COMPETING SOUND CHANGES:
EVIDENCE FROM KAM-TAI, MIAO-YAO and TIBETO-BURMAN

Matthew Y. Chen
University of California, San Diego

1. Background

One of the fundamental discoveries about language is the rule-governed nature of linguistic processes. In the euphoria of this discovery, Neogrammarians confidently proclaimed exception-less sound laws. Indeed, the perfect regularity of sound change made it possible to firmly establish genetic relations among languages and, in a broader sense, turned the study of language into a rigorous scientific discipline.

But, as any field worker quickly realizes, in real life languages simply do not follow this neat, pre-ordained Neogrammarian game plan. In the face of irregularities, Neogrammarians usually point to analogy and dialect mixture as two principal forces responsible for creating apparent rather than real exceptions to phonetic laws. When such explanations fail, one could usually finger some other minor culprits such as tabu, phonetic symbolism, functional load (e.g. homonym avoidance) etc.

All these putative sources of irregularity have one thing in common; namely they are extraneous to the mechanism of phonological change per se. For instance, analogy is a morphological tendency toward paradigmatic symmetry, while borrowing or dialect mixture is extra-systemic altogether. They do not therefore in any way weaken the concept of sound changes as inerobable, sweeping laws of nature.

However, there remained a nagging sense that at least in some instances, the usual explanations for exceptional sound corre-spondences are ad hoc and unconvincing. Perhaps the mechanism of sound change itself should leave room for possible exceptions.

Back in 1969, William S-Y. Wang <1> put forward the idea o
competing sound changes as a source of residue. He argued that
since sound changes do not happen overnight, but typically span
decades, perhaps centuries, it stands to reason that these
processes may overlap or intersect in time as pictured in (1):

(1)   time --->
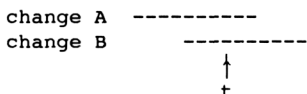
      change A   ----------
      change B   ----------
                        ↑
                        t

As the phonological changes work their way across the lexicon,
certain lexical items at point t in time are simultaneously
subject to either change A or change B. This indeterminacy can
account for irregularities or 'lexical diffusion', a phenomenon
that has been documented in too many instance and across too ma
languages to be regarded simply as minor disturbances stemming
from particularistic, extraneous factors.

Wang's seminal idea sparked quite a bit of controversy and
spawned a series of empirical studies, culminating in Wang
(1977).<2>

Looking back at the body of empirical data accumulated in
past two decades or so, it is fair to say that the majority of
supporting data only show the lexically gradual nature of sound
change, affecting one word (or one class of words) at a time. I
many cases, residues are the modern reflexes of aborted sound
changes or on-going sound changes arrested in mid-course. Wang'
original notion of competing sound changes overlapping in time
stands in need of further empirical substantiation.

Against this backdrop I wish to bring forth some evidence
principally from the Kam-Tai, Miao-Yao and Tibeto-Burman langua
to support the notion of competing, overlapping phonological
processes.<3>

1   William S-Y.Wang 1969. Competing changes as a cause o
     residue. Language 49.9-25.

2   William S-Y. Wang, ed. 1977. The lexicon in phonologi
     change. The Hague: Mouton. For subsequent conceptual
     elaborations and empirical studies, see Lien Chinfa a
     Shen Zhongwei.

3   The prevailing view among the Chinese specialists is
     that all these three language groups belong to the
     Sino-Tibetan family (see Wang, Fushi 1986. Miao-Yao y
     de xishu wenti chutan [Initial inquiries into the

2.   Kam-Tai

Kam-Tai and Miao-Yao languages characteristically split the original tonal categories A,B,C,D <4> into the yin (1,3,5,7) and the yang registers (2,4,6,8). Like their Sinitic counterparts, this split is conditioned by the voicing of the initial consonants. Not surprisingly, Tone Split interacts with Devoicing, widely attested in Kam-Tai. In most cases, the original voicing contrast is preserved in the tonal distinctions. This means that Tone Split must precede Devoicing, as seen in (1), taken from Lakkia. <5>

(1)   'aunt' (wife of mother's brother)
           bei C   Ancestral form
           bei 6   Tone Split
           pei 6   Devoicing

Interestingly enough, there are cases where tone split is conditioned not by the protoforms, but by the modern reflexes, as in (2).

(2)   'fire'
           bui A   Ancestral form
           pui A   Devoicing
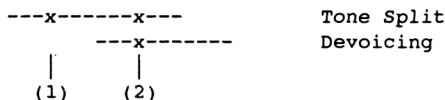   pui 1   Tone Split

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genetic classification of Miao-Yao]. Minzu Yuwen 1986,1,1-18; and Sun, Hongkai 1988. Yuyan shibie yu minzu
[Language identity and ethnicity]. Minzu Yuwen 1988,2, 9-17). On the other hand, Paul Benedict 1975. Austro-Thai language and culture. New Haven: HRAF Press, classed Miao-Yao, Kam-Tai as well as Austronesian under the Austro-Tai superstock. I leave this question open.

4   A,B,C,D represent the tonal categories reconstructed by Fang-kuei Li (1977. A Handbook of comparative Tai. University of Hawaii Press) and Kun Chang (1953. On the tone system of the Miao-Yao languages. Language 29. 373-8) for proto-Tai and proto-Miao-Yao respectively. They stand in regular correspondence to 'ping, shang, qu, ru' in the Sinitic languages.

5   Zhang, Junru. 1990. Yaozu Lajia yu yu Zhuangdong yuzu yuyan de bijiao [Comparison between Lakkia of the Yao people with the Kam-Tai languages]. Minzu Yuwen n.6,p.38-49.

There is evidence that both (1) and (2) once had a voiced onset, witness their cognates, e.g. [vai 6] 'aunt' in Maonan, [vêi 2] (ê = schwa) 'fire' in Lin-gao (Hainan), with a voiced [v] and a 'yang' tone (6 and 2).

The coexistence of examples like (1) and (2) represents a classic case of competing sound changes intersecting along the time dimension:

(3) time --->

```
    ---x------x---          Tone Split
          ---x-------        Devoicing
     |     |
    (1)   (2)
```

Case (1) undergoes Tone Split before the onset of Devoicing; case (2) undergoes Devoicing while Tone Split is still in effect.

The situation becomes even more interesting as we consider the converse of the picture. The Kam-Ti voiceless sonorants also undergo voicing. In the normal circumstances, the tonal distinction encodes the original voiced/voiceless contrast among the sonorants. This is the case in (4)

(4) (a)   (b)
     'hand'   'to climb'
     mie A   JO B   [J = voiceless j; O = open o]
     mie 2   JO 3   Tone Split
     --   jO 3   Voicing

Interestingly, there are also cases like (5)

(5) (a)   (b)
     Jau A   Wei B   [J,W = voiceless j,w]
     jau A   wei B   Voicing
     jau 2   wei 4   Tone Split

When we put the facts of (1,2) and (4,5) together, we get the picture in (6):

(6) time --->

```
       (4)    (5)
        |      |
          ---x-------          Voicing
    ---x------x---             Tone Split
          ---x-------          Devoicing
     |     |
    (1)   (2)
```
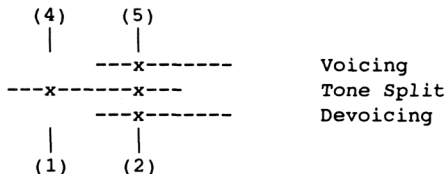
That is to say, for the most part, Tone Split occurred before
Voicing/Devoicing obliterated the original voicing contrast in the
ancestral forms of Lakkia. However, for a minority of cases (2,5),
Tone Split did not take hold before the neutralization of the
voicing distinction.

How significant is the residue resulting from the overlapping
sound changes? According to Zhang (1990, op.cit. p. 46), irregular
tonal correspondences account for 28.8% of his sample, of which
the bulk stems from the bidirectional mismatch between voicing and
the split between 1,3,5,7 and 2,4,6,8.

3.   Zhuang

Consider the tonal correspondences between two Zhuang
dialects, Wuming and Xialing, both spoken in Guangxi, illustrated
by (1): <6>, <7>

(1)   (a)   (b)   (c)
                 'shoulder'   'up, away'   'to give'

       Wuming   ?ba 5   hWn 3   hai 3
       Xialing   ma 6   hun 5   hai 6

              key: W = back unrounded vowel

(1) attests to two related changes with identical conditions:

(2) Shift A. 5 --> 6 / ?C, Ch
     Shift B. 3 --> 5 / ?C, Ch

That is, in syllables with preglottalized or aspirated consonants
(including ?- and h-), tones 3 and 5 become 5 and 6 respectively.
Needless to say, A must precede B in a 'counterfeeding' chronology

        6   Zhuang is considered a member of the Tai subbranch of
              the Kam-Tai stock. For matters related to the subclass-
              ification of the Kam-Tai family, see Li, Zhaoxiang 1985,
              'Zhuangdong yuzu' de yingwen mingcheng [The English
              terms for the Kam-Tai stock], Minzu Yuwen 1985, n.4,
              p.23; Sun 1988, op.cit. Cf. also M.Ruhlen 1976. A guide
              to the languages of the world. Stanford University.

        7   Data based on Zhang, Junru. 1986. Zhuang-Dong yuzu yuyin
              yanbian de quxiangxing, jieduanxi, jianbianxing.
              [Tendencies, periodization and gradualness of phonolog-
              ical evolution in Kam-Tai languages]. Minzu Yuwen
              1986,1,27-37.

-- otherwise tone 3 --> 5 --> 6. This relative chronology holds
for the regular cases, represented here by (1a,b). But there are
residual forms suggesting precisely a 'feeding' order B-A,
examplified by (1c). The temporally intersecting chain shifts can
be schematized as (3):

(3) time --->

```
    ---x----x--          Shift A: 5 --> 6
       --x----x---       Shift B: 3 --> 5
      |    |    |
     (1a)  (1c)  (1b)
```

Overlapping chain shifts are not confined to tones, but can
also occur with other types of phonological change. Consider the
following correspondences among three Zhuang languages. <8>

```
(4)  (a)         (b)          (c)
     'eye'       'think'      'vegetable'
     ta  1       si:ng 3      phlak 7      Wuming, Daleng
     ?da 1       tiang 3      sak   7      Lingao
```

(4) attests to a three-step consonantal shift:

```
(5)  Shift A:  t --> ?d
     Shift B:  s --> t
     Shift C:  CC --> s
```
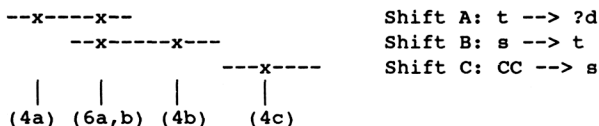
Key: CC = consonant clusters

Again, the chain shifts must have taken place in the order
prescribed in (5), otherwise all consonant clusters would wrongly
end up as preglottalized ?C: [phlak --> sak --> tak --> ?dak], and
so forth. While the relative chronology indicated in (5) is by and
large correct, residual forms strongly suggest that at least two
of the shifts must have overlapped in time. The crucial examples
from Lingao Zhuang are given in (6):

```
(6)  (a)          (b)
     'wash'       'span' (between two stretched arms)
     sak  8       som  1      Ancestral forms (as in Wuming Zhuang)
     tak  8       tom  1      Shift B: s --> t
     ?dak 8       ?dom 1      Shift A: t --> ?d
```

The coexistence of (4) and (6) suggests the chronological profile
with two overlapping steps in the chain shift schematized in (7):

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8   Data taken from Zhang 1986, op.cit, p.32f.

```
(7)  time --->

     --x----x--                    Shift A: t --> ?d
        --x-----x---               Shift B: s --> t
                    ---x----       Shift C: CC --> s
      |     |      |     |
     (4a)  (6a,b) (4b)   (4c)
```

There is no evidence for the overlap between Shifts B and C
in the limited corpus reported in Zhang (1986). It would not be
surprising if an expanded corpus would contain critical examples
showing the intersection of shifts B and C along the time dimens-
ion.

3.   Miao-Yao

    The Proto-Miao-Yao tonal system resembles that of Kam-Tai
(including Zhuang), with four tonal categories A,B,C,D, D being
associated with the checked syllables. In some Miao languages
sampled in (1), first the coda -k, then all other stop endings,
disappeared, giving rise to open syllables. As part of the change
from checked to open syllables, the 'entering' tone D (7,8) was
replaced by the 'qu' tone C (5,6). The essential facts are
summarized in the following sound correspondences.<9>

```
(1)                    CV-p,t  7,8        CV-k    7,8
       --------------------------------------------------
       Dapingjiang     CV(:)C  7,8        CV(?)   7,8
       Dananshan       CV      7,8        CV      5,6
       Meizhu          CV      7,8        CV      5,6

          key: V: = long V
               -? = glottal stop
```

Based on these facts, we can discern three chronologically ordered
processes at work: <10>

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9   Based on Chen, Qiguang 1989. Miaoyao yuzu de jizhong
      diaobian. [Some tonal changes in Miao-Yao languages].
      Minzu Yuwen n.5, p.8-14.

10   To prevent a wholesale merger of all open syllables
      (including tones A,B) with tone C, Q-G.Chen speculates
      that CV-k first becomes CV: by compensatory lengthening,
      then loses the length contrast. It is this intermediate
      CV: with a long vowel that conditions Tone Split.
      Subsequently the long/short vowel contrast undergoes
      neutralization, consistent with the fact that vowel

```
(2)  K-Drop        -k    -->  0
     Tone Split    7,8   -->  5,6  in open syllables
     C-Drop        -p,t  -->  0
```

This relative chronology can be established on the basis of
Dananshan and Meizhu. Take Dananshan for illustration:

```
(3)  (a)         (b)         (c)
     'bean'      'wing'      'to drill'
     top 8       da:t 7      tsu(k) 8      Ancestral form ( as in
     ----------------------------------                 Dapingjiang)
     --          --          tsu  8        K-Drop
     --          --          tsu  6        Tone Split
     to  8       da:  7      --            C-Drop
     tou 8       ti   7      tsou 6        other rules  ==>  Danan-
                                                            shan
```

The -p,t,k endings in the protoforms are based on their reflexes,
for instance, in Dapingjiang. Even though all checked syllables
have become open, only the open syllables from CV-k exhibit the
effect of Tone Split. This means that by the time CV-p,t undergo
C-Drop to become open syllables, Tone Split had faded out of the
picture.

    This suggests a neat picture of three sound changes taking
place in three discrete, non-overlapping, successive segments of
time. However, when we look more closely, the facts suggest
otherwise. Q-G.Chen points out that not all syllables underwent
K-Drop at the same time. Those which underwent K-Drop early were
subject to Tone Split, while those which lost the -k ending at a
later stage did not replace tone D with tone C. In other words,
we have a situation like (4):

```
(4)      (a)              (b)
         CV-k  D          CV-k  D
         --------------------------
         CV    D          --           K-Drop
         CV    C          --           Tone Split
         --               CV    D      K-Drop
```

(4a) represents the head-starters, (4b) the laggards. This
suggests a picture where K-Drop was a lexically gradual process
that overlapped in time with Tone Split. In other words:

---

length contrast holds only in closed syllables in most
Miao-Yao and Kam-Tai languages.

(5)   time --->

```
---x----------x------       K-Drop
---x-------                 Tone Split
   |          |
  (4a)       (4b)
```

Case (a) is subject to both K-Drop and Tone Split, as illustrated
by [tsou 6] 'to drill' in (3); but case (b) sheds its -k ending
after Tone Split has ceased to operate in the language. Unfortun-
ately, Q-G. Chen (1989) did not give specific examples of case
(4b). One possible example is (6) in Dananshan

(6)   'daughter'
           ntshai(-k) 7   Ancestral form (?)
           --   K-Drop
           --   Tone Split
           ntshai 7   K-Drop

Tone 7 indicates that it used to be a checked syllable; but the
fact that it corresponds to an open syllable [sie 7] in Daping-
jiang suggests that the coda was -k (since -p,t are normally
preserved in Dnanshan and Meizhu).

    Equally remarkable are the facts observed in the related Mian
language (of the Yao branch) spoken in Xingan, Guangxi. We had
noted that Tone Split precedes C-Drop. However, there are sporadic
items like (7) that must have undergone C-Drop first, then Tone
Shift:

(7)   'nose'
           bjiut 8   (Ancestral form, attested in bjiut-khot
           --   K-Drop   'nostril')
           bjiu 8   C-Drop
           bjiu 6   Tone Split

    The composite picture we get is this:

(8) time --->

```
         (3c)         (6)
           |           |
------x----------x---           K-Drop
------x-----x--                 Tone Split
          ---x-------x-----     C-Drop
             |       |
            (7)     (3a,b)
```

(3c) undergoes both K-Drop and Tone Split, as expected. (6)
represents a late instance of K-Drop, too late in fact to come
under the influence of Tone Split. (3a,b) are the rule, in that
most CV-p,t words turned into open syllables after Tone Split had

dropped out of the picture. (7) instantiates a sporadic case of early C-Drop before Tone Split ceased to operate.

5.   Tibeto-Burman

The examples gleaned from Kam-Tai (including Zhuang) and Miao-Yao attest to intersecting, competing sound changes, resulting in irregular modern reflexes. Looking at the matter from a synchronic perspective, one might expect an analogous situation. The synchronic counterpart of relative chronology is, of course, rule order. In synchronic descriptions, when an input is potentially subject to two or more rules, this indeterminacy is normally resolved by means of rule order, instrinsic or extrinsic. We have a synchronic analog of competing sound changes when the potential indeterminacy is left unresolved, so that the same underlying representation surfaces in different sandhi forms depending on which of several applicable rules prevails. I have documented just such a case in the Wu dialect of Chinese spoken on the Chongming island.<11> Here is a minimal pair illustrating the point:

(1)   a.   yun-dong   'exercise'
           13-31   Base tone
           o-ML   Tone-Deletion
           o-HM   Register-Raising
           o-MH   Other

      b.   liao-yang   'convalenscence'
           13-31   Base tone
           35-53   Register-Raising
           35-o   Tone-Deletion

The conditions under which Tone-Deletion applies are quite complex. To oversimplify the matter somewhat, falling, low register, and initial tones are more prone to deletion. What is crucial here is that, corresponding to an identical string of base tones /13-31/, there are two different sandhi forms: [o-MH] and [MH-o]: the former is obtained by applying first Tone-Deletion, then Register-Raising, the latter by reversing the order of the two sandhi rules.

With the Chongming examples in mind, let us look at the synchronic picture of tone sandhi in the Pola dialect of Jingpo, a

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11   See M.Chen 1991. Competing strategies and the harmonic
      principle. ms. UCSD.

Tibeto-Burman language.<12> In (2) the leftmost column indicates
the base tone of the first syllable, the top row that of the
second syllable. Sandhi forms are given inside the box.

```
(2)        |   55        35        51        31
    -------+------------------------------------------
    55     |  $-31      $-31      --        $-51
           |  31-$      31-35     --        $-55
    35     |  55-$      $-31      --        $-51
           |  31-$                --        31-51
           |                                31-55
    51     |  --        --        --        --
    31     |  --        --        --        $-51
           |                                $-55
```

                Key: $ = base tone, unchanged
                     '--' = no applicable sandhi rule

What is remarkable about Pola Jingpo is the multiple sandhi forms
corresponding to virtually every identical two-tone combination.
Take the /55-31/ sequence. Two sandhi forms are possible:

(3)   a.   'bucket'   b.   'mute'
            Gêi thung   nOt tsOt
            55-31   55-31
            55-51   55-55

            G = voiced velar fricative
            ê, O = schwa, open [o]

There is no discernible condition of a phonological or morpho-
syntactic nature that determines which rule prevails to produce
which of the two sandhi forms.

    The picture is virtually the same in the closely related
Jingpo dialects of Achang <13> and Tongbiguan,<14> both spoken in
the Jingpo autonomous counties of Yunnan. Thus, for the same
underlying sequence of /55-31/ we have the following sandhi forms
in Tongbiguan:

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    12   From Dai, Qingxia, Fu Ailan & Liu Juhuang 1983. Jingpo
          zu Pola hua gaikuang [A sketch of the Pola language of
          the Jingpo people]. MZYW 1983, n.6, p.56-71

    13   Cf. Dai, Qingxia & Cui, Zhichao. 1983. Achang yu
          gaikuang. [A linguistic sketch of Achang]. MZYW 3,69-80.

    14   My source here is Qu, Aitang 1985. Han-zang yuyan
          diaozhi yanjiu de jiazhi he fangfa [The significance and
          method of investigating the tonal values of Sino-Tibetan
          languages]. Minzu Yuwen 1985, n.6, p.1-14.

```
(4)   a.   31-31      lut jom          'roll cigarette'
      b.   55-51      wa khZam         'bat, stick'
      c.   31-55      wa pjap          'bamboo grove'

      key: Z = palato-alveolar [z]
```

   Although the sandhi rules of Jingpo are not yet well under-
stood, these facts seem to point to different assimilatory forces
at work, as Qu (1985: 10) suggests: regressive in (4a), progres-
sive in (4b), and bidirectional in (4c).

6.   Concluding Remarks

   The facts drawn mainly on three language groups, Kam-tai,
Miao-Yao and Tibeto-Burman, all spoken within a couple of hundred
miles radius from the site of this Pan-Asian Linguistics Sympos-
ium, lend support to the notion of temporally overlapping sound
changes and their synchronic analogs.