Final /a/ mutation: a borrowed areal feature in western Austronesian languages

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1 Introduction

When asked about the differences between Malay and Indonesian, speakers often start by pointing out the difference in the pronunciation of final orthographic <a>: it is pronounced [ɨ] in Malay, but [a] in Indonesian. This is some truth in this simplistic observation; for example, the word <apa> 'what' is realised as [apɨ] in standard Malay, and [apa] in standard Indonesian. However, this represents but a small part of a much larger and more complex phenomenon. In fact, Proto Malayic final **a* has a variety of different reflexes in modern Malay dialects. Moreover, the phenomenon is not limited to Malay; dialects of several other western Austronesian languages, including Javanese, Balinese, and Lampung, exhibit similar phenomena.

What are the geographical and linguistic extents of this phenomenon? Do the changes from **a* into other vowels represent independent innovations within each affected dialect, or perhaps within each language? Or are they interrelated? What was the motivation or trigger for these sound changes? Do they characterise any particular subgroup of Austronesian, or can they be classified as an areal phenomenon? These are some of the questions with which this paper deals.

It should be pointed out from the start that the methodology used was of a non-exhaustive nature. That is, the writer did not randomly collect data from as many as possible of the estimated 1200 Austronesian languages, and see what he came up with. Rather, the starting point was a working hypothesis, whose validity was checked by testing it against evidence from the relevant languages.

2 Final /a/ mutation in Malay

The variety of reflexes of Proto Malayic **-a* in modern varieties of Malay is truly bewildering. Over a dozen phones have been reported, including [a], [ɐ], [ɒ], [ə], [ʌ], [ɯ], [ɨ], [ɑ], [ɔ], [o], [ɛ], [e] and [ɤ]. Indeed, considerable confusion arises from the fact that

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different writers use different symbols to represent the same phone, or use the same symbol for different phones. Moreover, some writers use the symbol [ə] (and the term 'schwa') indiscriminately for any centralised vowel. For these reasons, and in order to avoid getting bogged down in minute but irrelevant phonetic details, it is convenient to group the reflexes of *-*a* under four groups:[1]

1. a-like varieties (e.g. [a], [ɑ])
2. Raised varieties (e.g. [ə], [ɨ])
3. Rounded varieties (e.g. [o], [ɔ])
4. Fronted varieties (e.g. [e], [ɛ])

Table 1 lists a few Malay dialects where these phone groups occur.

Table 1: Final /a/ mutation in Malay dialects

Phone type	Provenance
a-like	Kedah (Malay Peninsula), Brunei (Borneo)
Raised	Johor (Malay Peninsula), Pontianak (Borneo), Tanah Abang (Jakarta, Java)
Rounded	Patani (Malay Peninsula), Palembang (Sumatra)
Fronted	Perak (Malay Peninsula), Jakarta (Java), Sambas (Borneo)

Is the distribution of different final /a/ reflexes completely random, or does it follow a pattern? In order to view things more clearly, reflexes of *-*a* in some Malay dialects were placed on a map (Map 1).

Several generalisations can be made, based on Map 1.

1. The most widespread mutation of /*-a/ is into raised varieties. Such varieties are widely found in all three areas where Malay is spoken natively by ethnic Malays (Sumatra, the Malay Peninsula, and Borneo), as well as on Java, where Malay is spoken natively by members of the Malayicised Betawi ethnic group of Jakarta.
2. The distribution of fronted varieties, while not as widespread as that of raised vowels, also occurs at all four locations.
3. Rounded varieties have a more limited distribution, and have been reported on Sumatra and in the Malay Peninsula, with a possible exception on Borneo.[2]
4. Finally, no final /a/ mutation has been reported in any variety of Malay spoken in eastern Indonesia (east of Borneo and Bali). In all recorded varieties spoken in that region, *-*a* is reflected consistently as [a]. In other words, the application of final /a/ mutation in Malay seems to be restricted to western Indonesia and the Malay peninsula.

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1 There is, of course, an element of arbitrariness in this division, as a phone may belong to more than one category. Yet overall it was deemed the practical thing to do to facilitate the discussion.

2 The Debak subdialect of Sarawak Malay (Collins 2000) is reported to have final rounding of /a/, but this seems to be a very recent phenomenon, unrelated to the one treated here.

Map 1: The distribution of different reflexes of /*-a/ in Malay dialects

Key: **a**: a-like varieties; **ə**: raised varieties; **o**: rounded varieties; **e**: fronted varieties

3 Final /a/ mutation in other western Austronesian languages

Even if Malay were the only language in the region exhibiting final /a/ mutation, it would be difficult enough to explain. Why would so many different dialects and subdialects independently develop so many different reflexes for *-*a*? However, the situation is further complicated by the fact that the phenomenon also occurs in several other western Austronesian languages. Some examples of the different reflexes of the word for 'five' are listed in Table 2.[3]

Table 2: Reflexes of the word 'five' in dialects of Lampung, Javanese, and Balinese

Lampung		Javanese		Balinese	
Dialect	Form	Dialect	Form	Dialect	Form
Komering	*lima*	Tengger	*lima*	Pedawa	*lima*
Abung	*limo*	Yogyakarta	*limɔ*	Ubud	*limɒ*
Kayu Agung	*limɛ*	Banten	*limʏ*	Denpasar	*limə*

3 Sources are Walker (1976) and Hilman (1994) for Lampung; Smith-Hefner (1983), Horne (1961), and Iskandarwassid et al. (1985) for Javanese; and my own field notes for Balinese.

Again, the question needs to be asked: why would different dialects of various languages, independently of each other, change **-a* to various other phones? Had the changes been confined to contiguous geographical areas — for example, a change to [ɛ] in one area and a change to [ɔ] in another — it may have been easier to explain. Yet there is no possible way, for example, to connect between the origin of [-ɛ] in the varieties of Malay spoken in Perak (on the Malay Peninsula), Jakarta (on Java), Pegagan (on Sumatra), and Sambas (on Borneo). These varieties occur in geographically disparate locations, which were not in contact with each other. So, the mystery here lies not in the fact that final /a/ changed to some other phone, but in that similar changes seem to have taken place independently in dozens of unrelated dialects and subdialects of several languages spoken in one area. A related and equally interesting question is why the phenomenon affected only some dialects of the relevant languages and not others.

Map 2: The area of operation of final /a/ mutation in western Austronesian languages

While it is obvious that the individual reflexes in the many subdialects developed independently, it is equally obvious that it is not a coincidence that **-a* underwent this split in a geographically contiguous area (see Map 2). This is clearly an areal phenomenon. Yet in order to show that a linguistic phenomenon is areal, it is not sufficient merely to point out similarities between geographically close languages or dialects. It must also be demonstrated that the similar phenomena which occur in the relevant languages are indeed related. Moreover, pointing out that a certain feature is 'areal' does not explain much in itself. Linguistic features do not float in the air, as it were, over certain areas, ready to be 'absorbed' into the local languages. For each areal feature, it must be shown that it originated in one particular language, and was transferred into another language at one particular time and under specific circumstances. The transfer of linguistic features is done through contact between languages in the mind of a bilingual speaker, and not, as is often naively thought, merely by virtue of the fact of languages being spoken in the same

geographical area. And while a linguistic feature may occur in many languages, each individual transfer is binary, from a single source to a single recipient. Keeping these facts in mind, we can now examine how final /a/ mutation first arose in western Austronesian languages.

4 The initial step

As we have concluded above, the final /a/ mutation which has affected Malay, Lampung, Javanese, Balinese, and possibly some other languages, must be an areal phenomenon. Yet it is difficult to see how or why [a] would change into so many different reflexes in so many dialects and subdialects. Therefore, it seems reasonable to posit an intermediate stage, in which *-*a* in all the affected dialects changed to a vowel which was phonetically closer to the modern reflexes. For example, it is easier to imagine [a] changing to [ɐ], then to [ə], and from [ə] to either [ɨ], [e], [o], etc., rather than a change directly from [a] to [ɨ], from [a] to [e], or from [a] to [o]. A change from [ə] to [ɨ], or from [ə] to [e], or from [ə] to [o] would be more natural, as the phonetic distance between these vowels and [ə] is smaller. Moreover, this would partially explain how different dialects developed different reflexes of *-*a*. Diagram 1 charts the possible course of change of final */a/ to its modern reflexes in various Malay dialects.

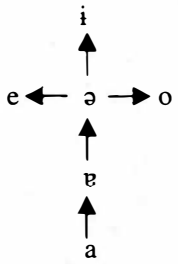

Diagram 1: Phonetic progression of final /a/ mutation

The distributional pattern of fronted varieties in Malay lends some credence to the hypothesis that most reflexes of *-*a* were derived via the intermediate stage of a mid central vowel. In every recorded case of a dialect exhibiting a [ɛ] reflex, there is a nearby dialect exhibiting a [ə] reflex (see Map 1). For example, the Ogan dialect of Malay, spoken in southern Sumatra, has two major subdialects: Ogan Proper and Pegagan. The first has a [ə] reflex, while the second has [ɛ] (Zainul Arifin et al. 1985). On Java, most subdialects of central Betawi (the dialect of Jakarta) exhibit an [ɛ] reflex, but the Tanah Abang subdialect had [ə] (Muhadjir 1981:4; Abdul Chaer 1976:XVIII).[4] This frequent occurrence of raised and fronted varieties in closely related subdialects supports the hypothesis that fronted varieties developed via [ə], and not directly from [a]. In such cases, subdialects which exhibit [ə] are the more conservative ones, and those exhibiting [ɛ] are the more innovative ones.

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4 During the 1960s and 1970s, most Betawi residents of the city were pushed out to the periphery to make room for new development, resulting in the disappearance of the old Betawi subdialects.

5 The trigger of final /a/ mutation in Javanese

In addition to Malay, another western Austronesian language affected by final /a/ mutation was Javanese. The Old Javanese language was unique in the Austronesian world in the degree to which it was influenced by Sanskrit. According to Blust (1999), '[a]bout half of the vocabulary of Old Javanese texts is of Sanskrit origin'. As Blust pointed out, 'this material clearly reflects the language of the courts and almost certainly would not have been representative of the common people'. As will be claimed below, final /a/ mutation first emerged as a consequence of this wholesale lexical borrowing.

It is true that languages may borrow some words from each other without any affect on their structure. But it would be wellnigh impossible for a language to borrow half of its vocabulary from an unrelated language without any phonological consequences. Moreover, it should be noted that modern Javanese, including the ordinary colloquial speech, still has a very large number of Sanskrit loanwords. This clearly indicates that Sanskrit influence on Javanese, while originating at the courts, eventually reached all speakers.

Of course, it is impossible to say exactly how Sanskrit loanwords in Old Javanese were pronounced. It stands to reason that they were at least partially modified, to suit the phonetics and phonotactics of Javanese. Yet, given the fact that Sanskrit was used extensively in the courts of Java, and that some members of the court were fluent in it, it is also reasonable to assume that the speakers made some effort to pronounce Sanskrit words authentically, as they were pronounced by Indians. It is also quite possible that the source of final /a/ mutation within the courts came from the Indian Brahmans, monks, and priests, who introduced Hinduism and Buddhism to the Javanese, and taught them Sanskrit. One can imagine their Indic-accented, prestigious Javanese being emulated by others in the court, and then disseminated to communities outside the court.

A feature which characterises many Indic languages is the weakening of *ă*. According to Beames (1872:67), 'The short *a* ... is pronounced by the western languages and Hindi — in fact, by all except Bengali and Oriya — as a short dull sound like the final *a* in *Asia*, or that in *woman*'. Actually, the phonological rules under which historical *ă* was changed varied from language to language. For example, in Western Hindi historical *ă* developed into a 'half-open, central, unrounded' sound, similar to the vowel of the English word 'but' (Coulson 1976:5); in final position (where it was never accented) it was deleted, indicating that final /a/ was not only raised but also weakened, until it disappeared altogether. In Sinhalese, historical *ă* was reduced to a mid-central vowel in all open syllables except in word-initial position (Feinstein 1979). The important point is that whatever the original form of this sound change, its origins are ancient, and it has affected the pronunciation of Sanskrit for millennia. In fact, the process was already known to Panini, who composed his great grammar of Sanskrit around 400 BCE (Coulson 1976:5).

The Indianisation of Java did not commence until the first millennium CE (Coedès 1968). Thus there is no doubt that when Sanskrit was first taught to the Javanese, some changes had already affected the original *ă* in Indic languages and in the pronunciation of Sanskrit. In order to understand how the pronunciation of Sanskrit could have influenced the pronunciation of Javanese, it is important to consider two facts. The first is that (modern) Javanese does not have a vowel length distinction. Regarding old Javanese, de Casparis (1975:25–26) stated: 'We do not know whether long vowels were ever pronounced in Old Malay (or Old Javanese), but we know that all the cases in which long vowels are written can be explained in a different manner'. In the case of Old Javanese, long vowel signs were probably used to indicate a sequence of two like vowels, for example <rāh> ([raah], modern

Javanese [rahJ) 'blood', derived from Proto Austronesian *daRaq (with regular deletion of intervocalic /r/). At any rate, even if Javanese did have a vowel-length distinction, it was before the time final /a/ mutation had begun to apply in Javanese.

The second fact that must be kept in mind is that speakers are not normally aware of the etymology of the words in their language. Thus, the average English speakers would not normally realise that the words 'second' and 'language' in the previous sentence were originally borrowed from French, but that the words 'speakers' and 'aware' are of Germanic origin. For the non-linguist, the words 'second' and 'language' are just as English as the words 'speakers' and 'aware'. The same was true for Javanese speakers; at a certain point, the speakers were no longer aware of which words in their vocabulary were originally borrowed from Sanskrit, which were of Austronesian origin. They pronounced all the words in a similar manner.

Taking these two facts into consideration, it is possible to reconstruct the initial stages of final /a/ mutation in Javanese. Since ordinary speakers of Javanese had no way of knowing which words contained an original *ā* and which ones contained an *ă*, final /a/ mutation was generalised to affect originally long final /a/, as well as originally short /a/. Similarly, since the speakers had no way of distinguishing between words of Indic and non-Indic origin, the process spread to all Javanese words, regardless of origin. This process was facilitated by the high prestige of the Indianised pronunciation.

At this stage it necessary to emphasise an important point. The rule affecting the pronunciation of /a/ in Javanese did not apply in exactly the same way as it did in Indic languages or in the pronunciation of Sanskrit by Indians. As mentioned above, even in India itself the rule applied in different ways in the different languages and dialects. The fact that the rule which applied in Javanese was not identical to its counterparts in Indic languages cannot be used as an argument against its ultimate Indic origin. As mentioned above, even among the Indic languages themselves, the details of the *ă*-raising rule varied considerably. Moreover, there is no reason to expect the details of the rule in Javanese to match exactly those of Sanskrit. Thomason and Kaufman (1988:61–62) make this point rather forcefully: 'It has sometimes been claimed that a particular change cannot be due to foreign interference because the putative source language does not exhibit exactly the same structure that has been innovated ... many interference features will in fact *not* be exactly the same as the source-language features that motivated the innovations' (emphasis original). The authors proceed to provide several examples to illustrate this point.

Based on the facts and arguments presented above, it is hypothesised that the court language of Majapahit, under Indic influence, had a rule under which final /a/ was raised. It is interesting to note that Adrian Clynes, whose unpublished thesis was not available to me when I first developed this hypothesis, traced the origin of final /a/ mutation in Balinese (which he referred to as 'R1') to the court language of Majapahit. According to Clynes (1989:159–160):

> Our observations of native speakers from Surabaya, Probolinggo and Madiun in East Java indicate that the East Javanese realisation should probably in most cases be transcribed as [ʌ] (the *unrounded* counterpart of [ɔ]). Soetoko et al. (1984), in their dialect atlas of the area around Surabaya, East Java, close to the site of the former Majapahit capital, record seven words ending in historical /a/. This was realised as [ə] in two items, [kɛʔɔpə] 'why' and [mbəʔtuwə] 'grandmother' *(ibid: 32,* 105). [kɛʔɔpə] was recorded in three villages, [mbəʔtuwə] in four, but in no case did a village show both forms. These would then appear to be 'relict' forms, as yet unaffected by a general change of *a# > ɔ (or ʌ) in this area.

Clynes (1989:160, fn.9) explains that 'many of the forms transcribed in Soetoko et al. as [ɔ] should in fact be [ʌ]. [ʌ] is not used in that work, even though it is clearly common in the area'. Furthermore, he stresses that there are probably more realisations of final [ʌ] than recorded by Soetoko et al. (1989:159, fn.8).

It is well known that extensive lexical borrowing from literary languages may result in some structural interference as well. There are numerous documented cases in the literature. An interesting example is the impact of Arabic on languages of non-Arab Muslim speech communities. Languages like Turkish, Farsi, Urdu, and Malay borrowed heavily from literary Arabic, and this lexical borrowing impacted their respective phonological structures. The phonological interference was no doubt aided by the fact that Arabic is used not only as a written language in these communities, but also as a liturgical language. The more educated (or religious) the speaker, the more authentic his pronunciation of Arabic (and subsequently of Arabic loanwords). The more authentically Arabic loanwords are pronounced, the greater the probability of phonological interference from Arabic upon the vernacular. Through prestige, this interference then gradually percolates down to less educated or less religious members of the community.

An even closer parallel comes from the Dravidian languages of southern India. Dravidian languages borrowed heavily from Sanskrit, and the originally purely lexical borrowing eventually had an impact on their respective structures, including their phonologies. Based on Sridhar (1978:202–206), Thomason and Kaufman (1988:79) report that 'Brahman Dravidian speakers avoid making the usual Dravidian substitutions to nativize Sanskrit loanwords, such as deaspiration of aspirated stops and voicing of intervocalic obstruents; instead, they retain the Sanskrit pronunciations in loanwords and even extend some of them, for example, aspirating stops in borrowed Sanskrit words that did not originally have aspirated stops ...'.

In the case of Javanese-speaking Brahmans of Indian origin, the overgeneralisation of Sanskrit pronunciation would be even more expected than that of Dravidian-speaking Brahmans, since they were not native speakers of Javanese. This Sanskritised pronunciation of Javanese would then be emulated by non-Indian Brahmans, other members in the court, and eventually by members of the general speech community as well.

6 The transfer of final /a/ mutation to other western Austronesian languages

As proposed above, the phenomenon of final /a/ mutation had its beginnings in the Sanskritised court language of the Javanese empire of Majapahit. The Majapahit empire, which was founded towards the end of the 13th century, was a major vehicle for the spread of Indianisation in the Austronesian-speaking world. The empire reached its zenith during the reign of Rejasanegara, better known as Hayam Wuruk (1350–89), and his *patih* ('prime minister') Gajah Mada. A Javanese chronicle of that period, the Negarakertagama, places most of the territory of modern-day Indonesia (with the possible exception of northern Sulawesi — see Coedès 1968:239–240), as well as much of the Malay peninsula, under the rule of Majapahit. In some areas, Majapahit's rule was probably indirect at most, and limited to paying an annual tribute. Yet in other places, Javanese colonies were established, and Javanised courts installed. It was in this period that final /a/ mutation was probably spread to areas outside Java which were under Javanese rule or influence. Strong evidence

for Javanese linguistic influence exists in the form of numerous Javanese loanwords in the languages of Bali, Lombok, southern Sumatra, the Malay peninsula, and southern Borneo.

It would not be possible, of course, to provide a precise chronology of the emergence and spread of final /a/ mutation in all the affected western Austronesian languages. However, it is possible to give a rough framework, showing the approximate time the change could have spread to the various languages which were affected by it.

It is widely known that after the final fall of Majapahit in the 1520s, its royal family and nobility fled to Bali (Hall 1992:227). What is less known is that by that time Bali was already thoroughly Javanised. Coedès (1968:234) notes that 'on Bali ... an expedition of 1343 led to the destruction of the local princely family and a Javanisation of the island that was to be intensified during the reign of Hayam Wuruk'. This was nearly two centuries before the fall of Majapahit, and final /a/ mutation may have taken root in Bali already then.

Likewise, Indo-Javanese influence on Sumatra is ancient (Marwati & Nugroho 1990b: 23–24), and the kingdoms of Malayu (Jambi) and Palembang were under direct Javanese rule for long periods throughout the second millennium CE. Coedès (1968:201) cites '[t]angible proof of the ascendancy of Java over Sumatra' in the 13th century. Javanese influence was perhaps strongest in Palembang, whose Malay dialect borrowed heavily from Javanese (Tadmor forthcoming), and which was ruled by a Javanese-speaking royal house and elite. Javanese influence in Palembang was probably strongest between the mid 16th and mid 17th centuries (Djohan 1995:155), and final /a/ mutation in the local Malay dialects may well have originated then.

Further south, Lampung also came under Javanese influence repeatedly and for extended periods, beginning with the Majapahit period. The transfer of final /a/ mutation to the Lampung language more probably took place later, when Lampung was under direct Javanese rule, as a vassal of the Javanese kingdom of Banten (Marwati & Nugroho 1990b:37; Watson Andaya 1992a:431).[5]

In the Malay peninsula, Javanese influence was also very strong. The court of Malacca, the most important Malay kingdom of the 15th century, was 'thoroughly Javanized' (Clynes (1989:162). The same was true for the court of the most important Malay kingdom on the east coast of the peninsula, Patani. Teeuw and Wyatt (1970:239) discuss the important role of the Javanese in Patani. The number of Javanese slaves there was so great that in 1613 they staged a failed rebellion (Teeuw & Wyatt 1970:251, fn.10). But Javanese influence was also important in the court (1970:239). Peter Floris, who stayed in Patani in 1612–13, attended 'a commedye ... to the manner of Java' performed at the court (1970:257). In fact, traditional Javanese arts such as *wayang kulit* and batik survived in Patani until the 20th century. Singapore, at the southern end of the peninsula, was also under strong Javanese influence, if not direct rule. The old name of Singapore, Tumasik (Temasik), is also of pure Javanese etymology.[6] The famous Singapore inscription, deliberately destroyed by the British authorities, was written in Old Javanese, based on contemporary descriptions, as well as an analysis of surviving fragments done by de Casparis (1975:45).

The very early and very strong Javanese presence and influence in south-eastern Borneo is discussed in detail in Ras 1968 (especially pp.182–200). The linguistic evidence of this presence are still obvious today in the form of a significant number of Javanese loanwords in languages of the area, especially Banjarese, the regional Malay-based koine. Javanese

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5 'Daerah pengaruh Banten di luar Jawa Barat adalah daerah Lampung yang sejak Hasanuddin telah berada di bawah kekuasanan Banten.'

6 Derived from *tasik* 'sea' and the infix *-um-*.

loanwords in Banjarese include numerous core vocabulary items, as well as several archaisms (Wolff 1988:89). Interestingly, Banjarese itself does not exhibit final /a/ mutation; this may have been due to the fact that it originated as a contact language between speakers of Javanese, Malay, and local Dayak languages.[7] As mentioned above, Malay-based contact languages such as Bazaar Malay and the Malay-based creoles of eastern Indonesia do not exhibit final /a/ mutation. However, other south Borneo languages do exhibit the phenomenon, including Ngaju Dayak, Maanyan, and Malagasy (Adelaar 2000:14). Banjarese loanwords in Ngaju reflect *-*a* as [a] (Dyen 1956), indicating the change in Ngaju was relatively early and had ceased to operate by the time the Banjarese words were borrowed.

The presence of final /a/ mutation in Malagasy may appear problematic, because of the assumed early migration date of the Malagasy to Madagascar. However, Dahl (1951:96–105) has documented the presence of 30 Sanskrit loanwords in Malagasy, clear evidence of at some Indic linguistic influence. Adelaar (1989:32) documented very numerous Malay and Javanese loanwords, which demonstrate that Malay and Javanese 'had a strong influence on Malagasy'. Moreover, Adelaar (1989:32) has shown that all but one of the Sanskrit loanwords in Malagasy are also present in Malay or Javanese, so their presence in Malagasy is most probably due to secondary borrowing, rather than direct Indic influence. Therefore, he concluded that the migration of the Malagasy 'must have take place at a period when the Malays had already undergone Indian influence'. Final /a/ mutation in Malagasy thus could be plausibly due to transfer from Javanese or Malay.

In western Borneo, final /a/ mutation has two possible immediate sources. Java maintained close contacts with western Borneo, and controlled the major cities of western and southern Borneo in the 16th and early 17th centuries (Marwati and Nugroho 1990a:147).[8] The linguistic impact of this occupation has been long-lasting. For example, in the Javanised court of Sambas, a special vocabulary was used to address or speak about members of the royal family (Mustapa et al. 1984:12). Not only was the institution of a special vocabulary itself patterned after Javanese *krama*, but the words themselves were often taken from Javanese. Thus, for example, the personal pronouns /kolɛ/ '1st person singular' and /nikkɛ/ '2nd person singular' were borrowed from Javanese. The presence of final /a/ mutation is Sambas Malay may therefore be attributed to a transfer from Javanese. Further south, in Pontianak, *-*a* is realised as [ə]. Here, the source of the phenomenon may have been Riau Malay, which is the ancestor dialect of Pontianak Malay, or at least heavily influenced it (Adelaar 2000:18). In Riau Malay, *-*a* is realised as [ə] or [i]. Final /a/ mutation did not spread far along the Kapuas river; in the next dialect upriver from Pontianak, that of Sanggau, *-*a* is realised as [a], as it is in the further upriver dialects of Sintang and Putussibau. It did, however, spread southward along the coast to Ketapang, and from there inland with migrating Malays along several rivers.

In Java, the only area where final /a/ mutation operated was Jakarta, among the Malayicised Betawi ethnic group. In the Tanah Abang subdialect, final /a/ was reportedly realised as [ə] (Abdul Chaer 1976:XVIII; Muhadjir 1981:4), although people who have heard this subdialect (it is now extinct) report that the sound was closer to the [ɑ] now heard in

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7 Ras (1968:8) describes Banjarese, impressionistically yet insightfully, as 'the independent continuation of a rather archaic type of Malay, superimposed on a substratum of Dajak dialects, with an admixture of Javanese'.

8 'Begitu penting kota-kota Kalimantan ini bagi pesisir Utara Jawa sehingga beberapa kali dikirim ekspedisi untuk mendudukinya pada abad ke-16 dan awal abad ke-17. Sumber-sumber dari masa kemudian lebih banyak menyebut hubungan dengan Sambas, Banjarmasin, dan Sukadana ...'.

central Balinese. The influence of Balinese on Betawi has been substantial (Grijns 1991) and long known (van der Tuuk 1867). This is not surprising, in view of the fact that the original ancestors of the Betawi were mostly Balinese slaves. (In the census of 1819, the Balinese were recorded as the largest group both among the slaves and among the free indigenous inhabitants of Batavia; see Ikranagara 1980:2). So final /a/ mutation in Jakarta can be traced to the Balinese slaves who were brought there by the Dutch during the 18th century. The other subdialects of central Betawi show [ɛ], a natural development from a schwa-like sound (see above).

In the Sasak language, spoken on the island of Lombok, final /a/ mutation may have had a multiple origin. The island came under direct Balinese rule in the 16th century (Watson Andaya 1992a:424; Watson Andaya 1992b:526), and Balinese influence there has continued ever since. In addition, Javanese has long been used as a literary language on Lombok. Since both Balinese and Javanese were affected by final /a/ mutation, it is not surprising that this feature has been transferred to Sasak.

Finally, it is interesting to note that Clynes (1989) proposed a connection between court language, the presence of speech styles, and final /a/ mutation, which he referred to as 'R1' ('Rule 1'). Clynes (1989:163) also hypothesised that 'the similar realisations of word-final historical /a/ in Balinese and Malay dialects derive from a common source, the Javanese of the late 15th century'. (As mentioned above, Clynes's thesis was not available to me when I first developed my hypothesis regarding the emergence and spread of final mutation.)[9]

7 The spread of final /a/ mutation within Javanese

As we have seen above, final /a/ mutation spread from Javanese to other languages in the region which came under strong Indo-Javanese influence. It is also interesting to examine how final /a/ mutation spread within Javanese itself. The original Majapahit court was located in the Brantas river basin of eastern Java. When Javanese courts were established in central and western Java, the court language of Majapahit was emulated in these newer courts, including the feature of final /a/ mutation. The feature then spread to areas surrounding the courts, though never reaching the periphery.

In the central Javanese court cities of Yogyakarta and Solo (Surakarta), the modern realisation of final orthographic <a> is /ɔ/. This rounding is apparently of rather recent origin, and has not reached all parts of central Java. In the early 19th century, Raffles (1817:359) reported that the realisation of <a> (he did not specify the phonological conditioning) was 'that of *a* in "water", or of *o* in "homo"; the *o* being at present invariably used at the native courts and their vicinity for the inherent vowel of the consonant, instead of *a*.' An unrounded schwa-like sound is still used in some dialects of central Javanese spoken in areas more distant from the courts or major cities. Nothofer (1982:294) mentions an [ɤ] variety; my data for the Pemalang dialect (see final paragraph, this section) show [ə].

Some Javanese dialects preserve the original [a] sound, and interestingly these dialects are spoken precisely in the areas least affected by Indianised Javanese court culture: Tegal in the west and Tengger in the east. Both the Tegal and Tengger dialects also share another feature: neither of them has speech levels, another feature associated with courts of Java. In addition, the Tengger people are also culturally unique by being the only Javanese group that has not converted to Islam. To this day, the Tengger maintain their traditional belief system, in

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9 I am very grateful to Prof. Clynes, who was kind enough to make his thesis available to me in response a query I had placed on the Linguist Internet discussion list.

almost total separation from mainstream Javanese culture. The distribution of final /a/ mutation within Javanese, then, clearly demonstrates its close relationship to Indianised court Javanese.

An even more striking example, lending further support to the hypothesis that final /a/ mutation originated in court Javanese, comes from the distant and isolated dialect of Banten. This Javanese dialect is spoken in an area completely surrounded by Sundanese-speaking areas, hundreds of kilometers away from the main Javanese-speaking communities of central and east Java. In Banten Javanese, final /a/ is either maintained as [a], or realised as [ɤ]. The choice of vowel is not random, and determined geographically. Iskandarwassid et al. (1985:20) report that 'the [ɤ] variant is found ... [in] the areas which were in the vicinity of the Banten court in the past',[10] while 'the [a] variant is found in the speech communities... which were rather distant from the old court center'.[11] Banten Javanese thus provides clear evidence linking final /a/ mutation to the court language of Java. Another interesting feature of Banten Javanese is that because of its isolation from the bulk of Javanese-speakers, and its small speech community, /a/ mutation there is preserved in its original form, as reconstructed above for the court language of Majapahit. The processes of rounding (discussed above) and umlauting (see below), which originated in the courts of central Java at a relatively late date, never affected the court language of Banten, which had split off earlier.

As for the main body of Javanese speakers, Clynes (1989:160) makes this interesting observation: '... word-final historical /a/ is variously realised as [ʌ], [ɔ], or [ə] in Central and East Java, with forms with [ə] and [ʌ] being recorded in the area close to the former Majapahit capital'. This constitutes further evidence that /a/ mutation originated in the Majapahit court language, and that the original mutation was to a schwa-like sound.

In addition to rounding, another change that affected the court language of central Java was an umlaut-like assimilatory process, by which /a/ mutation spread from final syllables to open penultimate syllables. For example, <cara> 'manner' is realised as [cɔrɔ] in modern standard Javanese, and <agama> 'religion' is realised as [agɔmɔ]. This umlauting is a relatively recent change, as indicated by the fact that it does apply in all modern central Javanese dialects, let alone the western dialect of Banten (see above) or languages outside Java. Nothofer (1982:294), in a dialect map of central Javanese dialects, records the following forms as reflexes of **mata* 'eye': [mata], [mato], [matɤ], and [mɔtɔ]. The form [mata] exhibits no final /a/ mutation at all. The form [mato] constitutes evidence that the rounding and umlauting of final /a/ mutation were parts of two different process, as it shows rounding without umlauting. The third form ([matɤ]) is the most conservative: it exhibits final /a/ mutation, but with neither rounding nor umlauting. The last form ([mɔtɔ]) is the standard Javanese form,[12] which originated in the courts of Yogyakarta and Solo and their immediate surroundings, but is now used over an extensive area of central Java. This form is the most innovative, as it exhibits final /a/ mutation as well as the subsequent processes of rounding and umlauting.

To complete the picture, the Javanese dialect of Pemalang provides some interesting data. This dialect constitutes a transitional area between central Javanese dialects, where /a/

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10 'Variasi [ɤ] terdapat ... [di] daerah yang berdekatan dengan lingkungan Keraton Banten pada masa lampau.'

11 'Variasi [a] ditemukan dalam lingkungan penutur di daerah-daerah ... yang letaknya agak jauh dari pusat keraton dulu.'

12 In modern standard Javanese, the word <mata> is considered crude and suitable more for animals than for humans. In reference to humans, it has been replaced by <mripat>, originally a *krama* (honorific) term.

mutation applied to the entire lexicon, and western Javanese dialects (like Tegal and Brebes), where it did not apply at all. In Pemalang, final /a/ mutation occurs in certain lexical items but not in others, without any apparent phonological or other conditioning factors. It seems that the change spread by lexical diffusion, and had only affected a part of the lexicon when it ceased operating. Pemalang is also conservative in that it has not been affected by rounding; in other words, it preserves a sound close to the original result of final /a/ mutation at the court of Majapahit. On the other hand, those forms affected by final /a/ mutation have undergone umlauting when applicable, thus completing the paradigm of forms collected by Nothofer. Thus the reflex of **mata* 'eye' in Pemalang is [mata], with no final /a/ mutation, but the reflex for **gawa* 'bring' is [gəwə], reflecting final /a/ mutation (and subsequent umlauting). Forms like [bisə] 'able to' and [critə] 'story' on the one hand, and [ana] 'there is' and [ləŋa] 'oil' on the other hand, indicated that we are not dealing with a phonetically motivated change that affected vowels following voiced consonants, as is the case with Madurese (see §8 below).[13]

8 Excluding unrelated phenomena

In describing an areal phenomenon, it is important not only to determine which features of which languages were affected by the change, but also to determine which phenomena are unrelated, even if they exhibit superficial similarities. For example, tonogenesis (the emergence of lexical tone) took place in the histories of many contiguous yet unrelated languages in southeast Asia, belonging to the Sino-Tibetan, Austroasiatic, Miao-Yao, Tai-Kadai, and Austronesian language families. It is accepted by virtually all historical linguists of these languages of the region that this is not a coincidence, and that tone is an areal feature of southeast Asian languages. Yet no linguist, to my knowledge, has ever made the claim that tonogenesis in Africa — or even in closer areas, such as New Guinea — is related to tonogenesis in southeast Asia.

In our case, it is certainly not claimed that any change which affected final /a/ in any language is part of the areal phenomenon described here. To illustrate this point, let us consider the case of the Gorontalo language, spoken in northern Sulawesi.[14] In Gorontalo, final /a/ has changed to /o/ in most inherited words. For example, the Gorontalo reflexes of the Proto Austronesian words **maCa* 'eye' and **lima* 'five' are *mato* and *limo* respectively. However, the change did not affect final /a/ in words of ultimate Sanskrit origin, such as *nyata* 'obvious', *kira* 'be of the opinion', *yuta* 'million', *jasa* 'public service', *jiwa* 'spirit', *gowa* 'cave' (examples are from Mansoer 1977).[15] Moreover, there is no evidence that the change /a/ > /o/ went through an intermediate schwa stage. Gorontalo also does not share other features of the languages involved in the areal phenomenon, such as lack of word accent or iambic rhythm (see §10 below). In short, the change *a* > *o*/_# in Gorontalo appears to be totally unrelated to the areal phenomenon discussed in this paper. Indeed, Gorontalo is geographically very distant from the area of operation of the phenomenon discussed in this paper, and has never come under Indo-Javanese influence.

A more difficult yet very illustrative case is that of Madurese. The island of Madura is situated just off the north-east coast of Java, and its language and culture have come under

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13 I am grateful to Heri Tanujaya, a native speaker of the Pemalang dialect, for these interesting examples.

14 I am grateful to Robert Blust for bringing the case of Gorontalo to my attention.

15 These words were apparently all borrowed via Malay/Indonesian.

heavy Indo-Javanese influence. One might therefore expect to find final /a/ mutation in Madurese. Some Madurese words[16] indeed appear to exhibit final /a/ mutation, in the form of a [ə] reflex of **-a*. Some words also exhibit [ə] as a reflex of **a* in penultimate syllables, thus resembling the Javanese umlauting process described in §7. However, a close examination of the data reveals that the similarity is superficial, and that these vowel changes in Madurese are part of an internal, phonetically motivated process, unrelated to the one with which we are dealing.

The situation in Madurese is partially obscured by two mirror-image processes, one which deleted original final /h/, the other which inserted /h/ at the ends of words which originally ended in vowels. Thus the words [jilə] 'tongue' and [bəbə] 'under' are historically derived from **jilah* and **babah* respectively, while [rajəh] 'big' and [dədəh] 'chest' are derived from **raya* and **dada* respectively. Despite the confusion caused by the application of these mirror-image rules, an analysis of the data yields an important fact: the change of final /a/ to [ə] occurred only after voiced oral consonants (/b, d, g, j/). It did not occur after voiceless stops or after (voiced) nasals. Moreover, the change applied regardless of the position of /a/ in the root, that is in non-final position as well as final ones (even if the final vowel was not /a/). For example, the change did not affect the original final /a/ in the words *apah* 'what' (< **apa*) and *matah* 'eye' (< **mata*), yet it did affect the /a/ in the words [bəgus] 'good' (< **bagus*), [gəli] 'hard' (< **gali*), and [jəriŋ] 'net' (< **jariŋ*), even though the original [a] was not in final position, nor did the word end in /a/. The vowel change after historical voiced oral consonants in Madurese was, in fact, related to the breathy phonation of syllables commencing in voiced consonants, and had nothing to do with final /a/ mutation.

The examples of Gorontalo and Madurese demonstrate the degree of thoroughness which must be striven for when analysing an areal phenomenon. In order to establish that a certain feature is areal, it is not sufficient merely to point out similar features in two (or more) languages. It must also be demonstrated that the features can be related linguistically, and that the transfer of the feature would have been historically and geographically plausible. In the cases cited above, Madurese fails the linguistic criterion, while Gorontalo fails the historical and geographical criteria as well as the linguistic criterion. Moreover, areal phenomena are rarely limited to just one feature; it is more common for several common features to link a group of languages into a *Sprachbund*. Indeed, as shown in §10 below, the languages which underwent final /a/ mutation also share other features, such as iambic rhythm and lack of word-level accent (as well the presence of numerous Indic loanwords). A longer list of phonological features which link western Austronesian languages into a larger *Sprachbund* was discussed in Tadmor (2001).

9 The correlation between final /a/ mutation and Indo-Javanese culture

In earlier parts of this paper I have made the claim that the process of final /a/ mutation in dialects of some western Austronesian languages originated in the Indianised speech of the courts of Java. It would therefore be useful to view the evidence together.

Consider the following facts:

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16 I am grateful to Faisol Riza, a native speaker of Madurese, for the data and to Antonia Soriente for her help in the analysis of the data.

(a) In western Borneo, the major Malay dialects (Pontianak, Ketapang, Sambas), which form part of Indianised Malay civilisation, underwent final /a/ mutation. Significantly, all three dialects emerged in states with Indianised or Javanised courts.

(b) In south-central Sumatra, which has undergone very heavy Indo-Javanese influence, the only Malay dialects which appear to maintain *-*a* unchanged in some contexts are tribal groups which are not part of (Muslim) Indianised Malay civilisation (David Gil, pers. comm.).

(c) In the Malay varieties of east Indonesia (such as those spoken in Manado, Makassar, Ternate, Ambon, Kupang, and Larantuka), final -*a* is maintained. This fact is important because these varieties differ from the Malay dialects of western Indonesia in several crucial factors, internal as well as external. Unlike true Malay dialects, these Malay-based creoles all have word accent (sometimes phonemic; see Tadmor 2000) and a trochaic (rather than iambic) rhythm, and were not spoken in areas which were part of the Majapahit empire, or underwent extensive Indianisation (see §10).

(d) In the Malay varieties spoken on Java, -*a* is maintained by Peranakan Chinese, but not by the Betawi of Jakarta, who are culturally (as well as linguistically) part of Malay civilisation.

(e) None of the varieties of Bazaar Malay known to the writer exhibit final /a/ mutation. Bazaar Malay (which has many varieties) served as an interlanguage between native speakers of different languages, and especially in contacts between native Indonesians and speakers of Chinese and European languages. It is widely considered to be the 'least refined' form of Malay. It is therefore not surprising that it has not been influenced by the language varieties which form the opposite end of the spectrum, viz. the refined language of the Malay courts.

The fact that standard Indonesian does not exhibit final /a/ mutation is related to the fact that it is not the home language of any speech community or the first language of any speaker. Rather, it is used exclusively as a second language or dialect. This is a feature it shares with the Malay-based creoles (which were initially used purely as a second language) and with Bazaar Malay (which is still only used as a second language). Colloquial versions of Indonesian, which have been developing in urban centres throughout Indonesia, also do not exhibit final -*a* mutation, for the same reason.

Outside the Malay-speaking area, the correlation between these linguistic and cultural factors is just as remarkable.

(a) In the Javanese speech island of Banten, final -*a* changed to [ɤ] around the location of the old court, but was retained as [a] in more distant areas.

(b) In the Tengger speech community of eastern Java, a group which has been least affected by Indo-Javanese court culture, final -*a* is maintained.

(c) The Tegal dialect of central Java, situated furthest away from the courts of Yogyakarta and Solo, and least affected by their culture, has maintained final -*a*.

(d) In Bali, the indigenous Bali Aga, the only group not to have been incorporated into the Javanised-Indianised culture of the Balinese kingdoms, maintain final -*a*. They are the only group to maintain the religious beliefs and other traditions which presumably prevailed in Bali before the Javanisation of the island.

(e) On Lombok, the Sasak language, which was heavily influence by Balinese, and whose speakers use Javanese as their literary court language, exhibits final /a/ mutation.

There is hardly need to reemphasise that all these facts could not be due to coincidence. The close relationship between final /a/ mutation and Indianisation, as well as the direct link between Javanese court language and the spread of final /a/ mutation, are obvious.

10 Possible other causes for final /a/ mutation

Phonological change can be brought about by many factors. First, there are internal factors, such as analogy, levelling, systemic pressure, and various natural processes which can be grouped together under 'phonetic motivation'. Then there are external causes attributable to language contact, such as substratum influence and borrowing. 'Sporadic' (that is, unmotivated) change is also mentioned in the literature, although it is debatable whether language change can occur spontaneously, without any internal or external triggers. In fact, 'sporadic change' does not explain anything, and is sometimes used in lieu of an explanation when the real cause or trigger for change cannot be found.

Finally, there is also the possibility of multiple causation. Some linguists believe that if an internal explanation is available, that automatically excludes an external one. Yet often internal factors interact with external ones to produce change. A well-known example is the phonemicisation of voiced fricatives in English, which was caused by an influx of French loanwords containing voiced fricatives into English, as well as by some internal factors (Thomason & Kaufman 1988:61). It is therefore possible that in addition to the external factors discussed in this study, internal factors also played a role in the process of final /a/ mutation in western Austronesian languages.

Final /a/ mutation is reminiscent of accent-related processes in languages where word accent plays an important role, such as Germanic languages. One may thus put forward the hypothesis that final syllables in the relevant languages were unaccented, and subsequently final /a/ was reduced to schwa in such syllables. Later — so the hypothesis would continue — an accent shift to the last syllable took place, resulting in the 'restrengthening' of schwa to a 'full' vowel in the relevant languages or dialects. This possibility was considered at length by Tadmor (1997). However, as pointed out there, in Malay/Indonesian — at least in standard varieties of the languages and dialects spoken by ethnic Malays — there is no fixed word accent, hard as this may be for Eurocentric linguists to accept.[17] This has been convincingly shown by several phoneticians, including Odé (1994), van Heuven and van Zanten (1994), and Yong (1998).[18] In fact, none of the languages or dialects affected by final /a/ mutation have fixed word accent. Moreover, the Malay varieties which do have a fixed word accent, such as the Malay-based creoles of eastern Indonesia, do not exhibit any final /a/ mutation at all. Final /a/ mutation and the presence of word accent therefore appear to be mutually exclusive.

The rhythm of Malay, as well as that of the other languages affected by final /a/ mutation, is iambic. Rather than having a word-level accent, there is a tendency for accent to occur on the last syllable of the phonological phrase (Tadmor 2000). There appears to be no reason to believe that when final /a/ mutation started to operate in these languages, the

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17 Practically all grammars of Malay/Indonesian wrongly state that the language does have word accent, although there is no agreement about the position of this alleged word accent (for a full discussion, see Tadmor 2000).

18 My Russian colleagues assure me that the fact that Indonesian does not have penult stress or accent has been common knowledge among Russian scholars since the 1960s.

situation was much different from what it is today.[19] Therefore, it is difficult to view the original change (of /a/ to a higher or more centralised vowel) as an accentuation-related process.

Indeed, it appears that the various 'full-vowel' reflexes of *-*a* emerged as a restrengthening of a centralised vowel of some sort. Such a centralised ('reduced' or 'weakened') vowel would be unnatural in a syllable that was often accented. Thus, it was restrengthened independently in many dialects. This led to the emergence of multiple reflexes of *-*a*, as each dialect changed the reduced vowel into a different full vowel. Yet the question remains: if the final syllable was accentuable, why was final /a/ weakened to a schwa-like sound there in the first place? Vowel weakening in an accented (or accentuable) syllable would be highly unusual. The answer is that the initial change of *-*a* to a centralised vowel was not a phonological process of weakening or reduction. Rather, it was a borrowed feature, which lacked phonetic motivation.

11 A similar case: the spread of uvular /r/ in Europe

In order to put the spread of final /a/ mutation in western Austronesian languages in perspective, it may be useful to compare it to a similar and well-known phenomenon, the spread of uvular *r* in western Europe. Trudgill (1974:160–163) provides a clear and concise description of this process:

> It is thought that up until at least the sixteenth century all European languages had an *r*-type sound which was pronounced as *r* still is pronounced today in many types of Scots English or Italian: a tongue-tip trill (roll) or flap. At some stage, though, perhaps in the seventeenth century, a new pronunciation of *r* became fashionable in upper-class Parisian French ... Starting from this limited social and geographical base, the uvular-*r* pronunciation has during the last 300 years spread, regardless of language boundaries, to many other parts of Europe ... It is now used by the overwhelming majority of urban or educated French speakers, and by most educated Germans. Some Dutch speakers use it, as do nearly all Danes, together with a majority in the south of Sweden and parts of the south and west of Norway.

There are several similarities between the spread of uvular *r* in European languages, and the spread of final /a/ mutation in western Austronesian languages. Both processes lack phonetic motivation; both started with a very limited and well-defined social and geographical distribution; both spread due their high prestige; both operated in a contiguous geographical area, rather than a genetic subgroup; both applied to only certain dialects of the affected languages and not others. Indeed, it would not be unreasonable to assume that the ultimate source of the uvular realisation of *r* was in the French court, which in the 17th century was a source of emulation throughout Europe, just as the ultimate source of final /a/ mutation in the Malay archipelago was in the Majapahit court.[20]

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19 It has sometimes been claimed that the long vowel symbols used (inconsistently) in Old Malay and early Classical Malay in penultimate syllables are in fact an indication of penultimate word accent. In Tadmor (2000) I discussed this theory, and concluded that the language represented in the Old Malay inscriptions and Classical Malay manuscripts was not representative of the natural spoken language. Rather it was an artificial court language, replete with Sanskrit (and later Arabic) loanwords, whose writing system was devised by foreigners, and whose pronunciation was affected by them. It did not reflect the prosodic structure of the colloquial language as spoken by native speakers.

20 This would also be reminiscent of the change /z/ > /θ/ in Castilian Spanish, which also originated in the 17th century. Legend has it that the ultimate origin of the change was a lisping prince. This detail may not

As Trudgill (1974:161) himself pointed out, the change from an alveolar *r* to a uvular or velar *r* in Europe is not limited to the contiguous area described above. Phonetic realisations of /r/ vary greatly in languages the world, and changes from one realisation to another have occurred unrelatedly outside the limited area of operation of this areal phenomenon. For example, uvular *r* is used in parts of Northumberland and Durham (1974:161), yet this phenomenon is apparently not related to the spread of uvular *r* on the European mainland. Likewise, there are other Austronesian languages where final /a/ has undergone changes (see §8), independently from the final /a/ mutation treated here. As Thomason and Kaufman (1988:59) noted: 'If a reasonable external explanation for a change is available, it must not be rejected merely because similar changes have occurred under different antecedent conditions'. They also dismiss the untenable view that 'a plausible internal motivation is preferable to, as well as exclusive of, an external motivation' (1988:43).

Obviously, the changes to uvular *r* in dialects of several languages spoken in a contiguous area of western Europe are interrelated. Yet not all similar changes anywhere else in Europe are related to this areal phenomenon. The same can be said for final /a/ mutation. Obviously, the changes that affected final /a/ in dialects of several languages spoken in a contiguous area of the Austronesian-speaking world are interrelated. Yet not all similar changes anywhere else in the region are related to this areal phenomenon.

12 Conclusions

In this paper I have shown that an areal feature of Indic languages, the raising of *ă*, was transferred to some western Austronesian languages, where it developed into the phenomenon which I call final /a/ mutation. Specifically, I have demonstrated that:

- The changes that affected final /a/ in many dialects of Malay, and resulted in a large variety of modern reflexes, were interrelated.
- In turn, the phenomenon in Malay is related to similar phenomena in some other languages spoken in contiguous areas, such as Javanese, Balinese, Lampung, and Sasak.
- The languages affected by the change were under strong Indo-Javanese influence.
- It is difficult to show a phonetic motivation for this sound change. Neither systemic pressure nor accent-related phenomena can be convincingly demonstrated. And even if internal causation is eventually demonstrated, that would not exclude the role of external causation.
- The isolects affected by final /a/ mutation exhibit geographical proximity or contiguity, suggesting that this is an areal phenomenon.

The linguistic, geographical, and historical origin and progression of final /a/ mutation can be summarised as follows:

- Short /a/ was realised as a schwa-like vowel in final syllables of Sanskrit loanwords in the Indianised court language of Majapahit, in imitation of Indian pronunciation.
- Because of the confusion (or indeed lack of distinction) between short and long vowels in Javanese, the rule affecting the pronunciation of /a/ applied regardless of historic length distinction.

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be true, but it is entirely possible that the change indeed originated in the Castilian court, whence it spread to surrounding areas, eventually encompassing most of Castile.

- Due to the large number of Sanskrit loanwords in Javanese, the prestige of Indianised pronunciation, and the ignorance of most speakers regarding the historical origin of different words, the rule was generalised to include words of non-Sanskrit origin.
- The change spread from the Majapahit court to later Javanese courts, and from these courts to the surrounding areas, eventually reaching most Javanese-speaking areas.
- The change was also transferred from Javanese to some dialects of languages spoken in areas under Javanese control or Indo-Javanese cultural influence, such as Lampung, Balinese, Sasak, and Malay.
- The distribution patterns of final /a/ mutation in Bali and in the Malay-speaking world were similar to those of Javanese: the communities which were closer to the political centres of power, and thus most affected by Indianisation, underwent final /a/ mutation, while more isolated communities (geographically and/or culturally) did not.
- Since the speaking rhythm of the affected languages was (as it still is) iambic, the schwa-like final vowel was independently restrengthened to a full vowel in many isolects. This is the reason behind the great variation of **-a* reflexes in modern languages and dialects. In more conservative dialects, a schwa-like sound has been preserved until today, but it often has a different phonetic realisation from the 'true' phonological schwa (if one indeed exists in the relevant language).
- An umlaut-like process extended /a/ mutation to open penultimate syllables in central Javanese. This process had only a limited geographical distribution.
- Later, central Javanese acquired its characteristic rounding of mutated historical /a/. This, too, has had only a limited distribution.

The scenario presented above is tentative, of course. It is quite possible that when more information becomes available — for example about the history and nature of the original phenomenon in India, or about the provenance of the Indians who introduced Sanskrit to Indonesia — some of the details will need to be changed. However, I believe that the main premises of the hypothesis presented here will stand: that final /a/ mutation is an areal phenomenon, that it was related to Indianisation, and that it originated in the courts of Java.

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