

# The Encoding of Manner Predications and Resultatives in Oceanic: A Typological and Historical Overview

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This paper is concerned with the encoding of resultatives and manner predications in Oceanic languages. Our point of departure is a typological overview of the encoding strategies and their geographical distribution, and we investigate their historical traits by the use of phylogenetic comparative methods. A full theory of the historical pathways is not always accessible for all the attested encoding strategies, given the data available for this study. However, tentative theories about the development and origin of the attested strategies are given. One of the most frequent strategy types used to encode both manner predications and resultatives has been given special emphasis. This is a construction in which a reflex form of the Proto-Oceanic causative \*pa-/\*paka- modifies the second verb in serial verb constructions.

**1. INTRODUCTION.**<sup>1</sup> This paper investigates different strategies that exist in Oceanic languages to encode manner and result, their distribution, and how they may have developed and spread. The different strategies employed by Oceanic languages to encode manner predications and resultatives are historically intertwined: several grammaticalized construction types seem to be derived from serial verb constructions (SVCs). SVCs are frequently used throughout the family, and the \*pa-/\*paka- strategy introduced below is also dependent on serial verb constructions. In this paper, we try to provide a full overview of these different strategies in different Oceanic languages, and account for their genetic and geographical distribution. In addition, we will test whether phylogenetic comparative methods adopted from biology allow us to infer historical changes in the encoding of manner predications and resultatives. The question of whether SVCs are ancestral to Proto-Oceanic will also be discussed.

Resultatives and manner predications are both types of secondary predication (Schultze-Berndt and Himmelmann 2004:60–61, 65ff.; Loeb-Diehl 2005:218; van der Auwera and

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1. We would like to thank Michael Dunn, Fiona Jordan, Pieter Muysken, Åshild Næss, Angela Terrill, and two anonymous reviewers for comments on earlier versions of this paper. We would also like to thank René van den Berg, Alex François, Frank Lichtenberk, Marian Klamer, Mary Raymond, and Johnny Tjia for answering our questions about languages in which they have expertise.

Malchukov 2005:411). Secondary predications have the defining property of containing two predicative constituents, one indicating some kind of action or event, like *walk*, *paint*, or *eat* and one expressing a state or a property, like *fast*, *black*, or *raw*.

- (1) Penny walked fast.
- (2) Lucy painted the fence black.
- (3) Mary ate the fish raw.

Manner predications, such as *fast* in (1), modify the event that is expressed as the main predicate, such as *walk*. They indicate the manner in which an action is performed, rather than ascribing some property to one of the participants in the event. Thus (1) implies that Penny's walking was fast, not that Penny herself was fast. In contrast with manner predications, resultatives express some kind of state that applies to one of the participants in the event, such as *black* in (2). The secondary predicate is a consequence or result of the event expressed by the main predicate, such as *paint* in (2). Resultatives encode an eventuality, state, or property that is caused by the main event. Depictives, such as *raw* in (3), modify one of the participants that is involved in the event that is expressed as the main predicate, but they are not the main predicates themselves, since they can be left out (as in *Mary ate the fish*). Depictives, resultatives, and manner predicates are the three main types of secondary predication. Ideally, we would have included information on depictives in this paper as well as the other two types, but this was not possible due to the limited amount of data on depictives that is usually present in grammars. However, studying manner predications and resultatives together turned out to be quite interesting in the Oceanic family, as there are many overlaps in the encoding of these two closely related domains.

The most frequent strategy in Oceanic languages to encode both manner and result makes use of serial verb constructions. Serial verb constructions are defined here as junctures of two or more verbs acting together as one complex verb in the same single clause. The same verb forms must also occur as independent verbs outside SVCs. The function of and paradigmatic relationship between the components of SVCs depend on their order in the juncture. We will refer to initial verbs in SVCs as  $V_1$ , verbs that come second in an SVC (following  $V_1$ ) as  $V_2$ , and so forth. Sometimes we analyze as SVCs constructions that have not been classified as such by the authors of the grammars the examples are taken from. This is mostly due to the fact that SVCs as a grammatical construction are a relatively new phenomenon in grammatical theory, one that is absent from many older grammars. In addition, many linguists operate with a different—and, in most cases, more narrow—definition of SVCs than we do.

The sample of Oceanic languages considered here is for the most part a convenience sample. The sample consists of 66 Oceanic languages. The data sources that we consulted on these 66 languages are listed in the appendix. We tried to find as much information on manner predications and resultatives as was possible from grammars that were available to us, and in certain cases from language experts directly. Because of this, our sample is skewed in the direction of Western Oceanic, for which more published grammars are available. Quite a few Oceanic grammars that we consulted did not provide any information on manner predications and resultatives. This means that the strategies presented here

might be much more widespread than the current dataset suggests. However, we believe there is sufficient coverage of the whole Oceanic family to be able to present an overview of at least the most common strategies and overall tendencies. The genetic classification of Oceanic languages presented below is based on Lynch, Ross, and Crowley (2002) and also takes into account the recent addition of the Temotu subgroup as presented in Ross and Næss (2008).

A typology of common strategies to encode manner and result in various subgroups of Oceanic languages is found in section 2, an overview of their genealogical and geographical distribution is given in section 3, an analysis using phylogenetic comparative methods is presented in section 4, and a discussion of how these strategies may have developed and spread is found in section 5. Supplementary material, presenting examples of each construction in each language in the sample, may be found at [http://muse.jhu.edu/journals/oceanic\\_linguistics/v052/52.1.verkerk\\_supp01.pdf](http://muse.jhu.edu/journals/oceanic_linguistics/v052/52.1.verkerk_supp01.pdf).

## 2. A TYPOLOGICAL OVERVIEW OF MANNER PREDICATIONS AND RESULTATIVES IN OCEANIC.

The Oceanic languages use a variety of different strategies to encode manner predications and resultatives. This section presents a comprehensive overview of the strategies that were attested in our sample. Note that a single language may make use of different strategies for a single construction, and so certain languages may feature in more than one section. Manner predications and resultatives may be encoded by an unmarked  $V_2$  in a SVC, by a  $V_2$  marked with a reflex of Proto-Oceanic (POC) \*pa-/\*paka- in a SVC, by classificatory particles, by a lexicalized  $V_2$ , or by adjective adjuncts. In addition to the strategies mentioned above, which are all relatively common in Oceanic languages, other, less frequent, means of encoding manner and result will be discussed in Section 2.6.

### 2.1 THE UNMARKED SVC STRATEGY

**2.1.1 Manner predications.** The first strategy we discuss, which constructs manner predications, uses stative verbs in the  $V_2$  position of a serial verb construction. The stative verb denotes the manner in which the event denoted by the verb in  $V_1$  position is carried out. As indicated by Crowley (2002:42), the subject of the  $V_1$  and the subject of the  $V_2$  are not identical in this type of SVC. The subject of the first verb is normally the subject of the whole sentence, while the second verb does not imply any participants (an alternative analysis would be that it takes the event denoted by the  $V_1$  as its subject). This type of SVC is called an “ambient serial construction” by Crowley (2002: 41).<sup>2</sup>

- (4) MWOTLAP (Central-Eastern Oceanic, Southern Oceanic)

Na-day nono-n [me-plag **lililwo**]<sub>SVC</sub>.  
ART-blood of-3SG PFV-run big.RED

‘His blood flowed abundantly.’ (François 2004:118)

- (5) TOQABAQITA (Central-Eastern Oceanic, Southeast Solomonian)

Teqe kini e [qai **baqita**]<sub>SVC</sub> mai.  
one woman 3SG.NFUT shout be.big VENT

‘A woman shouted loudly this way/in a distance.’ (Lichtenberk 2006:270)

- (6) ÄIWOO (Temotu, Reefs-Santa Cruz)  
 [I-lo-lo-bâku-pâko-i-kä-Ø]<sub>SVC</sub>.  
 PRF-RED-hold-fold-good-TR-DIR.3-3MIN.A  
 ‘She folded them properly.’ (Næss 2012:401)

**2.1.2 Resultatives.** In parallel to manner predications, resultatives may be encoded by SVCs in which a change of state verb in V<sub>2</sub> position denotes the result of the event expressed in the preceding verb. In the resulting SVC, the two verbs share the same subject (same-subject SVC). These constructions are termed “serial causatives” by Foley and Olson (1985:25–26).

- (7) HOAVA (Western Oceanic, Meso-Melanesian)  
 Kolokolo sap u vura huani, la ria nikana Merika  
 time PRO.3SG REL go.out REM.SG go ART:SG man America  
 [gona mate]<sub>SVC</sub>.  
 shoot die  
 ‘When that one went out, the Americans shot and killed (him).’  
 (Davis 2003:86)

- (8) KAULONG (Western Oceanic, North New Guinea)  
 Po [kimos tip]<sub>SVC</sub> hiang.  
 3PL spit make.wet 3SG.M  
 ‘They spat upon him.’ (Ross 2002b:402)

- (9) SALIBA (Western Oceanic, Papuan Tip)  
 [Ye-koi-kesi-di]<sub>SVC</sub>.  
 3SG-hit-break-OBJ.3SG:PL  
 ‘He broke them.’ (lit., ‘He hit-break them.’) (Margetts 1999:99)

How closely related manner predications and resultatives are is demonstrated by possible rephrasings of examples (7) through (9): ‘The Americans killed him by shooting’, ‘They made him wet by spitting at him’, and ‘He broke them by hitting’. In those rephrasings, the ‘by X’ clause functions as a manner adverbial. The nature of resultatives is that the secondary predicate describes a result of an action, and this action is carried out in a particular manner in most cases. That is why we can so easily rephrase them using this type of ‘by X’ manner adverbial. However, the semantics of these manner adverbials is quite different from the semantics of the manner predications in examples (4) through (6): ‘abundantly’, ‘loudly’, and ‘properly’. That is why it is important to make a distinction between secondary predicates that signify manner, such as ‘abundantly’, ‘loudly’, and ‘properly’ (manner predications), and results, such as ‘dead’, ‘wet’, and ‘broken’ (resultatives).

2. Abbreviations used in both this paper and the online supplementary material: AC, adverbial conjugation; ATTR, attributive; BAS, basic; BR, basic root; C, connective particle; CARD, cardinal numeral; COLL, collective; CONJ, conjunction; CONT, continuous aspect; CIT, citation root; CNTX, contextualizer; DEIC, deictic; DIR, directional; ECH, echo; EMPID, emphatic identifier; ES, echo subject; GENR, general; HAB, habitual aspect; INTJ, interjection; IP, illocutionary particle; IPRF, imperfective aspect; IT, iterative; MIN, minimal number; MODI, modified; MR, modified root; N, nominal; NOMZ, nominalizer; NREAL, nonrealis; NTR, neutral; PAST, past tense; PCEX, experiential possessive classifier; PERS, personal article; POT, potential; PRE, preposition; PREC, precedentive aspect; PRF, perfect aspect; PRO, pronoun; REAL, realis mood; RED, reduplication; REF, referential; REM, remote; SEQ, sequential; SIM, simultaneous; SPEC, specific; SPP, subject pronoun prefix; TA, TAM marker; TAM, tense/aspect/mood; TH, thematic consonant; VENT, ventive.

## 2.2 THE \*pa-/\*paka- STRATEGY

**2.2.1 Manner predications.** Before we introduce the \*pa-/\*paka- strategy as it is used to encode manner predications, we would like to briefly discuss causative derivation in Oceanic. Morphological causative verbs in many Oceanic languages can be derived by means of prefixes and particles that are reflexes of the Proto-Oceanic causative prefixes \*pa-/\*paka-. For example, in Ughele, a language spoken in the northwestern Solomon Islands, the reflex of \*pa- is the prefix *va-*. The *va-* prefix derives morphological causative verbs from other verb stems. The object referent of the derived causative verb corresponds to the subject of the underlying underived verb.

- (10) UGHELE (Western Oceanic, Meso-Melanesian)  
 Mate Sorepegi.  
 die S.  
 ‘Sorepegi died.’ (Frostad 2008)
- (11) UGHELE  
 ... meke va-mate-a rie ka ru Kuripitu,  
 and CAUS-die-OBJ.3SG PRO.3PL CARD two K.  
 bangara pa Keara, pa Ranonga.  
 chief LOC K. LOC R.  
 ‘... and the two of them killed Kuripitu, chief of Keara, on Ranonga.’  
 (Frostad 2008)

This causative derivation is the most frequent function of POC \*pa-/\*paka- reflexes, and a typical feature of Oceanic languages (Lynch, Ross, and Crowley 2002:83), of which most, but not all, have it. Among the languages that have a causative derivation involving a reflex of POC \*pa- or \*paka-, the reflexes also have other functions in several languages. Evans (2003:243) lists the following features: (i) multiplicative use, (ii) derivation of ordinal numbers, (iii) derivation of verbal modifiers, (iv) associative use, (v) attributive use, and (vi) delocutive use.

The most relevant use of causative \*pa-/\*paka- reflexes for the purpose of this paper is the function they have in the derivation of verbal modifiers. In such derivations, the causative reflex marks stative verbs as manner-indicating and change of state verbs as resultative when these verbs occupy slots other than  $V_1$  in verb serializations. Usually, these derivations are in the  $V_2$  slot, but they may also be in the  $V_3$  slot when  $V_1$  and  $V_2$  denote the action that is taking place, or in both the  $V_2$  and the  $V_3$  slot if there are two manner predications. Both are functions in which the verbs with the reflex modify the verb that precedes it in the SVC structure. In SVCs, \*pa-/\*paka-marked  $V_2$ s used for manner predication are called “adverbial forms” and also “verbal modifiers” by Evans (2003:247–48). Differences between the functions of the \*pa-/\*paka- reflexes in the languages of the sample do not invalidate our use of the \*pa-/\*paka- strategy as a unified strategy, because of the semantic and functional similarities found for this strategy in the languages of the sample.

The \*pa- and \*paka- prefixes have been present since Proto-Oceanic (Evans 2003:240–41). Evans (2003:253) also argues that the use of reflexes of POC \*pa-/\*paka- to derive manner predications may be reconstructed at the Proto-Oceanic level, as it is widely spread across a large range of languages in different branches. In this paper, we

investigate whether we can empirically test this claim by conducting phylogenetic comparative analyses. It should be noted that the \*pa-/\*paka- strategy, in which causative morphology is employed to mark a manner predication inside a SVC, is not restricted to the Oceanic languages. Loeb-Diehl (2005:24) gives examples from Angami, a Sino-Tibetan language, and Oromo, an Afro-Asiatic language. We do not know whether the processes of change that have played a role in these languages are the same as those that have done so in Oceanic. Loeb-Diehl (2005:68ff.) also points out that the usage of causative markers in manner encoding is not restricted to use inside SVCs either, and causative markers may be used to encode manner predications in other ways as well.

Encoding of manner by means of POC \*pa-/\*paka- on the second verb in SVCs is quite common in Oceanic languages. A stative verb with a prefix that reflects POC \*pa-/\*paka- indicates the manner in which the event in the preceding verb is carried out. Below are examples of manner-marking verbs in Ughele, Lavongai, and Samoan.

- (12) UGHELE  
 Ei, vae-na mado dodoru ikana puna ghoi [ghilania  
 INTJ like-ATTR.3SG happy every person because PRO.2SG know  
 lemono va-lean-i-a]SVC rie pa dia r<in>eka, ...  
 hear CAUS-good-TR-OBJ.3SG PRO.3PL LOC POSS.3PL <NOM>speak  
 ‘Oh, every person was happy because you could understand it well in  
 their language, ...’ (Frostad 2008)
- (13) LAVONGAI (Western Oceanic, Meso-Melanesian)  
 Kate [koponj a-bis]SVC.  
 PRO.3SG run CAUS-quick  
 ‘He ran away quickly.’ (Beaumont 1988:13)
- (14) SAMOAN (Central-Eastern Oceanic, Polynesian)  
 ... e nao moega o Sala ma l=a=na fanau  
 GENR only bed.SPEC.PL POSS Sala and ART=POSS=3SG offspring  
 na [taai faa=lelei]SVC.  
 PAST roll.up CAUS=good  
 ‘... only the sleeping mats of Sala and her children were rolled up  
 properly.’ (Mosel and Hovdhaugen 1992:401)

The  $V_2$  in constructions such as (11) through (13) is of an adverbial-like character with functions describing the event rather than one of the participants. The underlying verbs of morphological causatives used in this construction are often limited to a set of adjectival verbs. These are a subclass of verbs existing in several Oceanic languages that differ from other verbs in that they may modify nouns in NPs (Ross 1998:236). As predicates, their function does not differ from other verbs. In Ughele, only a subclass of adjectival verbs can occur in this construction.

**2.2.2 Resultatives.** Resultatives may also make use of the \*pa-/\*paka- strategy. In this case, we have a SVC in which a verb with a prefix being a reflex of POC \*pa-/\*paka- denotes the result of the verb preceding it. As was the case for the unmarked SVC strategy, the relation between the two verbs is such that  $V_2$  denotes the change of state resulting from the event denoted by  $V_1$ . The argument structure of the morphological causative is no different from when the same verb form occurs independently outside a

SVC. A typical example of the use of a morphological causative verb is a construction involving a CAUS-die form as V<sub>2</sub>, indicating that the action denoted by V<sub>1</sub> had as a result that the agent caused the patient to die, as in (15).

- (15) UGHELE  
 ... meke lao ia [zulu va-**mate**-a]<sub>SVC</sub> mamaneke mago  
 and go PRO.3SG burn CAUS-die-OBJ.3SG woman devil  
 ia beto meke ...  
 PRO.3SG finish and  
 ‘... and he went ahead and burned the female devil to death and ...’  
 (Frostad 2008)

Further examples from Kokota and Saliba are given in (16) and (17).

- (16) KOKOTA (Western Oceanic, Meso-Melanesian)  
 Manei n-e-ke [kumai fa **knaso**=i]<sub>SVC</sub> botolo swepi ine.  
 he REAL-3-PFV drink CAUS be.empty=OBJ.3SG bottle soft.drink this  
 ‘He drank empty this bottle of soft drink.’ (Palmer 2009:209)
- (17) SALIBA  
 Kaputi [ku-ini-he-**mwayau**-Ø]<sub>SVC</sub>.  
 cup 2SG-pour-CAUS-full-OBJ.3SG  
 ‘Pour the cup full!’ (Margetts 1999:118)

Some languages, such as Ughele, use both the \*pa-/\*paka- strategy as well as the unmarked SVC strategy described in 2.1 above. This can be the case for both manner predications and resultatives. Whereas *va-matea* in the SVC in (15) above denotes a situation that involves high volition on the part of the agent, *mate* may be used in constructions such as (18) in the more general sense of ‘finish off’, and may also denote situations with inanimate undergoers.

- (18) UGHELE  
 Ia na namu [kina **mate**]<sub>SVC</sub>.  
 PRO.3SG ART food cook die  
 ‘The food is cooked.’ (Frostad 2008)

There seems to be a significant overlap between the two constructions, though, and it is difficult to tell what the difference is between (19) and (20), in which the unmarked SVC strategy is used, and (21), in which the \*pa-/\*paka- strategy is used. Examples (19) and (21) both refer to the same situation.

- (19) UGHELE  
 ... meke [zulu **mate** pai-ni-a]<sub>SVC</sub> ia na mamaneke ia.  
 and burn die throw-TR-OBJ.3SG PRO.3SG ART woman PRO.3SG  
 ‘... and he burnt the woman to death.’ (Frostad 2008)
- (20) UGHELE  
 Site lao ia meke [poru **mate**]<sub>SVC</sub> ghamu ia, ...  
 FUT go PRO.3SG and copulate die PRO.2PL PRO.3SG  
 ‘She would go ahead and copulate him to death, ...’ (Frostad 2008)



- (21) UGHELE  
 Beto meke lao ia [zulu va-**mate**-a]<sub>SVC</sub> mamaneke mago  
 finish and go PRO.3SG burn CAUS-die-OBJ.3SG woman spirit  
 ia beto meke kaloa ia, ...  
 PRO.3SG finish and leave PRO.3SG  
 ‘And he burned the female demon to death and (then) went off, ...’  
 (Frostad 2008)

There are only a few cases where unmarked V<sub>2S</sub> are used to express manner or result in Ughele, and there is a possibility that these are highly lexicalized. Nonetheless, there are also cases where it is difficult to determine whether there is a difference between the \*pa-/paka- construction and the corresponding unmarked SVC construction, and what the difference may consist of in other Oceanic languages. However, some authors do point out restrictions on the two constructions. For example, in Saliba, resultative V<sub>2S</sub> are only marked with the \*pa-/paka- reflex *he-* if the V<sub>1</sub> is transitive and the V<sub>2</sub> is intransitive. The V<sub>2</sub> needs to be made transitive, as verbs in Saliba SVCs are required to have the same valence. This leads to the employment of the \*pa-/paka- strategy in (22). When the V<sub>2</sub> is already transitive, such as in (23), marking with *he-* is not used. Constructions such as (19) in Ughele, which combine one transitive and one intransitive verb in a SVC, are not attested in Saliba.

- (22) SALIBA  
 [Ye-koi-he-**mwalo**i-∅]<sub>SVC</sub>.  
 3SG-hit-caus-dead-OBJ.3SG  
 ‘He hit it dead.’ (lit., ‘He hit-caused-dead-it.’) (Margetts 1999: 102)
- (23) SALIBA  
 Galasi [se-koi-**kesi**-∅]<sub>SVC</sub>.  
 glass 3PL-hit-break-3SG  
 ‘They break the glass.’ (lit., ‘They hit-break the glass.’) (Margetts 1999:118)

Dixon (1988:64–65) discusses similar transitivity rules when he writes the following with regard to *va’a*, the reflex of \*pa-/paka in Boumaa Fijian, when prefixed to *vina’a* ‘(to be) good’: “Generally, there is a preference for *va’a-vina’a* to be used with an agent-oriented predicate (a transitive verb or an A-type predicate [intransitive]) and *vina’a* with a stative predicate (O-type intransitive or adjective).” Tolai also seems to have transitivity rules similar to Saliba (Mosel 1984:126). Although there are possibly meaning differences or even specific rules with regard to transitivity that govern the use of the \*pa-/paka- strategy versus the unmarked SVC strategy, these are often not described for the languages that have such an opposition. And even though transitivity marking clearly plays a role in the use of the \*pa-/paka- strategy, we do not think that transitive V<sub>2S</sub> marked with a reflex of \*pa-/paka- can always be simply likened to transitive V<sub>2S</sub> from unmarked SVCs, obliterating the difference between the unmarked SVC strategy and the \*pa-/paka- strategy. The most important reason for that is that, in some languages, the same verb can be used with or without the \*pa-/paka- marker—as seen in examples (18) and (20) and examples (179) and (180) in the supplementary material—proving that marking with \*pa-/paka- is not always only because of necessary transitivity requirements. However, we cannot rule out that, in some languages, what we identify as



instances of the \*pa-/\*paka- strategy, in which the \*pa-/\*paka- reflex serves to mark a resultative or manner predication, are simply transitivized verbs. This should be a topic for future investigation into Oceanic SVCs.

### 2.3 THE LEXICALIZED V<sub>2</sub> STRATEGY

**2.3.1 Manner predications.** Yet another strategy is what we call here “lexicalized V<sub>2s</sub>,” the use of words that might have grammaticalized from V<sub>2s</sub> of SVCs, but which now are no longer independent verbs. They can also be viewed as some type of adverbial. There is a clear diachronic relationship between the SVCs presented in 2.1.1 and these lexicalized V<sub>2s</sub>.

- (24) MEKEO (Western Oceanic, Papuan Tip)  
 Imi [e-biau-**lobia**].  
 child 3SG-run-good  
 ‘The child ran/has run well.’ (Jones 1998:418)
- (25) BUKAWA (Western Oceanic, North New Guinea)  
 Iŋ [sij̄ daū kwī **ŋapep**].  
 he 3SG.hide REF.PRO.3 turningly well  
 ‘He hid himself well.’ (Eckermann 2007:69)
- (26) BIG NAMBAS (Central-Eastern Oceanic, Southern Oceanic)  
 [I-ua-**p’la**] tris-an.  
 she.REAL-wear-wrongly dress-her  
 ‘She has her dress on inside out.’ (Fox 1979:73)

**2.3.2 Resultatives.** A third resultative construction, similar to the use of lexicalized manner “adverbials,” is the use of lexicalized resultative V<sub>2s</sub>. As was the case for the manner constructions, this closed class of result-denoting words probably arose from lexicalization of V<sub>2s</sub> in SVCs that denoted the resulting state of one of the participants after the action expressed by the main verb has occurred. Just like the lexicalized manner V<sub>2s</sub> discussed in 2.3.1, these words have lost their status as independent verbs (see Bradshaw 1982:32, 1985:28).

- (27) MUSOM (Western Oceanic, North New Guinea)  
 Wir [bo-ŋg-a-its in̄ **hunu**]!  
 PRO.1SG FUT-IRR-SPP1-hit PRO.3SG dead  
 ‘I will kill him!’ (Holzknecht 1997:93)
- (28) BUKAWA  
 Iŋ [pô̄ bolom̄ **kôc**].  
 3SG 3SG.press cereal asunder  
 ‘He broke the bread in two.’ (Eckermann 2007:67)
- (29) PAAMESE (Central-Eastern Oceanic, Southern Oceanic)  
 [Ni-salī **vinii-nV**] vuasi.  
 1SG.DIST-spear kill-OBJ pig  
 ‘I will spear the pig to death.’ (Crowley 2002:96)

**2.4 CLASSIFICATORY PREFIXES.** Several Oceanic languages have a set of manner of causation prefixes that does not include reflexes of POC \*pa-/paka-. They

form causative constructions with verbs and modify these by indicating the manner in which the event denoted by the verb in the construction is carried out. Typically, these verbs signify a result, so that the combination of classificatory prefix plus resultative verb has the same information on manner and result that unmarked SVC constructions have.

Our hypothesis is that the classificatory prefixes have emerged from resultative SVCs (that is, ‘He dropped-broke it’) in which the first element has grammaticalized into these prefixes. This is supported by similar findings by Bradshaw (1985:28), Ozanne-Rivierre and Rivierre (2004:350), and Crowley (2002:177), who point out that classificatory prefixes may have arisen due to the grammaticalization of the initial verb of an SVC. This is also alluded to by Lichtenberk (1983:566): “As we have seen, Manam cannot be said to have serial verb constructions, but, on the other hand, it does have a number of verbal affixes that have independent verbal counterparts from which they presumably originated.”

Ozanne-Rivierre and Rivierre (2004) discuss the existence of classificatory prefixes in Papuan Tip languages, a topic also studied by Capell (1943) and Ezard (1978, 1997), and in the Madang Province of Papua New Guinea, as discussed by Bradshaw (1982, 1985) and Lichtenberk (1983). The grammaticalization paths through which this strategy has emerged will be discussed in section 4.

- (30) MUSSAU (St. Matthias)  
 [belu-polak-i=a]  
 by.dropping-break-TR=OBJ.SG  
 ‘break it by dropping’ (Ross 2002c:160)
- (31) MANAM (Western Oceanic, North New Guinea)  
 móli [i-ʔara-sísiʔ-i].  
 orange REAL.3SG-with.teeth-peel-OBJ.3SG  
 ‘He peeled the orange (with his teeth).’ (Lichtenberk 1983:215)
- (32) SUDEST (Western Oceanic, Papuan Tip)  
 [I=vi-vewo] bal.  
 3SG=with.finger-push ball  
 ‘He pushed the ball with his fingers.’ (Anderson and Ross 2002:332)

## 2.5 THE ADJECTIVE ADJUNCT STRATEGY

**2.5.1 Manner predications.** In addition to these various strategies that all employ verbs or verbal prefixes, there is also a small set of languages that use postverbal adjectives to encode manner predications. These languages pattern exactly the same as languages like Dutch, which employs a set of adjectives as manner adjuncts without any derivation (Loeb-Diehl 2005).

- (33) BARIAI (Western Oceanic, North New Guinea)  
 Gau na-dio tuanga-i, [na-mado kemi].  
 PRO.1SG SBJ.1SG-stay.down village-LOC SBJ.1SG-sit good  
 ‘I stayed in the village, I lived well.’ (Gallagher and Baehr 2005:131)
- (34) ERROMANGAN (Central-Eastern Oceanic, Southern Oceanic)  
 [Cam-nam itr-ogko].  
 3SG:PRES-MODI.speak ADJ-BAS.correct  
 ‘(S)he is speaking correctly.’ (Crowley 1998:205)

**2.5.2 Resultatives.** In parallel with manner constructions, resultatives may also be encoded by placing an adjective after the verb it modifies. There is only one language in our sample that does this, namely Erromangan.

- (35) ERROMANGAN  
 N-ocu [m-uwe-nalam orog].  
 CIT-BR.say SG.ES-it.FUT-MR.grow big  
 ‘(She) said: “And it will grow big again”.’ (Crowley 1998:288)

## 2.6 OTHER STRATEGIES

**2.6.1 Manner predications.** In this last section, we briefly present various, less frequent strategies used to encode manner predications. None of these strategies is found throughout the Oceanic family, although some of them are used by a few languages that are related to each other.

In Bariai, verbal manner predications may be conjoined to a verb by using the conjunction *ga*. For more information on this conjunction, see 2.6.2.

- (36) BARIAI (Western Oceanic, North New Guinea)  
 Be kakau ede toa kerī [i-taka i-tin ga paeamao]  
 SIM young.person one REF rattan.palm SBJ.3SG-tear P.3SG-skin CONJ bad  
 i-naman ieiei-nga ta i-tang-tang.  
 SBJ.3SG-feel hurt-NREAL SEQ SBJ.3SG-red-cry  
 ‘But one young person whose skin was torn badly by rattan palms felt pain and so he was crying.’ (Gallagher and Baehr 2005:93)

Lote uses the adverbial conjunction *ke* for a similar purpose. For more information on this conjunction, see 2.6.2.

- (37) LOTE (Western Oceanic, North New Guinea)  
 [E-long-é iong ke mallaha].  
 1SG-hear-TR 2SG AC clearly  
 ‘I hear you clearly.’ (Pearson and van den Berg 2008:94)

Then there are strategies that encode manner using a phrase headed by a prepositional-like element meaning ‘with’ (see also Loeb-Diehl 2005:33 for similar constructions in non-Oceanic languages). Such a strategy is used by Sinaugoro, which employs *ma* ‘with’.

- (38) SINAUGORO (Western Oceanic, Papuan Tip)  
 Ġade Gonegone [ma baru-na] ġesi ġe-na dura baergo-na  
 Gade Gonegone with anger-3SG with NTR-3SG string.bag big-3SG  
 e ġabi-a-to.  
 3SG take-3SG-PRF  
 ‘Gade Gonegone angrily took her string bag.’ (Tauberschmidt 1999:65)

Mangap-Mbula uses *raama* ‘with’ plus a second element to indicate manner, as in (39).

- (39) MANGAP-MBULA (Western Oceanic, North New Guinea)  
 Nu so sua [raama ngar] som.  
 NOM.2SG 2SG.say talk with thinking NEG  
 ‘You did not speak intelligently.’ (Bugenhagen 1995:153)

A strategy that appears in Central-Eastern Oceanic is the use of nominalized verbs as subjects in predicates involving a verb or adjective that indicates the manner in which the action is performed. The following are examples from Mokilese, Woleaian, and Tokelauan.

- (40) MOKILESE (Central-Eastern Oceanic, Micronesian)  
 Lallalin oawoa oaujoangoan **koalik**.  
 talk.N mouth.POSS.3SG very big  
 ‘He talks big.’ (lit., ‘The speaking of his mouth is big.’) (Harrison 1976:282)
- (41) WOLEAIAN (Central-Eastern Oceanic, Micronesian)  
 Ye **ttir** yaa-i faarag.  
 SBJ.3SG fast POSS.1SG walk.  
 ‘I walk fast.’ (lit., ‘My walking is fast.’) (Sohn 1975:152)
- (42) TOKELAUAN (Central Pacific, Polynesian)  
 E **leilei** te kaukau a Lemi.  
 TNS be.good DEF.ART.SG swim POSS Lemi  
 ‘Lemi’s swimming is good; Lemi swims well.’ (Hovdhaugen et al. 1989:68)

Tolai may use compound nouns, as in (43), as well as the SVCs we saw earlier.

- (43) TOLAI (Western Oceanic, Meso-Melanesian)  
 Dor a [ki-na-**gugu**] ...  
 PRO.1DU.INCL TA stay-C-joy  
 ‘We will stay (here) joyfully ...’ (Mosel 1984:200)

**2.6.2 Resultatives.** There are a few remaining strategies that are used to encode resultatives. All of them involve the use of some type of conjunction. Gallagher and Baehr (2005:149) write that, in switch subject SVCs (in which the object of the first verb or clause becomes the subject of the second verb or clause) in Bariai, *ga* indicates result. Pearson and van den Berg (2008:130) say that, in Lote, the “adverbial conjunction” *ke* combines clauses that have a strong semantic relationship, such as purpose or result. The constructions below are not secondary predicates because they all include overt conjunction of clauses; however, we decided to include them here as both Gallagher and Baehr (2005) and Pearson and van den Berg (2008) mention the special status of these conjunctions as conjunctions that encode relationships of result or purpose (and manner, as illustrated by [36] and [37] in 2.6.1).

- (44) BARIAI  
 Eao [Ø-gal ei ga i-**mate**] na, be ae-a puaa  
 2SG SBJ.3SG-stab 3SG CONJ SBJ.3SG-die IP SIM P.3SG-PCEX power  
 tota ne i-eno-no pa=go na.  
 EMPID here SBJ.3SG-lay-RED at=OBJ.2SG IP  
 ‘You stabbed him so that he died, you know, but this very power of his is remaining with you, you know.’ (Gallagher and Baehr 2005:132)
- (45) LOTE  
 [Te-pal-ia ana non ke la **méte**].  
 3PL-hit-TR TOP man AC go die.  
 ‘They beat the man until he died.’ (Pearson and van den Berg 2008:132)

Another rare resultative construction is attested in Äiwoo, where (Næss 2012:403–10) shows that verbs in resultative constructions used to denote actions of cutting and breaking are bimorphemic. The construction does not represent a SVC, as none of the morphemes can be used independently. The first morpheme refers to the act carried out by an agent to bring about the change of state of a patient, the second refers to the manner in which the change of state happens (46) or specifies properties of the patient (47).

- (46) ÄIWOO  
 Sapolo [ki-tâ-**pule**-no].  
 papaya IPRF-cut-break.in.half-1MIN.A  
 ‘I cut open the papaya.’ (Næss 2012:403)
- (47) ÄIWOO  
 Nuwale [i-tâ-**lu**-kâ-Ø=nâ].  
 rope PRF-cut-snap.flexible.object-DIR.3-3MIN.A=DEIC.DIST  
 ‘He cut the rope.’ (Næss 2012:403)

The first morpheme may also indicate the instrument used, where there is one. The *tâ*-morpheme in both examples above indicates that something is cut using a knife. Næss (2012:407) assumes that bimorphemic resultative constructions such as the ones shown above must have originated in SVCs, such as the lexicalized V<sub>2</sub>S described in 2.3 and the classificatory prefixes described in 2.4.

**3. GENEALOGICAL AND GEOGRAPHICAL DISTRIBUTION.** In this section, we will discuss the different patterns of encoding of manner predications and resultatives, based on genetic subgroups, as proposed in Lynch, Ross, and Crowley (2002) and Ross and Næss (2008). An overview of languages and the strategies they employ is provided in table 1. An ‘x’ in each column marked ‘M’ indicates the presence of that strategy for manner predications, while an ‘x’ in each column marked ‘R’ indicates the presence of that strategy for resultatives. A dash indicates the absence of that strategy. Examples for all of the different constructions for all of these languages are provided in the supplementary material (see [http://muse.jhu.edu/journals/oceanic\\_linguistics/v052/52.1.verkerk\\_supp01.pdf](http://muse.jhu.edu/journals/oceanic_linguistics/v052/52.1.verkerk_supp01.pdf)).

It becomes evident from table 1 that even though there is variability in the use of different encoding patterns, this variability is genetically patterned. The use of the \*pa-/\*paka-strategy is especially common in the Meso-Melanesian subbranch of Western Oceanic, and also quite common in the Central Pacific subbranch of Central-Eastern Oceanic, especially for manner predications. In other branches, it occurs only occasionally, and in some branches not at all. The use of the unmarked SVC strategy, however, is very common throughout the whole Oceanic family for both manner predications and resultatives. In almost all cases (and the exceptions are likely to be due to poor data), if a language employs the \*pa-/\*paka-strategy, it also employs the unmarked SVC strategy.

The two grammaticalized strategies, classificatory prefixes and the lexicalized V<sub>2</sub> strategy, are less common but also genetically restricted. Classificatory prefixes are attested in Papuan Tip languages; in one North New Guinea language, Manam; and in a single Meso-Melanesian language, Bali. Lexicalized V<sub>2</sub>S are found only in Papuan Tip, North New Guinea, and Southern Oceanic languages. The use of adjective adjuncts is scattered throughout the family, but is relatively less common.

TABLE 1. RESULTATIVE AND MANNER ENCODING IN OCEANIC

| Affiliation                 | Language     | *pa-/<br>*paka- |   | Clause<br>prefixes | Lexicalized<br>V <sub>2</sub> |   | SVCs |   | Adjectives |   | Other |   |
|-----------------------------|--------------|-----------------|---|--------------------|-------------------------------|---|------|---|------------|---|-------|---|
|                             |              | M               | R |                    | R                             | M | R    | M | R          | M | R     | M |
| <b>Meso-<br/>Melanesian</b> | Halia        | x               | x | –                  | –                             | – | –    | – | –          | – | –     | – |
|                             | Hoava        | x               | x | –                  | –                             | – | –    | x | –          | – | –     | – |
|                             | Kokota       | x               | x | –                  | –                             | – | x    | – | –          | – | –     | – |
|                             | Lavongai     | x               | x | –                  | –                             | – | –    | – | –          | – | –     | – |
|                             | Nalik        | x               | – | –                  | –                             | – | –    | – | –          | – | –     | – |
|                             | Tigak        | x               | – | –                  | –                             | – | –    | – | –          | – | –     | – |
|                             | Kubokota     | x               | x | –                  | –                             | – | –    | x | –          | – | –     | – |
|                             | Siar         | –               | x | –                  | –                             | – | –    | x | –          | – | –     | – |
|                             | Banoni       | x               | x | –                  | –                             | – | –    | x | –          | – | –     | – |
|                             | Ughele       | x               | x | –                  | –                             | – | –    | x | –          | – | –     | – |
|                             | Pala         | x               | x | –                  | –                             | – | x    | x | –          | – | –     | – |
|                             | Taiof        | –               | x | –                  | –                             | – | –    | – | –          | – | –     | – |
|                             | Roviana      | x               | – | –                  | –                             | – | –    | x | –          | – | –     | – |
|                             | Sisiqa       | –               | x | –                  | –                             | – | –    | x | –          | – | –     | – |
|                             | Teop         | x               | x | –                  | –                             | – | –    | x | –          | – | –     | – |
| Tolai                       | x            | x               | – | –                  | –                             | x | x    | – | –          | x | –     |   |
| Bali                        | –            | –               | x | –                  | –                             | – | –    | – | –          | – | –     |   |
| Vitu                        | –            | –               | – | –                  | –                             | x | x    | – | –          | – | –     |   |
| <b>North New<br/>Guinea</b> | Bariai       | –               | – | –                  | –                             | – | –    | x | x          | – | x     | x |
|                             | Awad Bing    | –               | – | –                  | –                             | – | x    | x | –          | – | –     | – |
|                             | Mangap-Mbula | –               | – | –                  | –                             | – | –    | x | –          | – | x     | x |
|                             | Lote         | –               | – | –                  | –                             | – | x    | x | –          | – | x     | x |
|                             | Manam        | –               | – | x                  | –                             | – | –    | – | –          | – | x     | – |
|                             | Bukawa       | –               | – | –                  | x                             | x | –    | x | –          | – | –     | – |
|                             | Yabem        | –               | – | –                  | –                             | x | –    | x | x          | – | –     | – |
|                             | Musom        | –               | – | –                  | –                             | x | x    | – | x          | – | –     | – |
|                             | Kaulong      | –               | – | –                  | –                             | – | –    | x | –          | – | –     | – |
|                             | Maleu        | –               | – | –                  | –                             | – | –    | x | –          | – | –     | – |
| <b>Papuan<br/>Tip</b>       | Gumawana     | –               | – | x                  | –                             | – | –    | – | –          | – | –     | – |
|                             | Saliba       | –               | x | –                  | –                             | – | x    | x | –          | – | x     | – |
|                             | Mekeo        | –               | – | –                  | –                             | x | x    | x | –          | – | –     | – |
|                             | Tawala       | –               | – | x                  | x                             | – | x    | – | –          | – | –     | – |
|                             | Sudest       | –               | – | x                  | –                             | – | x    | – | –          | – | –     | – |
|                             | Iduna        | –               | – | x                  | –                             | – | –    | – | x          | – | –     | – |
| Sinaugoro                   | –            | –               | – | –                  | –                             | x | x    | – | –          | x | –     |   |
| <b>St. Matthias</b>         | Mussau       | x               | x | –                  | –                             | – | x    | x | –          | – | –     | – |
| <b>Admiralties</b>          | Seimat       | x               | x | –                  | –                             | – | –    | – | –          | – | –     | – |
|                             | Loniu        | –               | – | –                  | –                             | – | –    | x | x          | – | x     | – |
| <b>Temotu</b>               | Aiwoo        | –               | – | –                  | –                             | – | –    | x | x          | – | –     | x |
| <b>Southern<br/>Oceanic</b> | Big Nambas   | –               | – | –                  | x                             | x | x    | – | –          | – | –     | – |
|                             | Avava        | –               | – | –                  | x                             | x | –    | x | –          | – | –     | – |
|                             | Tamambo      | –               | – | –                  | –                             | – | x    | x | –          | – | –     | – |
|                             | Tape         | –               | – | –                  | –                             | x | x    | x | –          | – | –     | – |
|                             | Naman        | –               | – | –                  | –                             | x | x    | x | –          | – | –     | – |
|                             | Mavea        | –               | – | –                  | –                             | – | x    | x | –          | – | –     | – |
|                             | Mwotlap      | –               | – | –                  | –                             | – | x    | x | –          | – | –     | – |
|                             | Nêlêmwa      | –               | x | –                  | –                             | – | x    | – | –          | – | –     | – |
|                             | Tinrin       | –               | – | x                  | x                             | x | –    | x | –          | – | x     | – |
|                             | Iaai         | –               | – | –                  | x                             | – | x    | – | –          | – | x     | – |

TABLE 1. RESULTATIVE AND MANNER ENCODING IN OCEANIC (CONT.)

| Affiliation         | Language     | *pa-/<br>*paka- |   | Clause<br>prefixes | Lexicalized<br>V <sub>2</sub> |   | SVCs |   | Adjectives |   | Other |   |
|---------------------|--------------|-----------------|---|--------------------|-------------------------------|---|------|---|------------|---|-------|---|
|                     |              | M               | R | R                  | M                             | R | M    | R | M          | R | M     | R |
|                     | Paamese      | –               | – | –                  | x                             | x | x    | x | –          | – | –     | – |
|                     | North Ambrym | –               | – | –                  | –                             | – | x    | – | –          | – | –     | – |
|                     | Erromangan   | –               | – | –                  | –                             | – | –    | x | x          | x | –     | – |
|                     | Namakir      | –               | – | –                  | –                             | – | x    | – | –          | – | –     | – |
| <b>Central</b>      | Samoan       | x               | x | –                  | –                             | – | x    | x | –          | – | –     | – |
| <b>Pacific</b>      | Rotuman      | x               | x | –                  | –                             | – | x    | – | –          | – | –     | – |
|                     | Fijian       | x               | – | –                  | –                             | – | –    | – | x          | x | –     | – |
|                     | Tuvaluan     | x               | – | –                  | –                             | – | x    | – | –          | – | –     | – |
|                     | Tongan       | x               | – | –                  | –                             | – | x    | x | –          | – | –     | – |
|                     | Tokelauan    | –               | – | –                  | –                             | – | x    | – | –          | – | x     | – |
|                     | West Futunan | x               | – | –                  | –                             | – | x    | x | –          | – | –     | – |
|                     | Niuean       | x               | – | –                  | –                             | – | x    | – | –          | – | –     | – |
|                     | Hawaiian     | –               | – | –                  | –                             | – | x    | – | –          | – | –     | – |
| <b>SE Solomonic</b> | Toqabaqita   | –               | – | –                  | –                             | – | x    | x | –          | – | –     | – |
| <b>Micronesian</b>  | Mokilese     | –               | – | –                  | –                             | – | x    | – | –          | – | x     | – |
|                     | Ponapean     | –               | – | –                  | –                             | – | x    | – | –          | – | –     | – |
|                     | Woleaian     | –               | – | –                  | –                             | – | x    | – | –          | – | x     | – |

Overall, this shows Meso-Melanesian presenting a rather uniform pattern of \*pa-/ \*paka-marked V<sub>2</sub>s and unmarked SVCs, while North New Guinea and Papuan Tip display much more varied encoding. On the Central-Eastern Oceanic side, the Central Pacific branch behaves very much like Meso-Melanesian, while the other branches use mostly SVCs with occasional other strategies. Languages often behave similarly with respect to their encoding strategies for manner predications and resultatives, especially with regard to the use of the unmarked SVC strategy, which is often used by both manner predications and resultatives. However, for 11 out of the 63 languages in our sample, we have no data on resultatives, and for seven we have no data on manner predications, which makes it hard to compare strategy usage for those languages.

**4. PHYLOGENETIC COMPARATIVE ANALYSES.** In this section, we present a phylogenetic analysis of the different encoding strategies used by Oceanic languages to encode manner predications and resultatives. Below, the language data are presented on a phylogenetic tree for each of the five major strategies (figures 1 through 5). The tree is taken from Lynch, Ross, and Crowley's (2002:877ff.) classification of Oceanic languages, with the addition of the Temotu branch as proposed by Ross and Næss (2008). The characters mapped onto the tree are the five strategies: figure 1 represents the \*pa-/\*paka- strategy, figure 2 the classificatory prefixes strategy, figure 3 the lexicalized V<sub>2</sub> strategy, figure 4 the unmarked SVC strategy, and figure 5 represents the adjective adjunct strategy. We have aggregated the data on manner predications and resultatives, and the use of a strategy as depicted in figures 1 through 5 may thus be the use of the strategy for manner predications, for resultatives, or for both. We have aggregated the data in this way because individual analyses cannot incorporate all the languages in the



sample, considering that we do not have any data on manner predications for some languages, and no data on resultatives for others.

The first inferences of the evolutionary history of the use of the five strategies were made using Mesquite (Maddison and Maddison 2010). Mesquite is a software that is used for comparative analysis in evolutionary biology; we are using it here to analyze language evolution, that is, historical change in a group of related languages (Dunn et al. 2011). The results depicted in figures 1 through 5 were obtained by using maximum likelihood ancestral state reconstruction. This method evaluates hypotheses about evolutionary history in terms of the probability that the proposed model (see below) and the hypothesized history would give rise to the observed data set. In our case, we are interested in the evolutionary history of the different strategies to encode resultatives and manner predications, and the hypothesized history is the phylogenetic tree taken from Lynch, Ross, and Crowley (2002:877ff.).

The maximum likelihood ancestral state reconstruction was carried out individually for each strategy. The reason for this is that Mesquite cannot carry out a multistate analysis when the phylogenetic tree is not strictly binary, as is the case for Lynch, Ross, and Crowley's tree. A multistate analysis models the evolution of features that adopt a finite number of two or more discrete states on a phylogenetic tree or a sample of phylogenetic trees. In this analysis, we simply modeled the presence or absence of each strategy individually.

Ancestral states of each node for each strategy were determined by maximum likelihood calculation using the Mk1 model of Mesquite. Within this model, a binary feature, in our case presence or absence of each of our five strategies, can switch repeatedly between its two states of presence and absence in any of the branches of the tree. Since this model uses only a single rate of change parameter, both gain (absence > presence) and loss (presence > absence) of each state are assessed to be equally probable.

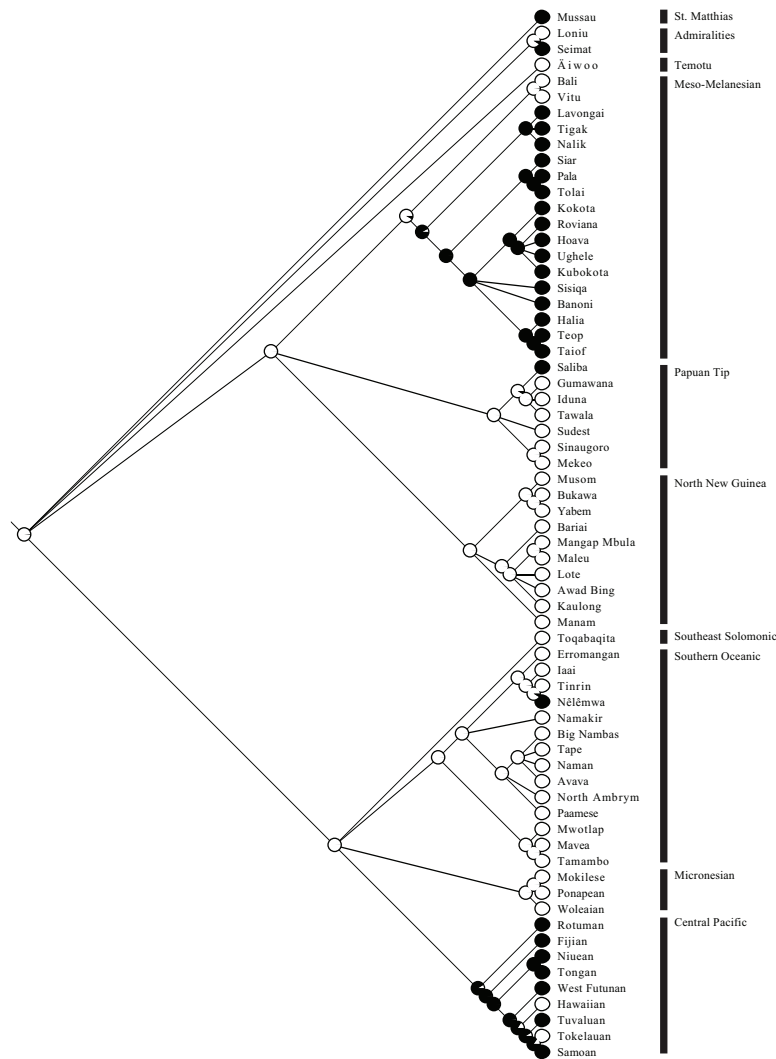
The nodes at the right end of the trees represent contemporary languages, such as Musom, Bariai, and Ughele. The colored balls indicate the presence (black) or absence (white) of the strategy. The nodes connecting these contemporary languages represent the ancestors of these languages. For instance, the languages Musom, Bukawa, Yabem, Bariai, Mangap-Mbula, Lote, Kaulong, and Manam all connect to a single node, which is hypothesized to be the ancestor of all North New Guinea languages. The lowest node in the tree functions as the root, which in this case is the most recent ancestor of all Oceanic languages, Proto-Oceanic.

Figure 1 shows that the \*pa-/\*paka- strategy is especially common in Meso-Melanesian, but is also common in Central Pacific. The root of the Oceanic tree is estimated to most likely not have this feature, as the proportional likelihood for absence of this feature is 0.99. This seems to go against the claim by Evans (2003:253) that the \*pa-/\*paka- strategy could be ancestral to Proto-Oceanic, a result that we will discuss further below. The reason for this outcome is probably that the existence of the strategy is mostly limited to two large branches of the family, that is, it is not dispersed throughout the family. Therefore, the algorithm infers that it is more likely that the strategy has evolved independently six times (once for the Meso-Melanesian branch, once for the Central Pacific branch, and once each for the individual languages Mussau, Seimat, Saliba, and Nêlêmwa).

Classificatory prefixes are less common in the languages in our sample, as can be observed in figure 2. They seem to occur only in the North New Guinea and Papuan Tip subbranches (except for Bali, which might reflect a diverging analysis).

Likewise, the use of lexicalized  $V_2S$  is relatively rare and only occurs in the Schouten and Huon Gulf subfamilies of the North New Guinea languages, a couple of Papuan

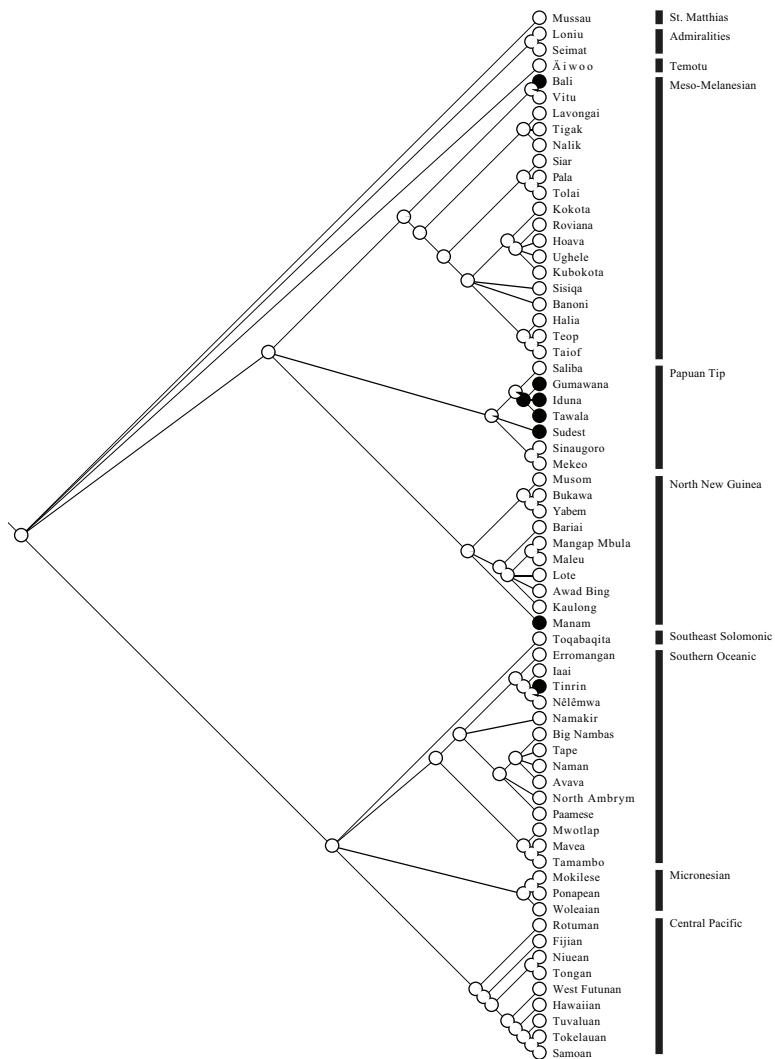
**FIGURE 1. THE EVOLUTIONARY HISTORY OF THE \*pa-/\*paka-STRATEGY IN OCEANIC**



Tip languages, along with Big Nambas (also known as V'ënen Taut), and Paamese. This is displayed in figure 3.

The use of unmarked SVCs to encode manner predications and resultatives is very common, as is indicated by figure 4. The algorithm also establishes that it is highly likely that SVCs were used to encode these two constructions at the Proto-Oceanic node (the

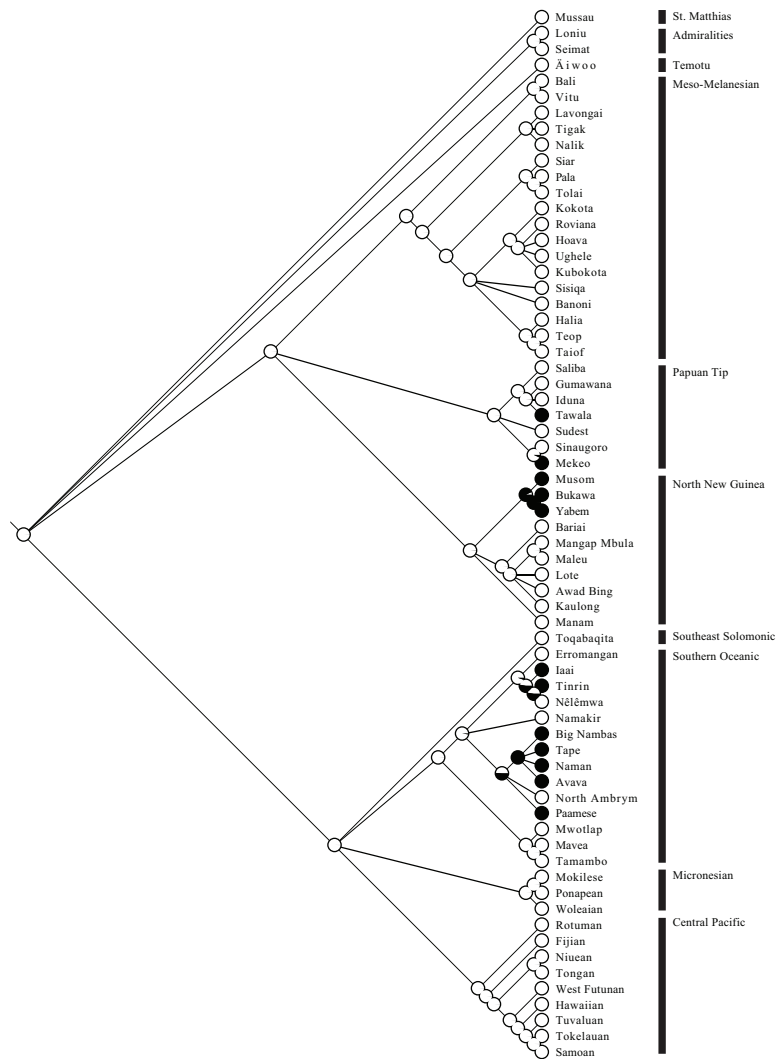
**FIGURE 2. THE EVOLUTIONARY HISTORY OF CLASSIFICATORY PREFIXES IN OCEANIC**



proportional likelihood is 0.99994). The use of the adjective adjunct strategy is presented in figure 5. It is not very common, and its occurrence is scattered across the tree.

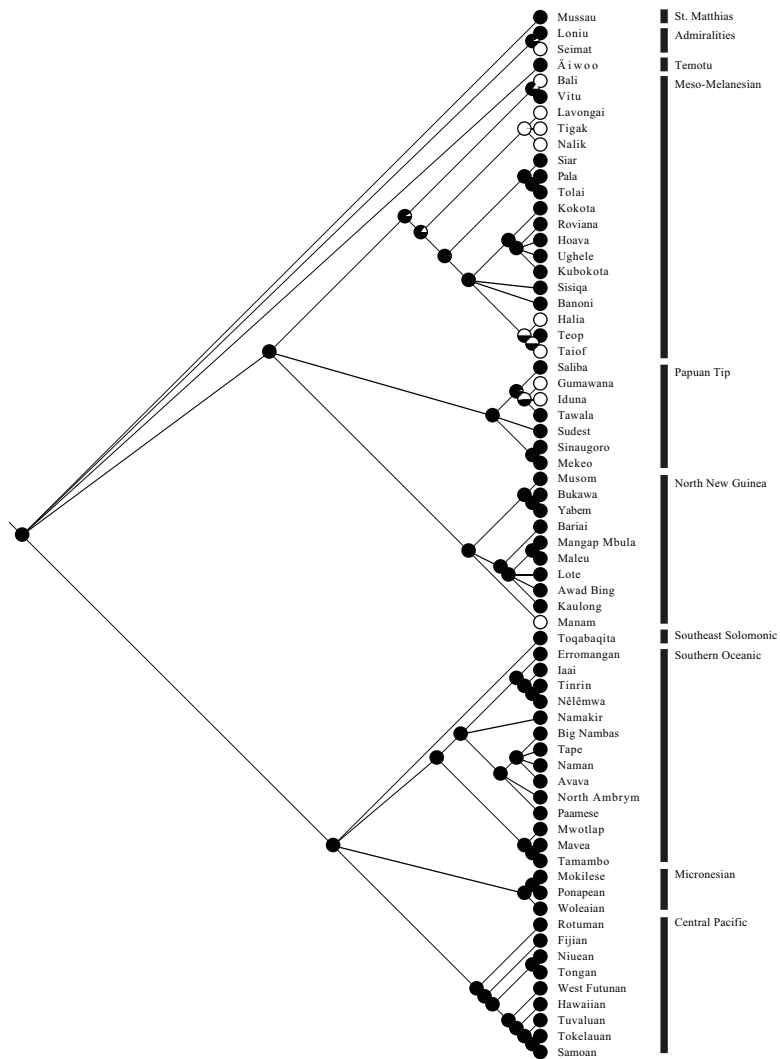
As noted in the earlier discussion, it is not possible to do a multistate analysis in which all five strategies are considered in one analysis in Mesquite, because Lynch, Ross, and Crowley’s phylogenetic tree is not completely binary. It is possible, however, to do such a multistate analysis in BayesTraits (Pagel 1999), another phylogenetic software that is

**FIGURE 3. THE EVOLUTIONARY HISTORY OF THE LEXICALIZED V<sub>2</sub> STRATEGY IN OCEANIC**



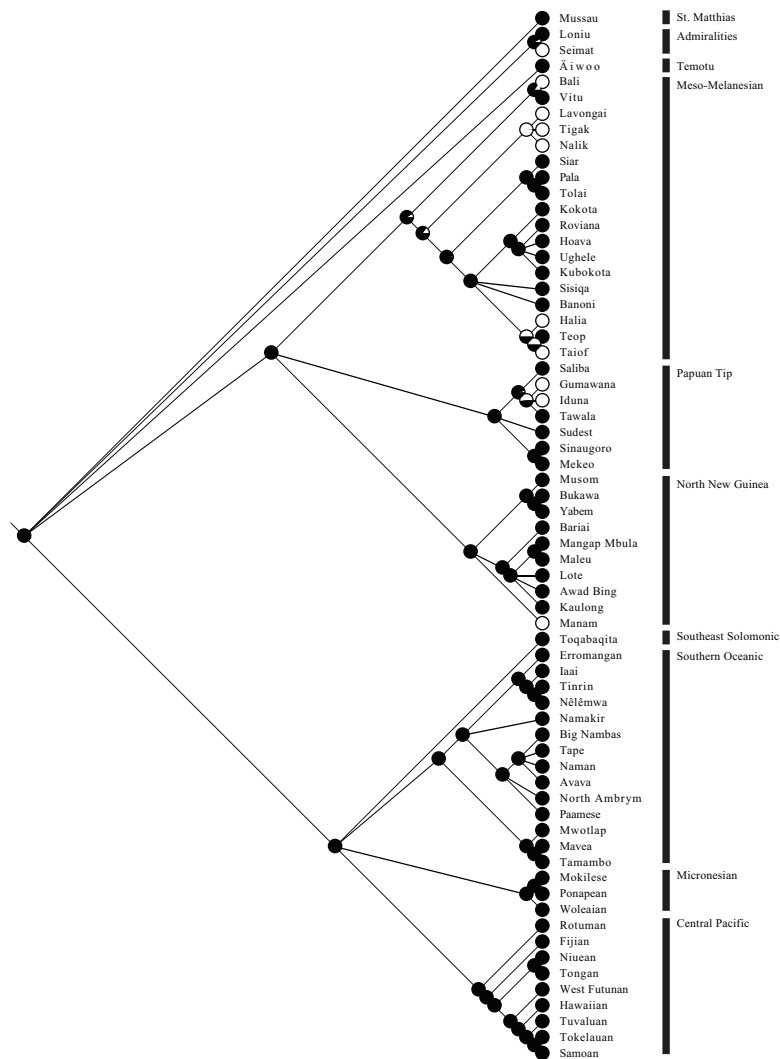
used for comparative analysis in evolutionary biology. For this analysis, we used a set of 1,000 different but highly likely trees for 400 Austronesian languages that were taken from Gray, Drummond, and Greenhill (2009). This tree set represents the “posterior distribution” from a Bayesian Markov-chain Monte Carlo (MCMC) analysis of the Austronesian basic vocabulary database (ABVD), described in Greenhill, Blust, and Gray (2008). The ABVD currently contains cognate sets of a 210-item word-list from more

**FIGURE 4. THE EVOLUTIONARY HISTORY OF THE UNMARKED SVC STRATEGY IN OCEANIC**



than 700 Austronesian languages; however, the trees constructed by Gray, Drummond, and Greenhill (2009) contained 400 languages. Retaining just those languages that we have data on for manner predication and resultatives, a sample of 1,000 trees for 44 languages was used for the analysis. Twenty-two languages on which we had data were not included in Gray, Drummond, and Greenhill’s trees.

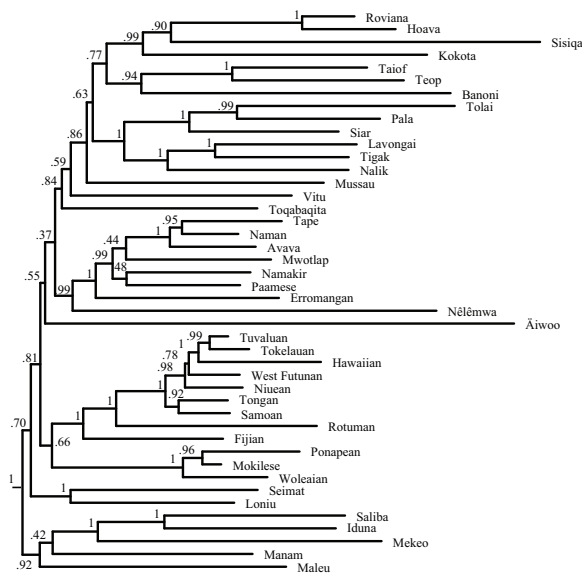
**FIGURE 5. THE EVOLUTIONARY HISTORY OF THE ADJECTIVE ADJUNCT STRATEGY IN OCEANIC**



A maximum clade credibility tree was constructed using TreeAnnotator version 1.6.1 (Drummond and Rambaut 2007), as shown in figure 6. A maximum clade credibility tree summarizes the tree sample by choosing the tree that has the subgroupings that occur most often in the tree sample. It functions as the best representation of all the trees in the tree sample. In figure 6, the support values for each node, which indicate how often that particular node is encountered in the 1,000-tree sample, are placed over each node. Several nodes that are close to the root of the tree have low (less than 0.5) support values. This means that insecurity with respect to the higher-level branch structure of the Oceanic tree is represented in our sample: many trees will have different branching structures from the tree represented in figure 6. While figure 6 only depicts a single phylogenetic tree, the analyses were performed over all 1,000 trees.

We used BayesTraits to conduct a Multistate analysis. Given the data and the tree sample, Multistate uses a continuous-time Markov model to describe the evolution of the features along the branches of a phylogeny. In our case, we have five different strategies (unmarked SVCs, the \*pa-/\*paka- strategy, classificatory prefixes, lexicalized V<sub>2s</sub>, and adjective adjuncts), and Multistate can analyze the evolution of these five states together. In such an analysis, it would assess the transition probabilities (probabilities of change from one state to another) from unmarked SVCs to the \*pa-/\*paka- strategy, to classificatory prefixes, to lexicalized V<sub>2s</sub> and to adjective adjuncts, and all other combinations of strategies. This means that there is a total of twenty transition probabilities to assess. This model is

**FIGURE 6. A MAXIMUM CLADE CREDIBILITY TREE OF THE 1,000-TREE SAMPLE TAKEN FROM GRAY, DRUMMOND, AND GREENHILL (2009)\***



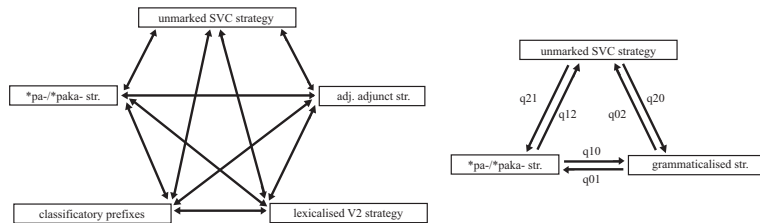
\* This features only the languages in the current sample.



drawn in figure 7. Unfortunately, this analysis would heavily overparameterize our analysis, because we have only 44 languages. Instead, we recoded our data as discussed below.

Since we are mostly interested in the evolutionary pathways between the unmarked SVC strategy, the *\*pa-/\*paka-* strategy, and the two grammaticalized strategies—classificatory prefixes and lexicalized  $V_2$ s—we removed the adjective adjunct strategy from the coding. We then combined the two grammaticalized strategies (classificatory prefixes and lexicalized  $V_2$ s) into a single coding category. That leaves us three states, namely the unmarked SVC strategy (coded ‘2’), the *\*pa-/\*paka-* strategy (coded ‘0’), and the two grammaticalized strategies combined (coded ‘1’), and a total of six transition probabilities ( $q_{01}$ ,  $q_{02}$ ,  $q_{10}$ ,  $q_{12}$ ,  $q_{20}$ ,  $q_{21}$ ). This model is drawn in figure 7.

**FIGURE 7. TRANSITION PROBABILITIES FOR THE BAYESTRAITS ANALYSIS\***



\* On the left, the model if all the data were included without recoding (resulting in 20 transition probabilities). On the right, the model using the recoded data, with six transition probabilities ( $q_{01}$ ,  $q_{02}$ ,  $q_{10}$ ,  $q_{12}$ ,  $q_{20}$ ,  $q_{21}$ ).

We ran several different analyses in order to test which evolutionary models were good representations of the data. The results of these analyses are presented in tables 2 and 3.

Table 2 presents results on three different Multistate analyses, in which we restricted the root (Proto-Oceanic) to have the *\*pa-/\*paka-* strategy (0), one of the two grammaticalized strategies (1), or the unmarked SVC strategy (2), respectively. With these analyses, we can test which ancestral state was most likely by comparing the mean log likelihood of each analysis (root = 0, 1, and 2) with the other mean log likelihoods. For instance, we compare the log likelihood of the analysis root = 0 to the log likelihood of the analysis where root = 1 and root = 2 to see whether there are significant differences. The results indicate that Proto-Oceanic is not likely to have the *\*pa-/\*paka-* strategy (0) (log likelihood -17.41: this is significantly lower as compared with the log likelihoods for the two other analyses,  $p = 0.01$  and  $p = 0.02$ ). Proto-Oceanic is equally likely to have one of the two grammaticalized strategies (1) or the unmarked SVC strategy (2), as the log likelihoods of these two analyses were not significantly different from each other ( $p = 0.40$  and  $p = 0.23$ , respectively).

Table 3 presents results on four different Multistate analyses, in which we tested which evolutionary model was most likely. In the first analysis, none of the transition probabilities was restricted. The log likelihood of this model is the largest, because the

**TABLE 2. A COMPARISON OF THE DIFFERENT MULTISTATE ANALYSES WITH ROOT SET TO 0 (\*pa-/\*paka-), 1 (THE GRAMMATICALIZED STRATEGIES), AND 3 ( UNMARKED SVC STRATEGY)\***

| Analysis                            | log Lh | d.f. | Likelihood ratio test                            | p            | AIC    |
|-------------------------------------|--------|------|--|--------------|--------|
| root = 0<br>(*pa-/*paka- strategy)  | -17.41 | 1    | compared with root = 1<br>compared with root = 2 | 0.01<br>0.02 | -32.82 |
| root = 1<br>(two gram. strategies)  | -14.17 | 1    | compared with root = 0<br>compared with root = 2 | 0.07<br>0.40 | -26.33 |
| root = 2<br>(unmarked SVC strategy) | -14.87 | 1    | compared with root = 0<br>compared with root = 1 | 0.11<br>0.23 | -27.75 |

\* log Lh = mean log likelihood of all log likelihoods of the 1,000 trees, d.f. = degrees of freedom, p = p-value for likelihood ratio test, AIC = Akaike Information Criterion.

**TABLE 3. A COMPARISON OF DIFFERENT EVOLUTIONARY MODELS\***

| n. | Analysis                  | log Lh | Root                                   | d.f. | p    | AIC    |
|----|---------------------------|--------|--|------|------|--------|
| 1  | unrestricted model        | -14.12 | root=0 0<br>root=1 0.86<br>root=2 0.14 | 6    |      | -14.24 |
| 2  | q02 = q12 = 0             | -15.18 | root = 2                               | 4    | 0.71 | -22.36 |
| 3  | q02 = q12 = q01 = q10 = 0 | -15.28 | root = 2                               | 2    | 0.31 | -26.56 |
| 4  | q20 = q21 = 0             | -14.82 | root = 1                               | 4    | 0.84 | -21.64 |

\* log Lh = mean log likelihood of all log likelihoods of the 1,000 trees, root = the mean root inference for each model, d.f. = degrees of freedom, p = p-value for the likelihood ratio test between the unrestricted model and each of the restricted models, AIC = Akaike Information Criterion, root coding: 0 = the \*pa-/\*paka-strategy, 1 = the two grammaticalized strategies, 2 = the unmarked SVC strategy.

model is free to take its maximum likelihood values without any restrictions on any of the model parameters. In the second, third, and fourth analyses, some of the transition probabilities were restricted to zero.

For the second analysis, the transition probabilities that represent the change from the \*pa-/\*paka- strategy (0) to the unmarked SVC strategy (2), q02, and the change from the grammaticalized strategies (1) to the unmarked SVC strategy (2), q12, were set to zero. These are the changes that we would not expect to happen, as both the \*pa-/\*paka- strategy and the grammaticalized strategies actually arise from the unmarked SVC strategy. The third analysis was even more restricted, allowing only change from the unmarked SVC strategy (2) to the \*pa-/\*paka- strategy (1), q21, and from the unmarked SVC strategy (2) to the grammaticalized strategies (0), q20, while setting all other transition probabilities to be zero. The fourth analysis was done on the model that we would not think to be very likely from a linguistic perspective, as it sets change from the unmarked SVC strategy (2) to the \*pa-/\*paka- strategy (1), q21, and from the unmarked SVC strategy (2) to the grammaticalized strategies (0), q20, to zero. All these models have lower log likelihoods than the unrestricted model, but none of them is significantly lower (see the p-values and the AICs in table 3).

Note that the four different models also generate different root estimates: when the transition probabilities that lead toward the unmarked SVC strategy are restricted, as in the second and third analyses, the root is estimated to have the unmarked SVC strategy for all the trees. This happens because the most likely evolutionary model with these restrictions

is for the root to have the unmarked SVC strategy, and all evolutionary change toward the other two strategies is modeled to lead away from that root state. When the transition probabilities that lead away from the unmarked SVC strategy are restricted, as in the fourth analysis, the root is estimated to have a grammaticalized strategy.

The Multistate analyses indicate that the root of Oceanic is likely to have used both the unmarked SVC strategy and one of the two grammaticalized strategies, but not the \*pa-/ \*paka- strategy. None of the restricted evolutionary analyses produces significantly worse log likelihoods. The results of the Multistate analyses are therefore mostly inconclusive. There are two major reasons why the Multistate analyses are limited in their ability to arbitrate between hypotheses about evolutionary change in the encoding of resultatives and manner predications. First, we have only very limited statistical power, because there are only 44 languages in the sample that are also in Gray, Drummond, and Greenhill (2009)'s phylogenetic tree sample. The analyses might be more insightful if a larger language sample could be used. Second, and perhaps more important, there is linguistic information on the dependencies between the strategies that is not incorporated in the current analyses, such as the grammaticalization pathway from the unmarked SVC strategy to classificatory prefixes and lexicalized V<sub>2</sub>S as well as to the \*pa-/ \*paka- strategy. We will come back to these issues and possible ways to improve on them below.

**5. A HISTORICAL ACCOUNT OF THE ENCODING OF MANNER PREDICATES AND RESULTATIVES.** The most important result from both the Mesquite and the BayesTraits analyses is that there is one important strategy to encode manner predications and resultatives in Oceanic: the use of unmarked SVCs. The other four strategies that we distinguish here—the use of the \*pa-/ \*paka- strategy, the use of classificatory prefixes, the use of lexicalized V<sub>2</sub>S, and the use of adjective adjuncts—are far less common. None of these is estimated by Mesquite to be ancestral to Proto-Oceanic, although BayesTraits finds the grammaticalized strategies to be equally likely to be ancestral to Proto-Oceanic as the unmarked SVC strategy. In addition, these more minor strategies seem to cluster in certain clades of the tree: the \*pa-/ \*paka- strategy is common in Meso-Melanesian and Central Pacific, classificatory prefixes are common in the Papuan Tip languages, and the lexicalized V<sub>2</sub> strategy clusters within the Schouten and Huon Gulf subfamilies of the North New Guinea languages. The use of the adjective adjunct strategy seems scattered throughout the family and is also a relatively minor strategy.

Since unmarked SVCs are the most common strategy attested in our sample, we would like to briefly discuss the emergence of SVCs in Oceanic. Considering the high probability of the presence of SVCs at the lowest root in our tree as presented in figure 4 (the proportional likelihood is 0.99994), which represents Proto-Oceanic, the use of SVCs is highly likely to have been present already in this early stage. This confirms results by Ross (2004:301), who claims that it is likely that SVCs were employed in Proto-Oceanic to encode motion and directionality. In addition, Crowley (2002:124) points out that verb serialization is not widely distributed in the more western subfamilies of Austronesian, and that Oceanic is unique within the Austronesian family in having such a wide distribution of verb serialization. Crowley (2002:163) proposes that there could have been a tightly bound nuclear-layer serial verb construction present in Proto-

Oceanic. The results presented above indicate that it is not only likely that SVCs were present at the Proto-Oceanic level, but also that they were used to encode manner predications and resultatives.

However, Blust (2008:449–50) has critiqued these claims by pointing out that many Oceanic languages beyond Melanesia are typically not described as having SVCs. He suggests that the scenario in which Proto-Oceanic had SVCs that were subsequently lost in Central-Eastern Oceanic is less likely than the scenario in which Melanesian languages borrowed SVCs from Papuan languages, a contact situation that was absent outside of Melanesia. Blust (2008) rightfully points out that, with our current knowledge of the linguistic situation in the Pacific, there is no straightforward way to choose between these two hypotheses. In effect, he also criticizes our methodological approach, which only takes into account genetic history, and not contact history. How do the present data relate to this question?

Blust (2008) is likely to be right in saying that the Austronesian-Papuan contact situation has influenced the typological encoding of secondary predication in Oceanic languages. This is especially true for the situation in the Papuan Tip and the North New Guinea languages, as has been described by Bradshaw (1982). Bradshaw provides us with a partial explanation for the behavior of both these subbranches. He proposes that when the ancestors of the contemporary Austronesian languages now spoken on New Guinea came to New Guinea, contact with Papuan languages gave rise to changes from VO word order (as was typical of Austronesian languages) to OV word order. The Austronesian languages developed SVOV serial verb constructions as a response to the pressure from the deviating Papuan word order. These are especially well attested in the domain of resultatives, or “serial causatives,” as Bradshaw (1982:23) calls them. This type of resultative displaced the common causative prefix as a means of causativization in nearly all North New Guinea languages (Bradshaw 1982:23).

From these SVOV constructions, five different contemporary constructions arise, as is shown in (48)–(51).

- (48) AVOV serial verb construction  
 GITUA (Western Oceanic, North New Guinea)  
 Satoko [rap ararangi mate]<sub>SVC</sub>.  
 S. hits centipede dies  
 ‘Satoko beat the centipede to death.’ (Bradshaw 1979:13)
- (49) AVOR; R=lexicalized resultative V<sub>2</sub>  
 NUMBAMI (Western Oceanic, North New Guinea)  
 Kolapa [i-lapa bola uni]<sub>SVC</sub>.  
 boy 3SG-beat pig dead  
 ‘The boy killed the pig.’ (Bradshaw 1993:138)

- (50) AOVV serial verb construction  
 KAIRIRU (Western Oceanic, North New Guinea)<sup>3</sup>  
 Bur [rro-un-i a-myat]<sub>SVC</sub>.  
 pig 3Pl-hit-3SG 3SG-die  
 ‘They killed the pig.’ (Bradshaw 1982:34)
- (51) AOc-V classificatory prefixes  
 IDUNA (Western Oceanic, Papuan Tip)  
 Ai [gi-ki-dobo-na].  
 wood 3SG-use.hands-break-3SG  
 ‘He broke the stick with his hands.’ (Bradshaw 1982:34)

It seems that the first two types, AVOV and AVOR, are used by languages that generally have AVO word order, and the three other types, AOVV, AOV-V (see fn. 3), and AOcV, are used by languages that generally have AOV word order. As seems to be typical in this domain, languages may make use of more than one strategy at the same time (Bradshaw 1982:34). Also note that while Manam is analyzed by Lichtenberk (1983) as having classificatory prefixes, Bradshaw (1982:53) considers these constructions to be V-V compounds, and we would generally analyze V-V compounds as SVCs. Bradshaw (1982:52ff.) indicates that there are phonological differences in Manam between the prefixes and the full verbs. It might be the case that there is still ongoing change from AOV-V to AOc-V in Manam. In general, this suggests that classificatory prefixes, lexicalized V<sub>2</sub>s, and SVCs may coexist for extended periods of time.

Bradshaw (1982) gives an account of contact-induced change between Austronesian and Papuan languages that gives rise to the use of SVCs for resultative secondary predicates. In addition, he gives a likely account of the emergence of lexicalized V<sub>2</sub>s and classificatory prefixes, which arose from parts of SVCs. The most likely scenario for these lexicalizations is a very frequent use of certain verbs in SVCs, combined with a decline in their independent use, giving rise to classificatory prefixes for verbs in V<sub>1</sub> position and lexicalized V<sub>2</sub>s for verbs in V<sub>2</sub> position. However, the contact-induced hypothesis for the emergence of SVCs proposed by Bradshaw (1982) and Blust (2008) cannot explain all the findings presented in this paper.

The most important problem for the contact hypothesis is that it cannot explain the emergence and the dispersal of the \*pa-/\*paka- strategy, which is intimately related to the emergence and dispersal of the SVC construction. We have seen that the \*pa-/\*paka- strategy is present in both Meso-Melanesian and Central Pacific. As we have seen in section 4, both phylogenetic comparative analyses that we have carried out clearly point out that the \*pa-/\*paka- strategy is not estimated to be ancestral to the Oceanic family, and it is more likely to have evolved six different times (once for the Meso-Melanesian branch, once for the Central Pacific branch, and four times for certain individual languages).

However, the evolutionary models on which these analyses were conducted do not take into account all of the knowledge that we already have about the \*pa-/\*paka- strategy. Because of this, the phylogenetic comparative analyses cannot be considered to give the conclusive answer to the question of how the \*pa-/\*paka- strategy spread. First of all,

3. Bradshaw (1982: 34) distinguishes a fifth type of construction called “AOV-V” or “compound causative.” In our broad definition there is no difference between this fifth type and Bradshaw’s “AOVV” serial verb construction

we know that there is a dependency between the unmarked SVC strategy and the \*pa-/paka- strategy, so any language that employs the \*pa-/paka- strategy must also use the unmarked SVC strategy or must have used it in the past. Second, in order to use the \*pa-/paka- strategy, the languages must have a \*pa-/paka- causative reflex. Incorporating the presence of a \*pa-/paka- reflex as well as information on the dependency of the \*pa-/paka- strategy on the unmarked SVC strategy into our phylogenetic analysis should be the next step, but at this stage this proved to be impossible. These two dependencies make the \*pa-/paka- strategy quite unique and less likely to have been evolved several times. Considering that, worldwide, only two other cases were reported (Loeb-Diehl 2005, out of a sample of 160 languages), it might well be that a greater role for inheritance must be claimed for the dispersal of the \*pa-/paka- strategy than is indicated by the phylogenetic comparative methods employed in this section. We think that the highly uniform character and almost unique qualities of the \*pa-/paka- strategy as attested in the Meso-Melanesian and the Central Pacific subgroups suggests inheritance, not diffusion by contact. We hope to test this hypothesis in the future, using more advanced methodologies and a larger body of data on SVCs, which may lead to more conclusive results for additional phylogenetic comparative analyses. One potentially fruitful approach would be to model the evolution of these strategies on phylogenetic networks instead of phylogenetic trees. Phylogenetic networks incorporate both “vertical” genetic change as well as “horizontal” change through contact, and might be able to arbitrate between inheritance or borrowing events for the emergence of the \*pa-/paka- strategy and the unmarked SVC strategy (Nakhleh, Ringe, and Warnow 2005; Nelson-Sathi et al. 2010).

Interestingly, the \*pa-/paka- strategy is attested outside of Oceanic as well. Muna (Malayo-Polynesian, Southeastern Celebic) (van den Berg 1989:185, pers. comm.), Kambera (Central Malayo-Polynesian, Bima-Sumba) (Klamer 1998:280), and Taba (Eastern Malayo-Polynesian, South Halmahera-West New Guinea) (Bowden 2001:311) all show evidence for the use of the \*pa-/paka- strategy. Examples of manner predications and resultatives from these languages are also provided in the supplementary materials. Of course, diffusion due to contact with Austronesian and Papuan languages may have played a role here as well. However, we feel that a pattern of genetic inheritance of the \*pa-/paka- strategy might be discovered using these non-Oceanic data, given more (and better quality) data. Data on resultative and manner predication encoding for the whole Austronesian language family would allow us to find much more directionality in the changes between different strategies, as the current data set is limited only to the most remote subgroups of Austronesian.

Given the current state of our knowledge of population dispersal in the Pacific and of Austronesian languages, we cannot provide a definite answer for the origins of SVCs, the unmarked SVC strategy, or the \*pa-/paka- strategy in this paper. Bradshaw’s (1982) and Blust’s (2008) hypothesis regarding contact-induced change seems sound, although it does not explain the use of the highly similar \*pa-/paka- strategy in two large subbranches and four individual languages. The gaps in our knowledge of the peopling of the Pacific—and, consequently, the history of the Oceanic languages—are obstacles to clarifying these issues. If we consider it likely that Polynesia was populated with people who were coming from Melanesia, it might be the case that contact-induced change between early Melane-



sian speakers and Papuan speakers has been carried over into early Polynesian languages. In that case, transmission of the \*pa-/\*paka- strategy might still have been through genetic inheritance, as Melanesian and Polynesian languages share a common ancestor that may have already been in contact with Papuan languages. (Polynesian languages use the unmarked SVC strategy and the \*pa-/\*paka- strategy, but none of the grammaticalized strategies.) If we consider that diffusion could have played a bigger role, we could try to employ comparative phylogenetic methods that use phylogenetic networks instead of phylogenetic trees. It seems that much interesting research still remains to be done in this area before we can find a satisfying answer.

**6. CONCLUDING REMARKS.** In this paper, we have presented an overview of the strategies that are used for the encoding of resultatives and manner predications in Oceanic languages. In addition, we have pointed out that there are several interesting processes of language change acting on this domain. The use of SVCs is very common and, through grammaticalization processes, has given rise to both classificatory prefixes (lexicalized  $V_{1S}$ ) and resultative “adverbs” (lexicalized  $V_{2S}$ ). In addition, the use of causative morphology on the  $V_2$  of a SVC also seems to be either quite an old strategy that is still very common in Meso-Melanesian, or a strategy that has diffused from the Solomon Islands into Indonesia and the Remote Pacific. The occurrence of these different strategies has been traced back in time using phylogenetic inferences.

Unfortunately, the body of data on each language on which this paper is based is as yet too limited to make firm generalizations about the evolution of encoding strategies. There seem to be too many open questions: since this is a domain that is often not well described in grammars, there are gaps and probably also mistakes in our dataset. Languages could actually make use of a certain strategy that just happened to be left out of the relevant grammar. Also, there is uncertainty about the history of SVCs in Austronesian, a construction on which four out of the five strategies distinguished here are heavily dependent. The reason for this is that there are insecurities about the history of the Austronesian languages that might be better represented by a network (one that can take into account horizontal transfer, that is, borrowing of strategies) than by a tree. With regard to the topic of SVCs, the Papuan contact situation present in New Guinea is of special relevance in this context. Until more data become available, most importantly on other uses of SVCs (such as the encoding of motion and complex actions) and their evolutionary history, it is hard to draw a final conclusion.

#### APPENDIX. DATA SOURCES

Sources of data for each language in the sample are as follows.

##### Oceanic languages

|           |                                       |
|-----------|---------------------------------------|
| Äiwoo     | Næss (2012)                           |
| Avava     | Crowley (2006a)                       |
| Awad Bing | Bennett and Bennett (1998)            |
| Bali      | Ross (2002a)                          |
| Banoni    | Lincoln (1976), Lynch and Ross (2002) |



|              |  |
|--------------|--|
| Bariai       | Gallagher and Baehr (2005)               |
| Big Nambas   | Fox (1979)                               |
| Bukawa       | Eckermann (2007)                         |
| Erromangan   | Crowley (1998)                           |
| Fijian       | Schütz (1985)                            |
| Gumawana     | Olson (1992)                             |
| Halia        | Allen (1987)                             |
| Hawaiian     | Elbert and Pukui (1979)                  |
| Hoava        | Davis (2003)                             |
| Iaai         | Ozanne-Rivierre (1976)                   |
| Iduna        | Huckett (1974)                           |
| Kaulong      | Ross (2002b)                             |
| Kokota       | Palmer (2009)                            |
| Kubokota     | Chambers (2009)                          |
| Lavongai     | Beaumont (ed.) (1988)                    |
| Loniu        | Hamel (1985)                             |
| Lote         | Pearson and van den Berg (2008)          |
| Maleu        | Goulden (1996)                           |
| Manam        | Lichtenberk (1983)                       |
| Mangap-Mbula | Bugenhagen (1995)                        |
| Mavea        | Guérin (2011)                            |
| Mekeo        | Jones (1998)                             |
| Mokilese     | Harrison (1976)                          |
| Musom        | Holzknrecht (1997)                       |
| Mussau       | Brownie and Brownie (2007), Ross (2002c) |
| Mwotlap      | François (2004)                          |
| Nalik        | Volker (1998)                            |
| Namakir      | Sperlich (1991)                          |
| Naman        | Crowley (2006b)                          |
| Nêlêmwa      | Bril (2004)                              |
| Niuean       | Seiter (1980)                            |
| North Ambrym | Paton (1971)                             |
| Paamese      | Crowley (1982, 2002)                     |
| Pala         | Peekel (1909)                            |
| Ponapean     | Rehg (1981)                              |
| Rotuman      | Churchward (1940), Vamarasi (2002)       |
| Roviana      | Corston-Oliver (2002)                    |
| Saliba       | Margetts (1999)                          |
| Samoaan      | Mosel and Hovdhaugen (1992)              |
| Seimat       | Wozna and Wilson (2005)                  |
| Siar         | Rowe (2005)                              |
| Sinaugoro    | Tauberschmidt (1999)                     |
| Sisiqa       | Ross (2002d)                             |
| Sudest       | Anderson and Ross (2002)                 |
| Taiof        | Ross (2002e)                             |
| Tamambo      | Jauncey (2011)                           |
| Tape         | Crowley (2006c)                          |
| Tawala       | Ezard (1997)                             |
| Teop         | Reinig (2004), Mosel and Thiesen (2007)  |
| Tigak        | Beaumont (1979)                          |
| Tinrin       | Osumi (1995)                             |
| Tokelauan    | Hovdhaugen et al. (1989)                 |
| Tolai        | Mosel (1984)                             |
| Tongan       | Churchward (1953), Shumway (1971)        |
| Toqabaqita   | Lichtenberk (2006, 2008)                 |
| Tuvaluan     | Besnier (2000)                           |
| Ughele       | Frostad (2008)                           |
| Vitu         | van den Berg and Bachet (2006)           |
| West Futunan | Dougherty (1983)                         |

|   |                     |
|---|---------------------|
| Woleaian                                  | Sohn (1975)         |
| Yabem                                     | Dempwolff (2005)    |
| <b>Non-Oceanic Austronesian languages</b> |                     |
| Kambera                                   | Klamer (1998)       |
| Muna                                      | van den Berg (1989) |
| Taba                                      | Bowden (2001)       |

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