Morphological Causative Formation in Shangzhai Horpa

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In the Shangzhai dialect of Horpa, an under-studied Tibeto-Burman language of northwestern Sichuan, pervasive phonological alternations occur in the morphological causative formation. This paper applies the study of this phenomenon to the analysis of the historical development of alternative modes of encoding causativity in Horpa and two related rGyalrongic languages: rGyalrong (proper) and Lavrun. Despite bewildering surface variations, Shangzhai Horpa can be analyzed as having a single consistently non-syllabic causative prefix $s$, which exerts pressure on the already elaborate onset system and triggers multiple phonological adjustments. The excessive allomorphy and constraints exhaust the morphological means of causation coding, leading to the rise of the periphrastic causative construction as the primary causativizing strategy in the language. By contrast, the dominant mode of expressing causativity still rests in the realm of derivational morphology in the other rGyalrongic languages where the old causative prefix *sæ- remains syllabic.

Key words: Shangzhai, Horpa, rGyalrong, Lavrun, rGyalrongic, Tibeto-Burman, morphosyntax, causative constructions

* I am indebted to Larry Hyman and Yuchau E. Hsiao for providing extremely helpful comments. The Shangzhai materials cited herein are from my fieldwork with Zhōngchéng (xtsponlo), a native of freelancer Hamlet, Púxi Village of Púxi Township in Rāngtáng County. I am indebted to her for her friendship, good cheer, and thorough cooperation.
1. Introduction

Shangzhai is a major dialect of Horpa, an under-studied rGyalrongic language of northwestern Sichuan. Horpa, together with the closely related neighboring rGyalrong and Lavrung, constitute a distinct rGyalrongic subgroup in Tibeto-Burman, as I proposed earlier using evidence from shared idiosyncrasies in inflectional morphology (J. Sun 2000a; 2000b). The Shangzhai dialect of Horpa (hereafter Shangzhai) is spoken in Shifu, Shangzhai, Zongke, and Puxi townships along a section of the Dukê River in southwestern Rângtâng County, Aba Prefecture. My earlier work on this language (J. Sun 2000b), being of a primarily comparative nature, provides no more than a glimpse into its intricate phonological and morphological structures. The present paper continues to explore an area of striking complexity in Shangzhai verbal morphology, namely phonologically conditioned allomorphy associated with the morphological causative.

After providing a brief survey of Shangzhai causativizing processes (§2), I proceed to examine in detail the formation of the morphological causative, a major causativization device in this language. The diverse surface causative verb forms are shown to derive from phonological interactions between the segmental causative morpheme and the initial segmental makeup of the input verb (§3). The limitations of monoclausal, morphological causativization and its remedial syntactic alternative are then discussed (§4-§5). The next section (§6) provides a comparative perspective with relevant data from causative systems in two other rGyalrongic languages rGyalrong.
and Lavrungr, in which cognate syllabic prefixal causativizers still predominate to the exclusion of the analytic means of causativization. A summary of the major findings wraps up this study (§7).

2. Shangzhai causative constructions

A causative construction is a valency-increasing operation that augments the basic clause by introducing an additional agent argument (i.e. a causer) into it (cf. Dixon 2000: 30). In Shangzhai, causativization is achieved via a range of devices: lexical, morphological, as well as analytic (periphrastic). A synopsis of the first two causativizing types, the unproductive lexical causatives and the semi-productive morphological causative construction via prefixation, will be given in this section. Shangzhai also possesses a dominant analytic causative involving the independent causative verb rzwp ‘make, do’. For expository convenience, presentation of this second mode of productive causativization will be postponed until toward the end of this paper.

2.1 Lexical causatives

Following Shibatani 1976 and Payne 1997, the term ‘lexical causative’ will be used here to denote cases where causative meaning is embodied holistically in the lexical form, rather than expressed via applying a productive morphological operation.

As in rGyalrongic languages generally (J. Sun 2000a: §2.3; 2000b passim), transitivity receives unusual salience in Shangzhai verbal morphology; verbs have rigid transitivity values and ‘labile verbs’ of the S (only intransitive argument) = P (least agentive transitive argument) type are not permitted. In the absence of lexical causatives identical in form to the non-causative ones, we are left with a small number of fossilized lexical intransitive-causative pairs, which are of either the suppletive type (e.g. ṣḥ[n]‘kill’ vs. ș[כ] ‘die’; ṣfb[n] ‘set fire to’ vs. nbger ‘burn; to be aflame’), or a type characterized by unproductive onset voicing alternation, whereby the intransitive verb

\[3\] Lavrungr (in Chinese Lāwùróng) is a newly recognized distinct rGyalrongic language (J. Sun 2000a; 2000b; Huang Bufan 2003). We have discovered three mutually unintelligible dialects of Lavrungr: Guanyinqiao, Yélóng, and Pùxi. The variety of Guanyinqiao dialect represented here is that of Mù’érzōng. My consultant Ms. Rūbī (zopi?) comes from spo? Village in Mù’érzōng Township of Mâ’érkāng County.
contains a voiced stop-affricate onset and the causative counterpart contains a
voiceless (either plain or aspirated) one.4

(1) **Intransitive**

<table>
<thead>
<tr>
<th>Intransitive</th>
<th>Causative</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>bra</em> 'be startled'</td>
<td><em>pra</em> 'startle'</td>
</tr>
<tr>
<td><em>bódev</em> 'be smashed'</td>
<td><em>pótev</em> 'smash sth'</td>
</tr>
<tr>
<td><em>gá</em> 'snap'</td>
<td><em>ká</em> 'cause to snap'</td>
</tr>
<tr>
<td><em>d3vá</em> 'melt'</td>
<td><em>t3vá</em> 'cause to melt'</td>
</tr>
</tbody>
</table>

### 2.2 Morphological causative

In certain languages (e.g., Turkish and Hungarian), transitive and intransitive
verbs do not undergo the same causative morphology; in some other languages
morphological causativization is inaccessible to transitive verbs. The rGyalrongic
languages are generally not bound by such transitivity-related restrictions. For most
Shangzhai verbs a corresponding morphologically marked causative5 is readily
available:

(2) **Non-Causative**

<table>
<thead>
<tr>
<th>Non-Causative</th>
<th>Causative</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>poy</em> 'be dense'</td>
<td><em>spoy</em> 'cause to be dense'</td>
</tr>
<tr>
<td><em>lgn</em> 'get; acquire'</td>
<td><em>zlg</em> 'cause to get'</td>
</tr>
<tr>
<td><em>rkhy</em> 'be cold'</td>
<td><em>skhy</em> 'cause to be cold'</td>
</tr>
<tr>
<td><em>nrg</em> 'wait'</td>
<td><em>zg</em> 'cause to wait'</td>
</tr>
<tr>
<td><em>tfá</em> 'wear (a hat)'</td>
<td><em>ftfá</em> 'cause to wear (a hat)'</td>
</tr>
<tr>
<td><em>39</em> 'accuse'</td>
<td><em>k39</em> 'cause to accuse'</td>
</tr>
<tr>
<td><em>yma</em> 'blow'</td>
<td><em>yzma</em> 'cause to blow'</td>
</tr>
<tr>
<td><em>slboy</em> 'explode'</td>
<td><em>szboy</em> 'cause to explode'</td>
</tr>
</tbody>
</table>

---

4 Remnants of such simplex-causative pairs exist in many other Tibeto-Burman languages, see for example Matisoff 1976: §1.2.3.

5 Shangzhai also presents morphologically basic causatives from which the corresponding
intransitives are derived by means of the detransitivizing prefix *x*-, with a voiced positional
variant *x*- occurring before voiced onsets (J. Sun, forthcoming §3):

<table>
<thead>
<tr>
<th>Causative</th>
<th>Derived Intransitive</th>
</tr>
</thead>
</table>
| *ltu* 'break (sth stiff)' | *

| *xltu* 'become broken (as of sth stiff)' |
| *lipá* 'cut open' | *
| *kipá* 'crack open' |
| *bu* 'assemble [TR]' | *
| *sbd* 'become assembled' |
| *v3jer* 'mix [TR]' | *
| *sv3jer* 'become mixed' |
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fsam 'close (mouth)'  
fitsam 'cause to close (mouth)'

nyzav 'rub (to soften hide)'  
yfzdav 'cause to rub (to soften hide)'

mt$? 'be diligent'  
nits$? 'cause to be diligent'

With the striking formal diversity displayed by the causative forms in (2), it is not immediately apparent how the causative forms are properly derived. In fact, it is not even clear that the attested variation all stems from a single morphological operation, as some of the causative forms seem to involve a prefix (e.g. ‘be dense’, ‘acquire’), others show an infix (e.g. ‘blow’, ‘explode’) or even further stem modification (e.g. ‘close (mouth)’, ‘rub (to soften hide)’). Furthermore, certain verbs (e.g. s he ‘die’, dyv ‘melt’) do not even possess a well-formed morphological causative. All these phenomena require explanation.

Despite the intricate surface variations, however, it seems possible to reduce the observed allomorphy to a single underlying causativizing prefix. In what follows, I will proceed to uncover in a step-by-step fashion the phonological processes and constraints that work together to yield the observed output forms.

3. Phonology of the causative prefix s-

Verbs beginning with vowels should give the best clue to the underlying identity of the causative morpheme, taken here to be a prefix. Unfortunately, verbs in that phonological shape do not appear to exist. I will start instead from the following set, representing a straightforward phonological environment with simple voiceless consonantal onsets:

(3) Non-Causative  

k$\cdot \cdot$ 'cut; to hew'  
koy 'be bad; be vicious'  

Causative  

s-k$\cdot \cdot$ 'cause to cut'  
s-koy 'cause to be bad'

We can assume that the underlying morphological causative is a voiceless dental spirant s-, on the basis of the data in (3). We can further assume that the diverse causative allomorphs are the workings of a number of phonological processes, triggered by the phonotactic requirements of the language when the causative prefix is attached to the verb stem.
3.1 Voicing assimilation

The first phonological process to note is voicing assimilation, whereby the causative prefix s- (or the derivatives thereof, see below) becomes voiced when the input verb begins with a voiced initial:

<table>
<thead>
<tr>
<th>Non-Causative</th>
<th>Causative</th>
</tr>
</thead>
<tbody>
<tr>
<td>nə ‘be burning; burn’</td>
<td>z-nə ‘cause to burn’</td>
</tr>
<tr>
<td>rə ‘have’</td>
<td>z-rə ‘cause to have’</td>
</tr>
<tr>
<td>jə ‘come to an end’</td>
<td>z-jə ‘cause to come to an end’</td>
</tr>
<tr>
<td>nə ‘be idle’</td>
<td>z-nə ‘cause to be idle’</td>
</tr>
</tbody>
</table>

Voicing state of the causative prefix sometimes conveys a semantic contrast in terms of direct (s-) versus indirect (z-) causation when the initial is a sonorant, e.g. s-nə ‘kindle’ versus z-nə ‘cause to burn’.

3.2 Lateralization (coronal dissimilation)

A more surprising type of phonological adjustment is found when the initial consonant of the verb, like the causative prefix s-, happens to be a coronal (dental, palato-alveolar, retroflexed) spirant or affricate (i.e. stop with spirant release). This is where dissimilation of place of articulation must intervene, turning the causative prefix into a lateral spirant:

<table>
<thead>
<tr>
<th>Non-Causative</th>
<th>Causative</th>
</tr>
</thead>
<tbody>
<tr>
<td>tʃə ‘be fat’</td>
<td>ʃ-tʃə ‘cause to be fat’</td>
</tr>
<tr>
<td>tʃə ‘be narrow’</td>
<td>ʃ-tʃə ‘cause to be narrow’</td>
</tr>
</tbody>
</table>

Voicing assimilation applies here as well, resulting in a voiced lateral spirant ʃ-:

<table>
<thead>
<tr>
<th>Non-Causative</th>
<th>Causative</th>
</tr>
</thead>
<tbody>
<tr>
<td>ʃə ‘eat’</td>
<td>ʃ-ʃə ‘cause to eat’</td>
</tr>
<tr>
<td>ʃə ‘be long’</td>
<td>ʃ-ʃə ‘cause to be long’</td>
</tr>
</tbody>
</table>
3.3 Affrication

A coronal spirant onset undergoes further dissimilation into a corresponding affricate (note that voicing and aspiration of the input spirant is preserved in the output affricate):

(7) Non-Causative                                Causative
    sháma 'be new'                          t-tshtáma 'cause to be new'
    fuyr 'subside'                         t-tfuyr 'cause to subside'
    zé 'be tender'                          _IPVé 'cause to be tender'
    3é 'skin; to flay'                     _IPVé 'cause to skin'

The foregoing sandhi processes, identified through observing the impact of the causative prefix on simplex onsets, must be augmented by additional phonological adjustments brought into play when causative morphology applies to verbs with complex onsets.

3.4 Cluster simplification

Shangzhai phonology is remarkably partial to bulky syllable onsets. A good many core vocabulary items in the language contain three-member cluster initials, as in:

(8) KZji 'charcoal'
    fIta 'plant ash'
    vId2é 'nail (body part)'
    rtsvéy 'flail'

Verbs are prone to even greater segmental complexity. Verbs, enriched by derivational morphology, may display onset clusters containing up to four consonants. This is exemplified by the following verbs, which carry the 'spontaneous' prefix n- or the detransitivizing prefix x:/:

(9) Ild2véy 'bud; burgeon'
    vIr2d2é 'sink'
    nscvi 'be locked'
    nybjo 'fly'
The spontaneous marker \( n- \) denotes self-generated events occurring without external cause. The prefix probably goes back to a Proto-Tibeto-Burman intransitivizing/stativizing prefix \( *N- \) (Matisoff 1976, footnote 6). It cannot coexist with the causative prefix \( s- \), as they are semantically contradictory. Thus, for instance, the causative form of \( nybo \) ‘fly (by itself)’ is \( yzbjo \) ‘cause to fly’, from underlying \( s-ybjo \). On the other hand, verbs carrying the resultative detransitivizer \( \chi- \sim k- \) are completely compatible with causative morphology. The data in (10) provide instructive examples:

(10) Non-Causative Causative
\begin{align*}
\text{\( lph\~q \)} & \quad \text{‘cut open’} & \quad \text{\( s-p\~h\~q \)} & \quad \text{‘cause to cut open’} \\
\text{\( \chi lph\~q \)} & \quad \text{‘be cut open; crack open’} & \quad \text{\( \chi-s-p\~h\~q \)} & \quad \text{‘cause to crack open’}
\end{align*}

However, a fifth slot in the syllable onset would be intolerable even for Shangzhai. In fact, many types of consonant clusters are abhorred by Shangzhai phonotactics, and excessive or disfavored complex initials produced by derivational morphology are pruned away through phonological reduction. Specifically, if the cluster onset of the input verb stem contains a stop (including a nasal stop) or an affricate, any intervening consonant between the causative prefix and the stop/affricate after causative prefixation must be elided:

(11) Non-Causative Causative
\begin{align*}
\text{\( rqg \)} & \quad \text{‘be crooked’} & \quad \text{\( s-q\~g \)} & \quad \text{‘cause to be crooked’} \\
\text{\( ltd\) \quad ‘gore’} & \quad \text{\( s-t\~d \)} & \quad \text{‘cause to gore’} \\
\text{\( rgav \) \quad ‘tie up’} & \quad \text{\( z-g\~av \)} & \quad \text{‘cause to tie up’} \\
\text{\( l\~doy \) \quad ‘allow’} & \quad \text{\( z-d\~oy \)} & \quad \text{‘cause to allow’} \\
\text{\( svrd\~g\~y \) \quad ‘sink’} & \quad \text{\( k\~y-z-d\~g\~y \)} & \quad \text{‘cause to sink’}
\end{align*}

However, the stop/affricate blocks cluster simplification from reaching the rest of the onset complex located to its right. This is exemplified by the following verbs that start with a stop/affricate, where the addition of the causative prefix sets off no phonological adjustment other than voicing assimilation:

(12) Non-Causative Causative
\begin{align*}
\text{\( plo \) \quad ‘rinse’} & \quad \text{\( s-p\~lo \)} & \quad \text{‘cause to rinse’} \\
\text{\( c\~bvi \) \quad ‘pierce’} & \quad \text{\( s-c\~bvi \)} & \quad \text{‘cause to pierce’} \\
\text{\( br\~g \) \quad ‘call (as of birds)’} & \quad \text{\( z-br\~g \)} & \quad \text{‘cause to call’}
\end{align*}
3.5 Metathesis

If the input verb stem contains a complex onset cluster beginning with a non-coronal spirant, the causative prefix s- must metathesize with the latter:

(13) Non-Causative             Causative
    sjun 'be askew'             s-z-jun 'cause to be askew'
    vley 'be smooth'           v-z-ley 'cause to be smooth'
    hjji 'be live (as of charcoal)' hj-z-ji 'cause to be live (as of charcoal)'
    ybav 'swell'               y-z-bav 'cause to swell'

The process applies iteratively, e.g. w-z-d#y 'cause to sink'. Moreover, the causative s- does not metathesize with simplex spirant initials; e.g. the causative of vla 'be idle' is zva 'cause to be idle' instead of *vza. Metathesis is also observed word-internally when the transitive marker f-/v-metathesizes with an initial spirant of the verb root containing a cluster onset; e.g. n6-f-tsi perfective inflection of tsi 'cause to recognize'. If the initial cluster already begins with a dental spirant preceding a consonant other than a coronal stop, the causative morpheme remains in situ, while turning into a lateral spirant via Lateralization:

(14) Non-Causative             Causative
    sman 'be comfortable'      t-sman 'cause to be comfortable'
    zjηπ 'listen'              hj-zjηπ 'cause to listen'
    zjη 'plant (trees)'        hj-zjη 'cause to plant (trees)'

The discerning reader will notice that (14) apparently violate Affrication (§3.3), in that the onset spirants in these causative forms fail to dissimilate into affricates. It turns out that here Affrication is thwarted by a stop (including nasal and affricated stops) following the onset spirant. This observation receives confirmation by further data (15), where the onset spirant occurring before other consonant types duly undergoes Affrication:

(15) Non-Causative             Causative
    zgey 'cool (liquid) down'   hj-dzgey 'cause to cool down'
    nzvy 'scratch (an itch)'    hj-dzvy 'cause to scratch (an itch)'

6 For verbs with a cluster onset composed of a dental spirant and a coronal stop/affricate, see §4.
7 By repeatedly scooping it up from a container and pouring it back in.
This process refers to the mutation of a stem-initial bilabial nasal into a corresponding spirant when sandwiched between the causative prefix and a following obstruent. Notably, denasalization and spirantization in this case will create a non-coronal spirant at the morpheme boundary, with which the causative prefix s- must metathesize in accordance with the metathesis rule introduced above. Thus, from underlying \( s- \) 'causative' + \(mq\) 'congeal' an intermediate form \( s-fq\) is produced which, after obligatory metathesis, comes out as the correct surface form with an apparently infixed causative morpheme \( f-s-q\) 'cause to congeal'. This brings up the issue of how the foregoing processes interact, to which we now turn.

3.7 Process interaction

To accurately derive the attested causative forms, some of the foregoing phonological processes have to be applied in a linear order. Above all, the mechanisms that elide, shift segments around, or alter their obstruency need to be ordered with respect to each other.

Since Metathesis in effect embeds the causativizing \( s- \) inside the onset complex of the input verb, it naturally feeds (i.e. increases input forms for) processes dealing with the interactions between prefixal \( s- \) and the contiguous part of the onset. For example, in the derivation of causative \( s-zd\) 'cause to be thick (as of books)' from underlying \( s-sld\), it is the prior application of metathesis that brings the \( s- \) in direct contact with an otherwise inaccessible cluster \(-ld-\), causing it to undergo simplification. The following derivation demonstrates:

\[
\begin{array}{l}
\text{(16) Input} \\
\text{Metathesis} \\
\text{Cluster Simplification} \\
\text{Voicing Assimilation} \\
\text{Output} \\
\hline
s-sld \\
s-s-dg \\
s-z-dg \\
zd \\
\end{array}
\]

A counterfeeding order would produce a wrong output form:

---

\(^8\) Voicing is determined by the following obstruent consonant. The bilabial nasal \( m- \) does not turn into bilabial spirants, since these sound types do not exist in the language.
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(17) Input
Cluster Simplification $s-d\!l\!d\!e$
Metathesis NA
Voicing Assimilation $z-d\!l\!d\!e$
Output $z\!d\!l\!d\!e$

Examples in (18), showing the causativized verbs $f\!s\!k\!u$ ‘cause to carve’ (< $f\!r\!k\!u$ ‘carve’), $\chi\!s\!p\!b\!g$ ‘cause to crack open’ (< $\chi\!l\!p\!b\!g$ ‘crack open’), and $\eta\!z\!n\!\lambda$ ‘cause to be slippery’ (< $\eta\!t\!n\!\lambda$ ‘be slippery’), provide further illustration:

(18) Input
Metathesis $s-f\!k\!u$
Cluster Simplification $f-s-k\!u$
Voicing Assimilation $N\!A$
Output $f\!s\!k\!u$

Likewise, Metathesis feeds Affrication and Lateralization, as shown in the following derivations of $v\!h\!d\!z\!3\!r$ ‘cause to shave’ (< $v\!3\!r$ ‘shave’), $v\!h\!d\!z\!j\!\lambda$ ‘cause to mix’ (< $v\!z\!j\!\lambda$ ‘mix’), and $v\!h\!d\!z\!l\!g$ ‘cause to learn’ (< $v\!z\!l\!g$ ‘learn’):

(19) Input
Lateralization $v-s-z\!3\!r$
Affrication $v-l-d\!z\!3\!r$
Voicing Assimilation $v-l-d\!z\!j\!\lambda$
Output $v\!h\!d\!z\!j\!\lambda$

Needless to say, the opposite ordering would deprive Lateralization and Affrication of a potential input form, with incorrect results:

(20) Input
Lateralization $N\!A$
Affrication $N\!A$
Metathesis $v-z-3\!3\!r$
Voicing Assimilation $v-z-z\!j\!\lambda$
Output $*vz3\!r$
Next, Cluster Simplification also crucially feeds Lateralization and Affrication since, like Metathesis, Cluster Simplification also brings originally non-contiguous segments into contact.

The ordering Cluster Simplification > Lateralization can be demonstrated by the correct (21) and faulty (22) causative derivations of the verb *ldzi* ‘teach’, where after Cluster Simplification the causative element becomes adjacent to a coronal consonant:

\[
\begin{align*}
(21) \text{Input} & & s-ldzi \\
\text{Cluster Simplification} & & s-dzi \\
\text{Lateralization} & & t-dzi \\
\text{Voicing Assimilation} & & ʃ-dzi \\
\text{Output} & & ʃdzìi \\
\end{align*}
\]

\[
\begin{align*}
(22) \text{Input} & & s-ldzi \\
\text{Lateralization} & & \text{NA} \\
\text{Cluster Simplification} & & s-dzi \\
\text{Voicing Assimilation} & & z-dzi \\
\text{Output} & & \ast zdzi \\
\end{align*}
\]

Deriving causativized forms of verbs *nr3ə* ‘comb (one’s own) hair’ in (23-24) below makes it clear that Cluster Simplification must also occur prior to Affrication:

\[
\begin{align*}
(23) \text{Input} & & s-nr3ə \\
\text{Cluster Simplification} & & s-3ə \\
\text{Lateralization} & & t-3ə \\
\text{Affrication} & & t-d3ə \\
\text{Voicing Assimilation} & & ʃ-d3ə \\
\text{Output} & & ʃd3ə \\
\end{align*}
\]

\[
\begin{align*}
(24) \text{Input} & & s-r3ə \\
\text{Lateralization} & & \text{NA} \\
\text{Affrication} & & \text{NA} \\
\text{Cluster Simplification} & & s-3ə \\
\text{Voicing Assimilation} & & z-3ə \\
\text{Output} & & \ast z3ə \\
\end{align*}
\]

On the other hand, Lateralization (coronal dissimilation) and Affrication (coronal spirancy dissimilation), which conspire to rid Shangzhai phonology of sequences of
certain coronal obstruents, stand in a non-affecting relation since, applied in either sequence, they would produce the same results. Another process whose ordering in the derivational history is immaterial is Voicing Assimilation, which can be applied earlier or later without affecting the final output.

Upon inspection, the remaining M-Spirantization process turns out to interact with Metathesis in a feeding relation, as the denasalization and spirantization of *m*-increases the number of spirant-initial verb forms to which Metathesis can then apply. Consider the following sample derivations involving the causativized verbs *vzl_a* 'cause to know by learned skill' (*< mJl_a* 'know by learned skill'), *fPt;zh_a* 'cause to be diligent' (*< m@_a* 'be diligent'), and *vzd3ur* 'cause to be hungry' (*< md3w* 'be hungry'):

\[
\begin{array}{c|c|c|c}
\text{Input} & s-mp_a & s-nts\#_a & s-md3ur \\
\text{M-Spirantization} & s-vnal & s-fnts\#_a & s-vd3ur \\
\text{Metathesis} & v-s-n\#_a & f-s-ts\#_a & v-s-d3ur \\
\text{Lateralization} & NA & f-l-ts\#_a & v-l-d3ur \\
\text{Voicing Assimilation} & v-z-n\#_a & NA & v-l-d3ur \\
\text{Output} & vz Jal & fnts\#_a & vj3d3ur \\
\end{array}
\]

To sum up, we have established a sequential order for the application of the following processes:

M-Spirantization > Metathesis > Cluster Simplification > Lateralization

Affrication

The interaction of all the rule pairs above belong notably to the intrinsic feeding type. In other words, rule order is inherent to the structural content of the rules themselves, and will obtain as long as the rules are allowed to apply in an unimpeded way.

4. Constraining the causativizer *s-*

Despite being a productive way of expressing causation, the Shangzhai causative formation with the prefix *s-* is subject to several constraints.

First, the existence of an independent lexical causative precludes the expression of causative meaning via the morphological derivation by *s-* prefixation. Hence, the *s-* prefix is inapplicable to verbs that already have corresponding lexical causatives formed either by suppletion or idiosyncratic onset-voicing alternation. The only
correct causative forms of \(d3\v^h\) 'melt [INTR]' and \(sh^h\) 'die' are therefore \(tf^h\v^h\) 'melt [TR]' and \(sh^h\) 'kill' respectively; the morphologically derived forms \(*f\v^h\v^h\) 'melt [TR]' and \(*hs^h\) 'cause to die' simply do not exist.

Whereas the aforementioned constraint follows from general principles such as Elsewhere Condition (Kiparsky 1973) and blocking (Aronoff 1976: §3.2.3) that should have universal validity, the Shangzhai morphological causative construction is also subject to functional limitations owing to the phonological shape of the causative morpheme itself.

In a language that already permits lexemes containing three-member or even four-member complex initials, prefixation of another consonantal causativizer \(s\)-stretches the limit of the Shangzhai onset canon. The drastic phonological adjustments that are triggered will inevitably disrupt underlying lexical structure, resulting very often in homophony. A case in point is the form \(sth^h\), which is the morphological causative of both \(lh^h\) 'be straight' and \(rh^h\) 'be clogged', as well as an independent verb root meaning 'soak'.

Another undesirable consequence is the generation of gaps when potential outputs of causative derivation are disfavored by the phonology either because they contain too many consonants (e.g. the five-member onset cluster in the ill-formed causative \(*sv^h\v^h\v^h\), from \(sv^h\v\) 'become mixed'), or because they violate an idiosyncratic phonotactic constraint. The latter situation refers to verbs beginning with a dental spirant \((s/z)\) preceding a coronal stop, e.g. \(zd\) 'remember' and \(st^h\) 'dig (sth) out'; such verbs somehow seem ineligible to undergo morphological causativization by \(s\)-. When I tried to elicit their causative forms, my consultant usually gave a form completely identical to the non-causative verb. When causative forms fabricated in accordance with the known phonological rules were suggested, e.g. \(bz\) for \(zd\) 'remember', my consultant admitted that they sounded probable but wondered if people would ever say them.

All these language-specific problems seem to dampen the reliability of the morphological causativizing strategy, and the need for clarity of expression often leaves one with no alternative but to resort to bi-clausal causativization, to which we now turn.

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This term usually describes the non-occurrence of an output of a less than fully productive morphological operation owing to an already existent lexical form occupying the same semantic slot (e.g. \(*gloriosity\) is blocked by \(glory\)).
5. The analytic causative construction

In frequent use in Shangzhai is an analytic causative construction composed of a causative verb *vzo* 'make, to do' in the matrix clause, and an embedded effect clause carrying a special causative complementizer *-ldø*. The sentences in (26) illustrate:

(26) *łamu*-*və* *lɡæ* *jɑló*-ldø *yə*-vzo
Lhamu-ERG child go.to.bed-COMP PFV-make₂
‘Lhamu made the child go to bed.’

(27) *łamu*-*və* *lɡæ*-do *sman* *dzo*-ldø *yə*-vzo
Lhamu-ERG child-DAT medicine eat-COMP PFV-make₂
‘Lhamu made the child take the medicine.’

Nominal case marking in Shangzhai adheres to an ergative pattern. Thus, the most agentive transitive argument (A) takes the dative -*do*, while absolutes (intransitive subjects and transitive objects) are unmarked. As shown in (27) above, the transitive causee in the subordinate effect clause must undergo demotion to a dative-marked oblique. In terms of Dixon’s typological scheme of how transitive causees receive functional marking, Shangzhai exhibits type (v), where original O relation (in this case *sman* ‘medicine’) stays as such and original A (in this case *lɡæ* ‘child’) moves out of the core (Dixon 2000: §3.2). The analytic causative in question, therefore, presents a well-developed syntactic structure with clear signs of clausal integration (case demotion) and inter-clausal dependency (e.g. the obligatory causative complementizer *-ldø*). Moreover, as in other

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10 rGyalrongic languages are unusual within Tibeto-Burman in having well-differentiated verb stems. From a comparative perspective, three stems can be set up: stem-1 or verb base and the two marked stems: stem-2 or past stem and (in rGyalrong) stem-3 or singular transitive non-past stem (J. Sun 2000b, §2.1; J. Sun 2004). The marked stems are indicated with subscript numerals in the glosses.

11 The syntactic structure of the Shangzhai analytical causative is the same as in Amdo Tibetan, the dominant language of Rangtang County in which Shangzhai is spoken. In Amdo, the analytical causative is the fully productive causative device. Observe the following Amdo (*mDzod.dge Byams.me* variety, personal research) parallel to (27):

*łamu*-*və* *faj’-e* *bmen* *sə*-sen *dço*-no re
Lhamu-ERG child-DAT medicine eat-COMP make-DECL
‘Lhamu made the child eat the medicine.’

This suggests that the Shangzhai analytic causative may be a contact-induced innovation.
languages that manifest such a causativizing formation (Comrie 1985: 332), the Shangzhai analytic causative is completely productive.

6. rGyalrongic comparisons

Causativization by productive morphological means is a conspicuous trait of the rGyalrongic subgroup. In these languages, causative verb forms are derived from the verb base by adding a causative prefix $s(a)-$, which probably traces back to a Proto-rGyalrongic causative morpheme *$sə-*$. In the Caodeng dialect of rGyalrong (Gäqiüli variety) and the Guanyinqiao dialect of Lavrung (Mû'êrzöng variety), the causative prefix occurs with both syllabic ($sə-)$ and non-syllabic allomorphs ($s-$), exemplified in (28-29) below:

(28) Caodeng rGyalrong
a. $ku$-$xe′$ ‘be happy’ $ku$-$sə-xe′$ ‘cause to be happy’
   kó-$jwt$ ‘turn back’ $ku$-$sə-jjwt$ ‘cause to turn back’
b. $ku$-$nə$-$dzi′$ ‘feel cold’ $ku$-$s$n$ə$-$dzi′$ ‘cause to feel cold’
   kó-$vevo$ ‘weep’ $ku$-$s$vevo$^{12}$ ‘cause to weep’

(29) Guanyinqiao Lavrung
a. $cu$ ‘become scorched’ s-$cu$ ‘scorch’
   $jav$ ‘sleep’ s-$jav$ ‘cause to sleep’
b. $xso$ ‘be alive’ s$ə$-$xso$ ‘revive’
   $sdam$ ‘be muddy’ s$ə$-$sdam$ ‘cause to be muddy’

Allomorphy in both these cases is controlled by syllable structure. In rGyalrong, the syllabic alternant $sə-$ occurs with monosyllabic verb stems (28a) whereas the non-syllabic $s-$ occurs with polysyllabic stems (28b). In Lavrung, the relevant alternation is determined rather by stem-onset structure, with the alternants $s-$ and $sə-$ occurring respectively with simplex (29a) and cluster (29b) onsets.

In contrast, causative prefixation in Shangzhai is consistently non-syllabic, which strains the already overloaded onset of the input verb and frequently causes phonotactic violations and obscured lexical structure, as we have seen above. Communicative needs may have impelled the language to innovate a remedial syntactic pattern using the prevalent analytic causative formation built on the verb ‘do; make’. Syntax,

12 Phonetically [kəznə'dzi] and [kəzvevo].
then, seems to gradually replace derivational morphology as the principal component
where semantic causativity is formally coded.

It is perhaps no accident that, unlike in Shangzhai, prefixation by ə still remains
the only productive causativizing strategy in both Caodeng rGyalrong and Guanyin-
qiao Lavrug where, for instance, the most natural translation equivalents of the two
Shangzhai analytical causative sentences in (26-27) are conveyed morphologically by
the derivational causative prefix ə:

(30) Caodeng rGyalrong
a. lhamu-ko  tshna  ke-ə-r"gu-ə
Lhamu-ERG child PFV:TR-CAUS-go.to.bed2-MED
‘Lhamu made the child go to bed.’
b. lhamu-ko  tshna  smun  te-ə-dze-ə
Lhamu-ERG child medicine PFV:TR-CAUS-eat2-MED
‘Lhamu made the child take the medicine.’

(31) Guanyinqiao Lavrug
a. lhamo?-yə  lshax  kə-s-jev-ə-yə
Lhamo-ERG child PFV:TR-CAUS-go.to.bed2-MED
‘Lhamo made the child go to bed.’
b. lhamo?-yə  lshax  sman  ə-sə-dzi-ə-yə
Lhamo-ERG child medicine PFV:TR-CAUS-eat2-TR13-MED
‘Lhamo made the child take the medicine.’

Caodeng rGyalrong presents a couple of nominalized constructions which are
decievously similar to an analytic causative, including one containing the verb (ə)pe
‘make; cause to become’ as the main-clause predicate and a nominalized complement
in the dependent clause. Thus, paralleling example (30b) above, we have:

(32) lhamu-ko  tshna  smun  te-ə-dze  ne-(ə)pe-ə
Lhamu-ERG child medicine IMPFV-NMLZ-eat PFV:TR-turn.into2-MED

But sentence (32) has nothing to do with a specific act of causation on the part
of Lhamu resulting in the child eating his medicine. Rather, the intended meaning is
‘Lhamu made the child become able to eat medicine.’ The folktale [Khyergopu the
Trickster] supplies another pertinent example:

13 A transitive suffix -t occurs with verbs inflected for third person singular.
In other words, sentences (32-33) are about changes in the child's behavioral pattern (lit. being turned into someone able to take medicine) and in the nature of the chieftain's hair (lit. being turned into hair that can grow), using the verb $kg$-'turn sb into sth else'. Although the nominalized construction exhibited in (32-33) is currently restricted to predicating causation of more permanent resultant states in Caodeng, it appears to equip the language with suitable syntactic machinery for an alternative mode of productive causativization, just waiting to be called into service when the need arises.

7. Conclusions

In the foregoing discussions, the synchronic issue of phonologically conditioned allomorphy of the Shangzhai causative prefix $s$- is brought to bear on the historical development of alternative modes of expressing causativity in this language.

Despite bewildering surface variations, Shangzhai can be analyzed as having a single *non-syllabic* causative prefix $s$-, the addition of which saturates the already elaborate onset system, engendering multiple phonological adjustments that mold a wide range of allomorphs. The phonological rules at work often apply in a feeding order, progressively warping the fused sequences of the causative morpheme and the consonantal onset of the input verb. Homophony and constraints that ensue well nigh disqualify prefixation of the causativizer $s$- as a reliable means of coding causation, leading to the rise of the alternative analytic causative as the principal causative construction in the language.

The suggested causal link between syllabicity of the causative prefix and the functional usurpation by the grammaticalized analytic causative receives corroboration from the fact that the dominant method of expressing causation still rests securely in the realm of derivational morphology in two related rGyalrongic languages where the Proto-rGyalrongic causative prefix *sa*- still remains, at least underlyingly, a full syllable.
List of abbreviations

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<th>Abbreviation</th>
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<tbody>
<tr>
<td>CAUS</td>
<td>causative</td>
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<tr>
<td>DAT</td>
<td>dative</td>
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<td>ergative</td>
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<td>singular</td>
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霍爾語上寨方言的形態使動

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霍爾語是部份四川西北農區藏族使用的一種藏緬語，向來乏人研究。本語上寨方言有涉及豐富語音交替之形態使動構造。本文依據田野調查資料，闡明此現象與同語系嘉戎語及拉塢戎語中使動手段之關係。通過本文分析得知，上寨話令人眼花繚亂之使動形態變異，原為不成音節使動前綴 s-加於繁複之聲母系統。觸發各類語音調節之結果。大量形音變化外加音節結構限制，致使形態使動手段捉襟見肘，句法使動遂代之而成為上寨話表達使動語意之主要手段。相較之下，嘉戎、拉塢戎二種親屬語言由於仍保留使動前綴音節之存古形式 sa-，衍生使動形態至今仍為主派使動化機構。

關鍵詞：上寨方言、霍爾語、嘉戎語、拉塢戎語、嘉戎語族、藏緬語族、形態句法、使動構造