W. Mahdi
Some problems of the phonology of metropolitan Indonesian

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The phonology of Indonesian (Bahasa Indonesia) still poses several problems, in particular as regards the so-called loaned phonemes, i.e. phonemes which appeared in Malay and Indonesian as a result of word-borrowing from Sanskrit, Arabic, Persian and, in more recent times, from Dutch and other European languages.

The language commonly designated as Bahasa Indonesia actually represents a large number of dialects and subdialects, not only territorial and ethnic, but also social and stylistic ones. The situation is further complicated for the phonologist by the fact that the overwhelming majority of Indonesian speakers are bilingual and speak Indonesian as a second language, with predictable consequences for their pronunciation. It is therefore not surprising that even a superficial inspection of an Indonesian dictionary will reveal an astonishing number of doublets and variants of words.

But the alternation of phonemes and sound shifts in these doublets and variants can only be relevant for a description of the system of phonemes insofar as these phenomena represent a dialectally compact corpus, i.e. one freed from dialectal variation. Operating with a dialectally mixed corpus necessarily leads to an over-representation of doublets and variants, which can only obscure phonological regularities, tendencies, and correspondences.¹

It has become a tradition to regard North Sumatran Indonesian

WARUNO MAHDI, a graduate of the Mendeleyev Institute of Chemical Technology in Moscow, has studied linguistics independently since 1969. Interested mainly in Indonesian morphology, Austronesian historical linguistics, comparative Austric linguistics and the early ethnic (pre)history of Southeast Asia, he is the author of [The Particularities of Suffixation in Malagasy] (1975) and [On the Problem of the Compound Word in Indonesian] (1976), both of them unpublished manuscripts in Russian. Mr. Mahdi may be contacted at Postfach 1171, 1000 Berlin 47, W. Germany.
(NSI), i.e. the language as it is spoken in North Sumatra, as standard, a tradition also widely kept up in language instruction in schools. Outside Sumatra however, NSI is rarely spoken. On the other hand, a more or less compact language usage has been developing among educated speakers in and around Jakarta, which, if not always spoken, is at least recognized in the area as being 'correct' Indonesian. I will call it Metropolitan Indonesian (MI) to distinguish it from NSI.2

Whereas NSI is more closely related to Classical Malay and Malaysian, MI as well as the other dialects spoken in Java, East Indonesia, Sulawesi (Celebes) and parts of Kalimantan (Borneo) in my view are genetically more closely related to Bazaar Malay. But having undergone substantial influence from Classical Malay, MI stands much closer to NSI than does Bazaar Malay.

Educated Indonesians in and around Jakarta who speak Indonesian as a first language do so with a more or less uniform pronunciation. Exceptions can usually be sifted out in the choice of informants by such tell-tale features as the Javanese aspiration of voiced stops, the Sundanese systematic postglottalisation of word-final vowels and characteristic Sundanese sentence intonation, the Balinese retroflex articulation of /t/, the Batak tendency to replace /a/ by /e/, the systematic retention of the stress on the penultimate by speakers from outside Java, the Jakarta-Malay and Javanese retention or restoration of /a/ in the last syllable of root-morphemes where written Indonesian has a, etc.

The loaned fricatives

My observations confirm Ogloblin's (Alieva et al. 1972) findings that doublets involving loaned fricatives — i.e. /f, x, z, §/ — often reflect differences in style. This does not, however, compel us to share the author's conclusion that the loaned fricatives are stylistic variants of the original Malay phonemes of Indonesian with which they alternate in the doublets, i.e. /p, h, k, j, s/.

Stokhof in a critique (1975) expressed the opinion that the data presented in the cited work actually argue in favour of recognizing at least /f, x, z/ as phonemes, but expressed reserve in regard to /§/ in view of the unclear relation between [§], [sy] and [s].

In my opinion, the loaned fricatives indeed cannot be considered as stylistic variants of original Malay phonemes, and I would like to add some points in support of the recognition of /f, x, z/ as well as /§/ as phonemes in MI.
My discussion of /f/ (orthographic f or v) will include the following words:

1 a faėdah 'utility', b fajar 'dawn', c fasih 'fluent, eloquent', d filsafat 'philosophy', e firasat 'presentiment', f fitnah 'slander', g fulus 'money (colloquial)';

2 a fakta 'fact', b faktor 'factor', c fakultas 'faculty (of a university)', d féodal 'feudal', e finansiil 'financial', f firma 'firm (company)', g fisik 'physical', h fiskal 'fiscal', i formil 'formal', j foto 'photo', k fungsi 'function', l fusi 'fusion', m vak 'study subject', n vakum 'vacuum', o variasi 'variation', p véto 'veto', q virus 'virus';

3 a flora 'flora', b fraksi 'fraction (political)';

4 a fébruari 'February', b vanili 'vanilla', c véntil 'valve', d vulpéin 'fountain pen';

5 a paham 'notion', b pihak 'side (party)', c pikir 'think';

6 a pabrik 'factory', b perangko 'postage stamp', c perduli 'care (take heed)';

7 a aktivitas 'activity', b dévisen 'foreign currency', c grafik 'graph', d individu 'an individual', e kaifir 'infidel', f positivisme 'positivism', g révisi 'revision', h sijat 'nature (character, quality)', i télévisi 'television', j universitas 'university', k wafat 'die (of respected person)', l walafia 'in good health';

8 a hafal 'learn by heart', b nafas 'breath', c novémer 'November', d provinsi 'province';

9 a sipil 'civilian', b topan 'hurricane';

10 a aktif 'active', b négatif 'negative', c pasif 'passive', d positif 'positive', e relatif 'relative (unabsolute)', f staif 'staff';

11 a insaf 'conscious', b silaf 'mistaken';

12 a afdol 'fine, perfect', b afkir 'reject (disapprove)', c tafsir 'interpret';

13 a taplak '(table) cloth';

14 a manfaat 'utility';

15 a aspal 'asphalt', b tilpon 'telephone'.

There is a formidable number of words with initial /f/ which do not normally have /p/-doublets in MI; 1 a-g, 2 a-q, 3 a-b form an incomplete list. Occasional /p/-doublets, for instance pisik (for 2 g), occur in MI nowadays only in ironic simulation of provinciality. Otherwise they occur only in dialect. For 4 a-d however, competing /p/-doublets are of comparative frequency, but they are gradually tending to become colloquial. On the other hand, it is the /p/-modes which are commonly used for 5 a-c, the respective /f/-modes having become at least
bookish or high style. The respective meN-derivates are memahami (5 a), memihak (5 b), and memikir (5 c), never *memfahami, *memfihak, *memfikir (cf. memfitnah (1 f), memvéto (2 p), never *memitnah, *meméto). For 6 a-c with initial /p/ for historical or etymological /f/, doublets with /f/ are not attested in MI.

Intervocalic /f/ is uncontested by /p/-doublets in 7 a-l in MI, but for 8 a-d MI has /p/-doublets which are about just as frequently used. On the other hand, no /f/-doublets occur in MI for 9 a-b (archaic tofan<taufan for 9 b no longer occur even in high style).

Final /f/ has maintained its position in loanwords ending in if (from Dutch suffix ief), e.g., 10 a-e, and 10 f, though dialectal /p/-doublets sometimes occur in casual speech. But where /if/ here (in that case written iv) is followed by another suffix, no /p/-doublets occur (cf. 7 a, 7 f). For 11 a-b, /p/-doublets are approximately just as frequent as the /f/-modes.

Preconsonantal /f/ is stable in 12 a-c (as in 3 a-b), but 13 a, with /p/ for etymological /f/, has no /f/-doublet in MI. 14 a has no doublet with postconsonantal /p/ in MI (cf. also memfitnah and memvéto above), while conversely no /f/-doublets occur for 15 a-b.

To summarise the situation as regards /f/:

1. A representative number of words with /f/ have no /p/-doublets in MI;
2. For /f~p/ doublets, MI exhibits increasing standardisation whereby either the /f/- or the /p/-mode is ultimately retained.

This strongly militates against considering /f/ a stylistic variant of /p/ in MI. On the contrary, the situation compels us to posit two phonemes /f/ and /p/ for MI. Opposition of /f/ vs. /p/ is furthermore confirmed by the following minimal pairs, of which the second was suggested by Stokhof (1975):

vak /fak/ ‘study subject’ vs. pak /pak/ ‘pack’; 5
fakta /fakta/ ‘fact’ vs. pakta /pakta/ ‘pact’.

For the discussion of /x/ the following words will come into consideration:

1 a khas ‘typical’, b khayal ‘imaginary’, c khidmat ‘solemn’, d khotbah ‘sermon’, e khusus ‘particular’;
2 a kabar ‘news’, b katulistiwa ‘equator’, c kuatir<kwatir ‘worry’, d kurma ‘date (fruit)’;
3 a khilaf ‘mistaken’;
4 a ahli ‘expert’, b mahluk ‘being (creature)’, c rahmat ‘mercy (di-
Problems of the Phonology of Metropolitan Indonesian

Initial /x/ has maintained itself in MI in a number of words, e.g. 1 a-e. But although almost always written with *kh*, the pronunciation with initial /h/, especially in casual speech, is probably just as frequent as with initial /x/. Doublets with initial /k/ very rarely occur and should probably be considered dialectal. On the other hand, initial /k/ is normal for 2 a-d, which all have high style or at least very bookish /x/-doublets. Also as with the /k/ doublets, the meN-derivatives exhibit more advanced divergences, e.g. mengabarkan (2 a), never *mengkhabarkan, but menghayalkan /mɔŋhayalkan/ (1 b), never *mengayalkan. For 2 c however, bookish meN-derivatives of the /x/-doublet still occur. In one instance, i.e. 3 a, initial /x/ alternates with /s/, not with /k/ or /h/.

The /h/-modes are neutral style for 4 a-e, whereas the respective doublets with preconsonantal /x/ all are or have become high style or bookish. No /k/-doublets occur for 4 a-e in MI. For 5 a-e, however, preconsonantal /x/ is commonly heard (neutral style). All have casual speech /h/-doublets and some (not 5 a and 5 e) have /k/-doublets which are possibly dialectal. For 6 a-b, neutral style has /k/, although bookish doublets with /x/ and casual speech doublets with /h/ occur. Contrary to 6 a-b, the /h/-mode is more frequently used for 6 c, perhaps due to dissimilation. Although 7 a is always written with *kh*, the commonly heard pronunciation is with preconsonantal /k/ (usually aspirated).

MI has intervocalic /x/ in 8 a-b, which both have casual speech /h/-doublets and 8 a also a colloquial and possibly dialectal /k/-doublet. In normal MI, 9 a-b are pronounced with intervocalic /g/, practically never with intervocalic /x/ except in the speech of persons accustomed to speaking Dutch or posing as such. However, 9 c
W. Mahdi

has casual speech doublets /logiscvsloxiscNolohis/, but never */lokis/.

Final /x/ has maintained its ground in 10 a besides a casual speech doublet with final /h/, never final /k/ or /ʔ/, whereas for Dutch toch MI only has final /h/ (10 b), final /x/ occurring here only in the speech of persons accustomed to speaking Dutch.

In some loanwords from Dutch, e.g. 11 a-b, postconsonantal /x/ alternates with /s/, while in some others, e.g. 12 a-b, only modes with /s/ are attested. This, however, seems to reflect a feature of Dutch phonology where the etyma of these words are pronounced in the French manner. An analogical instance is exemplified by énérgiênérsi ‘energy’, nowadays being ousted by énéri ‘id.’, taken from Malaysian, where it was borrowed from English.

Compared with /f/, /x/ seems less firmly established in MI as a phoneme. This is probably due to the two-way option of replacing it by either /k/ or /h/. But to my mind the picture is very much biased by fast speech realisation of /x/ as [h]. In any case, the observed situation does not justify treating /x/ as a stylistic variant of /h/, much less of /k/, as it is the /h/- or /k/-doublets which are often stylistically coloured. Distinction from /k/ is furthermore certified by the minimal pair: tarikh /tarix≈tarih/ ‘era’ vs. tarik /tarik≈tariʔ/ ‘pull’.

In the /x/ vs. /h/ opposition, friction and velarity cannot be regarded as optional, i.e. /x/ as a ‘heavy’ phoneme in the sense used by Stokhof (1975). Doublets with stylistically neutral /k/- and high style or bookish /x/-modes do not normally have /h/-modes, e.g. kabar≈khabar ‘news’, never */habar/.

For the discussion of /z/ I will consider the following words:

1 a zat ‘substance’, b zeni ‘engineering (corps, in the military)’, c zinah ‘adultery’;

2 a zaitun ‘olive’, b zakat ‘tithe (Islamic tax)’, c zamrud ‘emerald’, d ziarah ‘visit to shrine or holy place’;

3 a jaman ‘period (era)’;

4 a gizi ‘nutrition’, b jazirah ‘peninsula’, c jenazah ‘earthly remains (corpse of respected person)’, d khazanah ‘treasure’;

5 a lazim ‘customary (usual)’, b lezat ‘delicious’;

6 a azas ‘foundation (principle)’;

7 a azimat ‘talisman’, b mujizat ‘miraculous’, c rézim ‘regime’;

8 a ijin ‘permission’, b rejeki ‘fortune’;

9 a adan ‘call to prayer (Islamic)’;

10 a bagasi ‘baggage’, b busi ‘sparkplug’, c resimén ‘regiment’, d sabotase ‘sabotage’;
Problems of the Phonology of Metropolitan Indonesian 405

11 a insinyur ‘engineer’, b sersan ‘sergeant’, c losmén ‘inn’;
12 a firuš ‘turquoise’, b jazz ‘jazz’;
13 a mazhab ‘sect (Islamic)’.

The general tendency has been to replace /z/ by /j/. Only a few words with initial /z/, e.g. 1 a-c, have no /j/-doublets in MI. As a rule, however, words with initial /z/, e.g. 2 a-d, have /j/-doublets which are gradually gaining preference at least in spoken MI, whereas the corresponding /z/-modes, though prevailing in the written language, are gradually tending to become bookish. For 3 a, the mode with initial /j/ is the commonly used neutral style word, also in written MI, whereas the /z/-doublet is bookish or high style. In all instances, the sibilant is sometimes pronounced in casual speech and especially in fast speech without voice, i.e. as /s/ instead of as /z/. This also applies to 1 a, which Stokhof (1975) placed over against sat ‘ace’ as a minimal pair, as well as to 1 b in spite of seni ‘art’ and seni ‘urine’ (homonyms).

Intervocalic /z/ seems to be more stable, and more words, e.g. 4 a-d and 5 a-b, lack /j/-doublets in MI. But loss of voice, i.e. replacement of /z/ by /s/, is frequent in the casual or fast speech pronunciation of 4 a-d, while 4 b is sometimes even spelled with s. To my knowledge, however, 5 a-b are never pronounced with intervocalic /s/ for /z/ in MI. On the other hand, 6 a is a hyperarabism which is currently much more frequently used than the original asas. It likewise has no /j/-doublet. For 7 a-c, the /j/-doublet is frequent in spoken MI and prevalent in casual speech, although the spelling is practically always with z. I have not encountered the pronunciation of 7 a-b with /s/ for /z/. For 8 a-b, the mode with intervocalic /j/ is the commonly used word; also in written speech, the spelling with j instead of z is gaining ground. The /z/-doublets of 8 a-b are high style or at least bookish. In one instance, i.e. 9 a, intervocalic /z/ in the archaic doublet alternates with /d/ in the commonly used word.

Above-mentioned 7 c is probably the only instance of Indonesian having intervocalic /zɔj/ for Dutch surd voiced /ʐ/.8 Otherwise the Indonesian reflex in intervocalic as well as in post- and preconsonantal position is /s/, cf. 10 a-d and 11 a-c.

For final and preconsonantal position my material on /z/ is rather scanty. 12 a with final /s/ is the only cognate of Malaysian jiruzah (Winstedt 1965) attested in MI. The MI pronunciation of 12 b is invariably /jes/. 13 a, though always written with z, is more often pronounced with preconsonantal /s/, but never with /j/.

Summarising the situation regarding /z/, there is similarity with that
of /x/ in the two-way option of replacement, i.e. either by /j/ or by /s/. In this connection, doublets with /s/ are ubiquitous as casual and fast speech variants of modes with /z/. But as with the /x/z-alternation, the /s/-modes often actually are only casual or fast speech variants. I do not think this justifies regarding /z/ as a stylistic variant of /s/. Besides, a few words with /z/ are never to my knowledge alternatively pronounced with /s/ (vide supra). As for instances of /z/j-alternation, the situation is analogous to that with regard to /f/p/ and /x/k/, and clearly shows that two different phonemes are involved.

In the discussion of /s/ I will refer to the following words:

1 a syah ‘shah’, b syair ‘verse’, c syakwasangka ‘suspicion’, d syal ‘shawl’, e syariat ‘shariat (Islamic law)’, f syéh ‘sheik’, g Syiwa ‘Shiva (Hindu deity)’;

2 a syahadat ‘creed (confession to Islam)’; b syarat ‘condition (term)’, c syukur ‘fortunate’;

3 a sah ‘legal (valid)’, b saraf ‘nerve’;

4 a satria ‘knight, cavalier’, b sejarah ‘history’, c serikat ‘union’, d sétan ‘devil’, e surga ‘heaven’;

5 a tamasya ‘excursion’, b isyu ‘issue’;

6 a asyik ‘enthusiastically absorbed (in a pastime etc.)’, b masyarakat ‘society’, c musyawarah ‘mutual consultation’;

7 a fasis ‘fascist’, b klisé ‘negative (of photo)’;

8 a dahsyat ‘terrific’, b insya-Allah ‘God permitting’;

9 a masyhur ‘famous’, b musyrik ‘polytheist (pagan)’, c Wisnu ‘Vishnu (Hindu deity)’;

10 a Krisna ‘Krishna (figure in Mahabharata)’, b laskar ‘brigade, squadron’;

11 a kelos ‘bobbin (spool)’.

Initial /s/ has held its ground in 1 a-g, but in fast speech, and sometimes also in casual speech, the initial sibilant is pronounced as /s/. The tendency to articulate /s/ in place of initial /s/ is more pronounced for 2 a-c. For 3 a-b the /s/-mode is commonly used in neutral style, whereas the respective /s/-modes (presumably hyperarabisms) are high style or archaic. The /s/-modes of 4 a-e, on the other hand, no longer occur in MI.

To my knowledge, intervocalic /s/ is never replaced by /s/ in 5 a-b, even in casual or fast speech. For 6 a-c however, this does occur frequently enough, though hardly ever in normal or deliberate speech. 7 a-b have intervocalic /s/ for historical or etymological /s/; they have no /s/-doublets in MI.
Of the two examples with postconsonantal /§/, 8 a does not seem to have an /s/-doublet, but 8 b does (in casual or fast speech).

Doublets of 9 a-c with preconsonantal /s/ for /§/ usually occur only in fast speech. But for 10 a-b the /s/-mode can be heard more often than the bookish one with /§/ even in normal speech.

As in the case of /z/, MI normally has only /s/ for historical or etymological final /§/, e.g. 11 a.

The fact that /§/ is often unconsciously replaced by /s/ particularly in casual and fast speech is conditioned by the closeness of their articulation. Indonesian /s/ is not dental or alveodental, but palatal or at best alveopalatal. As far as I was able to determine by non-instrumental observation, when /§/ is not realised as [sy] (vide infra), the main distinctive feature between /§/ and /s/ lies not so much in the part of the palate or alveolar ridge the tongue is applied to, as in the part of the blade of the tongue involved. In the articulation of /s/, the area of contact is smaller and nearer the apex.9

Nevertheless, I have not met with /s/-doublets of 5 a-b or 8 a. Stokhof (1975) reports that 1 a cannot be pronounced with initial /s/, basing this on experimental results, whereby informants always rejected /sah/ as an alternative pronunciation. A possible reason for this negative result could be that the /s/ was realised as dental or alveodental [s] instead of as palatal or alveopalatal [§]. It is imaginable that Indonesians would tolerate dental [s] as a passable rendering of Indonesian /s/ by a foreigner, and yet object to it in a word of which they were conscious that it should be pronounced with the noisier /§/, even though they themselves might sometimes unconsciously pronounce it as [§] in fast speech. Another reason could be the absence of context. This could motivate the informant to avoid confusion with 3a, especially because the latter occurs more frequently in MI speech than 1 a.

I have in any case often enough heard 1 a pronounced in casual speech with initial [§] in the word sequence syah Iran ‘the shah of Iran’.

The /§/ phoneme is often articulated [sy], and some speakers do this systematically, so that Stokhof (1975) is doubtlessly right in bringing up the problem of distinguishing /§/ from /sy/. There are certain restrictions: /§/ is never pronounced [sy] before another consonant or before [i] (but [sy] for /§/ does occur before [i], as in 6 a). However, as /sy/ from historical or etymological /si/ also never occurs in this environment, this does not help us very far.

I do not know of any word with /§/ in any other position, which could not be alternatively pronounced with /sy/. But not all speakers
seem to exhibit the tendency to articulate /§/ as [sy]; speakers from East Central Java (ECJ) seem to do so rather often though. A more refined dialectal analysis will probably introduce more clarity on this point.

To my mind at this stage the phoneme /§/ should be regarded as being ‘heavy’ — in the sense used by Stokhof (1975) — in relation to the phoneme sequence /sy/. Although for all modes with /§/ there are doublet modes with /sy/ (except in the above-mentioned forbidden positions), the reverse does not hold. Modes with /sy/ which have /si/-doublets do not normally have /§/-doublets.\(^\text{10}\)

In spite of the strong tendency to realise /§/ as [s] or [sy] (i.e. to replace it with /s/ or /sy/), I believe that we are nevertheless compelled to posit a /§/ phoneme for MI.

Summarising the above discussion of the loaned fricatives /f, x, z, §/, the situation in MI does not justify our regarding any of them as stylistic variants of original Malay phonemes. Nor can words in which these fricatives occur be generally regarded as stylistic variant modes; in many instances it is the doublet with the original phoneme which is stylistically coloured, while sometimes such a doublet doesn’t even exist, so that there is nothing for the form concerned to be a variant of.

But when words are pronounced — often unconsciously — with /h/ for /x/, /s/ for /z/, /s/ or /sy/ for /§/, we probably often do not really have to do with doublets, but with fast speech variants. Here, too, there are words for which there are no fast speech variants with original phoneme in place of loaned fricative in MI. However, as fast speech phenomena can move into casual speech, and from here into normal speech, it is difficult to make a clear distinction.

In any case, I believe that we can only speak of stylistic variants on the lexical level, i.e. when a word with a loaned fricative is a stylistic variant of a stylistically neutral cognate with original phoneme or vice versa. On the phonemic level we cannot speak of loaned phonemes being stylistic variants of original phonemes or vice versa in MI.

On the phonemic level we can only correlate each loaned fricative with a set of original phonemes with which it tends to alternate in doublets:

\[
\begin{align*}
/f/ & \sim /p/; & /x/ & \sim /k/, /h/, /s/; \\
/z/ & \sim /i/, /s/, /d/; & /s/ & \sim /s/, /sy/.
\end{align*}
\]

**Glottal stop**

The glottal stop phoneme in MI is articulated with variable intensity,
to the extent of virtually dropping out completely. The latter is typical for fast speech and also occurs in casual speech. In very weak realisation, the glottal stop phoneme can manifest itself as a slight tensing of the larynx, which a sensitive instrument would possibly still register as a faint friction.

The glottal stop phoneme in MI occurs in five positions: absolute initial, intervocalic, preconsonantal, postconsonantal, and absolute final. In absolute initial position, glottal stop is not in opposition to vocalic attack. At least, I have not observed any instances of vocalic attack in MI. Initial glottal stop in root-morphemes is responsible for an interesting morphophonological phenomenon which is not reflected in the orthography. Although an intervocalic consonant is always the initial of a syllable, the final consonant of a preceding morpheme (other than the N morphophoneme of prefixes) never becomes the initial of a syllable when the following root-morpheme begins orthographically with a vowel. Thus tanah'air 'motherland' (from tanah 'land' and air 'water') is pronounced /tanah-ʔair/, never */tana-haïr/. This retention of the initial glottal stop of root-morphemes leads to homographs for some words with beR prefix. The R morphophoneme in this prefix manifests itself as zero when the following syllable has initial /r/; otherwise it appears as /r/ (with a few exceptions). When two root-morphemes differ from each other only in that one has initial /r/ and the other initial glottal stop, their beR-forms will necessarily be homographs:

beruang /bɔ-ruañ/ 'to have space' (from ruang 'space');
beruang /bɔr-ʔuañ/ 'to have money' (from uang 'money');
berévolusi /bɔ-refolusi/ 'to be in revolution' (from révolusi 'revolution');
berévolusi /bɔr-ʔefolusi/ 'to be in evolution' (from évolusi 'evolution').

However, this is one of the instances in which MI discriminates between reproduced and inherited modes. Prevocalic glottal stop after beR is only retained in reproduced derivatives, not in inherited ones:
berapa /bɔr-ʔapa/ 'to have (or contain) what' (repr. from apa 'what');
berapa /bɔ-raqapa/orapa/ 'how much' (inherited deriv. of apa).

In the synchronic plane, we are thus compelled either to posit a morphophonology with double bottom, or to regard inherited berapa 'how much' as a monomorphemic word.

Like other voiceless stops, /ʔ/ is dropped after the prefixes meN and peN, so that there can be no homographs and no differentiation between reproduced and inherited modes here:
mengapa /məŋapa/ ‘to do what’ (repr. from apa ‘what’);
mengapa /məŋapa/ ‘why’ (inherited deriv. of apa).

Intervocalic glottal stop sound occurs first of all between like vowels. But as identical vowels are automatically separated by a glottal stop, the latter is not of phonemic status, in the same way as the epenthetic semivowel between unlike vowels of which the first is a high vowel.

Glottal stop between unlike vowels mainly occurs at morpheme juncture, where, however, it always alternates with zero, so that it may be regarded in this position as being ‘heavy’ in the sense used by Stokhof (1975), e.g.
diangkat /diʔaŋkatʔdiŋkat/ ‘to be raised’;
tatausahaan /tataʔusahaanʔtatausahaan/ ‘management (of enterprise)’.

Glottal stop between unlike vowels within a morpheme occurs rather rarely and there is also always a doublet lacking the glottal stop, e.g. soal /səʔəlʔsoal/ ‘problem’, syair /səʔərʔsaʔir/ ‘verse’, doa /dəʔədəʔə/ ‘prayer’ (also with /o/ for /ə/).

Also in intervocalic position, glottal stop at morpheme juncture is retained only in reproduced derivatives or complexes. In inherited ones, the glottal stop is dropped:
siapa /siapaʔsyapa/ ‘who’ (from personal article si and apa ‘what’).

There is no glottal stop between unlike vowels at morpheme juncture before the suffixes an and i:
tarian /tariʔyanʔtaryan/ ‘(a) dance’, never */tariʔan/;
tandai /tandaʔi/ ‘to mark’, never */tandaʔi/.

But between like vowels, the glottal stop (non-phonemic) appears also before an suffix:
perbédaan /parbedaʔan/ ‘distinction’.

Postconsonantal glottal stop within a morpheme, i.e. not at morpheme juncture, occurs rather rarely, e.g. jumat /jumʔat/ ‘Friday’, kuran /kurʔan/ ‘the Qoran’. I have not observed absolute disappearance of postconsonantal /ʔ/ with ensuing syllabic reallocation of the remaining intervocalic consonant in MI for these words, except in fast speech. But for the word masalah /mas-ʔalahʔma-salah/ ‘issue (problem)’, the mode without glottal stop is the one in common use nowadays, the /ʔ/-doublet having acquired an archaic or high style connotation. In polymorphemic words, postconsonantal glottal stop always occurs when a root-morpheme with initial glottal stop is preceded by a morpheme with final consonant (except final nasal of prefixes), either as a result of reproduced prefixation or composition (vide supra).

The problem of the glottal stop in absolute final position is more
complicated. Originally, the final glottal stop sound in Malay was (and in some dialects probably still is) an allophone of /k/. In modern MI this is no longer the case, as several words normally have [k] for final /k/, e.g. dok ‘dock’, politik ‘politics’. They are usually loanwords from European languages. Of the words of non-European origin, gebuk ‘to pound, beat (colloquial)’ and goblok ‘stupid (coll.)’ are ones of which I have not noted a doublet with final [ʔ]. This is perhaps conditioned by the existence of dialectal doublets with final /g/, i.e. gebug, goblog.

On the other hand, in some words with final orthographic k, the pronunciation is virtually never with [k], e.g. tak ‘not’, pak ‘father, sir’, kakak ‘elder sibling’. But for the overwhelming majority of polysyllabic words of non-European origin with final orthographic k, MI has doublet modes with [k] and [ʔ], although the pronunciation with final [k] seems to be gaining preference, e.g. banyak ‘much, many’, robék ‘tear (torn)’, gemuk ‘fat’.

The situation is complicated, however, by a third possible reading of final orthographic k, i.e. an unreleased backed velar stop (cf. Stokhof 1975) which I shall denote with the symbol [q]. All words with final [ʔ] and at least many of those with final [k] also occur with final [q], so that the opposition is actually one of [k?q] vs. [qʔʔ]. In MI however, [k] is gaining considerable preference in cases of [k?q] alternation. The tendency in MI is thus towards an opposition of [k] vs. [qʔʔ].

In any case, the situation seems to me to compel us to distinguish at least two phonemes /ʔʔ/ and /k/ in final position. The opposition of final /ʔʔ/ vs. /k/ (actually [ʔʔʔʔ] vs. [kʔʔʔ]) is certified by the following minimal pairs:
/paʔʔ/ ‘father, sir’ vs. /pak/ ‘pack’;
/masaʔʔmasaʔʔ/ ‘really, surely not’ vs. /masakʔʔmasaʔʔ/ ‘to cook’.

In the latter opposition, the mode given first for each pair of alternants is the more frequently used one in spoken MI. In written speech, /masaʔʔmasaʔʔ/ is usually replaced by masakah, which is not often used in spoken MI, because the orthography does not permit the writing /masaʔʔ/ without creating a homograph of either masak ‘to cook’ or masa ‘period (time)’, the latter having a homonym spelled massa ‘the masses (of people), mass (physical term)’.

For preconsonantal position, several distinctions have to be made.

When preconsonantal orthographic k is in absolute initial position, it is treated as absolute initial /k/, i.e. it is always pronounced as [k], e.g. klasik ‘classical’, krisis ‘crisis’, kwitansi ‘receipt’, kiamat /kyamatʔʔ/
kiamat/ ‘doomsday’. Glottal stop occurs in this position only in the contracted variant of some words, e.g. 
emasmas /?emasmasmasmas/ 19 ‘gold’,
ialahyalah /?ialahyalahyalahyalah/ ‘is, are’,
uangwang /?uajwangwang/ ‘money’.

Internal preconsonantal written k is also always pronounced [k] when it is in syllable-initial position, e.g. in akrab ‘close (of friends)’,
coklat ‘chocolate, brown’, déklarasi ‘declaration’, iklan ‘advertisement’,
iklim ‘climate’, ikrar ‘avowal (charter)’, konsekwén ‘consistent’, likwdasi ‘liquidation’, sekrup ‘screw’. I have encountered instances of pronunciation of some of these words with orthographic k as syllable final, but I am not sure whether such treatment is not dialectal.

For preconsonantal syllable-final written k in a syllable with initial glottal stop, dissimilation to initial /ʔ/ seems to be operative, so that the pronunciation is always with [k], e.g. aksi ‘show off, action’, aktif ‘active’, ékspor ‘export’, ékstrim ‘extreme’, etc., as well as the variants with syllable-final pronunciation of written k of iklim, ikrar (vide supra). The word ichtikad ‘predisposition’ with [k] for historical [ʔ], has the doublet itikad with zero as alternant of [k] in modern MI.

When the syllable does not have initial /ʔ/, syllable-final preconsonantal written k in many words is pronounced [k] or [q] (the latter less often), whereas occasional pronunciation with [ʔ] is presumably dialectal, e.g. bakti ‘devoted service’, bukti ‘proof (evidence)’, doktrin ‘doctrine’, luksus ‘luxury’, prakték ‘practice’, séksi ‘section’, taksi ‘taxi’, taktitik ‘tactics’, têkstitil ‘textile’, etc. The tendency seems to be towards the pronunciation with [k]. In prakték and taktitik, written k in absolute final position is always pronounced [k], never [q] or [ʔ] in MI.

In other words, preconsonantal written k at the end of a syllable not beginning with /ʔ/ is pronounced either [k, q] or [ʔ], e.g. in dakwa ‘charge (accuse)’, maklum ‘know (understand)’, maksud ‘intention, meaning’, nikmat ‘enjoy’, rakyat ‘the people’, saksi ‘witness’, takluk ‘yield (submit, give up)’. Most reflect historical or etymological /ʔ/, but maksud and saksi reflect original /k/, so that it is possible that following /s/ has somehow facilitated the shift to [ʔ]. But the pronunciation of maksud and saksi with [k] remains more frequent than such a pronunciation of the other cited words.

Words with syllable-final preconsonantal [ʔq] which do not have a [k] doublet at all are rare in MI, e.g. bakmi ‘noodles (boiled or fried with various additional ingredients)’, embakyu ‘polite address to a slightly older lady’, the latter a relatively recent loan from Javanese.
For these words the tendency in MI seems to be towards pronunciation with [ʔ].

To summarise the situation for glottal stop in MI, the main difficulties arise with respect to absolute final and internal syllable-final positions, where the opposition of /ʔ/ vs. /k/ is not quite clear-cut due to the possibility of realising both as [q]. But there is a tendency towards the opposition of [k] vs. [ʔq]. Nevertheless, the currently observed situation compels us, I believe, to distinguish at least two phonemes, i.e. /ʔ/ and /k/. Further investigation on this point is certainly still necessary.

As for the intervocalic and postconsonantal positions, Ogloblin's (Alieva et al. 1972) remark that the glottal stop serves as a marker of morpheme juncture (before an orthographic vowel) is only partially confirmed. No glottal stop appears either after the N-morphophoneme of prefixes or before an and i suffixes (except between like vowels, when the glottal stop is not of phoneme status). The behaviour of the suffixes compels us to posit opposition of glottal stop to 'vocalic attack' on the morphophonological level. Morphophonological 'vocalic attack', i.e. the absence of a 'consonantal' morphophoneme at the beginning of a morpheme, occurs only in the two mentioned suffixes.

Finally, glottal stop does not occur at root juncture in inherited derivatives and composites (vide supra).

The loaned vowels

In most grammars and phonologies of Indonesian, the vowel system is described as comprising six vowels, i.e. /i/, /e/, /a/, /a/, /u/, and /o/. The vowels [i], [e], and [o], when not disregarded altogether (cf. Zubkova 1966), are treated as variants of the original Malay vowel phonemes /i/, /e/, and /o/ (Alieva et al. 1972) or as allophones (cf. Kähler 1965). But the situation with regard to these vowels in modern MI seems to me to call for a review of these opinions. In the discussion following below I will provisionally accord all three of these vowels phoneme status.

The pronunciation of written é (in dictionaries) as /e/ in a large number of words has become so stable, that its pronunciation in these words as /e/ must be regarded as dialectal, or in some instances as doublet. Such words as dévaluasi 'devaluation', ékonomi 'economy', Indonésia 'Indonesia', téori 'theory' are always pronounced in MI with /e/, never with /e/. On the other hand, the words ékspor 'export', lés 'private lessons', séntimén 'adverse sentiment' are always pronounced
with /e/. The /e/ phoneme also appears in words of non-European origin, e.g. tapé ‘fermented rice or tapioca’, saté ‘meatpieces roasted on a skewer’, both loanwords from Javanese which have replaced Malay tapai and satai in MI. The opposition of /e/ vs. /e/ in MI is substantiated by the following minimal pairs:

/klem̩klaim/ ‘claim’ vs. /klem/ ‘terminal (electric)’;
/per̩pïr/ ‘pear, light bulb’ vs. /per/ ‘spring (elastic)’.

Also the pronunciation of written o as /o/ instead of as /ɔ/ has become stable in many MI words, e.g. atom ‘atom’, Indonésia ‘Indonesia’, logis ‘logical’, téori ‘theory’. On the other hand, dokter ‘doctor’, koléksi ‘collection’, ton ‘ton’ are always pronounced with /ɔ/. Some instances of /ɔ/ in words of non-European origin are toko ‘shop’, soto ‘a soup-like dish’, pano ‘a fungous skin-disease’, the latter a loanword from Javanese which has replaced Malay panau in MI. The opposition of /o/ vs. /ɔ/ is certified by the following minimal pair:

/kopi/ ‘copy (e.g. xerographic)’ vs. /kɔpi/ ‘coffee’.

The assumption that [e] and [o] are the respective open syllable allophones of /e/ and /ɔ/ does not hold for MI, where the latter also occur as [ɛ] and [ɔ] in open syllables, e.g. térong ‘egg-plant’, kuno ‘ancient’. Most words with /e/ and /ɔ/ in MI remain understandable when pronounced with /e/ for /e/ or /ɔ/ for /ɔ/, but such a pronunciation will as a rule be taken as dialectal. Thus, there exist non-MI doublets of pirc̩pér ‘pear, light bulb’ and kopi ‘copy’ with /e/ and /ɔ/ respectively, but not for klim̩klaim ‘claim’. The opposite replacement of /e/ by /e/ or /ɔ/ by /ɔ/ is not always possible. For instance, one will not be understood if one pronounces lès ‘private lessons’ as */les/ or ton ‘ton’ as */ton/. But in many words, such replacement is possible and the result will merely be regarded as dialectal.22

The vowels /e/ and /ɔ/ seldom occur in the same word as /e/ and /ɔ/, but I do not think this is caused by vowel harmony. There are in any case several exceptions, e.g. réorganisasi /reorganisasi/ ‘reorganisation’, dosén /dɔsen/ ‘lecturer’, komposisi /komposisi/ ‘composition (constitution)’.

Of the three borrowed vowels, /i/ has thus far probably received the least attention from investigators. Examples of /i/ in loanwords in MI are apotik /apotik/ ‘drugstore’, Indonésia /indonesya/ ‘Indonesia’, idiil /idiil/ ‘ideal’; cf. idéntik /idéntik/ ‘identical’, vêntil /fentil/ ‘valve’. The /i/ phoneme also occurs in MI words of non-European origin, e.g. air /aïr/ ‘water’, adik /adik/ ‘younger sibling’. The following minimal pairs certify the opposition of /i/ vs. /i/ in MI:
The opposition of /i/ vs. /e/ is more problematic. The /i/ phoneme does not occur in open syllables, while /e/ only rarely appears in syllables with final stop; but both occur in non-open syllables not ending in a stop. For many words there is instability in the pronunciation of either [i] or [e] in closed syllables, whereby also intermediate articulations can be heard, e.g. kongkrit [kɔŋkrɪt̚kɔŋkrɛt] 'concrete (definite)', problim [probante̝analyse̝] 'problem', tip [tɛp̚tep̚] 'tape (recorder)'. I have not yet been able to ascertain to what degree such variation reflects dialectal differences.

This [i≅e] alternation in MI is attested only for closed syllables of loanwords 23 which had [e] (or [ey]) in the donor language, normally for those which originally had [i], 24 e.g. likhting [lixtɪŋlixtɪŋ] 'class (students of same study year)', lipstik [lipstɪk] 'lipstick' (the latter sporadically also with anaptyctic [ɔ] in the consonant cluster). The sound shift in closed syllables in MI is thus always [e] > [i], never vice versa.

The impression is that the development in MI is leading to a situation where [i] would be the closed-syllable allophone of /e/, or [e] the open-syllable allophone of /i/. Considering that the present orthography prescribes writing [i] with the same letter as /i/ while [e] is written with the letter for /e/, this will have far-reaching implications, if at least a semblance of an orthography based on phonemic principles is to be upheld. As it is, the inconsistency of the present orthography has probably played an important role in keeping this problem so far obscure, so that [e] and [i] have been considered as being allophones of /e/ and /i/ respectively, but never as possible allophones of a single third phoneme.

In summary, the situation regarding the loaned vowels in MI seems to indicate that at least two, if not three additional phonemes should be added to the six already established Malay phonemes of the MI vowel system. The dilemma of whether two or three should be added depends upon whether [i] and [e] eventually prove to represent two phonemes — i.e. /i/ and /e/ — or to be allophones of a single phoneme — either /i/ or /e/. It is beyond any doubt, to my mind, that MI has the phoneme /ɔ/ which is opposed to /ɔ/, and at least one more phoneme — either /i/ or /e/ — which is opposed to /e/ as well as to /i/.
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NOTES

1. A study of the phonology of English as spoken in the United States by Anglosaxons alone would, without dialectal screening, establish doublets with /ɔː/ (e.g. *not*), /yʊː/ (e.g. *suit*), /ɪə/ (e.g. *been*), etc. If all the other dialects were also included, the English dictionary would be sure to consist exclusively of doublets and variants.

2. The most conspicuous phonological differences between NSI and MI, not involving problems discussed in this article, are: 1) MI has greater assimilation of syllabic vowel to following semivowel in the diphthongs *ai* (NSI /ay/, MI /ey/) and *au* (NSI /aw/, MI /ow/); 2) the tendency towards syllable reduction by *pepet*-deletion (e.g. */dolapan > dlapan/ 'eight') and desyllabification of prevocalic high vowels (e.g. */siapa > syapa/ 'who') is stronger in MI; 3) the stress is usually on the penultimate in NSI, on the ultimate in MI; 4) suppression of word stress by phrase intonation is more pronounced in MI.

3. Some speakers of Indonesian prefer /p/ for /t/ in many words commonly pronounced with /t/ in MI. The speech of a student from Bandung I interviewed, who spoke Indonesian as his first language and couldn’t speak Sundanese, nearly always had /p/ for MI /t/, as well as /s/ for /c/, /o/ for /o/, even in words like *fakultas, teori*, which he pronounced /pakultas, teori/?. But he invariably postglottalised final vowels and spoke with a typically Sundanese sentence intonation. I classify such cases as dialect.

4. The doublet modes *fihak* (for 5 b) and *silaf* (11 b) are presumably hyperarabisms, the respective /p/-modes being the original ones.

5. The latter has a homograph, *pak* ‘father’, which is usually pronounced /paʔ/ in MI.

6. The /x/-doublets of *ahli* (4 a) and *rahmat* (4 c) are presumably hyperarabisms.

7. There is another reason for occasional ‘Dutch’ or ‘Arabic’ pronunciations of loanwords from Dutch or Arabic respectively. Many speakers do not distinguish between a loanword and a foreign word and proceed on the assumption that the ‘correct’ pronunciation is that in the donor language. Depending upon how well the speaker is familiarised with that language, this leads to variable results.

8. For initial position, *zeni* (1 b) is presumably also the only instance. It is interesting that *jeni* /jani/ ‘genius’ (also /jeniːgeniːɔnisi/) does not have a /z/-doublet in MI.

9. The term ‘palatal’ is often used not in the original sense of ‘articulated on the palate’, but in the sense of French *mouillé*. Both /s/ and /ʃ/ in Indonesian are palatal in the original sense of the word, whereas /s/ is much less *mouillé*.

10. The doublet *rusa* as Stokhof (1975) reports for *Rusia /rusiaːrusya/ ‘Russia’ (my symbolics) is unknown to me and is certainly not MI. But some words with /sy/ from etymological /sI/ which do not, or no longer have /si/-doublets in MI do have /ʃ/-doublets, e.g. *nasional /nasionalɔnaːsɔnal/ ‘national’, never * /nasional/.

11. A somewhat similar phenomenon can be observed for the other post-velar
phoneme /h/, which often alternates with glottal stop in initial position, e.g. hutang-sutang 'debt', and virtually drops out or is only weakly articulated between unlike vowels, e.g. lihat [liĥat-li yat] 'to see' ([h] represents weak [h]). It is possible that two laryngeal fricative phonemes must be posited for the latter position in MI.  

Cf. tahu [taห-τau] 'know' vs. tahu [tau] 'soya curds', or lihat (vide supra), but jihad [ji[at] 'sacred war (Islamic)'. Between like vowels, /h/ is not weakened.

12 Strictly speaking, morphemes do not in my opinion consist of phonemes, but of morphophonemes. It is thus not /məN/ + /pikir/ ↔ /məmikir/, but MEN + PIKIR ↔ /məmikir/. By speaking of the phonemes of a morpheme, I am taking a license with the sole purpose of avoiding confusing roundabout formulations. As the stricter morphophonemic presentation above shows, the nasal at the morpheme juncture in /məmikir/ is the phonemic reflex of a morphophoneme cluster, here NP, so that the phonological process at the morpheme juncture here should be regarded as fusion. But again to avoid complicated formulations in a study not specifically devoted to morphophonology, I will provisionally consider the initial voiceless stop of the root-morpheme (here /p/) to drop out after N which is reflected as a nasal homorganic of the dropped voiceless stop. The contrary treatment, whereby N is considered to drop out while the initial voiceless stop is 'nasalised', seems to me less appropriate in view of such doublets as menelopori-mempelopori 'to lead, to pioneer' (from pelepor). I will discuss this problem in greater detail in another paper.

13 In phonemic and phonetic transcriptions I will use the hyphen optionally to indicate syllable juncture.

14 This word has a monomorphemic homonym — beruang 'bear (animal)'.

15 It is stipulated that /bɔr-waŋ/ is a derivate of wang, a doublet of uang. Cf. also emas-emas 'gold' and the corresponding ber-derivatives.

16 The suffix i never appears after root-morphemes ending in /i/ (or in /y/).

17 A non-MI doublet of this word — jumaat [juma?at] — seems to have some frequency in other dialects.

18 Pronunciation with final [k] sometimes occurs before a word with initial /k/ when there is no intervening pause (e.g. in cases of enclisis or elliptic contraction). Cf. Pak Kasim [pɑʔkasım-paʔkasım-pakκasım] 'Daddy, Mr. Kasim'; tak 'kan [taʔkan-ʔaʔkan-ʔakkan], short for tak akan 'will not'.

19 A phoneme sequence of /ɔ/ and a following nasal or lateral sonant can always be realised in MI either as [ɔ] + sonant phone or as preglottalised (not injective) syllabic sonant, e.g. /ɔʔmas/ [ɔʔmas-ʔn̥as] 'gold', /ʔampat/ [ʔampat-ʔn̥pat] 'four'. The variant /ʔmas/ [ʔmas] is thus intermediate between [ʔn̥as] and [mas].

20 I remember having seen an article some years ago, I believe by L. G. Zubkova, which reported on the results of experimental observations on the glottal stop at morpheme juncture in Indonesian. Unfortunately, the notes I made at that time have gone astray, and I can neither cite the article nor recall the conclusions drawn. It is likely that my conclusions here repeat, at least in part, those arrived at in that article.

21 By 'root' I mean here the diachronic cognate of synchronic 'root-morpheme'. The tendency to have /e/ for MI /e/ (e.g. /meɾah/ instead of /meɾah/ 'red') is typical for ECJ. The opposite tendency to have /e/ and /o/ for MI /e/ and /o/ respectively is characteristic for speakers from the province of West Java.
Variants with [e] occur for non-loanwords as intermediate mode between [i~e] doublets, the [e]-mode usually being dialectal, e.g. air [ʔaɪr~ʔaer~ʔæxr] 'water', also [ʔaɪr] in phrase-intonationally subordinated positions, e.g. in air laut 'sea water', or in fast speech.

But [e] for [i] here occurs in ECJ, e.g. [lɛxtɕ].

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