, genitive pronominals are similar to full NP genitives in distinguishing weak and nonweak heads and in distinguishing weak heads in *-na* from those in *-ka/-tra*.

Lastly, the genitive construction also sees some internal syntactic structure of pronouns: third-person pronominals are often augmented with a variety of forms that force a number distinction and give other information concerning the relation between referents of the pronoun. We have already seen [pronoun + demonstrative] such as *izy ireo, izy ireny*, etc. force a plural interpretation. But pronouns can be augmented with any of a large variety of kin terms: *izy mivady* 'they spouses', *izy mirahavavy* 'they sisters', *izy mianadahy* 'they siblings of different sexes', *izy mianaka* 'they parent and child' (more exactly a group representing two or more generations). These forms can be further modified with numerals: *izy telo mianadahy* 'they three siblings', or even *izy telo lahy* 'they three men'. We call these forms "augmented pronouns."

The genitive *-ny* cannot occur augmented. An augmented pronominal possessor in the third person occurs in the nominative form. In first-person plural, however, *-nay* can occur augmented.

(31) (a) *ny tranony mivady
the house + 3 gen. spouses

(b) ny tranon'izy mivady
the house'they spouses

(c) ny tranonay mivady
the house + our spouses

Thus genitive formation distinguishes augmented and unaugmented pronouns, and within the augmented ones it makes person distinctions. The complete paradigms are still in need of investigation. But we note a last case of syntactic interest: coordinate pronouns count as augmented, and in the third person occur as nominatives:

(32) (a) *ny tranony sy Rasoa
the house + his and Rasoa
'his and Rasoa's house'

(b) ny tranon'izy sy Rasoa
the house'he and Rasoa
'his and Rasoa's house'

In first person the morphologically bound form may be used, but, as in coordinations generally, the first-person singular is presented as plural, in effect in agreement with the number of the entire coordination.

(33) (a) Niara-niresaka izahay sy Rasoa
past + together-spoke we(excl.) and Rasoa
'Rasoa and I (or we) spoke'

(b) ny tranonay sy Rasoa
the house + our(excl.) and Rasoa
'my (our) and Rasoa's house'

4 Verbal morphology

We classify verbs according to the case (nominative, accusative, genitive) of their arguments. We call verbs "non-active" if they select a genitive complement and "active" otherwise. Actives and non-actives occur with about equal frequency (Keenan and Manorohanta 1996, hereafter K&M 96). Non-actives which are roots or are built by directly affixing roots will be called "passive." The other non-actives, called "circumstantial" (sometimes "relative") are built by suffixing roots + active prefixes. Active verbs are built by prefixing roots. Prefixes that apply directly to roots will be called "primary." "Secondary" prefixes apply to the result of applying primary ones. Tense marking, prefixal, applies after primary and secondary prefixes. There are two "tertiary" affixes which apply after tense marking (and themselves get tense-marked). Circumstantial verbs are built only from (tenseless) actives with either primary or primary and secondary affixes. A very few active verbs, which mostly behave as auxiliaries, are roots.

As we shall see, several morphological criteria correlate with whether a verb is passive, active, or circumstantial. (34) is a sample of these voices built from the root *rakotra* 'cover'. The rightmost NP in each S is, or is replaceable by, a nominative pronoun. It possesses many properties characteristically associated with subjects cross-linguistically (Keenan 1976, 1995; Polinsky 1995, 1996).

(34) (a) no + rakofan'ny reniny t + amin'ny (Passive)
past + cover:pass. + gen.'the mother +
bodofotsy izy.
his past + with + gen.'the blanket 3:nom.
'He was wrapped with a blanket by his mother.'

(b) n-aN-rakotra (nandrakotra) azy t + amin'ny (Active)
past-act.-cover 3:acc. past-with +
bodofotsy ny reniny.
gen.'the blanket the mother + his
'His mother wrapped him with a blanket.'

(c) n + andrakofan'ny reniny azy ny bodofotsy. (Circumstantial)
past + act.-cover:pass.'the mother + his 3:acc. the blanket
'The blanket was used by his mother to wrap him up.'

4.1 Passive verbs

4.1.1 Root passives These are the second most frequent type of passive in texts (K&M 96). We have already given some examples: *re* 'heard', *azo* 'gotten, understood', *hita* 'seen', *fantatra* 'known'. A few others are *haino* 'listened to', *resy* 'defeated', *babo* 'captured', *simba* 'damaged', *sitrana* 'cured', *tadidy* 'remembered', *tratra* 'caught', *vaky* 'broken', *tsinjo* 'perceived from above', *tsapa* 'felt', *hadino* 'forgotten', *hay* 'is able to do', *very* 'lost', *voa* 'afflicted', *zaka* 'can be stomached'. Contrast the root passives in (35) with the derivationally more complex actives:

(35) (a) haino + ko izy.
listen-to + 1sg. (gen.) he (nom.)
'He is/was listened to by me.'

(a') n + i + haino azy aho.
past + act. + listen him (acc.) 1sg. (nom.)
'I listened to him.'

(b) resi + ko izy.
defeated-1sg. (gen.) he (nom.)
'He was/is defeated by me.'

(b') n + aN + resy (nandresy) azy aho.
past + act. + defeat him (acc.) I (nom.)
'I defeated him.'

We observe here that the genitive Agent suffixes directly to the verb root in the passives, whereas the active takes a prefix and a tense marker. When roots (of any sort) occur as predicates, they do not mark a distinction between present and past tense. Future is marked, with *ho*, even when the root is vowel-initial:

(36) (a) Tsy azoko ianao.
not understood + 1sg. (gen.) you (nom.)
'You aren't/weren't understood by me.'

(b) Tsy ho azoko ianao.
not fut. understood + 1sg. (gen.) you (nom.)
'You won't be understood by me.'

Translating Malagasy passives by English passives often seems bizarre, as the English expression is often cumbersome or pragmatically marked, whereas the Malagasy one is natural. The only natural translation of "I didn't understand you" is (36a); the corresponding active verb, *mahazo*, doesn't have the sense of 'understand'.

Root passives reduplicate, as do other roots: *fantatra* ⇒ *fantapantatra* 'known a bit', *hadino* ⇒ *hadinodino* 'forgotten a bit'.

(37) azoazoko ny teninao.
understand (redup.) + 1sg. (gen.) the word + your
'I understand your words somewhat.'

4.1.2 Suffix passives These are the most common form of passives in texts. They present a range of morphological phenomena which are not fully understood, but are well documented by Rahajarizafy (1960). They are formed by suffixing the root with -(C)V*na*. The choice of vowel, /a/ or /i/, is determined by the verb root,[9] with /i/ the most frequent. An unpredictable "thematic" consonant C may be epenthesized, and when the verb root is weak, the consonant of *-na*, *-ka*, *-tra* may mutate as follows: *n* ⇒ *n* or *m*, *k* ⇒ *k*, *h*, or *f*, and *tr* ⇒ *t*, *r*, or *f*.

(38)

root	suffix passive	consonant mutation or epenthesis	
hátona	*hatónina* 'be approached'	*n* ⇒ *n*	
tándrina	*tandrémana* 'be paid attention to'	*n* ⇒ *m*	
dáka	*dakáina* 'be kicked'	*k* ⇒ *k*	
áraka	*aráhina* 'be followed'	*k* ⇒ *h*	
lélaka	*leláfina* 'be licked'	*k* ⇒ *f*	(*mutation*)
fántatra	*fantárina* 'be known, tested'	*tr* ⇒ *r*	
ávotra	*avótana* 'be redeemed'	*tr* ⇒ *t*	
rákotra	*rakófana* 'be covered'	*tr* ⇒ *f*	
fóno	*fonósina* 'be envelopped'	∅ ⇒ *s*	
tóhy	*tohízina* 'be continued'	∅ ⇒ *z*	
tsínjo	*tsinjóvina* 'be perceived from afar'	∅ ⇒ *v*	(*epenthesis*)
tény	*tenénina* 'be spoken about'	∅ ⇒ *n*	
dóka	*dokáfana* 'be flattered'	∅ ⇒ *f*	

Note that main stress shifts one syllable to the right in all these cases, the typical case under (C)V*na* suffixation. Roots stressed on the last syllable are the exception. They do not shift stress, and they normally insert a thematic consonant (always, in the case of one-syllable roots): *la* ⇒ *lávina* 'be refused', *py* ⇒ *pízina* 'signaled by the eyes', *ray* ⇒ *ráisina* 'received', *to* ⇒ *tóvina* 'be obeyed'; *teté* ⇒ *tetévina* 'to have liquid dropped on drop by drop, *omé* ⇒ *oména* 'given' (note the exceptional absence of a pre-*na* vowel and thematic C; a thematic *-z-* does show up in the circumstantial forms). Also some two-syllable roots with penultimate stress and weak endings do not shift stress: *tána* ⇒ *tánana* 'be held', *fétra* ⇒ *férana* 'be determined', *táona* ⇒ *táomina* 'be transported' (see Rahajarizafy 1960: 34).

Stress shifting in the passives of weak roots with $n \geq 4$ syllables should create stress lapses: two unstressed adjacent syllables before a main stress, a pattern not found in unaffixed roots. But in fact speakers consulted endowed the initial syllable with a secondary stress, whence the stress pattern of the derived passives conformed to that of the roots: *sarítaka* ⇒ *sàritáhina* 'disordered', and *koróntana* ⇒ *kòrontánina* 'overthrown'.

In addition to consonantal changes, sometimes passive suffixation modifies the last vowel of the root: *i* ⇒ *e* is not uncommon: *voly* ⇒ *volena* 'be planted', *baby* ⇒ *babena* 'be carried on the back'. In these cases Erwin (1996) takes *e* as underlying, and applies *e* ⇒ *i* when the *e* is word-final. Probably more common with /i/ final roots is (1) *-ana* suffixed with hiatus: *vály* ⇒ *valíana* 'be responded to', *dídy* ⇒ *didíana* 'be cut', or (2) *-ina* suffixed and the two /i/ coalesce (vowel length is not phonemic): *fidy* ⇒ *fidína* 'chosen', *vídy* ⇒ *vidina* 'bought'. Rarely an epenthetic vowel appears: *tády* ⇒ *tadiávina* 'be sought', *ampó* ⇒ *ampóizina* 'be expected', *tsípy* ⇒ *tsipázana* 'have something thrown on', *óty* ⇒ *otázana* 'picked (of fruit)'. Note the loss of root-final /i/ in the last two cases.

Where R is a root to which -(C)V*na* suffixation applies, we write stem(R) for the result of modifying R by whatever stress and C and V changes (additions, mutations) appear in -(C)V*na* suffixation. See (38). Note that stem(R) is often consonant-final, so not a possible word in Malagasy.

A large-scale study is needed to determine what regularities there are in the vowel and consonant changes induced by passive suffixation and how best to represent them. On the "standard" (A&M) view presented here, lexical entries would have to consist, in effect, of root–stem pairs, in order to know what consonant mutations to apply and whether to insert a "thematic" consonant and, if so, which one of the five.

By contrast, Erwin (1996) would essentially identify a root R with stem(R), and derive unsuffixed forms by rule: the five epenthetic consonants would drop when root-final, and the consonant mutations above would be "undone" (e.g. word final *-t* ⇒ *tr*), followed by *-a* epenthesis, and stress would be moved back one syllable if possible. This has the effect of putting material unpredictable on the A&M analysis in the lexicon, and it explains the fact that imperatives of passives (discussed below) exhibit the same epenthetic consonants and consonant mutations as the suffix forms. We observe, theory neutrally:

(39) To form the imperative of a root R to which -(C)V*na* suffixation applies,
Step 1: form stem(R), then
Step 2a: suffix /i/ if the last syllable of stem(R) contains a /u/,
2b: suffix /i/ optionally if a syllable prior to the last one in stem(R) contains a /u/ and the last one does not contain a high vowel (/i/ or /e/)
Step 3: suffix /u/ in all other cases.

(40)

root R	stem(R)	suffix passive	imperative
tándrina 'pay attention'	tandrém	tandrémana	tandrémo
tóhy 'continue'	tohíz	tohízina	tohízo
tády 'remember'	tadiáv	tadiávina	tadiávo
vídy 'buy'	vidí	vidína	vidío
fántatra 'known'	fantár	fantárina	fantáro
sása 'wash'	sasá	sasána	sasáo
tápaka 'broken'	tapáh	tapáhina	tapáho
vóno 'hit/kill'	vonó	vonóina	vonóy
fóno 'wrap'	fonós	fonósina	fonósy
tólotra 'offer'	tolór	tolórana	tolóry
tsínjo 'see from afar'	tsinjóv	tsinjóvina	tsinjóvy
sóratra 'write'	sorát	sorátana	soráty / soráto
fólaka 'break/fold'	foláh	foláhina	foláhy
báby 'carry on back'	babé	babéna	babéo
vóly 'plant'	volé	voléna	voléo
omé 'give'	omé	oména	oméo
vónjy 'help'	vonjé	vonjéna	vonjéo

Thus 'Help me!' in Malagasy is *Vonjeo aho!* where *aho* 'I' is nominative. One might attempt to translate such sentences literally as '(May) I be helped (by you)!', which is pragmatically unrealistic as an order, but does get the voice right. It also makes clear that it is the addressee phrase that is omitted in Malagasy imperatives (as in English). That phrase will coincide with the nominative NP in active sentences, but with the genitive one in non-actives (of many sorts). Here are two examples:

(41) (a) Mba tolory vary ny vahiny.
prt. be offered (by you) rice the guest
'Please offer the guests some rice.'

(b) Voleo vary ity lohasaha ity.
be planted rice this valley this
'Plant this valley with rice.'

The final NP in each of these Ss is nominative. *ny vahiny* in (41a) can be replaced by the nominative pronoun *izy ireo* '3 dem. + pl.'. Also, though not

usual, it is possible to add the genitive Agent to the imperative in contrastive circumstances. If Speaker wants to insist that it is just you, rather than you and others you represent he might say, in (41b), *Voleonao . . .* 'be planted by you (sg.)'.

The imperative data support Erwin's proposals, though there is one cause for pause: *f* arises as a mutation both from *k* and from *tr*, and further, it is one of the epenthetic consonants. Hence some listing of cases must be done to decide whether an instance of a root-final *-f* is to be dropped or become, after *-a* epenthesis, *-ka* or *-tra*. And the apparent irregularities with regard to epenthetic vowels and loss of final *-i* will have to be investigated. Still, these problems seem relatively minor.

More important is the interaction of Erwin's roots with other morphological operations. Prominent here are reduplication and the formation of circumstantial verbs.

4.1.2.1 Reduplication On the standard A&M treatment, passive suffixation applies to reduplicated roots, both frozen, as in *karakara* ⇒ *karakaraina* 'is taken care of', and productive, as in *teny* ⇒ *teniteny* ⇒ *tenitenenina* 'is talked about some'. (42) is a sample of cases involving mutated and epenthetic consonants. They show that passive suffixation applies to a reduplicated A&M root triggering the same consonant mutation and epenthesis as with the unreduplicated root. They also show that reduplication (Red.) does not generally apply to passive forms.[10]

(42)

root R	stem(R)	Pass.(R)	Red.(R)	Pass.(Red.(R))	Red.(Pass.(R))
tsínjo 'perceived'	tsinjóv	tsinjóvina	tsìnjotsínjo	tsìnjotsinjóvina	*tsinjòvinjóvina
fántatra 'known'	fantár	fantárina	fàntapántatra	fàntapantárina	*fantàrintárina
léfaka 'flexibility'	lefáh	lefáhina	lefadéfaka	lèfadefáhina	*lefàlefáhina
vélona 'living'	velóm	velómina	vèlombélona	vèlombelómina	*velòmindómina
anténa 'hope'	anténa	antenáina	antènaténa	antènatenáina	*antenàináina
tólotra 'offer'	tolór	tolórana	tòlotólotra	tòlotolórana	*tolòrandórana
tápaka 'cut'	tapáh	tapáhina	tàpatápaka	tàpatapáhina	*tapàhimpáhina
ávotra 'redemption'	avót	avótana	àvotrávotra	avòtravótana	*avotavótana

These data are problematic if we take the stem (Erwin's roots) as the input to passive suffixation and reduplication. Reduplicating *tsinjov* must copy the first two syllables, since both are present in the correct output *tsinjotsinjovina*. But a complete copy of *tsinjov* is *tsinjovtsinjov*, with an unacceptable consonant cluster. We might invoke *CC, the ban on consonant clusters, to rule out this form (blocking *tsinjov* itself by *_C#, the ban on final consonants).

But *CC does both too much and too little. The first is seen in the next example, *fantatra*. Copying the stem yields *fantarfantar*, with a most offensive consonant cluster, *rf*. Eliminating the internal *r* by *CC, suffixing *-in* and applying *-a* epenthesis as per Erwin yields the incorrect **fantafantarina*. The problem is that we did not apply stop to the internal *f* to yield the correct *fantapantarina*. Nor is there any obvious phonotactic reason to do so: the internal sequence *tafa* is fine, as in *mitafa* 'chats' (< the root *tafa*) and *tafasiry* 'a chat'. The same problem arises with other weak roots that begin with consonants that undergo stop: e.g. eliminating the *-h* in copying *lefah* gives Red.(*lefaka*) = *lefalefahina*, not the correct *lefadelafina*.

The case where *CC does too little is given by the vowel-initial roots in (42). Copying *avot* just yields *avotavot*, which has no offensive consonant clusters. So some further constraint would have to be invoked to rule out *avotavotana*, not a word in Malagasy, but not phonotactically incorrect.

We do not claim that no analysis will integrate the facts of reduplication and suffix passives with Erwin's analysis of roots. We have just suggested one analysis. Others should be tried. But we move on, noting two further properties of suffix passives.

4.1.2.2 Passive passives Passive suffixation may apply to roots that are already passive. Sometimes there is a change in sense, as with *fantatra* 'known, understood', versus *fantarina* 'examined, tried to be understood'. And commonly the root passive just refers to a state, whereas the suffix form refers more to the process whereby the subject got into that state. Thus *vaky* 'broken' can be used when no agent is implied: *Vaky io* 'That is broken', whereas the suffix form *vakina* implies that the object went through the process of being broken, so an Agent is more naturally expected. (But genitive Agents can be directly attached to root passives, which is why we call them passive.)

4.1.2.3 Tense Suffix passives show a pattern of tense inflection common to all non-actives except roots. The future prefixes *ho* to consonant-initial verbs, *h-* to vowel-initial ones. The past prefixes *no* or *n-* under the same conditions. The present is unmarked:

(43) (a) nosasan-dRabe ny akanjo. 'The clothes were washed by Rabe.'
(b) hosasan-dRabe ny akanjo. 'The clothes will be washed by Rabe.'
(c) sasan-dRabe ny akanjo. 'The clothes are (being) washed by Rabe.'

Lastly, we note that passive *-ina* also applies, exceptionally, to a handful of active verbs to form a passive, and it applies productively to causative active verbs to form a passive. Examples are discussed in the section on active verbs.

4.1.3 Prefix passives These are morphological child's play compared to suffix ones. There are three such prefixes to consider: *a-*, *voa-*, and *tafa-*. We consider *a-* separately.

4.1.3.1 a-prefix passives These are formed by prefixing the (A&M) root with *a-*. *a*-passives pattern with suffix ones rather than root ones, in that they focus attention on the process, rather than the result. They often differ from suffix passives with regard to the argument of the root that functions as their subject. (44a, b), from Rabenilaina 1987: 64, contrasts an *a*-passive with a suffix passive built from the same root, *lafika*. (44c) gives the corresponding active.

(44) (a) alafik'i Soa ny atody akoho ny bozaka.
pass. + place-under'by art. Soa the egg chicken the straw
'The straw is put under the chicken eggs by Soa.'

(b) lafihin'i Soa bozaka ny atody akoho.
place-under + pass.'art. Soa straw the egg akoho
'The chicken eggs have straw put under them by Soa.'

(c) mandafika bozaka ny atody akoho i Soa.
act. + place-under straw the egg chicken art. Soa
'Soa puts straw under the chicken eggs.'

Subjects of *a*-passives are sufficiently often an instrument that Dez (1980b), following Rajaona (1972: 139–40, 148) identifies the *a*-voice as instrumental. But a more comprehensive characterization is that subjects of *a*-passives are "intermediaries" in an action or scene, as in (45). With ditransitive roots, typically *a*-passives are used with Theme subjects, and suffix passives with Goal subjects (46):

(45) a + joro eo an-tokotany ny andry.
pass.-set upright there loc.-courtyard the post
'The post is set upright in the courtyard.'

(46) (a) a + tolotra ny ray aman-dreny ny vodiakoho.
pass.-offer the father-and-mother the signs of respect
'Signs of respect are offered to one's parents.'

(b) tolor + ana vodiakoho ny ray aman-dreny.
offer-pass. signs of respect the parents
'One's parents are offered signs of respect.'

There are, however, two cases where *a*-passives do not contrast with suffix passives: (1) (vacuous), there are some roots with *a*-passives but no suffix passives: *atao* 'done' (< *tao*), *averina* 'be brought back' (< *verina*), and *ateraka* 'be born' (< *teraka*); (2) there are some nonvacuous cases where a given root admits both a suffix and an *a*-prefix passive taking arguments with the same semantic role: *asaritaka* and *saritahina* 'mixed up' from *saritaka*, and *afolaka* and *folahina* 'folded, sprained', from *folaka*. Often in these cases the two predicates differ somewhat in sense, but we do not know the extent or regularity of this variation.

Morphologically, *a*-prefixation does not alter the stress or phonological content of the root, and thus is in striking contrast with passive suffixation. Compare *afólaka* and *foláhina*, from *fólaka*. With the exception of *aN*-prefixation discussed below, all the (many) prefixes in Malagasy "protect" the identity of the root or stem they apply to. This is supportive of the account offered by Hawkins and Cutler (1988) for the cross-linguistic preference of suffixing over prefixing (and both over infixing).

Internal to Malagasy, *a*-prefixation is of interest in that it introduces two phonological patterns not present at the level of roots. First, it forms a hiatus with vowel-initial roots, rather than forming a diphthong: e.g. *ely* ⇒ *aely* 'dispersed' syllabifies as /a.e.li/, *itatra* ⇒ *aitatra* 'to be developed' syllabifies as /a.i.ta.tra/, and even *aakatra* from *akatra* 'go up' syllabifies to /a.a.ka.tra/. And from the root *oitra* 'action of raising up, as by a lever', which syllabifies as /o.i.tra/, we have *aoitra* = /a.o.i.tra/, a form with three adjacent syllables, none of which is consonant-initial – again a pattern that does not arise in root forms.

Second, *a*-prefixed forms tolerate a stress clash, as the *a-* seems to carry secondary stress. This stress is apparent in the cases of hiatus just cited, where, for example, in *aely* the initial *a* clearly has less stress than *e*, but more than *ly* (though judgments are less secure here). Equally, in the few cases where *a-* is prefixed to a root with main stress on its second syllable, it would naturally acquire a secondary stress in conformity with the pattern in roots. But even when prefixed to roots with initial stress, *a-* seems to have a secondary stress (recall our earlier caveat regarding the absence of simple tests to support claims of secondary stress). In such ordinary forms as *alatsaka* from *latsaka*, the main stress is on *la*, but the initial *a* has more stress then either *sa* or *ka*. Similar judgments obtain with *apetraka* 'be placed on something' and *atolotra* 'be offered to someone'. Thus morphologically derived forms tolerate both hiatus and stress clash, neither of which are present in the system of roots.

a-passives are identical to suffix ones with regard to their relation to reduplication, tense marking, and imperative formation. Thus *a-* applies to reduplicated roots: *tao* ⇒ *ataotao* 'done a bit', *petraka* ⇒ *apetrapetraka* 'placed'. Tense marking is *no-/n-* for past, as in (43), *ho-/h-* for future, and zero for present, exactly as with suffix passives.

And imperative formation follows the steps in (39), using the same consonant mutations, epenthetic consonants, and stress shift as do imperatives of suffix passives. For example, the consonant mutation *tr* ⇒ *r* is illustrated by the root *tolotra* 'offer', with suffix passive *tolorana* and imperative *tolory*, and prefix passive *atolotra*, imperative *atolory*. The epenthetic consonant *s* is seen in: *lefa* 'send, let go', with suffix passive *lefasana*, imperative *lefaso*, and prefix passive *alefa*, imperative *alefaso*. But we also get epenthetic consonants on *a*-passives which have no suffix passive counterpart: *tao* 'do' has no suffix passive, its prefix passive is *atao* 'be done', imperative *ataovy*, with epenthetic *-v-*, and ending *-y*, since the immediately preceding syllable contains a /u/.

a-prefixation and imperative suffixation interact to produce an "ungrammaticality"-type counterexample to Level Ordering in Malagasy (importing

this hypothesis from English). Here, recall, *-ity* is stress shifting, and thus "level 1," and *un-* is not stress shifting, and thus "level 2," and so should occur outside any level 1 affixes. But for semantic and subcategorization reasons, we want to say that *-ity* has combined with *ungrammatical* rather than that *un-* has combined with the noun *grammaticality*, contradicting the claim that level 2 affixes apply after level 1 ones.

Consider now the following typical prefix/suffix passive contrast built from the root *róso* 'serve', stressed, as one sees, syllable-initially. (We translate the passive imperatives by actives in English in the interest of naturalness.)

(47) (a) Rosóana vary ny vahiny. 'The guests are served rice.'
serve + pass. rice the guest

(b) Rosóy vary ny vahiny. 'Serve the guests some rice.'

(48) (a) Aróso ny vary. 'The rice is served.'
pass. + serve the rice

(b) Arosóy ny vary. 'Serve the rice.'

Note that the nominative NP in (47b) is the Goal, just as in (47a), and the nominative in (48b) is the Theme, just as in (48a). Now, like *un-* in English, the passive *a-* prefix does not shift stress from the root, as seen in (48a). And, like *-ity* in English, imperative *-y* does shift stress, as is clear from (48b) and our many earlier examples. If Level Ordering applied in Malagasy, we should expect that passive *a-* would occur outside imperative *-y*. But this does not correspond to how we understand (48b). We understand (48b) to be the imperative of (48a): that is, the order to make (48a) true. And this just says that we form the imperative of the Theme (*a-*) passive: that is, apply *-y* suffixation after *a-* prefixation.

Thus it seems here (and later) that stress-shifting suffixes apply after stress-neutral prefixes, as in English *ungrammaticality*, just the order that Level Ordering blocks.

4.1.3.2 voa- and tafa- passives These are formed by prefixing *vóa-* and *táfa-* to roots. *táfa-* is clearly disyllabic; *vóa* may be, but is often heard as /vo/. When prefixed, their primary stress reduces to secondary. Semantically and morphologically, the forms built from these affixes are more like root passives than like the suffixal or *a*-prefixal passives in focusing attention on the resultant state, not the process whereby that state was attained. They are both perfective in meaning, in that they imply that the action was completed. *voa-* passives focus on this final state, whereas *tafa-* passives emphasize that the resultant state was in some way unexpected. Sometimes the implication is "unintended," as though the action happened by itself without outside agency (in such cases it is not natural to use an Agent phrase); sometimes it is that the Agent was not expected to be able to bring about the result, in which case

an Agent phrase is natural and the sense is that the Agent managed to bring about the result.

voa- and *tafa-* passives resemble root passives in not forming imperatives and in not marking present or past tense. Future is marked with *ho*. They are more tightly bound to the root than *a-* prefix passives, in that in some cases their final *-a* elides rather than forming a hiatus. Specifically, the *-a* of *tafa-* elides before *a-* and *i-*, but forms a hiatus before *e-*, as in *tafaely* 'dispersed', and *o-*, as in *tafaorina* 'built'. In cases like (49b, c) no external Agent is implied, and it would be unnatural to add one.

(49) (a) tafa + iditra + ko (= tafiditro) ny omby.
pass. + enter + 1sg. (gen.) the cow
'I got the cows in.' (Lit. 'The cows were made-enter by me.')

(b) tafa + arina (= tafarina) ihany Rabe.
pass. + put upright even so Rabe
'Rabe managed to get up.'

(c) tafa + tsangana (= tafatsangana) tampoka aho.
pass. + stand up suddenly I
'I stood up suddenly (in spite of myself).'

The *-a* of *voa-* often (but not always) elides before *a-*, as in *voa + araka = voaraka* 'followed'; otherwise we have a hiatus: *voaely* 'dispersed', *voaiditra* 'entered'.

tafa- creates stress lapses when applied to four-syllable weak verbs: *korónta*na ⇒ *tàfakorónta*na, *sarítaka* ⇒ *tàfasarítaka*. In such cases *voa-* tends to reduce to a monosyllable with secondary stress.

In many ways it is the *voa-* passive in Malagasy which most naturally translates passives from European languages. In part, this is due to its completive nature, and in part because *voa-* passives are often used without an Agent phrase. By contrast (K&M 96), suffix and *a-*prefix passives present an Agent phrase in the large majority of their occurrences. Further, in common with other languages of the Philippine type (Schachter 1976, Kroeger 1993, Keenan 1995), the Agent phrase with those passives presents several properties commonly associated with subjects of actives in European languages. Indicative here is that they can control, and be, missing Agents, as in (50b), a very common type of expression (see Keenan 1995 for other types of passive Agent control, and see Law 1995 for a study of these control properties).

(50) (a) m + i + kasa h + aN + vaky (hamaky) io boky io ny mpianatra tsirairay.
pres. + act. + intend fut. + act. + read that book that the student each
'Each student intended to read that book.'

(b) kasain'ny mpianatra tsirairay ho vaky + ina (vakina) io boky io.
intend + pass.' the student each fut. read + pass. that book that
'That book was intended by each student$_i$ to be read (by him$_i$).'
(Not 'Each student intended that the book be read (by someone).')

voa- and *tafa-* passives do appear to differ in one respect: *voa-* applies naturally to reduplicated roots, whereas *tafa-* does not, even when reduplication of the root in other contexts is natural and when *tafa-* applies commonly to the unreduplicated root.

(51) (a) *voalazalaza* 'said a bit' (< *laza* 'say'); *voadinidinika* 'glanced at' (< *dinika* 'study')

(b) *verina* 'return': *verimberina*, *tafaverina*, but **tafaverimberina*
latsaka 'fall': *latsadatsaka*, *tafalatsaka*, but **tafalatsadatsaka*
tsangana 'stand': *tsangantsangana*, *tafatsangana*, but **tafatsangantsangana*

4.1.4 Infixal passives These are limited to a few forms and, at least in official Malagasy, are not productive. They are formed by infixing *-in-* after the initial consonant of the root, a pan-Austronesian phenomenon.

(52) *vaky* 'broken' – *vinaky* 'be broken'
vidy 'bought' – *vinidy* 'be bought'
tapaka 'broken' – *tinapaka* 'be broken'

Finally we note the existence of several suppletive passive–active pairs:

(53)

active			passive	
maka	(< *aka*)	'takes'	*alaina*	'taken'
mitondra	(< *tondra*)	'carries'	*entina*	'carried'
mahalala	(< *lala*)	'knows'	*fantatra*	'known'
mivarotra	(< *varotra*)	'sells'	*amidy*	'sold'

4.2 Active verbs

By contrast, active verbs are rarely roots; almost all are built by affixation of roots. (54) lists the roots that function as active verbs. With one exception, they are verbs of motion. Either they are degenerate in having no derived forms, or they take an active prefix in the derived forms.

(54)

active root	derived stem	derived nominalization
tamy 'about to arrive'	none	
mby 'arrived'	none	
tia 'like'	*-itia*	*fitia*, *fitiavana* 'love'
avy 'come'	*-iavy*	*fihaviana* 'arriving'
lasa 'gone'	*-ahalasana*	*fahalasana* 'leaving'
tonga 'arrive'	*-ahatonga*	*fahatongavana* 'arrival'

tia occurs in clitic form *te-* or *ta-* when governing another verb (always in the future):

(55) te-hamaky (< h + aN + vaky) boky aho 'I want to read a book'
want-read fut. + act. + read book I

avy, lasa, and *tonga* are often used as auxiliaries:

(56) avy nisakafo izy ireo 'They just ate' (cf. 'Ils viennent de manger')
come past + act. + dine 3 dem. + pl.

(57) lasa nanatrika (n + aN + atrika) fivoriana izy 'He went to a meeting'
gone attended meeting he

Moreover, *lasa* and *tonga*, whose use is quite common, also take genitive Agents, and thus also count as passive roots.

(58) (a) lasako ny entanao.
carried-by-me the packages-your
'Your packages were carried off by me.'

(b) tonganay ny vata.
brought-by-us the trunk
'The trunk was brought by us.'

These roots, like roots in general, do not mark past or present. Only *avy* and *tonga* of the roots mentioned above naturally take future *ho. lasa* is inherently past.[11]

4.2.1 Primary active verbs These are built by directly affixing – in fact, always prefixing – roots. The major, semantically neutral, such prefixes are *i-*, *aN-*, a_2- and ∅-, to which tense markers are prefixed. We illustrate the possibilities first, and then discuss two somewhat different analyses of the data that have been proposed.

(59) nipetraka (n + i + petraka) tany Antsirabe Rabe.
lived past + i + sit past + there Antsirabe Rabe
'Rabe lived in Antsirabe.'

Replacing *tany* with its nonpast variant *any*, the verb-initial *n-* can be replaced by *h-* to yield a future-tense interpretation and by *m-* to yield a present-tense interpretation.

(60) nametraka (n + aN + petraka) ny boky tao am-bata Rabe.
put past + aN + sit the book past + there at-trunk Rabe
'Rabe put the book(s) in the trunk.'

Again, the *n-* on the verb alternates with *h-* and *m-*, yielding as before future- and present-tense meanings, a fact that holds for the active expressions that follow as well.

(61) (a) natory (n + a_2 + tory) aho.
saw past + a_2 + *sleep I*
'I slept.'

(b) naka (n + ∅ + aka) ny satroko izy.
took past + ∅ + *take the hat* + *my he*
'He took my hat.'

i- and *aN-* prefixation are highly productive, whereas ∅- and a_2- prefixation apply to closed classes of roots. The roots in both the a_2- and ∅- classes are disjoint from any of the other classes, whereas many roots accept both *i-* and *aN-*.

The analysis of these affixes in traditional grammars and Rajaona 1972 is that the prefixes *i-*, *aN-*, a_2-, and ∅- are active voice designators, and the prefixes *h-*, *n-*, and *m-* are tense markers. On this view, the future and past marking, *h-* and *n-* (since the pre-tense prefixes begin with vowels and all the ∅- roots begin with vowels) are the same as for the non-active voices, but *m-* for present is peculiar to the active voice.

Builles (1988), however, proposes that present tense is unmarked in all voices, and that *m-* is specifically an active (or active–stative) voice marker whose privileges of occurrence are preempted by the future and past tense markers, whence it is overt only in the present tense. This analysis does not explain why the tense and voice markings are in complementary distribution, since, conceptually, tense can vary independently of voice. On the traditional view, the complementary distribution is expected: in simple cases a sentence is not expected to be simultaneously past and present, past and future, etc.

But Builles's analysis presents several advantages. First, of course, it accounts for the fact that *m-* shows up only in the active voice. Second, it accounts for the fact that *m-* is present in active imperatives.

(62) (a) *mipetraka* 'sits' ⇒ *mipetraha* 'sit down'
(b) *mametraka* 'place, put' ⇒ *mametraha vary eo* 'put rice here'
(c) *matory* 'sleeps' ⇒ *matoria* 'go to sleep'

On the tense interpretation *m-* is not expected to appear in imperatives, as they are not marked for tense in Malagasy. But the imperative ending *-a* is specific to actives (non-actives use *-o*/*-y*), so we expect *-a* forms to co-occur with *m-* if *m-* marks "active." See §4.2.2 for details on imperative formation.

Third, as we noted in (34), when an NP with an oblique role (Instrument, Location, Benefactee, etc.) is presented as subject, the verb goes into the circumstantial form. On the traditional analysis, this form is built on the active form less its tense marker by suffixing (C)*ana* and shifting stress one syllable

to the right. The C is the same epenthetic one that shows up in passives (if any) and active imperatives, and (C)*ana* resembles passive suffixes, but the first vowel is always /a/, never /i/, (recall that both are possible in passives, but /i/ is the overwhelming favorite). Some examples:

(63)

root	active (present)	circumstantial (present)
rákotra	*mandrákotra* 'covers'	*andrakófana*
pétraka	*mipétraka* 'sits'	*ipetráhana*
pétraka	*mamétraka* 'puts'	*ametráhana*
omé	*manomé* 'gives'	*anomézana*
sóratra	*manóratra* 'writes'	*anorátana*
íla	*míla* 'needs'	*ilána*
ánatra	*miánatra* 'studies'	*ianárana*
tóhy	*mitóhy* 'continues'	*itohízana*
vérina	*mivérina* 'returns (intr.)'	*iverénana*
vérina	*mamérina* 'brings back'	*amerénana*
tóry	*matóry* 'sleeps'	*atoríana*

On the traditional view, the circumstantial form includes the active prefix: *i-*, *aN-*, *a-*, and ∅-. But this morphology is what determines that the Agent (more generally, the highest-ranking semantic role in the grid determined by the root) will be presented as nominative. But suffixing circumstantial -(C)*ana* changes that. So on this view, circumstantial verbs present active affixes with no functional role, an unpleasant but not contradictory result.

A last, metalinguistic, observation lends further credence to Builles's analysis. Pedagogical grammars of Malagasy, while recognizing clearly that *m-* alternates with *n-* and *h-*, invariably give the active prefixes with the *m-* attached: *mi-*, *man-*, *ma-*, and *m-*.

Builles's analysis, then, supports several nontrivial generalizations. We shall not fully adopt it here, mainly because glossing examples that way makes it hard to match morphemes with the traditional analyses that the reader who follows up this article will doubtless consult. Equally, his analysis leaves open the glosses for the affixes *i-*, *aN-*, a_2, and ∅-. We turn now to these prefixes, drawing mainly on A&M, Rabenilaina 1987 and Rahajarizafy 1960.

4.2.1.1 i- This prefix is highly productive, and like *a-*, does not shift stress or alter the phonological content of the root it prefixes. A majority of *i*-verbs are intransitive: *mitsiky* 'smiles', *mijoro* 'is standing up', *mipoaka* 'explodes', *mifono* 'apologizes', *mihazakazaka* 'runs'. But many, including many common verbs, are transitive: *mifidy* 'chooses', *mividy* 'buys', *mikapoka* 'beats', *mijery* 'looks at', *mihaino* 'listens to', *mikarakara* 'takes care of'. And usually, unspecified object-deletion verbs are *i*-verbs: *Mifoka izy* 'He smokes' or *Mifoka sigara izy* 'He smokes cigars'. Similarly with *misotro* 'drinks' and *mihinana* 'eats'. We know of no case where *mi* + root is ditransitive.

A very small number of roots are built, historically, not productively, with the infix *-om-* (= /um/), and it is *i-* which combines with such roots to form verbs:

(64) *tany* ⇒ *tomany* ⇒ *mitomany* 'cries'
lano ⇒ *lomano* ⇒ *milomano* 'swims'
hehy ⇒ *homehy* ⇒ *mihomehy* 'laughs'

4.2.1.2 aN- This prefix, like *i-*, is a highly productive primary affix. Most commonly, *aN*-verbs are transitive: *mangataka* 'asks for' (< *hataka*), *mamono* 'hits, kills' (< *vono*), *manaikitra* 'bites' (< *aikitra*), *mamboly* 'plants' (< *voly*), *mandany* 'exhausts' (< *lany*). As far as we know, all primary ditransitive verbs are built with *aN-*: *manome* 'gives' (< ome), *manolotra* 'offers' (< *tolotra*), *manolo* 'substitutes' (< *solo*). But *aN-* also forms a significant number of intransitives: *mandeha* 'goes' (< *leha*), *mandihy* 'dances' (< *dihy*), *mandainga* 'tells lies' (< *lainga*), *mangetaheta* 'is thirsty' (< *hetaheta*), *mangovitra* 'shudders' (< *hovitra*), *mandohalika* 'kneels' (< *lohalika* 'knee'), *manjombona* 'is sad, cloudy' (< *jombona*), *ma*(*no*)*nofy* 'dreams' (< *nofy*). Also, many transitive *aN-* verbs can also be used intransitively: *loko* 'color' ⇒ *mandoko* 'paints X or engages in painting', *lositra* 'fleeing' ⇒ *mandositra* 'flees X, runs away'.

So, *contra* remarks in several grammars, we cannot treat *aN-* as a transitive verb-marker. None the less, the correlation of *aN* + root with two or more arguments is impressionistically greater than that of *i* + root with just one argument. Moreover, part of the motivation for the claim that *i-* forms intransitive verbs and *aN-* transitive ones is the fact that for many roots that take both, the *i*-verb is intransitive and the *aN*-one transitive: *latsaka* ⇒ *milatsaka* 'fall', versus *mandatsaka* 'drop'; *sasa* ⇒ *misasa* 'wash (oneself)', versus *manasa* 'wash something'; *seho* ⇒ *miseho* 'appear', versus *maneho* 'show'; *petraka* ⇒ *mipetraka* 'sit, reside', versus *mametraka* 'put'.

But even on a root-by-root basis, *i* + root does not always have lesser arity than *aN* + root. Rahajarizafy (1960: 192) lists over thirty roots in which both *i-* and *aN-* forms have the same valence. (65 and 66) exhibit a few in which the *i*-verb naturally takes inanimate objects, the *aN-* animate ones.

(65) transitive: *tsongo* ⇒ *mitsongo* 'picks (e.g. flowers) by pinching' and *manongo* 'pinches (people)'; *tendry* ⇒ *mitendry* 'plucks (musical instrument)' and *manendry* 'touches with finger; points out, designates'; *fetsy* ⇒ *mifetsy* 'steals adroitly (something)' *mametsy* 'tricks, deceives (people)'

(66) intransitive: *sidina* ⇒ *misidina*, *manidina* 'flies through the air'; *hozohozo* ⇒ *mihozohozo*, *mangozohozo* 'is weak, faltering'; *tsiry* ⇒ *maniry* 'grow (of plants)', *mitsiry* 'produce offshoots'

Morphologically, *aN-* prefixation is complex and shows several irregularities. Like other prefixes, it does not alter stress. But it does trigger mutation

or ellipsis of the initial consonant of the root it applies to. For an analysis see Paul 1966a. Here we summarize the main points.

(67) aN- prefixation: we define by cases *aN-* + CVX, where CVX is a root, C is any consonant or the empty symbol ∅, V is any vowel or diphthong, X any string. Sometimes the syllabification is indicated to remind the reader that syllabification overrides morpheme boundaries.

Case 1: if C is voiced and C ≠ /v/, then *aN-* + CVX = *a* + nasal(stop(C)) + VX

Examples:	root	derived present-tense form (prefixed with *m-*)	
	lány	*mandány* 'exhausts'	/*ma.ⁿda.ni*/
	dáka	*mandáka* 'kicks'	/*ma.ⁿda.ka*/
	gína	*mangína* 'is quiet'	/*ma.ⁿgi.na*/
	jómbona	*manjómbona* 'is cloudy, sad'	/*ma.ⁿdzo.ᵐbo.na*/
	róso	*mandróso* 'progresses, serves'	/*ma.ⁿdʳu.su*/
	záitra	*manjáitra* 'sews'	/*ma.ⁿdzai.tʳa*/
	ngídy	*mangídy* 'is bitter'	/*ma.ⁿgi.di*/
	nínina	*manínina* 'regrets'	/*ma.ne.ni.na*/
	mbómba	*mambómba* 'covers'	/*ma.ᵐ.bo.ᵐba*/

Note that in the last three cases the same derived form is obtained if the prefix is taken simply to be *a-*, as is motivated by forms like *loto* ⇒ *maloto* 'is dirty' discussed below. In a few cases root initial /v/ also undergoes stop and nasal: *voly* ⇒ *mamboly* 'plants'. In one case a root initial /b/- optionally drops: *babo* ⇒ *mambabo* and also *mamabo* 'captures'.

Case 2: if C = ∅, k, s, ts, or t, then *aN-* + CVX = *an*VX

Examples:	root	derived present-tense form
	áloka	*manáloka* 'shades, protects'
	káikitra	*manáikitra* 'bites'
	sása	*manása* 'washes'
	tsáingoka	*manáingoka* 'removes'
	tólotra	*manólotra* 'offers'

Case 3: if C is f, p, or v, then *aN-* + CVX = *am*VX

Examples:	root	derived present-tense form
	fáfa	*mamáfa* 'sweeps'
	pétraka	*mamétraka* 'puts'
	vóno	*mamóno* 'hits, kills'
	fóno	*mamóno* 'wraps, envelops'

We could collapse cases 2 and 3, noting that when the initial consonant C of the root is lost, the shape of the nasal onset, /n/ or /m/, is the one appropriate to the prenasalized consonant resulting from applying stop to C. That is, we might characterize cases 2 and 3 as simply pursuing case 1 further: apply stop to C, then apply nasal, then drop the "C," retaining only the nasalization, now as a full segment.

Case 4: if C = h, then *aN-* + CVX = *an*VX if CVX = hety, hatona, etc. and *ang*VX if CVX = halatra, hataka, etc.

Examples: *aN-* + hety ⇒ *manety* 'cuts (hair)'; *aN-* + *halatra* ⇒ *mangalatra* 'steals'.

So whether *h* is lost or mutates to *g* and prenasalizes is decided just by listing the roots of each type. This completes the cases, as *aN-* does not apply to any roots beginning with /tʳ/, which we treat as voiceless.

However, the question of the form of *aN*-prefixation is more vexed than our analysis indicates. Like all the verb-forming affixes we consider, *aN-* does not apply to all roots. We make no attempt here to list the roots it (or any other Malagasy affix) does apply to. But we note that it does not apply to root adjectives like *tsara* 'good', *soa* 'pretty', or *kamo* 'lazy'. And we observe (present-tense) forms like *manatsara* 'improves', *manasoa* 'prettifies', and *manakamo* 'makes lazy'. So, as per traditional grammars, we assume the existence of a causative prefixe *ana-*. But Andrianierenana (1966: 63), drawing on a large-scale study, observes that the choice of *aN*-prefixation versus *ana*-prefixation is largely determined by the choice of root: *manatsara*, **mantsara*, etc., whence it is not unreasonable to consider that there is just one prefixation process here. If so, it applies to many more roots than *aN-* above does, and in the absence of any conditioning factor, we must just list those for which the prefix takes the form *ana-* and those for which it takes the values we have given for *aN-* above.

A third option of analysis would be to derive forms like *manasoa* 'prettify' by applying *aN-* to *ha*-nominalizations like *hasoa* 'beauty', dropping the *h-*. This yields correct results for common adjectives which have *ha-* nominalizations, though *aN-* does not otherwise apply productively to nouns; but it leaves unanalyzed the many cases like *karama* 'salary' ⇒ *manakarama* 'hire' which have no *ha-* nominalization (**hakarama*).

Clearly, most, but not all, of the morphophonemic changes induced by *aN*-prefixation – namely, the application of stop and nasal – exist independently of *aN*-prefixation. But the consonant ellipsis cases do not. The voiceless consonants, such as *v*, *t*, *s*, *ts*, *k*, and *h*, could naturally have undergone stop and nasal. They clearly do in reduplication, and in one context that is phonologically identical to *aN*-prefixation, which we note aN_2. aN_2 functions as a prefix with a great range of uses: primarily, perhaps, it forms locatives (68); it is also widely used to form prepositions and adverbials (69); it combines with circumstantial nominalizations of verbs V to form adverbials "in the process of V-ing," and it functions as an accusative marker with certain types of NPs, as well as a possessive marker:

(68) (a) *Antsirabe* 'place name' < aN_2- + *sira* 'salt' + *be* 'much'
(b) *Ambatolampy* 'place name' < aN_2- + *vato* 'stone' + *lampy* 'flat, big'
(c) *an'ala* 'in (the) forest' < aN_2- + *ala* 'forest'
(d) *an-tsaha* 'in (the) fields, country' < aN_2- + *saha* 'fields, countryside'

(69) (a) *ankoatra* 'beyond' < aN_2- + *hoatra*, 'exceed'
(b) *ambadika* 'on the other side of' < aN_2- + *vadika* 'the other side of'
(c) *an-tsoratra* 'in writing' < aN_2- + *soratra* 'writing'
(d) *ampototra* 'at the source' < aN_2- + *fototra* 'basis'
(e) *ankavia* 'to the left of' < aN_2- + *havia* 'left'

(70) Teo am-pisakafoana (aN_2- fisakafoana) izahay (raha niditra Rabe).
past + there at-dining we (when entered Rabe)
'We were dining (when Rabe came in).'

(71) (a) manaja an'i Soa/an-dRabe/azy aho. 'I respect Soa/Rabe/him.'
respect acc.'art. Soa/acc.-Rabe/him I
(b) an'i Soa/an-dRabe/azy izany. 'That is Soa's/Rabe's/his.'
acc.'art. Soa/acc.-Rabe/him izany

Cases like (69a, b, c) are particularly telling, as the active verb-former *aN*- applied to these roots triggers consonant ellipsis: *m + aN- + vadika = mamadika* 'turns over', *m + aN- + soratra* 'writing' = *manoratra* 'writes'. These facts confirm that the form of verbs derived from *aN*-prefixation is not determined just by the phonology of the prefix.

The irregularities in the behavior of *aN*-prefixation constitute one way in which the verbs it forms are treated like roots rather than derived forms. Specifically, on the definition we presented, certain /v/-initial roots like *voly* will have to be lexically marked as undergoing stop and nasal, whereas the more usual case is that root-initial *v*'s are deleted. Similarly, we shall have to lexically distinguish *h*-initial roots according to whether they drop or become /^{n}g/ under *aN*-prefixation.

Another respect in which verbs formed from *aN*-, henceforth *maN* verbs, behave like roots is that some of them undergo reduplication:

(72) root R	m + aN-R	m + Red.(*aN*-(R))	m + *aN*-(Red.(R))
hóvitra	*mangóvitra* 'shivers'	*mangòvingóvitra*	**mangòvikóvitra*
lá	*mandá* 'refuses'	*mandàndá*	**mandàlá*
léha	*mandéha* 'goes'	*mandèhandéha*	**mandèhaléha*
lóa	*mandóa* 'pays, vomits'	*mandòandóa*	**mandòalóa*

In some cases reduplication applies either before or after *aN*- prefixation (but before *m*-prefixation), and in many cases (74), *aN*-prefixation applies only after reduplication.

(73)	*vóno*	*mamóno* 'hits, kills'	*manònomóno*	*mamònovóno*
	láinga	*mandáinga* 'tells lies'	*mandàingandáinga*	*mandàingaláinga*

(74)	*vélona*	*mamélona* 'supports'	**mamèlomélona*	*mamèlombélona*
	tóhy	*manóhy* 'continues'	**manòhinóhy*	*manòhitóhy*
	vángy	*mamángy* 'visits'	**mamàngimángy*	*mamàngivángy*
	fótotra	*mamótotra* 'deepens'	**mamòtomótotra*	*mamòtopótotra*

4.2.1.3 a_2 This applies, as noted, to a closed class of roots, inducing no stress shifts, consonant mutations, or ellipsis. Most derived forms are stative, usually rendered by adjectives in English.

(75)	root	present-tense derived form
	híta 'seen, found'	*mahíta* 'sees'
	tóry 'sleep'	*matóry* 'sleeps'
	tóky 'trust'	*matóky* 'trusts'
	lóto 'dirt'	*malóto* 'is dirty'
	ráry 'disease, sick'	*maráry* 'is sick'

The *m-* in these forms alternates with *h-* and *n-* for future and past, as expected. a_2- may apply to reduplicated roots: *matoritory* 'sleeps a bit', *malotoloto* 'a bit dirty'.

4.2.1.4 ∅- Malagasy has about twenty common roots which directly prefix the tense marker to the root to form verbs. We follow Malagasy grammarians in positing a zero prefix on the root. (76) is a partial list, which shows that, commonly, tense marking may apply either before or after reduplication. There is significant speaker variation in judgments:

(76)	root R	Pres.(R)	Red.(Pres.(R))	Pres.(Red.(R))
	éty	*méty* 'agrees'	*mètiméty*	**mètiéty*
	ísy	*mísy* 'exists'	*mìsimísy*	(*)*mìsiísy*
	ódy	*módy* 'goes home'	*mòdimódy*	*mòdiódy*
	ónina	*mónina* 'resides'	*mònimónina*	**moninónina*
	ánana	*mánana* 'has'	*mànamánana*	**mànanánana*
	áka	*máka* 'takes'	*màkamáka*	*màkaáka*/*màkáka*
	íno	*míno* 'believes'	*mìnomíno*	*mìnoíno*
	índrana	*míndrana* 'borrows'	*mìndramíndrana*	*mìndraníndrana*

4.2.1.5 aha- This is a primary active prefix which, in distinction to the basic prefixes above, is not semantically neutral, but rather abilitative or causative in sense. It combines with a bewildering variety of expressions, not all of which are roots. We classify cases below (see Phillips 1995 for further discussion).

aha- + *root adjective*: *gaga* 'surprised' ⇒ *mahagaga* 'surprises'; *finaritra* 'content' ⇒ *mahafinaritra* 'pleasing'; *menatra* 'ashamed' ⇒ *mahamenatra* 'shameful'. Usages here are often both transitive and intransitive:

(77) (a) mahagaga izany!
surprising that
'This is surprising!'

(b) nahagaga ahy ny fitenin-dRabe.
past + surprise me the manner-of-speech-of Rabe
'Rabe's manner of speaking surprised me.'

aha- may apply to reduplicated roots: *maharikoriko* 'disgusting', *mahasosotsosotra* 'somewhat frustrating'; *mahataitaitra* 'somewhat startling'.

aha- + *root passives*: *fantatra* 'known' ⇒ *mahafantatra* 'knows'; *voa* 'attained, wounded' ⇒ *mahavoa* 'attains, wounds'; *resy* 'defeated' ⇒ *maharesy* 'defeats'; *zaka* 'handled' ⇒ *mahazaka* 'can handle'.

(78) ny tsy fahaizany no naharesy azy.
the not ability-their foc. past + defeat 3(acc.)
'It was their incompetence that defeated them.'

aha- + *common noun N* is either intransitive, meaning "constitutes N" (79a), or transitive, as in (79b). Mind-bogglingly, it also forms transitive verbs from pronouns (79c)!

(79) (a) ny fanahy no maha-olona.
the spirit foc. makes-people
'It is the mind/spirit that constitutes people.'

(b) ny finoana an'i Jesosy no maha-fiangonana katolika
the belief acc.-art. Jesus foc. makes-church catholic
ny fiangonana katolika.
the church catholic
'It is the belief in Jesus that makes the Catholic Church the Catholic Church.'

(c) Izany no maha-izy azy.
that foc. makes-he him
'That's what makes him him.'

aha- combines with the locative deictics discussed earlier to produce transitive verbs with tense marked twice:

(80) Nantsoiko izy. Izany no naha-teto azy.
called-by-me he. That foc. past + make-past + here 3(acc.)
'I called him. That's what brought him here.'

aha- also combines with a variety of derived expressions: (1) maha-te-h(o) + verb 'makes one want to verb', as indicated in (81); (2) a few *voa-* and a few *tafa-* passives, as indicated in (82); and (3) some predicates derived by NP Raising (Ralalaoherivony 1995), as indicated in (83):

(81) m-aha-te-h-isotro ity ranomangalahala ity.
pres.-cause-like-fut.-drink this water + clear this
'This clear water makes one want to drink.'

(82) (a) izany no nahavoafidy (n + aha + voa + fidy) azy.
that foc. past + make + pass. + choose 3(acc.)
'That's what made him get elected.'

(b) omaly no nahatafavoaka (n + aha + tafa + voaka) azy.
yesterday foc. past + make + pass. + go-out 3(acc.)
'It was yesterday that he was able to go out.'

(83) (a) vitsy ny mpanohana an'i Soa.
few the supporters acc.'art. Soa
'The supporters of Soa are few.'

(b) vitsy mpanohana i Soa/izy.
few supporters art. Soa
'She/Soa has few supporters.'

(c) izany no maha-vitsy mpanohana an'i Soa.
that foc. makes-few supporters acc.'art. Soa
'That's what makes Soa have few supporters.'

Phonologically, the initial vowel of *aha-* carries secondary stress when prefixed, and the final *-a* is retained, though in a few cases it fuses a stem-initial *a-*: *aha-* + *afa-po* (< *afaka* 'free' + *fo* 'heart') ⇒ *mahafa-po* 'satisfies'; *aha-* + *azo* ⇒ *mahazo* 'can'.

4.2.2 Imperatives Imperatives of active verbs suffix the *m-* form with *-a*, apply consonant mutation and epenthesis, fuse the imperative *-a* with root-final /a/ if no epenthetic consonant intervenes, and shift stress one syllable to the right:

root R	active verb	active imperative
pétraka	*mipétraka* 'sits'	*mipetráha*
pétraka	*mamétraka* 'puts'	*mametráha*
sàlasála	*misàlasála* 'hesitates'	*misàlasalá*
dóka	*mandóka* 'flatters'	*mandokáfa*
róso	*mandróso* 'progresses'	*mandrosóa*

sása	*manása* 'washes (tr.)'	*manasá*
tólotra	*manólotra* 'offers'	*manolóra*
sóratra	*manóratra* 'writes'	*manoráta*
hátaka	*mangátaka* 'asks'	*mangatáha*
taó	*manaó* 'does'	*manaóva*
omé	*manomé* 'gives'	*manoméza*
rákotra	*mandrákotra* 'covers'	*mandrakófa*
vángy	*mamángy* 'visits'	*mamangía*
vóno	*mamóno* 'hits, kills'	*mamonóa*
fóno	*mamóno* 'wraps'	*mamonósa*
lóna	*mandóna* 'soaks'	*mandóma*
dóna	*mandóna* 'bumps, strikes'	*mandoná*
tóry	*matóry* 'sleeps'	*matoría*
ódy	*módy* 'goes home'	*modía*
íno	*míno* 'believes'	*minóa*
índrana	*míndrana* 'borrows'	*mindrána*

We observe that the *lona*/*dona* and *vono*/*fono* cases show that active imperatives cannot simply be directly formed from the present-tense active form. We must still know the underlying root. These facts support Erwin's analysis, as the relevant consonant would be present in his root. We note too the (possibly isolated) case of *ome*: its passive is just *omena* (either Theme or Goal is subject). But an epenthetic *-z-* appears in the active imperative (and the circumstantial form as well).

Imperative formation in *-a* + stress shift also applies to some adjectives, yielding forms sometimes more optative than imperative: *tsára* 'good' ⇒ *tsará* 'be good'; *máty* 'dead' ⇒ *matésa* 'die'.

We note, pending further consultant work, that active imperatives seem not to be productively formed from reduplicated forms. A&M list no cases. Here are speaker judgments on a few pragmatically plausible cases: *mamangivangy* 'visit a bit', but *?*mamangivangia; manaonao* 'do a bit', but *?*manaonaova; matoritory* 'is lightly sleeping', but *?*matoritoria* 'sleep a bit'. These judgments contrast with the generally accepted passive imperatives built from reduplicated roots: *vangivangio*, *ataotaovy*, etc.

Equally, imperatives from *aha-* verbs are in general unacceptable: *mahagága* 'is surprised', but **mahagagá*; *mahaménatra* 'shameful', but **mahamenára*. These facts are not surprising, given the normally abstract nature of "agents" of *maha-* verbs.

4.2.3 Secondary prefixes These apply to the forms built by the primary prefixes discussed above. They are not semantically neutral in the way that most primary prefixes are, but are causative or reciprocal in meaning. We first review causatives, referring the reader to Randriamasimanana 1986 and Andrianierenana 1996 for extensive discussion.

4.2.3.1 Causatives: ank(a) This combines with actives built from a_2-. It induces no stress shift, consonant mutation, or ellipsis. The initial syllable of *ank(a)* carries a secondary stress in the forms it gives rise to.

(84) *héry* ⇒ *mahéry* 'is strong' ⇒ *mànkahéry* 'encourage, make strong'
síaka ⇒ *masíaka* 'is nasty' ⇒ *mànkasíaka* 'makes nasty'
ráry ⇒ *maráry* 'is sick' ⇒ *mànkaráry* 'makes sick'

Note that *ank*(*a*) takes the form *anka*- before a consonant, as in *mankahery*. (And of course the initial *m*- alternates with *h*- and *n*- for future and past, respectively).

We have also already seen a particular use of *ank*- with the locative deictics: *mankany* 'goes there', *mankaiza*? 'goes where?', etc. This use is not strictly causative in interpretation. There are also lexicalized, not strictly causative, cases: *fy* 'delicious' ⇒ *mankafy* 'find delicious, cherish'; *to* 'true, accepted' ⇒ *mankato* 'agree with, accept'.

4.2.3.2 Causatives: *amp*- This is the most productive causative prefix. It combines with actives built from *i*-, *aN*-, and ∅-. The derived roots may be of valency 1, 2, or 3. *h*- and *n*- replace the initial *m*- with the expected change in tense. All expressions with which *amp*- combines are vowel-initial, and the final consonant /^{m}p/ of *amp*- syllabifies with that vowel.

(85) *i*-: *mìhoméhy* 'laughs' ⇒ *màmpihoméhy* 'has/makes laugh'
aN-: *manása* 'washes' ⇒ *màmpanása* 'has/makes wash'
aN-: *manólotra* 'offers' ⇒ *màmpanólotra* 'has/makes offer'
∅-: *máka* 'takes' ⇒ *mampáka* 'has/makes taken'

In a few cases *amp*- combines with a_2- verbs: *matory* 'sleeps' ⇒ *mampatory* 'produces sleep'; *matahotra* 'fears' ⇒ *mampatahotra* 'makes afraid'.

amp- causatives form imperatives, as do other active verbs: *mampanáo* 'makes do' ⇒ *mampanáova* 'make do'; *mampanása* 'makes wash' ⇒ *mampanasá* 'make wash', etc. And *amp*- applies to reduplicated roots as expected: *manoratsoratra* ⇒ *mampanoratsoratra* 'make write a bit'. But, as with primary actives, imperatives are unnatural built from reduplicated forms: *?*mampanoratsoráta* 'make write a bit'.

Neither *amp*- nor *ank*(*a*)- combine with non-active verbs: *atolotra* 'be offered to', but **mampatolotra*/**mankatolotra* 'makes offered to'; *voalaza* 'is said', but **mankavoalaza*/**mampavoalaza*.

And in general *amp*- does not combine with verbs formed with the help of the causative prefixes *ana*-, *ank*(*a*)-, and *amp*- itself: *manasoa* 'makes pretty' ⇒ **mampanasoa* 'makes beautify'; *mampanasa* 'has wash' ⇒ *?*mampampanasa* 'has make wash' (= X has Y make Z wash the clothes). The status of iterated *amp*- is somewhat unclear, in that there is nothing phonologically wrong with it, nor does it seem semantically unreasonable, especially when the initial verb is

intransitive. Speakers understand what you are asking when you form and query such double causatives:

(86) (a) mampandihy (m + amp + aN + dihy) ny ankizy Rabe
makes-dance (pres. + Cause + act. + dance) the children Rabe
'Rabe makes the children dance.'
(better: 'Rabe acts so as to bring it about that the children dance')

(b) *?mampampandihy (m + amp + amp + aN + dihy)
makes-make-dance (pres. + Cause + Cause + act. + dance)
ny ankizy an-dRabe Rasoa.
the children acc.-Rabe Rasoa
'Rasoa has Rabe make the children dance.'

Nonetheless, double causatives like that in (86b) are not encountered in ordinary speech, and speakers do not really accept them, even though they can figure them out and pronounce them.

We have, however, found the odd example of an *amp-* causative formed from a *maha-* verb: (87) is from the Malagasy Constitution (*azy* refers to the President), and its initial verb [[*amp* + [*aha* + *fantatra*]] + *ina*] is the passive of the *amp-* causative of the *aha-* form of the passive root *fantatra* 'is known':

(87) Ampahafantarina azy ny fifampiraharahana rehetra . . .
cause + make + is-known + pass. him the negotiations all . . .
'All the negotiations . . . are to be made known to him.'

Malagasy is a "double accusative" language, in that causatives of transitive verbs present, with some restrictions, two accusative NPs, the original direct object and the causee. Commonly, one of the two object NPs is indefinite, in which case, following the general pattern for ditransitive verbs, it occurs closest to the (derived) verb, and is not an accusative pronoun. Two accusative pronouns are disallowed:

(88) (a) nanao farafara izy. 'He made (built) a bed.'
made bed he

(b) nampanao farafara azy aho. 'I had him make a bed.'
made-make bed him I

(c) *nampanao azy farafara aho. 'I had him make a bed.'
makes-make him bed I

(d) *?nampanao azy azy aho. 'I had him make it.'

We noted earlier that *amp-* causatives form suffix passives. In the transitive case either accusative NP can be the subject of the passive, as Dez (1980b: 65) points out.

(89) (a) nampanao farafara ahy Rabe.
made-make bed me Rabe
'Rabe made me make a bed.'

(b) nampanaovin-dRabe (n + amp + aN + tao + ina + Rabe(gen.))
was made make by Rabe (past + cause + act. + make (rt) + pass. + Rabe)
farafara aho.
bed I
'I was made to make a bed by Rabe.'

(c) nampanaovin-dRabe ahy io farafara io.
is made make by Rabe me that bed that
'That bed was made to be made by me by Rabe.'

Note that the verb forms in (89b) and (89c) are identical. This pattern is systematic with causatives of transitives in Malagasy. It is not typical of simple ditransitive verbs, where, as in (46), the two verb forms, *a-* prefix and -CV*na* suffix are used for Theme and Goal passives respectively. There is, however, one lexical exception: *ome* 'give', whose passive *omena* is unusual in having no vowel /i/ or /a/ in the passive suffix:

(90) (a) manome vola ahy Rabe
gives(act.) money me Rabe
'Rabe gives me money.'

(b) omen-dRabe vola aho.
give(pass.)-by-Rabe money I
'I am given money by Rabe.'

(c) omen-dRabe ahy ilay vola.
give(pass.)-by-Rabe me that money
'That money is given to me by Rabe.'

There is one respect, however, in which the two accusatives exhibit syntactically distinct behavior: namely, in the control of reflexives. The reflexive pronoun *tena* 'self' (lit. 'body') is naturally anteceded by the causative subject when the initial verb is intransitive:

(91) (a) mijaly Rabe.
suffers Rabe
'Rabe suffers.'

(b) mampijaly an-dRabe Rasoa.
makes-suffer acc-Rabe Rasoa
'Rasoa makes Rabe suffer.'

(c) mampijaly tena Rasoa.
makes-suffer self Rasoa
'Rasoa makes herself suffer.'

But with causatives of transitives the only possibility for antecedents of *tena* is the Causee (92a).[12] This possibility is preserved under passive (92c).

(92) (a) nampamono tena$_{i,*j}$ an-dRabe$_i$ Rasoa$_j$.
past + makes-hit/kill self acc.-Rabe Rasoa
'Rasoa makes Rabe hit himself.'
'Rasoa makes Rabe hit her'/'Rasoa makes herself hit Rabe.'

(b) *nampamono an-dRabe tena Rasoa.
past + make-hit acc.-Rabe self Rasoa
'Rasoa makes herself hit Rabe.'

(c) nampamonoin-dRasoa tena Rabe.
past + make-hit + pass.-by-Rasoa self Rabe (nom.)
'Rabe was caused to hit himself by Rasoa.'
*'Rabe was caused to act in such a way that Rasoa hit herself.'

4.2.3.3 Reciprocals These are built with the secondary affix *if-*. The positions that can be semantically bound by this morphology are studied in Keenan and Razafimamonjy 1996b. Here are some representative examples, with subject binding direct object in (93b), indirect object in (94), and the possessor of the direct object in (95):

(93) (a) m + aN + haja (= manaja) an-dRabe Rakoto.
Pres. + act. + respect acc.-Rabe Rakoto
'Rakoto respects Rabe.'

(b) m + if + aN + haja (= mifanaja) Rabe sy Rakoto.
pres. + recip. + act. + respect Rabe and Rakoto
'Rabe and Rakoto respect each other.'

(94) mifanoratra (m + if + aN + soratra) taratasy Rabe sy Rasoa.
recip. + write (pres. + recip. + act. + write) letters Rabe and Rasoa
'Rabe and Rasoa write each other letters.'

(95) mifamantatra (m + if + aN + fantatra) toetra i Soa sy i Vao.
rec. + know (pres. + rec. + act. + known) character art. Soa and art. Vao
'Soa and Vao are getting to know each other's character.'

Such reciprocals form imperatives like other actives (suffix -(C)*a*, shift stress, . . .): *mifanorata taratasy*! 'write letters to each other', *mifamantara toetra* 'get to know each other's nature'. Reciprocal morphology combines with reduplicated actives:

(96) nifanoratsoratra (n + IF + aN + Dup. (soratra)) taratasy Rabe sy Rasoa.
past + rec. + act. + Dup. (write) letter Rabe and Rasoa
'Rabe and Rasoa wrote to each other sporadically.'

if- has two proper allomorphs: *ifamp-* and *ifank(a)-*. *ifamp-* is used (97a) with active verbs built from *i-* or ∅- (very rarely a_2); *ifank(a)-* is used with active verbs built from a_2- or *aha-*.

(97) (a) m + i + jery an-dRabe Rasoa.
pres. + act. + look-at acc.-Rabe Rasoa
'Rasoa is looking at Rabe.'

(b) m + ifamp + i + jery Rabe sy Rasoa.
pres. + rec. + act. + look-at Rabe and Rasoa
'Rabe and Rasoa are looking at each other.'

The occurrence of *amp* has no causative interpretation in (97b); it is purely epenthetic. Without it, **mifijery* is hopelessly ungrammatical.

(98) (a) m + a + hita azy aho.
pres. + a + see him I
'I see him.'

(b) m + ifank + a + hita (= mifankahita) isika.
pres. + rec. + a + see we (incl.)
'We see each other.'

(99) (a) m + aha + lala azy aho.
pres. + pot./cause + know him I
'I know him.'

(b) m + ifank + aha + lala (= mifankahalala) isika.
pres. + rec. + pot./cause + know we (incl.)
'We know each other.'

Again, absence of epenthetic *ank-* here is hopeless: **mifahita*, **mifahalala*. Henceforth we write IF for the reciprocal morpheme.

IF combines only with derived active verbs, never with roots or non-active verbs, even vowel-initial ones, which would not force an unacceptable consonant cluster: *atolotra* 'is offered' ⇒ **ifatolotra* 'is offered to each other'. On the other hand, IF does interact positively with (non-epenthetic) causative affixes.[13]

(100) (a) nifandaka (n + IF + aN + daka) Rabe sy Rakoto.
kicked each other (past + rec. + act. + kick) Rabe and Rakoto
'Rabe and Rakoto are kicking each other.'

(b) nampifandaka (n + amp + IF + aN + daka)
make-kick each other (pres. + cause + rec. + act. + kick)
azy ireo aho.
3:acc. dem. + pl. I
'I made them kick each other.'

(101) nampifanoratra (n + amp + IF + aN + soratra) taratasy an'i
(past + cause + rec. + act. + write) letter acc.'art.
Be sy i Bao aho.
Be and art. Bao I
'I made Be and Bao write letters to each other.'

These causatives may be made imperatives (102a) and present suffix passives:

(102) (a) mampifanorata taratasy azy ireo.
cause-each.other-make + imper. letter 3(acc.) dem. + pl.
'Make them write each other letters.'

(b) nampifanoratana (n + amp + IF + aN + tao + ana + ko)
(past + cause + rec. + act. + do + pass.)
taratasy izy ireo.
letter 3(nom.) dem. + pl.
'They were caused to write letters to each other.'

Reciprocals of causatives are also natural when formed from intransitive verb bases:

(103) m + if + ana + soa Rabe sy Rasoa.
pres. + rec. + cause + good Rabe and Rasoa
'Rabe and Rasoa do each other good.'

(104) (a) m + a + siaka Rabe.
pres. + a + nasty Rabe
'Rabe is nasty.'

(b) m + anka + a + siaka (mankasiaka) azy aho.
pres. + cause + a + nasty him I
'I am making him nasty.'

(c) m + if + anka + a + siaka (mifankasiaka) Rabe sy Ranaivo.
pres. + rec. + cause + a + nasty Rabe and Ranaivo
'Rabe and Ranaivo are making each other nasty.'

(105) nifampandihy (n + IF + amp + aN + dihy) i Bakoly sy i Vao.
past + rec. + cause + act. + dance art. Bakoly and art. Vao
'Bakoly and Vao made each other dance.'

Interpretation of reciprocals of causatives of transitives is more variable across speakers, but certain cases seem acceptable to everyone:

(106) (a) nianatra (m + i + anatra) zavatra betsaka izy.
studied thing many he
'He studied many things.'

(b) nifampianatra (n + IF + amp + i + anatra) zavatra betsaka isika
past + rec. + cause + act. + moral thing many we (incl.)
'We taught each other many things.'

4.2.4 Tertiary affixes These form verbs from tensed verbs, and thus may carry two tense markers. There are just two such affixes, *iha-* 'inchoative' and *iaraka-* 'comitative'.

iha- combines with stative predicates P to form active verbs meaning "become P little by little." P may be an adjectival root (107a), the odd noun (107b), or an active stative verb built from *a-* or *aN-* (107c, d). Our data present no cases of *iha-* combining with active verbs prefixed with *i-*, ∅-, *aha-*, or any secondary or other tertiary prefix.

(107) (a) *tsara* 'good' ⇒ *mihatsara* 'gradually becomes good'
(b) *vovoka* 'dust (noun)' ⇒ *mihavovoka* 'becomes dust'
(c) *madio* (*m + a + dio*) 'is clean' ⇒ *mihamadio* 'gradually becomes clean'
(d) *mangatsiaka* (*m + aN + hatsiaka*) 'is cold' ⇒ *mihamangatsiaka* 'becomes cold'

iha- does combine with reduplicated roots: *mihatsaratsara* 'becomes somewhat good', *mihamadiodio* 'becomes a little cleaner', *mihamafimafy* 'becomes somewhat stronger'. But we find essentially no forms derived from *miha-* verbs: e.g. no imperatives (**mihatsará* 'become good', **mihamafía* 'become hard' (< *mafy* 'hard'). Nor (below) do *miha-* verbs have circumstantial forms.

But *miha*-verbs are complex in presenting double tense marking, though all instances are ones in which the tense marking agrees:

(108) n + iha + n + angatsiaka 'became cold'
past + inch. + past + is cold

The comitative prefix *iaraka-* is basically an active verb (*i-* prefix, root *araka* 'following') (109a), which functions sometimes like a (tensed) preposition (109b), and sometimes like a proper verbal prefix (109c).

(109) (a) niaraka izy ireo.
past + i + following 3(nom.) dem. + pl.
'They are together/going somewhere together.'

(b) Lasa niaraka tamin-dRabe izy.
gone past-together past + with-Rabe he
'He left with Rabe.'

(c) niara-nandeha (n + i + araka − n + aN + leha) t + any
(past + act. + following − past + act. + go) past + there
Antsirabe izy sy Rabe.
Antsirabe he and Rabe
'He and Rabe went to Antsirabe together.'

As with *iha-*, tense is marked twice (109c), but not independently, in the main verb.

In distinction to *iha-*, *iaraka-* does not combine directly with roots, **miara-tsara* 'are good together', or with stative stems in general (such as typical a_2- or *aha-* verbs); but it does combine with activity verbs with *i-*, *aN-*, and ∅- of any arity yielding an active activity verb of the same arity. It also combines with *amp-* causatives:

(110)	*i-*:	*miasa* 'works'	⇒	*miara-miasa* 'work together'
	aN-:	*manoratra* 'writes'	⇒	*miara-manoratra* 'write together'
	∅-:	*monina* 'resides'	⇒	*miara-monina* 'reside together'
	amp-:	*mampianatra* 'teaches'	⇒	*miara-mampianatra* 'teach together'

Like *iha-*, *iaraka-* combines with reduplicated roots: *miara-mandehandeha* 'go a bit together'. And, like *miha-* verbs, *miaraka-* ones do not readily form complex derivatives. For example, they do not form independent imperatives; rather, the imperative form *miaráha* of *miaraka*, is used: *miaraha-mandeha* 'go together', but **miara-mandehana* 'go together'. Equally, transitive *miaraka-* verbs do not passivize: **miara-ampianarina* 'are taught together'.

4.3 Circumstantial forms of verbs

These are used when an oblique argument or adjunct of a verb is made the subject. See Keenan 1995, 1996, and Rajemisa-Raolison 1971: 111–18 for extensive discussion. Morphologically, circumstantial verbs appear to be built from active (tenseless) verbs by the suffixation of -(C)*ana* with stress shift, where C indicates the usual consonant mutation or epenthesis. Tense marking – ∅-, *n-*, *h-* for present, past, and future respectively – follows the pattern for passives. Here, first, are some examples.

(111) (a) manao farafara amin'ity vy ity Rabe. (active)
makes bed with'this metal this Rabe
'Rabe makes beds with this metal.'

(b) anaovan-dRabe farafara ity vy ity. (circumstantial)
makes + circ. + Rabe bed this metal this
'This metal is made beds with by Rabe.'

(112) (a) mividy mofo ho an'i Koto Rasoa. (active)
pres. + buy bread for'art. Koto Rasoa
'Rasoa buys bread for Koto.'

(b) ividianan-dRasoa mofo i Koto. (circumstantial)
buy + circ. + Rasoa (gen.) bread art. Koto
'Koto will have bread bought for him by Rasoa.'

(113) (a) niarahaba anao tamin-kafaliana lehibe izahay. (active)
past + greeted you past + with-happiness great we (excl.)
'We greeted you with great joy.'

(b) tamin-kafaliana lehibe no (circumstantial)
past + with + happiness great foc.
niarahabanay anao.
past + greet + circ. + 1pl. (excl., gen.) you
'It was with great joy that we greeted you.'

Since only subjects can be relativized, a common use of circumstantial verbs is as relative clause modifiers of nouns (the relativizer *izay* is most usually absent).

(114) (a) ny vata (izay) nametrahan-dRabe ny vola
the trunk (rel.) past + put + circ. + Rabe (gen.) the money
'the trunk in which Rabe put the money'

(b) ny tanana nipetrahako taloha
the village past + set + circ. + 1sg. (gen.) before
'the village where I lived before'

All primary and secondary actives form a circumstantial verb as indicated (there are no roots which are themselves circumstantial verbs). In (114a, b) the root is *petraka* in both cases; as this root takes both *aN-* and *i-* prefixes, we have both circumstantial forms. Equally, causatives and reciprocals form circumstantials:

(115) Betsaka ny zavatra nifampianarantsika
many the things
(n + IF + amp + i + anatra + ana + tsika).
past + rec. + cause + act. + moral + circ. + 1pl. (incl., gen.)
'Many were the things we taught each other.'

In (115) we have actually relativized the direct object of reciprocally-teach, not an oblique constituent. Reciprocal verbs do not passivize, and in such cases the circumstantial form is used. A simpler, non-causative example:

(116) ny taratasy (izay) nifanoratan-dRabe sy Rasoa
the letters (that) past + rec. + act. + write + circ. + Rabe and Rasoa
'the letters that were written to each other by Rabe and Rasoa'

There are two other sorts of cases where a direct object of an active verb functions as the subject of a circumstantial one. The first, which is systematic, is when the referent of the direct object is understood as only partially affected. Compare (117a) and (b).

(117) (a) nihinana ny laoka tao am-bilany ny saka.
past + i + eat the food past + there in-pot the cat
'The cat ate (all) the food in the pot.'

(b) nihinanan'ny saka ny laoka tao am-bilany.
past + eat + circ. + the cat the food past + there in-pot
'The cat ate some of the food in the pot.'

The second concerns a fair number of verbs that do not have a distinctive passive form, such as *mianatra* 'studies' and *manana* 'has' (and in fact all but one of the zero-prefix roots, most of which do not form transitive verbs).

(118) (a) ny teny vahiny nianaranao
the language foreign past + study + circ. + 2sg. gen.
'the foreign languages you studied'

(b) Taiza no nianaranao?
past + where foc. past + study + circ. + 2sg. gen.
'Where did you used to study?'

It is of interest to note that the circumstantial *-ana* and passive *-ina* show up in minimal pairs in several cases, showing that they are not just phonological variants of each other. One case concerns those few verbs in which the passive is built from the active rather than from the underlying root:

(119) (a) nangataka (n + aN + hataka) vola azy Rabe. (active)
past + act. + beg money him Rabe
'Rabe begged money from him.'

(b) ny vola (izay) nangatahin-dRabe azy (passive)
the money (rel.) past + ask + pass.-Rabe 3.acc.
'the money that Rabe asked him for'

(c) ny antony (izay) nangatahan-dRabe vola azy (circumstantial)
the reason (rel.) past + ask + circ.-Rabe money 3.acc.
'the reason that Rabe asked him for money'

A second type of minimal pair concerns the difference between passives and circumstantials of typical *amp-* causatives:

(120) (a) mampiasa (m + amp + i + asa) io angady io Rabe.
makes-work that spade that Rabe
'Rabe uses that spade.'

(b) ny angady (izay) nampiasain-dRabe (n + amp + i + asa + ina-Rabe)
the spade (rel.) past + cause + act. + work + pass.-Rabe
'the spade that was used by Rabe'

(c) ny antony nampiasan-dRabe (n + amp + i + asa + ana-Rabe)
the reason *past + cause + act. + work + circ.-Rabe*
io angady io
that spade that
'the reason that Rabe used that spade'

As we see, circumstantial verbs are derived from ones containing the primary (*i-*, *aN-*, *a-*, *∅-*) and secondary (*ank*(*a*)*-*, *amp-*, *if-*) active affixes (though not the tertiary ones *iha-* and *iaraka-*). But, as with active imperatives, the choice or presence of epenthetic consonant varies with the root. Compare:

(121)

root	active present	active imperative	circumstantial present	circumstantial imperative
vóno 'hit, kill'	*mamóno*	*mamonóa*	*amonóana*	*amonóy*
fóno 'wrap'	*mamóno*	*mamonósa*	*amonósana*	*amonósy*
lóna 'soak'	*mandóna*	*mandóma*	*andómana*	*andómy*
dóna 'knock'	*mandóna*	*mandoná*	*andónana*	*andóny*
omé 'give'	*manomé*	*manoméza*	*anomézana*	*anomézo*
táo 'do'	*manáo*	*manáovy*	*anáovana*	*anáovy*
jéry 'look at'	*mijéry*	*mijeré*	*ijeréna*	*ijeréo*
ándry 'wait'	*miándry*	*miandrása*	*iandrásana*	*iandráso*
ráy 'receive'	*mandráy*	*mandráisa*	*andráisana*	*andráiso*

Clearly, the active indicative forms in the first two pairs above are identical, but their active imperatives and all their circumstantial (and passive) forms differ. So the input to circumstantial formation cannot just be the active indicative; it must include the sort of information that Erwin (1996) would build into the root.

Like both active and passive voice morphology, circumstantial morphology applies to stems that have been reduplicated:

(122) (a) ny toerana nipetrapetrahanao (n + i + dup. (petraka)
the location past + act. + dup. (live)
+ ana + nao)
+ circ. + 2sg. gen.
'the place you stayed in for a bit'

(b) ny fomba nifanoratsoratanareo (n + IF + aN + dup. (soratra)
the manner past + rec. + act. + dup. (write)
+ ana + nareo
+ circ. + 2pl. gen.
'the manner in which you all wrote a bit to each other'

(c) inona no hitsangantsangananareo (h + i + dup. (tsangana)
what foc. fut. + act. + dup. (stand)
+ ana + nareo) any?
+ circ. + 2pl. (gen.) there
'Why will you take a walk there?'

In general, the formation of circumstantial forms is highly productive and highly regular. The only, minor, idiosyncrasy we know of is that in a few cases the stem from which the active imperative and circumstantial forms are built contains a *-na* which does not surface in the passive (for those roots that form suffix passives).

(123)

active present	active imperative	passive suffix	circumstantial present	circumstantial imperative
mandéha 'goes'	*mandéhana*	——	*andehánana*	*andeháno*
mivídy 'buys'	*mividía*, *mividiána*	*vidína*	*ividiánana*	*ividiáno*
mifídy 'chooses'	*mifidía*, *mifidiána*	*fidína*	*ifidiánana*	*ifidiáno*

Circumstantial imperatives are formed on the passive pattern, suffixing *-o/-y*, rather than *-a*, as in actives. And we restress that non-active (= passive and circumstantial) imperatives present a nominative NP, as in (124). The NP missing in imperatives is the addressee, and in non-actives that is the genitive Agent, not the nominative subject.

(124) Mba ividiano satroka aho.
part. buy + circ. + imper. hat 1sg. (nom.)
'Please buy a hat for me.'

5 Verbal nominalizations

These are of two sorts. First, +human agent nominals are formed by prefixing *mp-* (pronounced /p/)[14] to tenseless active verbs of certain sorts, never to non-active verbs. *mp*-nominals do not mark number; their translations are given variously as singular or plural: *mandeha* 'goes' ⇒ *mpandeha* 'voyager'; *mihaino* 'listens' ⇒ *mpihaino* 'listeners'; *misolo* 'substitutes' ⇒ *mpisolo* 'replacement'; *mitsiky* 'smiles' ⇒ *mpitsiky* 'someone who is smiling'; *manoratra* 'writes' ⇒ *mpanoratra* 'writers'; *manolotra* 'offers' ⇒ *mpanolotra* 'offerers'. *mp-* also applies to ∅- prefix actives: *onina* ⇒ *monina* 'resides' ⇒ *mponina* 'inhabitants'; *aka* ⇒ *maka* 'takes' ⇒ *mpaka* 'takers'. But *mp-* does not apply naturally to *a*-prefix

actives: *matoky* 'trusts' but *?*mpatoky* 'trusters'; *mahita* 'sees' but *?*mpahita* 'people who see' (cf. *mijery* 'look at' ⇒ *mpijery* 'spectators').

mp- also applies to secondary actives, both causatives – *mampianatra* 'teachers' ⇒ *mpampianatra* 'teacher', *mampivelona* 'makes-live' ⇒ *mpampivelona* 'mid-wife', *mankafy* 'finds delicious' ⇒ *mpankafy* 'delectors' – and to reciprocals – *mifanoratra* 'write each other' ⇒ *mpifanoratra* 'writers to each other', *mifanerasera* 'frequent each other' ⇒ *mpifanerasera* 'people who frequent each other'. *mp-* even combines with a few tertiary actives: *miara-miasa* 'work together' ⇒ *mpiara-miasa* 'co-workers'. And while several *mp-* nominals are lexicalized: *mpampianatra* 'teachers', *mpifankatia* 'lovers', *mp-* is used creatively. A *mpihaino* 'listener' can just be someone who is listening to something on some particular occasion; it need not be a habitual listener. Forms like *mpifampianatra* 'people who teach each other things' are readily interpreted in context, though the absence of professional mutual teachers makes the forms seem unusual out of context.

mp- does not combine with *iha-* verbs: *mihatsara* 'become good' but **mpihatsara* 'people who become good'. Nor does *mp-* combine with passives – *atolotra* 'is offered', but **mpatolotra* 'people who are offered' – or with circumstantials – *anolorana* 'circumstance of being offered', but **mpanolorana* 'people for/because of whom things are offered'. *mp-* does combine with a variety of syntactically complex predicates:

(125) (a) iray tanana izy ireo.
one village 3(nom.) dem. + pl.
'They are from the same village.'

(b) ny mpiray tanana
the nom-one village
'people from the same village'

Arguably the predicate in (125a) is derived by NP (possessor) raising, illustrated in (126), and very widely used in Malagasy.

(126) (a) roa ny lelan'ny antsipika.
two the tongue'of the pocketknife
'The pocketknife has two blades.'

(b) roa lela ny antsipika.
two tongue the pocketknife
'The pocketknife is two-bladed.'

And the predicate in (127b) has been derived from that in (126a) by incorporation:

(127) (a) manana harena izy.
has wealth he
'He has some wealth.'

(b) manan-karena izy.
has-wealth he
'He is wealthy.'

(c) ny mpanan-karena
the havers (of) wealth
'the wealthy'

Further, *mp-* nominals built from (di)transitive verbs preserve the subcategorization of the verb. Thus they may take accusative complements (without, as in English, the need to insert a preposition to assign case):

(128) (a) ny mpihaino azy
the listener 3.acc.
'the people listening to it/him'

(b) ny mpampianatra azy
the teacher 3.acc.
'the teacher of him' (= 'his teacher')

Note that (128b) contrasts with *ny mpampianany* (< *mpampianatra* 'teacher' + *-ny* 3(gen.)), which would translate as 'his teacher' but only in the sense of 'teacher that he hired, or in some other way possessed'. We note also that *mp-* nominals are not incompatible with a tensed interpretation of the underlying verb, even though the *mp-* has preempted the tense slot of the active verb:

(129) Mbola tsy nosamborina ny mpamono azy
still not past + arrest + pass. the killer (of) him
'His killer still hasn't been arrested.'

(130) Sosotra ny mpandeha tany Antsirabe fa . . .
frustrated the goers past + there Antsirabe because . . .
'The people who were going to Antsirabe were frustrated because . . .'

Observe that certain lexical nouns also take both genitive and accusative complements:

(131) (a) ny alahelon-dRasoa an-dreniny
the sorrow'of Rasoa acc.-mother-3.gen.
'Rasoa's grief over her mother'

(b) ny tahotr'i Koto azy
the fear'art Koto 3.acc.
'Koto's fear of him'

Agent nominals in Malagasy give rise to a bracketing paradox if *mp-* is required to combine just with words rather than with phrases. For then the morphological bracketing of (125b), (127b), and (128a) will be as in (132a, b, c) respectively:

(132) (a) [[mp + iray] tanana] (b) [[mp + anana] + harena]
(c) [[mp + ihaino] azy]

But in (132a) it is *iray tanana* that expresses the property shared by the referents of the nominal. And in (132c) the accusative pronoun satisfies the subcategorization requirements of *-ihaino* 'listen to'.

A second type of predicate-nominalizing operation in Malagasy consists of prefixing tenseless verbs with *f-*. Such forms are built both from active and from circumstantial verbs, but not from passive verbs.[15] *f-* nominals built from circumstantial verbs are by far the most common.

Applied to an active V, *f-* nominals sometimes have an instrument interpretation (not possible for *mp-* nominals): *manjaitra* 'sews' ⇒ *fanjaitra* 'needle', *mamaky* 'cuts' ⇒ *famaky* 'hatchet'. More productively, they have a "manner of V-ing" interpretation: *mandeha* 'goes' ⇒ *fandeha* 'manner of walking', *miteny* 'speaks' ⇒ *fiteny* 'manner of speaking'. Both instrument and manner interpretations are possible for a given form:

(133) (a) hafahafa ny fanjaitran'io olona io.
different (dup.) the nom. + sew'this person this
'This person sews in an unusual way.'

(b) very ny fanjaitran'io olona io
lost the needle'this person this
'This person's needle is missing.'

Very widely used are *f-* nominals of circumstantial verbs. They refer to the abstract action or state expressed by the verb, or a contextually appropriate circumstance of that action or state, such as its place, time, or instrument.

(134)	active present	f-nominalization of circumstantial form
	mátory 'sleeps'	*fatoríana* 'sleep'
	mánana 'possesses'	*fanánana* 'ownership, possessions'
	mandéha 'goes'	*fandehánana* 'departure, going'
	mámaky 'reads'	*famakíana* 'reading'
	miánatra 'studies'	*fianárana* 'studies'
	màmpiánatra 'teaches'	*fàmpianárana* 'instruction'
	mifànkatía 'love each other'	*fifànkatiávana* 'mutual love'
	mitsàngantsángana 'walks around'	*fitsàngantsangánana* 'a walk'
	mahíta 'sees'	*fàhitána* 'sight, instrument of seeing'
	mivárotra 'sells'	*fivarrótana* 'shop, circumstance of selling'
	mifanáiky 'agree with each other'	*fifanekéna* 'agreement, contract'
	mankató 'approve'	*fànkatoávana* 'ratification'
	mifàmpiràharáha 'work together'	*fifàmpiràharahána* 'negotiations'

As with *mp-* nominals, *f-* nominals preserve the subcategorization of their predicates:

(135) (a) ny antony anajan-dRabe azy
the reason respect (circ.)-Rabe 3.acc.
'the reason Rabe respects him'

(b) ny fanajan-dRabe azy
the nom.-respect + circ.-Rabe 3.acc.
'Rabe's respect (for) him'

(c) tsy manaja tena Rabe.
not respects (act.) self Rabe
'Rabe doesn't respect himself.'

(d) ny tsy fanajan-dRabe tena.
the not nom-respect + circ.-Rabe self
'Rabe's not respecting himself.'

f- nominalizations of verbs contrast with the nominalized tensed forms. Tensed verbs in all voices may be construed with articles or demonstratives to form a derived nominal. Contrast (136a) with the *f-* nominal (136b). (136a) refers to a particular past event of Rabe's going to Antsirabe, whereas (136b) refers to Rabe's habitual trips, or just "his going" in the abstract.

(136) (a) nahatezitra ahy ny nandehanan-dRabe tany Antsirabe omaly.
angered me the past + go + circ.-Rabe past-there Antsirabe yesterday
'Rabe's going to Antsirabe yesterday angered me.'

(b) mahasosotra ahy ny fandehanan-dRabe any Antsirabe.
frustrates me the nom. + go + circ.-Rabe there Antsirabe
'Rabe's going to Antsirabe frustrates me.'

In (136a) the past tense *n-* can be replaced by future *h-* or present ∅-, making appropriate changes in the locatives and adverbials, with appropriate change in meaning.

6 Generalized incorporation

This is the last of the morphological processes we consider. Generalized Incorporation (Inc.) itself may fail to be a specifically morphological process, but it interacts with various of the processes already discussed in regular ways, and it utilizes essentially the same cluster of phonological alternations, stop and nasal, which characterized reduplication and were used significantly in genitive formation and *aN-* prefixation. A basic case of Inc. is the incorporation of

objects into transitive verbs. We show below that all instances of stop apply, and under each case we give another example showing nasal:

f ⇒ p
mihósotra 'anoints' + *fótaka* 'mud' ⇒ *mihòso-pótoka* 'anoints oneself with mud'
mihínana 'eats' + *fáry* 'sugar cane' ⇒ *mihìnam-páry* 'eats sugar cane'

v ⇒ b
mitóraka 'throws' + *váto* 'stone' ⇒ *mitòra-báto* 'throws stones'
mánana 'has' + *vóla* 'money' ⇒ *mànam-bóla* 'has money, is wealthy'

s ⇒ ts
matáhotra 'fears' + *sáka* 'cat' ⇒ *matàho-tsáka* 'fears cats'
mánana 'has' + *sáina* 'mind' ⇒ *mànan-tsáina* 'is smart'

z ⇒ dz
mangátaka 'asks for' + *závatra* 'thing' ⇒ *mangàta-jávatra* 'asks for a thing'
mánana 'has' + *zánaka* 'child' ⇒ *mànan-jánaka* 'has children'

h ⇒ k
manápaka 'cuts' + *házo* 'tree' ⇒ *manàpa-kázo* 'cuts trees'
mánana 'has' + *haréna* 'wealth' ⇒ *mànan-karéna* 'is wealthy'

l ⇒ d
mitárika 'leads' + *lálana* 'way, road' ⇒ *mitàri-dálana* 'leads the way'
mihínana 'eats' + *làisóa* 'lettuce' ⇒ *mihìnan-dàisóa* 'eats lettuce'

r ⇒ dr
mifóka 'absorbs' + *ráno* 'water' ⇒ *mifò-dráno* 'absorbs water'
manándrana 'tries' + *ró* 'sauce' ⇒ *manàndran-dró* 'tastes sauce'

As is plain, the phonological alternations which arise under Inc. are all ones which occur in reduplication as well. Further, it is clear, as Donca Steriade (personal communication) points out to us, that these alternations are not arbitrary. Rather, they act to preserve the non-continuant nature of the consonant deleted under Inc. or Red. The main difference between Inc. and Red is that in Inc. the application of the phonological alternations is typically optional, although there may be some differences in meaning too (the incorporated form is more likely to have a generic or habitual interpretation).

Arguably, however, Inc applies at a later derivational level than reduplication. It applies to N + Adj. pairs, though even more optionally than for V + Object pairs:

(137) *závatra* 'thing' + *rátsy* 'bad' ⇒ *zàva-drátsy* 'bad thing'
sátroka 'hat' + *fótsy* 'white' ⇒ *sàtro-pótsy* 'white hat'
tanána 'village' + *lehibé* 'big' ⇒ *tanàn-dèhibé* 'big village'

More strikingly, Inc. applies to a predicate (often adjectival) and the possessee noun after NP (possessor) raising:

(138) (a) rovitra ny vodin'ny harona. ⇒ rovi-body ny harona.
torn the bottom'of-the basket *torn-bottom the basket*
'The bottom of the basket is torn.' 'The basket has a torn bottom.'

(b) sarotra ny rafitr'io fehezan-teny io. ⇒
difficult the structure'of-this sentence this
'The structure of this sentence is difficult.'
saro-drafitra io fehezan-teny io.
difficult structure this sentence this
'This sentence has a difficult structure.'

(c) miadana ny fandehan-dRasoa ⇒ miadam-pandeha Rasoa
slow the going-by-Rasoa *slow-going Rasoa*
'Rasoa's manner of walking is slow.' 'Rasoa moves slowly.'

(d) lavitra tokoa ny lalana halehanay. ⇒
far very the road fut. + pass. + go + 1pl.:gen., excl.
'The road on which we go is very far.'
lavi-dala-kaleha izahay.
far-road-fut. + pass. + go 1pl.:nom., excl.
'We have a long road to go.'

But Inc., and the stop + nasal changes that constitute it, do not apply everywhere. In particular, they do not apply to intransitive verbs and their subjects:

(139) 'Rabe is eating' = *mihinana Rabe*, but **mihinan-dRabe*
'Rabe is sitting' = *mipetraka Rabe*, but **mipetra-dRabe* 'Rabe is sitting'

So Inc. is sensitive to syntactic structure, and the stop + nasal combination clearly seems to apply at more than one level in the derivational history of an expression.

We conclude with three morphologically relevant properties of Inc. First, *mp-* nominals and circumstantial *f-* nominals incorporate their objects, just as the underlying verbs do. Thus, from the root *varotra*, we have the active verb *mivarotra* 'sells' and:

(140) (a) *fivarotana* 'shop' + *fanafody* 'medicine' ⇒ *fivarotam-panafody* 'pharmacy'
(b) *mpivarotra* 'seller' + *hena* 'meat' ⇒ *mpivaro-kena* 'meat-seller, butcher'

Note that it seems semantically natural to think that the object "medicine" / "meat" forms a unit with the underlying verb, and that the nominalizing operators apply to the verb + object complex. This seems particularly compelling when the incorporated V + object has an idiomatic interpretation:

(141) *manapaka* 'cuts' + *hevitra* 'thought' ⇒ *manapa-kevitra* 'decides' ⇒ *fanapahan-kevitra* 'decision'

But morphologically circumstantial formation (-(C)*ana* suffixation) must precede Inc. Words like *fanafody* 'medicine' and *hena* 'meat' do not have circumstantial forms. If we suffixed (C)*ana* after Inc. applied, we would obtain the incorrect output (142):

(142) *f-* nom. (Inc. (*mivarotra, fanafody*)) = *f-* nom(*mivaro-panafody*) = ***ivaro-panafodiana*

Similar claims hold for the more limited *ha- . . . -ana* nominalization of certain adjectives: for example, *tsara* 'good' ⇒ *hatsarana* 'goodness'. But semantically, predicates derived by NP (possessor) raising undergo this nominalizing process:

(143) (a) tsara fanahy Rabe.
good spirit Rabe
'Rabe is a nice guy.'

(b) ny hatsaram-panahin-dRabe
the goodness-spirit-of + Rabe
'Rabe's niceness of character'

(144) (a) maranitra ny sain-dRabe
sharp the mind-of-Rabe
'The mind of Rabe is sharp.'

(b) marani-tsaina Rabe.
sharp-mind Rabe
'Rabe is sharp-minded.'

(c) haranitan-tsain-dRabe
sharpness-mind-of-Rabe
'Rabe's sharpness of mind'

Second, we observe, unsurprisingly, that incorporation into *f-* nominals leads often to stress clashes:

(145) *miála* 'removes' + *sásatra* 'tired' ⇒ *miàla-sásatra* 'rests'
⇒ *fialàn-tsásatra* 'rest period'
míla 'seeks' + *hévitra* 'thought' ⇒ *filàn-kévitra* 'council'

Third, Inc. iterates, at least within limits.

(146) (a) *miàra-mónina* 'live together' ⇒ *fiaràha-mónina* 'society', and *ráfitra* 'structure' + *fiaràha-mónina* ⇒ *ràfi-piaràha-mónina* 'social structure'

(b) *filàn-kévitra* 'council' + *filamínana* 'f-circ. (*milámina* "is in order")' ⇒ *filàn-kèvi-pilamínana* 'security council'

(c) *fétra* 'limit' + *fotóana* 'time' + *fiàsána* 'f-circ. (*miásа* "works")' ⇒ *fè-potòam-piàsána* 'time limit for working/office holding'

In closing, consider briefly the motivation for the basic morphophonological changes we have observed in reduplication, genitive formation, *aN-* prefixation, and incorporation. The core of these changes is *-ka/-tra* deletion followed by stop and *-na* deletion followed by stop and then nasal. For convenience, call these changes "Basic."

Accepting the standard (A&M) roots, there does not seem to be much phonotactic motivation for Basic. The phonological combinations that would result from just concatenating the two expressions are not in general disallowed. This is most obvious in cases of Inc, where the incorporation of objects into verbs or adjectives into nouns is optional. For example, we have both *satroka fotsy* 'white hat' (lit. 'hat white') and *satro-potsy*, *manana vola* 'has money' and *manam-bola*.

However, adopting Erwin's (1996) analysis of roots, we can find some phonotactic motivation for Basic. On that analysis, weak roots are consonant-final, ending in *-k*, *-t*, *-r*, *-f*, *-m*, or *-n*. Combining such roots, or their prefixed derivatives, with consonant-initial objects, possessors, or (partial) copies of themselves would produce consonant clusters, not in general tolerated. Dropping the final consonant of a root would avoid the cluster. Perhaps the optional character of Inc on this view can be accounted for by allowing it to apply both before and after *-a* epenthesis. And perhaps the occasional differential behavior of homophones can be accounted for by deriving them from different roots. For example, from K&R 96a we note that bisyllabic *saina* 'mind' behaves as weak, and *saina* 'flag' (?< Fr. *enseigne* 'sign') does not, plausible on Erwin's view if the root form of *saina* 'mind' is just *sain*, whereas the root form of *saina* 'flag' is *saina*.

(147) *saina* 'mind' + *zaza* 'child' ⇒ *sain-jaza* 'a child's mind'
saina 'flag' + *fotsy* 'white' ⇒ *saina fotsy* 'white flag', **saim-potsy*

This idea is appealing, but most of the analysis remains to be worked out. Consider in more detail what is involved with a concrete example: *latsaka* 'fallen, flows' + *ranomaso* 'tears' ⇒ *latsa-dranomaso* 'cried', as in

(148) (a) latsaka ny ranomasony.
fell the tears + his
'His tears were falling.'

(b) latsa-dranomaso izy.
fell-tears he
'He was crying.'

Taking the root to be *latsaka*, we observe that the sequence *latsaka ranomaso* is phonotactically acceptable. Indeed, the relevant portion occurs in *Latsaka Ranona* 'Ranona fell'. And the crucial juncture, *ka + ra*, is a sequence that occurs word-internally elsewhere: *mikarakara* 'takes care of', *karakaraina* 'is taken care of'.

But on Erwin's analysis, the root would just be *latsak*. And concatenation with *ranomaso* yields the consonant cluster *k + r*.[16] Dropping the *-k* is one way of avoiding the cluster. But there are others. For example, we could drop the

initial *r-* of *ranomaso* (unexpected on the account given by Hawkins and Cutler 1988). Or, more plausibly, we could insert a vowel following *-k*, something which is done anyway on Erwin's analysis, and which is independently motivated: borrowings may accept various consonant clusters, but a borrowed word which is consonant-final usually has a vowel added, most normally /a/, or /i/, as in *dokotera* 'doctor' or *Kristy* 'Christ'.

But most problematic is why the initial consonant of *ranomaso* should mutate when *-k*. If it remained /r/, we would have an internal sequence *tsa* + *ra* = *tsara* which is good (in fact, *tsára* is the root adjective 'good'). And in general the ban on consonant clusters does not suffice to account for the consonant mutations in stops. However, as indicated earlier, these mutations are better understood as an effect of preserving the noncontinuant property of the consonant deleted.

NOTES

1 More study is needed to determine the precise points of articulations of t^r and d^r and the prenasalized counterparts, as well as possible idiolectal variability. We note that Domenichini-Ramiaramanana (1977: 23) classifies these phonemes as retroflex.

2 There is one exception: *ntaolo* 'the ancients' Rajaona (1977) provides evidence that this word derives historically from one containing an initial vowel /u/.

3 Characterizing the semantics of these forms solely in terms of distance from the speaker is a simplification. For example, *any* and its demonstrative correspondent *iny* in (7) are used as a kind of not-too-close default. *ao* is often used when the notion of 'inside' is intended. And certain point of view shifts can change "distance from Speaker" to "distance from Hearer."

4 We note also the form *rizareo* 'they', which appears to contain both *-za-* and *-re-*. The source of the initial *r* is not clear. Perhaps it arises from the free morpheme *ry* (= /ri/) which can indicate plural when combining with proper nouns: *ry Rabe* 'the Rabes'.

5 We differ from standard analyses in counting as weak, roots ending in *-ny* with antepenultimate stress. Several of these appear to be historically formed from a two-syllable root or a weak three-syllable one by adding the third-person genitive suffix *-ny*, which does not carry or shift stress: *sásaka* 'half' + *ny* = *sásany* 'some', *tápaka* 'cut' + *ny* = *tápany* 'half', *fára* 'end' + *ny* = *fárany* 'finally', *rámbo* 'tail' + *ny* = *rámbony* 'last in rank', *fahéfatra* 'fourth' + *ny* = *fahéfany* 'a quarter', aN + *lány* 'side, end' + *ny* = *an-dániny* 'on the one hand', *vóa* + *lóha* 'head' + *ny* = *vòalóhany* 'at first'. But others, like *tókony* 'should', *ántony* 'reason, cause', and *antóniny* 'average, so-so', are hard to assimilate to this pattern.

6 The forms *indray* and *lehibe* are historically complex, but are now treated both syntactically and semantically as roots. Specifically, we don't get their meaning

compositionally as a function of the meanings of their parts.

7 Malagasy presents many frozen reduplications of the form (CV)[4], such as *midràdradrádra* 'laments' and *mifòfofófo* 'blows (wind)'. But the stress pattern shows that they are not the result of two applications of reduplication to a monosyllabic root. If they were, then the first application to *fó* would be *fòfó*, as we see in *bèbé*, and the second application would then yield (*mi*)*fofòfó*, which in fact is unattested.

8 In fact, the relatively few weak roots ending in *-ny* rarely head a possessive construction, so only *-na* is considered here.

9 Rahajarizafy (1960: 190) lists thirteen roots which accept both an *-ana* and an *-ina* suffix with somewhat different meanings: e.g. the root *velatra* yields both *velarana* and *velarina*:

(i) Novelaran-dRabe tsihy
opened up-by-Rabe mat
ny vahiny.
the guest
'Rabe opened up a mat for the guest.'

(ii) Novelarin-dRabe ny
opened up-by-R the
hevitr'izany teny izany.
idea'that word that
'Rabe explained the meaning of that word.'

10 There were two cases in our data where both passive of a reduplicated root (as expected) and reduplication of a derived passive were accepted:

root R	stem
sóratra 'write'	sorát
fóno 'wrap'	fonós
Red.(R)	Pass.(R)
sòratsóratra	sorátana
fònofóno	fonósina
Pass.(Red.(R))	Red.(Pass.(R))
sòratsorátana	soràtandrátana
fònofonósina	fonòsinósina

Note that the expected forms, Pass.(Red.(R)) do present stress lapses, whereas the novel forms, Red.(Pass.(R)) do not. Perhaps we are witnessing change in progress, motivated by *Lapse.

11 Though it does enter frames like *Efa ho Verb*, meaning "about to Verb': e.g. *Efa ho lasa izy* 'He is about to leave'.

12 One speaker found causatives of transitives quite generally bad. But her judgments regarding the possible antecedents of *tena* 'self' in (92a, c) were strongly supportive of our claims here.

13 All speakers accept causatives of intransitive reciprocal verbs, as in (100b). The one speaker who objected to causatives of transitives in simple cases objected to causatives of transitive reciprocals (101) as well.

14 It seems (Rajaona 1977) that historically the *mp-* was preceded by a vowel, which would have supported the prenasalization.

15 There is one lexical exception: faleha < *f-* aleha = a + leha 'where one habitually goes'.

16 This cluster does occur in a few borrowings, e.g. *kristianina* 'Christian'.