

THE STATUS OF FLORA AND FAUNA GLOSSES THAT HAVE BEEN RECONSTRUCTED FOR PROTO-OCEANIC AND FOR THREE SUB-OCEANIC PROTO-LANGUAGES

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0. INTRODUCTION

The data base for this paper consists of flora and fauna glosses, as listed in Wurm and Wilson (1975), that have been reconstructed for Proto-Oceanic (POC), Proto-Eastern Oceanic (PEO), Proto-Malaitan (PML), and Proto-Polynesian (PPN).¹ These essentially etic glosses are considered in terms of what notional rank of category within an essentially etic reconstructed taxonomic hierarchy occurs at what level within the linguistic family tree. Some minimal prerequisites are then suggested for the reconstruction of at least notionally emic glosses which might provide a basis for reconstruction of notionally emic taxonomic hierarchies.

1. THE ETIC STATUS OF EXTANT RECONSTRUCTED GLOSSES

The glosses in the data base² are the result, in the main, of comparison of lexical flora and fauna data that happened³ to be available for various relevant contemporary Oceanic languages. The extent of such data for a given language ranges from the many hundreds of items present in some dictionaries, such as Pukui and Elbert's *Hawaiian dictionary* (1965) and Williams' *A dictionary of the Maori language* (1971), down to the mere handfuls of items present within vocabulary lists of around 200 to 1500 words which are all that is as yet available for most of the Oceanic languages of Melanesia. The quality of the glosses in these data ranges from the botanically or zoologically relatively sophisticated and specific, as is often the case in the above-mentioned Hawaiian and Maori dictionaries, down to the botanically or zoologically naive and relatively non-specific *kind of bird/fish/tree/etc.* type of gloss which predominates in most of the sources.

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All these glosses, however, have one quality in common — they are essentially *etic*, i.e. they each reflect some classificatory framework, either scientific or lay as the case may be, which has come into being *outside* the primary cultural context of the target language. Consequently, any proto-glosses produced by comparison of these *etic* gloss components of form-plus-meaning resemblances are necessarily also *etic*, as are any hierarchic structurings of such proto-glosses.

2. CORRELATION BETWEEN RECONSTRUCTED TAXONOMIC HIERARCHY AND HISTORICALLY DERIVED HIERARCHY OF LINGUISTIC GROUPINGS

The two logically possible extremes of correlation between a given reconstructed taxonomic hierarchy and a given hierarchic ranking of proto-languages in a subgrouping are: (a) that because more general and inclusive categories and category-labels develop before less general and inclusive ones, the former will tend to be reconstructable for higher-order proto-languages than will the latter; and (b) that because recognition and labelling of more specific categories precedes formulation and labelling of more general categories, the latter will not necessarily be reconstructable for higher-order proto-languages than will the former.

A qualified version of position (a) has been adopted by Brown (1981 and 1982 with specific PPN and sub-PPN reference, and 1984 with wide cross-cultural reference) who proposes (1984:24) an ordered sequence of development of highest-order categories and category-labels for each of the two broad semantic fields under consideration — that of botanical nomenclature and that of zoological nomenclature.

My own expectation on commencing this investigation of the Wurm and Wilson data, an expectation based in part on a reading of Brown 1981 and 1982 and in part on personal experience of PPN and sub-PPN reconstruction (Walsh and Biggs 1966, Biggs, Walsh and Waqa 1970), was that the labelled flora and fauna taxa most likely to be reconstructable for POC would include both higher-order items and culturally salient (in so far as cultural salience can be reputedly inferred for 'proto-cultures') lower-order items, whereas for sub-Oceanic proto-languages the labelled flora and fauna taxa most likely to be reconstructable would include not only what was reconstructable for POC but also lower-order items without marked cultural salience.

3. FLORA AND FAUNA GLOSSES THAT HAVE BEEN RECONSTRUCTED FOR POC, PEO, PML AND PPN

The four proto-languages under consideration have been selected because they are the only ones within the Oceanic group for each of which the data base contains a significant number of reconstructions for both flora and fauna taxa. These four proto-languages are here heuristically regarded as having the following hierarchic standings: PEO is a first-order subordinate of POC; PML is a second-order subordinate of one of the first-order subordinates of PEO; and PPN is a third-order subordinate of the other first-order subordinate of PEO.

The various hierarchically ranked orders of flora and fauna items here referred to (following Berlin, Breedlove and Raven 1974, Hunn 1977 and Brown 1984) are: *unique beginner*, e.g. English *plant, animal; life form*, e.g.

English *tree*, *grass* as *kinds of plant*, and *bird*, *fish* as *kinds of animal*; generic, e.g. English *swallow*, *hawk* as *kinds of bird*; specific, e.g. English *wood swallow*, *Pacific swallow* as *kinds of swallow*, and *sparrow hawk*, *goshawk*, as *kinds of hawk*; and varietal, e.g. English *white-breasted wood swallow*, *black-faced wood swallow* as *kinds of wood swallow*.

The level or levels, labelled 0 to 4 in descending order, at which a given kind of item can occur within the taxonomic hierarchy are as follows (again largely following Berlin, Breedlove and Raven 1974, et al): *Level 0* unique beginner; *Level 1* life form, generic (if not subsumed within an overt or covert⁴ life form); *Level 2* generic, specific (if subsumed within a level 1 generic); *Level 3* specific, varietal (if subsumed within a level 2 specific); and *Level 4* varietal. As the ascription of a given hierarchic rank to a given item has, in this context, to be notional because of the limitations of the date, any item in the listings in sections 3.1 to 3.4 which is followed by (?) may well eventually turn out to be more fittingly located at the level immediately below that at which it has been listed.

Where what is, in effect, a composite or multi-labelled proto-gloss, e.g. *crayfish*, *lobster*, *prawn* or *moss*, *seaweed*, has been associated with a given proto-form, this is shown in the lists by linking the labels with /, as in *crayfish/lobster/prawn* or *moss/seaweed*. Where one proto-gloss has been associated with two or more distinctively different proto-forms, this is indicated in the lists by (1), (2), etc. after the gloss, but forms have not been regarded as distinctly different merely because of variations in individual reconstructive conventions, as in PEO *qupi* and ?uvi *yam* (Wurm and Wilson 1975: 244) or POC *pi(n)so* and *bi(s,z)o reed* (Wurm and Wilson 1975:167).

3.1 POC reconstructed glosses

There are, for POC, 69 flora items and 67 fauna items in the data base. These totals are surprisingly high, given the lack of specific concern with the flora and fauna fields on the part of many of those who compiled the lexicons available for comparison, and of most of the comparativists who produced the reconstructions.

3.1.1 Flora

LEVEL 1: LIFE FORMS

grass
tree
vine/creeper [total 3]

GENERICIS

Alocasia (sp.)⁵/*plant* sp. (*tuberous*)
bamboo (sp.)
banana (sp.)
coconut (?)
Colocasia (sp.)/*taro* (sp.)(1)
cucumber (?)
Curcuma longa (*turmeric*)⁶/*plant* sp. (*with yellow rods*)(?)

ginger (1) (?)⁶
ginger (2) (?)
kava
melon (?)
moss/seaweed (?)
nettle/tree nettle/Laportea (?)
plant sp. (unspecified) (?)
rattan (?)
reed (?)
sago (?)
sugarcane
taro (sp.) (2)
tobacco plant (?)
turmeric (curcuma) (?)⁶
yam
yams (wild) (?) [total 23]

LEVEL 2: GENERICS

[kinds of tree]
areca nut
banyan
Barringtonia
betel pepper
breadfruit (1)
breadfruit (2)
Calophyllum inophyllum
Canaga odorata
candlenut (Aleurites moluccana)
casuarina (sp.)
Cerbera
cinnamon tree
citrus (lemon, orange)
Cordyline (sp.)
Erythrina/shade tree
Ficus (sp.)
Freycinettia banksii
hardwood (1)
hardwood (2)
hibiscus
Malay apple (Syzygium malaccense)
mangrove (Rhizophore)
Morinda citrifolia
mulberry sp. (paper mulberry, Octomeles sumatrana) (1)
mulberry sp. (paper mulberry, Octomeles sumatrana) (2)
pandanus (1)
pandanus (2)
puzzlenut tree
sandalwood/Santalum
Spondias dulcis (mango) (1)
Spondias dulcis (mango) (2)
*Tahitian chestnut (Terminalia)*⁷
teak
*Terminalia (sp.) (Tahitian chestnut)*⁷

tree sp. (*coastal*) (1)
 tree sp. (*coastal*) (2)
 tree sp. (*fragrant*)
 tree sp. (*unspecified*) (1) through (6) [total 43]

3.1.2 Fauna

LEVEL 1: LIFE FORMS

*animal*⁹
bird
*fish*⁹
snake
 "wug"¹⁰ [total 5]

GENERICIS

butterfly/moth (?)
cassowary (?)
clam (?)
cowrie (sp.)/*mollusk* sp. (2) (?)¹¹
crab (sp.) (1) (?)
crab (sp.) (2) (?)
*crayfish/lobster/prawn*¹² (?)
crocodile (?)
mollusk sp. (1) (?)
mother of pearl shell (?)
mussel (1) through (3), all (?)
oyster (?)
oyster sp. (?)
sea urchin (?)
shellfish (sp.) (?)
spider (?)
turtle (?) [total 19]

LEVEL 2: GENERICIS

[*kinds of animal*]¹³
dog
flying fox/bat
pig (1)
pig (2)
rat (1) through (3) [total 7]
 [*kinds of bird*]
bird sp. (*unspecified*) (1)
bird sp. (*unspecified*) (2)
*dove*¹⁴
fowl (*domestic*)
frigate bird
gannet
*pigeon*¹⁴
sea-gull/sea-swallow/Sterna (sp.) [total 8]

[kinds of fish]
bonito
cuttlefish (1)/squid/octopus (2)
cuttlefish (2)
eel (sp.)
fish (scavenging)/scavenger fish/fish sp.
(unspecified) (1)/yellow-finned groper
fish sp. (small)/fish sp. (unspecified) (2)
fish sp. (unspecified) (3) through (5)
mullet
octopus (1)
octopus (3)
porpoise/dolphin
shark (sp.)
stingray [total 15]

[kinds of "wug"]¹⁵
ant (sp.)/cockroach (sp.)/crab (sp.) (3)/worm (2)
balolo worm
caterpillar
centipede
fly (1)
fly (2)/maggot/worm (1)
grub/termite/white ant
housefly
insect (sp.)
louse (body)
louse (head)
mosquito
wood weevil [total 13]

3.2 PEO reconstructed glosses

There are, for PEO, 23 flora items and 32 fauna items in the data base. These totals are markedly lower than those for POC, PML and PPN. In all probability this is merely a reflection of the relatively small total amount of PEO vocabulary that has as yet been reconstructed.

3.2.1 Flora

LEVEL 1: LIFE FORMS

tree
vine [total 2]

GENERICS
banana (sp.)
coconut
Colocasia (sp.)/taro (sp.)
moss/seaweed (?)
mushroom (sp.) (?)
sugarcane
yam [total 7]

LEVEL 2: GENERICS

[kinds of tree]
areca nut
Barringtonia
Canaga odorata
hibiscus
mangrove (Rhizophora)
orange
pandanus (1) through (3)
Tahitian chestnut (Terminalia)
teak
tree sp. (unspecified)(1)
tree sp. (unspecified)(2) [total 13]

[kinds of vine]
creeper (used for fish poison) [total 1]

3.2.2 Fauna

LEVEL 1: LIFE FORMS

*animal*⁸
bird
fish
snake
*"wug"*¹⁶ [total 5]

GENERICS

butterfly/moth (?)
clam (?)
cowrie (sp.)(?)
crayfish/lobster/prawn (?)
crocodile (?)
mussle (sp.)/shellfish sp. (bivalve) (1)(?)
mussel (sp.) (black, used for bonito hooks and shell money)(?)
shellfish (sp.)/shellfish sp. (bivalve) (2)(?)
spider (?)
turtle (?) [total 10]

LEVEL 2: GENERICS

*[kinds of animal]*¹³
pig
rat [total 2]

[kinds of bird]
bird sp. (tropic, Phaet[h]on) [total 1]

[kinds of fish]
bonito
fish (with poisonous spines)
fish sp. (unspecified)
mullet
octopus
shark (sp.)
stingray [total 7]

*[kinds of "wug"]*¹⁷
ant (sp.)
balolo worm
caterpillar
fly (1)
fly (2)
*louse (head)*¹⁸
mosquito [total 7]

3.3 PML reconstructed glosses

There are, for PML, 40 flora items and 61 fauna items in the data base. That these totals are relatively high, and that flora and fauna items constitute about 15% of the total set of reconstructions produced for PML (Levy and Smith 1969), presumably reflects some specific interest in the flora and fauna fields on the part of the comparativists.

3.3.1 Flora

LEVEL 1: LIFE FORMS

grass
*tree*¹⁹
vine (3) [total 3]

GENERICIS

bamboo (sp.)
coconut
fern sp. (Lycopodium)
ginger (?)
moss (?)
rattan (?)
reed (?)
sago (?)
sugarcane
taro (sp.)
yam (1)
yam (2)(?) [total 12]

LEVEL 2: GENERICIS

[kinds of grass]
cuscus [total 1]

[kinds of tree]
areca nut
banyan
Barringtonia
betel pepper
breadfruit
Calophyllum inophyllum
Canarium almond
Cordyline (sp.)
croton tree

hardwood
hibiscus
ironwood
mango
Morinda citrifolia
mulberry sp. (*paper mulberry*, *Octomeles sumatrana*)
pandanus
Polynesian plum
Terminalia sp.
tree sp. (*flowering*)
tree sp. (*used for houseposts*)
tree sp. (*unspecified*) [total 21]

[kinds of vine]
creeper (1)/*vine* (2)
creeper (2)
vine (1) [total 3]

3.3.2 Fauna

LEVEL 1: LIFE FORMS

bird
*fish*²⁰
snake
*"wug"*¹⁶ [total 4]

GENERICIS

butterfly/moth (?)
clam (?)
cone shell/trochus shell (1)(?)
conch (?)
cowrie (sp.)(?)
crayfish (?)
crocodile (?)
dog (?)
dugong (?)
flying fox/bat (?)
gold lip pearl shell (?)
limpet (?)
mother of pearl shell (?)
mussel sp. (*black, used for bonito hooks and shell money*)(?)
nautilus (*chambered*) (?)
nerite (?)
oyster sp. (*giant wing oyster*)(?)
phalanger (*cuscus*) (?)
pig (?)
tree lizard (*Corucia zebrata*) (?)
trochus shell (2)(?)
turtle (?) [total 22]

LEVEL 2: GENERICIS

[kinds of bird]
bird sp. (*believed to bring omens*)

duck
eagle
fowl/hen
frigate bird
hawk
hornbill
kingfisher (large, shore-dwelling)
osprey
pigeon
seabird (sp.)
starling sp. (shiny starling, Callornis metallica)
swift/kingfisher [total 13]

[kinds of fish]
barracuda
bonito
fish sp. (poisonous)/toadfish
fish sp. (walking)/Periophthalmus
lamprey
shark (sp.)
squid
stingray
swordfish [total 9]

[kinds of "wug"]¹⁷
ant (sp.)
ant sp. (yellow, with painful bite)
beetle sp. (bores yams)
caterpillar
cricket (sp.)
dragonfly
firefly
fly
grasshopper
sandfly
scorpion
termite
worm [total 13]

3.4 PPN reconstructed glosses

There are, for PPN, 79 flora items and 147 fauna items in the data base. These high figures reflect both the sheer quantity of PPN reconstructions available in the data base sources, especially Biggs, Walsh and Waqa 1970, and the fact that several recent Polynesian comparativists have had some specific interest in the flora and fauna fields.

3.4.1 Flora

LEVEL 1: LIFE FORMS

grass
*tree*²¹
vine/creeper [total 3]

GENERICIS

Alocasia (sp.)
arrowroot (?)
bamboo (sp.) (1)
banana (sp.) (2)
banana (sp.)
coconut (1)
coconut (2)
Colocasia sp./*taro* (sp.)
Curcuma domestica (?)
Fagraea berteriana (or other plant with showy leaves) (?)
fern (sp.) (1) (?)
fern (sp.) (2) (?)
fern (sp.) (4) (?)
gardenia (?)
kava
Leptocarpus simplex (?)
moss/seaweed (?)
nettle/tree nettle/Laportea (?)
oxalis sp. (?)
plant sp. (scented) (?)
plant sp. (unspecified) (1) through (6), all (?)
plantain (?)
reed (1) (?)
reed (2) (?)
sedge sp./*fern* (sp.) (3) (?)
sweet potato sp.
turmeric (?)
yam [total 33]

LEVEL 2: GENERICIS

[kinds of tree]
Barringtonia/tree sp. (coastal) (1)
breadfruit (1) through (3)
Canaga odorata
casuarina/tree sp. (unspecified) (22)
Cerbera/tree sp. (unspecified) (8)
citrus
Colubrina asiatica
Cordyline (sp.)
Ficus (sp.)
hibiscus
mango/Spondias dulcis
mangrove
Morinda citrifolia/tree sp. (unspecified) (12)
mulberry sp. (paper mulberry, *Octomeles sumatrana*)
palm (sp.)
pandanus (1)
pandanus (2)
Parinarium insularum/tree sp. (unspecified) (18)
Pritchardia pacifica
puzzlenut tree
sandalwood (*Santalum*)/*tree* sp. (unspecified) (23)
Terminalis (sp.) (*Tahitian chestnut*)/*tree* sp. (coastal) (2)

Thespesia populnea/tree sp. (unspecified) (10)
tree sp. (unspecified) (1) through (7)
tree sp. (unspecified) (9)
tree sp. (unspecified) (11)
tree sp. (unspecified) (13) through (17)
tree sp. (unspecified) (19) through (21)
tree sp. (unspecified) (24) [total 43]

3.4.2 Fauna

LEVEL 1: LIFE FORMS

*animal*⁸
bird^{2 2}
fish^{2 3}
snake
"wug"^{1 6} [total 5]

GENERICIS

bat (?)
butterfly/moth (1) (?)
clam (?)
cowrie (sp.) (?)
crab (sp.) (1) (?)
crab (sp.) (2) (?) / *shellfish (sp.)* (2) (?)
crab (sp.) (3) (?)
crab (sp.) (4) (?)
crayfish (?)
echinoderm/sea egg (?)
hermit crab (?)
Holothuria/sea slug (2) (?)
land crab (1) (?)
land crab (2) (?)
lizard (sp.) (?)
marine animal (unspecified) (1) through (3), all (?)
marine animal (unspecified) (5) (?)
mollusk sp./shellfish (sp.) (7) (?)
moth (?)
mussel (sp.) (?)
oyster (?)
sea slug (1) / *slug/snail* (?)
sea urchin (?)
shellfish (sp.) (1) (?)
shellfish (sp.) (3) through (6), all (?)
spider (1) (?)
spider (2) (?)
sponge (?)
turtle/tortoise (?) [total 34]

LEVEL 2: GENERICIS

[kinds of animal]^{1 3}
dog
pig
rat [total 3]

[kinds of bird]

bird sp. (*tropic, Phaet[h]on*)/bird sp. (*unspecified*) (13)bird sp. (*unspecified*) (1) through (8)bird sp. (*unspecified*) (10) through (12)

fowl

frigate bird (1)

frigate bird (2)

gannet (1)

gannet (2)

hen bird

heron/bird sp. (*unspecified*) (9)

parakeet sp.

parrot sp.

pigeon (1)

pigeon (2)

seabird (sp.) (1)

seabird (sp.) (2) [total 25]

[kinds of fish]

barracuda

bonito (1)

bonito (2)

cavally/fish sp. (*unspecified*) (29)cuttlefish/squid/marine animal (*unspecified*) (4)

dolphin

eel (sp.) (1) through (3)

fish sp. (*unspecified*) (1) through (22)fish sp. (*unspecified*) (24) through (27)fish sp. (*unspecified*) (31) through (38)fish sp. (*unspecified*) (41)fish sp. (*unspecified*) (42)flounder/fish sp. (*unspecified*) (39)

flying fish

garfish/fish sp. (*unspecified*) (40)/swordfish (1)leatherjacket/fish sp. (*unspecified*) (30)

mullet

octopus

shark (sp.) (1) through (3)

stingray

surgeon fish/fish sp. (*unspecified*) (23)

swordfish (2)

Trachurops/fish sp. (*unspecified*) (28)

whale (sp.) [total 59]

[kinds of "wug"]¹⁷

ant (sp.)

ant sp. (*big*)

balolo worm

beetle sp.

caterpillar (1)

caterpillar (2)/maggot (2)/worm (2)

cockroach (sp.)/cricket (sp.) (2)

cricket (sp.) (1)

flea

fly

grasshopper

grub (1)/*threadworm*
grub (2)
housefly
insect sp.
louse (head)
maggot (1)
mantis
mosquito
termite
worm (1) [total 21]

4. DISTRIBUTION OF ITEM TYPES THROUGH HIERARCHIC LEVELS — SUMMARY AND COMMENT

The distribution of item types through hierarchic levels is summarised below:

LEVEL	ITEM TYPE	POC		PEO		PML		PPN		TOTAL
		flora	fauna	flora	fauna	flora	fauna	flora	fauna	
0	unique beginner	-	-	-	-	-	-	-	-	-
1	life form generic	3	5	2	5	3	4	3	5	30
2	generic specific	23	19	7	10	12	22	33	34	160
2	generic specific	43	43	14	17	25	35	43	108	328
3	specific varietal	-	-	-	-	-	-	-	-	-
4	varietal	-	-	-	-	-	-	-	-	-

4.1 Unique beginners

The lack of *unique beginners* in POC, PEO, PML and PPN reflects their non-presence as labelled categories in the Oceanic languages, an aspect of these languages which is consistent with Berlin, Breedlove and Raven's finding that "In folk taxonomies it is quite common that the taxon found as a member of the category *unique beginner* is not labelled linguistically by a single habitual expression." (1974:26).

4.2 Life forms

The support for a given reconstructed *life form* in terms of the number of reconstructed *generics* subsumed by it is as follows:

	POC	PEO	PML	PPN
FLORA				
<i>grass</i>	-	-	1	-
<i>tree</i>	43	13	21	43
<i>vine</i>	-	1	3	-
FAUNA				
<i>animal</i>	7 ²⁴	2	-	3
<i>bird</i>	8	1	13	25
<i>fish</i>	15	7	9	59
<i>snake</i>	-	-	-	-
"wug"	13	7	13	21

These figures show that only *tree* in the flora field, and *bird* (PEO excepted), *fish* and "wug" in the fauna field, have their life form status supported by clear evidence²⁵ of generic polytypicism. The evidence is less satisfactory for *animal*, perhaps because of the small range of mammalia in the Oceanic region. The other items, *grass*, *vine*, and *snake*, must here be regarded as having only notional *life form* status, based on their association with major observable discontinuities within the flora or the fauna field, and, in the cases of *grass* and *vine*, also on their considerable potential for generic polytypicism.

That the *life form* status of "wug" is supported by clear evidence of generic polytypicism is some vindication of the setting up of this category for POC on the basis of overlapping proto-glosses (ref. note 10) and for PEO, PML and PPN by analogy with the POC situation. There may well turn out to be similar grounds for proposing *life forms* of comparable status to "wug" with glosses such as "shellfish", "crustacean", "bush/shrub" and "grerb" (for which latter see Brown 1984:13).

The specific composition (*tree* + *grass* + *vine*) of the flora *life form* sets for POC, PML and PPN is consistent with stage four of Brown's botanical *life form* encoding sequence (1984:24). The PEO set (*tree* + *vine*) is a relatively rare combination (ref. Brown 1984:25) which may well merely reflect the comparatively small stock of reconstructions as yet available for this proto-language.

The specific composition (*bird* + *fish* + *snake* + "wug" + *animal*) of the fauna *life form* sets for POC, PEO and PPN is consistent with stage five of Brown's zoological *life form* encoding sequence (1984:24), and the composition (*bird* + *fish* + *snake* + "wug") of the PML set is consistent with stage four. Given the reservations which must be entertained concerning the viability of *animal* [mammal] as a *life form* item in the Oceanic context, the composition of the fauna *life form* sets of all four proto-languages may well in fact be consistent with stage four of Brown's sequence.

4.3 Generics

Of the 518 items listed in Section 3, 488 are *generics* — 160 at level 1 and 328 at level 2. These figures are consistent with Berlin, Breedlove and Raven's claim that "In typical folk taxonomies, the taxa that are members of

the ethnobiological category, *generic*, are much more numerous than life form taxa, but are nonetheless finite, ranging in the neighborhood of 500 classes." (1974:26).

The 160 level 1 *generics* include a high proportion of items followed by (?), many of which may well turn out to be level 2 *generics*, each subsumed under some ('notional') *life form* item glossable as "*shellfish*", "*crustacean*", "*bush/shrub*", "*grerb*", etc. (ref. Section 4.2). Some other level 1 *generics* followed by (?) may well turn out to be *bona fide* level 1 items because of cultural salience as totems, e.g. *turtle*, *clam*; or because of anomalous qualities, e.g. *cassowary* (ref. Bulmer 1967), *moss/seaweed*, *spider*.

The level 1 *generics* which are not followed by (?) include staple foods, e.g. *yam*, *taro*, *coconut*; and items of cultural salience, e.g. *kava*, *bamboo*. All of these items are associated with extensive *specific*, and often also *varietal*, subclassification in many Oceanic languages.

Every level 2 *generic* is subsumed by a *life form*. If a given *life form*, such as *animal* or "*wug*", turned out not to be viable, then the *generics* subsumed by it would have to be re-located as level 1 items.

4.4 Specifics and varieties

That there are no *specifics* or *varietals* among the reconstructed glosses is consistent with the tendency for such items to be multi-morphemic, with glosses such as *red-leaved banyan* and *white-leaved banyan*, and often also to be metaphoric (ref. Walsh 1980). Complex items of this kind are less likely to share the patterned form-plus-meaning resemblances between languages which make reconstruction possible than are simple items, and the likelihood of such resemblances for complex items decreases rapidly as the range of related languages involved in a given comparison increases. Therefore, *specifics* and *varietals* are much more likely to be reconstructable for lowest-order subgroups than for any higher-order subgroups, and the likelihood of their reconstructability decreases rapidly as the subgrouping hierarchy is ascended.

5. CONCLUSION

The expectation stated in the last paragraph of *Section 2* has been fulfilled to a limited extent. For POC the reconstructions include not only higher order items — *life forms* and level 1 *generics*, many of which are culturally salient — but also, contrary to expectation, a relatively large number (86) of level 2 *generics*. For the sub-Oceanic proto-languages the reconstructions include not only virtually all the *life forms* present for POC, together with similar ranges of level 1 *generics*, but also, in the case of PPN only, a markedly greater number (108 as against 43 for POC) of level 2 *generics* in the fauna field.

However, the kind of operation that has been reported on in this paper is grossly constrained by the essentially etic quality of the reconstructed data (ref. *Section 1*). There may well be in present-day Oceanic languages, and there may well have been in earlier stages of these language traditions, broadly inclusive classes with boundaries approximate to those implied, in etic terms, by such *life form* glosses and proto-glosses as, e.g., *fish*, *bird*,

or *tree*, but we cannot, from etic data, know whether, e.g., POC *fish* includes *octopus*, *shark*, or *stingray*. If, in emic terms, any of these latter items is not included either under what is glossed as *fish* or under some other *life form*, then such an item or items would have to be listed among the level 1 *generics* rather than the level 2 *generics*.

Until this kind of emic data is available it is not possible to establish at all precisely what the detail of a reconstructed hierarchy for flora or fauna should be. What is required, then, for the Oceanic languages, is the kind of emic lexical and hierarchic data in the flora and fauna fields that are available for Tzeltal in Berlin, Breedlove and Raven 1974 and Hunn 1977. With such data it would be possible to reconstruct, for POC and for sub-Oceanic proto-languages, taxonomic hierarchies for flora and fauna that were at least notionally emic. It would then also be possible, *inter alia*, to carry out at a much higher level of significance the kind of operation that has here been reported on.

NOTES

1. This paper is a later version of "The lower-order reconstruction of flora and fauna nomenclature within EAN" which was presented at the 15th Congress of the Pacific Science Association. Funding for conference travel and underlying research was provided by the University of Sydney.
2. Due allowance has been made for the fact that Wurm and Wilson (ref. 1975: viii-xiv) to some extent 'processed' glosses for convenience of presentation.
3. In most cases the relevant flora and fauna data were not the result of any systematic and comprehensive investigation of these lexical fields.
4. "Covert" here does not have the connotation of "intermediate" ascribed to it by Berlin, Breedlove and Raven (1974:27). In the present context "notional" might be a more appropriate term.
5. The use of (*sp.*) in contexts such as this follows Wurm and Wilson — "Where a reconstruction may designate either a species or a generic term, and it is not necessary to draw the distinction, the gloss assumes the following form: *BAMBOO (SPECIES)*." (1975:xii).
6. There is some imprecision in the use of *Curcuma longa*, *turmeric* and *ginger* in the underlying data.
7. Each of these glosses — *Tahitian chestnut (Terminalia)* and *Terminalia (sp.) (Tahitian chestnut)* — is associated with a different POC form, ref. Wurm and Wilson 1975:12 and 15.
8. The gloss *animal* is presumed to signify *mammal*. There are, in the underlying data, some grounds for doubt that *animal [mammal]* can validly be reconstructed as a distinct category for POC, PEO or PPN.
9. As general terms for *fish*, POC manu(k) and tuRi(a) (Wurm and Wilson 1975: 77) are here disregarded.

10. The term "*wug*" has been borrowed from Brown (1984:16). This category is here proposed as a *life form* on the basis of the semantically partially overlapping POC kalo *ant, cockroach, crab, worm* (Grace 1969:50) and POC qulo(s) *worm, fly, maggot, (prawn ?)* (Grace 1969:82). POC mpaya and ŋmata *worm* (Wurm and Wilson 1975:243) are here disregarded.
11. These two glosses are equated on the basis of POC mpule (Wurm and Wilson 1975:46 and 131). The other gloss for this form — *shell, white* (Wurm and Wilson 1975:186) — is here disregarded.
12. POC qada(ŋ) *prawn* (Wurm and Wilson 1975:158) is a misprint for POC quda(ŋ) (Grace 1969:82).
13. If *animal* is not regarded as a viable *life form* item for POC, PEO and PPN, then the *generics* here subsumed by it would have to be re-located as level 1 items.
14. Wurm and Wilson (1975:152) subsume POC dupe and mpune under *pigeon, dove*, whereas Grace has POC dupe *dove* (1969:49) and POC mpune *pigeon* (1969:68).
15. If "*wug*" is not regarded as a viable *life form* item for POC, then the *generics* here subsumed by it would have to be re-located as level 1 items.
16. PEO, PML and PPN "*wug*" must be regarded as covert or notional *life forms*, here proposed by analogy from POC "*wug*".
17. If "*wug*" is not regarded as a valid covert or notional *life form* for PEO, PML and PPN, then the *generics* here subsumed by it would have to be re-located as level 1 items.
18. PEO li(s,z)a *louse (unspecified)* (Wurm and Wilson 1975:125) probably should be glossed *louse egg* and is therefore disregarded.
19. PML o'a *tree* (Wurm and Wilson 1975:224) is glossed *tree, cavity in tree* in Levy and Smith (1969:17) and is therefore disregarded.
20. PML roma *fish* (Wurm and Wilson 1975:77) is glossed *poisonous substance in shellfish, crabs, fish; poison fish with Barringtonia* in Levy and Smith (1969:18) and is therefore disregarded.
21. No explanation is here offered for PPN fuqu, raqakau, ra'a and kau *tree* (Wurm and Wilson 1975:224) — perhaps the specific sources of the reconstructions will provide it.
22. As a general term for *bird*, PPN moso (Wurm and Wilson 1975:18) is here disregarded.
23. As a general term for *fish*, PPN ma-lau (Wurm and Wilson 1975:77) is here disregarded.
24. This figure is inflated by the reconstruction of two terms for *pig* (Wurm and Wilson 1975:152) and three terms for *rat* (Wurm and Wilson 1975:165).
25. i.e. by having three or more *generics* subsumed by a given *life form* in POC, PEO, PML and PPN.

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