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1 Introduction

While *qusheng* 去聲 derivation is one of the most prominent trace of morphology in Old Chinese, it is probably also the least understood one, as it presents diverse and even contradictory functions, to the extent that Downer (1959, 262), in his seminal article, argued that it was simply a way of creating new words, not a derivation with a well-defined grammatical function.[1]

Yet, we know thanks to the work of scholars such as Haudricourt (1954), Forrest (1960); Schuessler (1985) and Sagart (1999) that *qusheng* derivation comes (at least in part) from *-***s** suffixes. As -***s*** suffixes with functions similar to those that have been reconstructed for Old Chinese are attested and even are still productive in more conservative languages of the Trans-Himalayan family, it is worthwhile to explore the exact opposite hypothesis to Downer's ultrascepticism, namely that the vast array of functions of the *-s is due to the merger of many independent dental suffixes, and constitute indeed obscured traces of a former inflectional system.

In this article, I first present Downer's work and adapt it to modern-day terminology. Second, I propose a new sound law for pre-Old Chinese. Third,

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[1] 'The present writer holds the opinion that with our present knowledge of Classical Chinese, it is better to regard chiuhsheng derivation not as a remnant of a former inflectional system of the Indo-European type, but simply as a system of derivation and nothing more. When new words were needed, they were created by pronouncing the basic word in the chiuhsheng. The grammatical regularity found in many cases would then be in a way fortuitous, being the result not of grammatical inflection, but of the need to create new words.'

drawing on first-hand data from Japhug (Gyalrongic), Khaling (Kiranti) as well as Tibetan, I show that seven out of Downer's eight functions of the *qusheng* derivation have potential comparanda in the conservative languages of this family.

Old Chinese is given in Middle Chinese (in an IPA adaptation of Baxter's 1992 system) rather than OC, because all modern Old Chinese reconstruction models agree on **-s* as the origin of the *qusheng*, and the discussion in this paper is therefore independent of any particular system (except for the reconstruction of an applicative **-t* suffix, see section 4.2).

2 Downer's eight functions

Despite his suggestion that *qusheng* derivation was basically random, Downer (1959) provides a very useful classification of attested derivations, which are employed as the basic data for this study. It is possible that other functions for the *qusheng* can be found which are not included in Downer's work, but this is beyond the scope of the present work.

Downer counts the following eight categories, here illustrated by one or two representative examples.

1. **Nominalization**

   The *qusheng* can be used to derive a noun of property out of an stative adjectival verb, and a patient noun out of a transitive verb:

   高 *kaw* 'be high' → 高 kaw^H 'height'

   處 $tɕ^hjo^X$ 'be at' → 處 $tɕ^hjo^H$ 'place'

2. **Verbalization**

   The semantics of verbs derived from nouns with the *qusheng* is very varied, but includes in particular the meaning 'use X as ...':

   家 *kœ* 'family' → 嫁 $kœ^H$ 'marry'

   枕 $tɕim^X$ 'pillow' → 枕 $tɕim^H$ 'use as a pillow'

3. **Causative**

   The causative use of the *qusheng* is illustrated by the following pairs:

   飲 $ʔim^X$ 'drink' → 飲 $ʔim^H$ 'give to drink'

   買 $mɛ^X$ 'buy' → 賣 $mɛ^H$ 'sell'

   In addition to this causative function, the *qusheng* is also used with the tropative meaning 'consider to be X' (Jacques 2013), as the famous case of 好 xaw^X 'be good' → 好 xaw^H 'like'.

4. **Applicative**

   What Downer meant by 'effective' corresponds to what typologists now call 'applicative', namely a patient-adding derivation that preserves the syntactic status of the S/A subject. The examples found in Old Chinese typically involve experiencer verbs, with an applicative form that adds a stimulus.

   渴 *kʰat* 'be thirsty' → 愒 $kʰaj^{H}$ 'long for'

5. **'Restricted meaning'** This category appears a catch-all for cases of *qusheng* derivations not otherwise classifiable into any of the well-understood categories. It includes examples such as:

   少 $ɕjew^{X}$ 'be few' → 少 $ɕjew^{H}$ 'be young'

   However, some of the pairs in this category are better delegated to other categories; I will show in section 4.3 that at least some examples may have the same origin as passive and antipassive values of the *qusheng* derivation.

6. **Passive**

   The *qusheng* derivation is used for argument-demoting derivations. Examples of passive (A-demoting) derivations are found:

   散 san^{X} 'scatter' → 散 san^{H} 'be loose'

   In addition, although Downer does not set up a special category, some of his examples rather attest to an antipassive (P-demoting) meaning, as shown by the following pair:

   射 *ʑjek* 'shoot at' → 射 $ʑjæ^{H}$ 'practise archery'

7. **Adverbialization**

   A few restricted examples appear to be interpretable as derivation from verbs or numerals to adverbs, such as:

   三 *sam* 'three' → 三 sam^{H} 'thrice'

8. **Form in compounds**

   Downer notes many cases of *qusheng* derivation in the first or second element of compounds; however, most of his examples appear to be interpretable as special instances of denominal or deverbal derivations.

3 New sound law

A few languages of the Trans-Himalayan family, most notably Kiranti and West Himalayish, have a contrast between final clusters *-Cs* and *-Ct* in verb

roots (Michailovsky 1985).[2]

In Old Chinese, no *-*Ct* final clusters exist in any system. Yet, the final *-*s* as reconstructed in all modern systems is much too common in comparison with languages of the family which allow final clusters. In Tibetan for instance, there are 7398 words ending in -*s* in the Tibetan-Chinese dictionary (Zhang 1993) out of 53922, presenting 14%. This figure includes many -*s* originating from *-*t* after grave codas). In contrast, in Baxter and Sagart's (2014) online list of reconstructions, we find 1160 words with final -*s* out of 4968 (23%). This raises the possibility that final *-*s* is not the only origin of the *qusheng*.

To account for the absence of *-*Ct* clusters and for the excess of final *-*s* in present reconstruction models, I propose the following sound law (C stands for a particular subset of codas, possibly restricted to labial and velar consonants):[3]

(1) *-*t* → *-*s* /C_#

This sound change is similar to the rule undergone by the present tense -*d* suffix in Tibetan, which is realized as -*s* after final stops and -*m*, as in *ɴdeb-s, btab* 'plant' vs *ɴde-d, bdas* 'chase' (Coblin 1976, 52-53).

This hypothesis allows comparison of Chinese *qusheng* derivations with not only -*s* suffixes, but also -*t* suffixes, at least following grave final consonants. In addition, in the following comparisons, I assume that the *-*s* allomorph of *-*t* suffixes generated by this rule is then extended analogically to other contexts, in particular open syllables (this idea in particular is necessary to explain the *-*s* applicatives, cf section 4.2).

4 Comparisons

Very few languages in ST clearly preserve final -*s* suffixes, and complex final clusters: only data from Tibetan, Kiranti, Gyalrongic, West-Himalayish and Dulong/Rawang can be used without reconstruction, and this article therefore focuses on these languages.[4]

Seven of Downer's eight functions of the *qusheng* are discussed here (the causative and applicative derivations are discussed in the same subsection). In addition, the suggestion of a perfective value for the *qusheng* in Chinese and its possible cognates is briefly touched upon.

[2]These clusters are not word-final in these languages, as they always surface before inflectional suffixes.

[3]A similar idea was suggested by Schuessler (2007, 42).

[4]Phonologically less conservative languages may provide crucial confirmatory evidence, but at the present stage it would be premature to investigate languages where final -*s* is only accessible through the comparative method.

4.1 Nominalization

As early as Forrest (1960), scholars have noted that the nominalization function of the *qusheng* derivation could be compared with the *-s* nominalization found in Tibetan (Conrady 1896, 43, Hill 2014c, 624-5). The *-s* derives patient nouns, nouns of manner and nouns of characteristic, as illustrated by the following examples:

- Patient: *za* 'eat' → *zas* 'food'
- Characteristic: *zab.mo* 'deep' → *zabs* 'depth'.
- Manner: *ɴgro* 'go' → *ɴgros* 'gait'

Incidentally, the three same categories are attested in the West-Himalayish language Bunan (Widmer 2014, 179-180).

The similarity with Old Chinese, where *qusheng* derivation is used exactly with the first two meanings, is striking (note for instance 深 *ɕim* 'deep' → 深 $ɕim^H$ 'depth').

Moreover, some nouns derived from verbs are cognate between Chinese and Tibetan, eg *ɴtʰag, btags* "weave" → *tʰags* "textile", 織 *tɕik* 'weave' → 織 $tɕi^H$ 'cloth'.

Nominalization by *-s* suffixation was already only very marginally productive in Old Tibetan. The only clear case of a neologism formed in historical times using the *-s* suffix is *gzuŋs* 'dhâraṇî' (a type of Buddhist magical formula). This word is derived from the root *|zuŋ|* of *bzuŋ* 'seize', by calque of 'dhâraṇî-', which derives from the root dhṛ- 'seize, hold' in Sanskrit. It actually uses a circumfix *g-...-s*, the prefixal element of which has cognates in Gyalrongic languages and beyond (Konnerth 2016; Jacques 2014d).

Outside of Tibetan and West-Himalayish, vestigial traces of **-s* nominalization are found in Gyalrongic languages (Jacques 2003; Sun 2014).

4.2 Causative/Applicative

The applicative and causative suffixes are most clearly preserved in Kiranti (Michailovsky 1985; Jacques 2015a), though isolated traces can be found in most branches of the family.

Limbu stands out among Kiranti languages with clearly distinct *-s* causative and *-t* applicative suffixes, as illustrated by the following triplet (Michailovsky 2002):

- *haːp-* *vi* 'weep'
- *haːps-* *vt* 'cause to weep' (causative)
- *haːpt-* *vt* 'mourn for, weep for' (applicative)

No clear example of causative or applicative *-d* or *-s* are found in Tibetan (Hill 2014c, 630). In Gyalrongic, only isolated examples are found, mainly with motion verbs. For instance Japhug has *ɣi* < **wi* 'come' → *ɣɯt* < **wit* 'bring'. However it should be noted that despite the dearth of examples, this pair actually has cognates in Kiranti (Khaling *|pi|* 'come' → *|pit|* 'bring'), a fact which strongly supports the idea that this is an archaic feature, reconstructible to the common ancestor of these languages.

In Chinese, Sagart (2004) discovered one direct trace of the applicative **-t* in the following example:[5]

(2) 行 或 使 之, 止 或 尼 之
Cə.gˤ<r>aŋ ɢʷˤək s-rəʔ tə təʔ ɢʷˤək n<r>əl-t tə
'A man's advancement is effected, it may be, by others, and the stopping him is, it may be, from the efforts of others.' (Legge)

The character 尼 is read here with the fanqie 女乙反, corresponding to a Middle Chinese pronunciation *ɳit*. This reading can be opposed to the usual pronunciation of this character *ɳij* ← **n<r>il* (fanqie 女夷切), cognate with Tibetan *ɲal* 'lie down, sleep' and Japhug *ɯna* 'rest',[6] and suggests a reconstruction **n<r>əl-t* in Old Chinese. This example shows that rule (1) does not apply after **-l*.

Yet, examples of applicative *qusheng* are found in syllables with final **-l* or even open syllables in Old Chinese. These examples can be accounted for by supposing that rule (1) generated **-s*/*-t* allomorphy (depending on the final consonant of the verb root), and due to the existence of a causative **-s* suffix, the **-s* was reinterpreted as a mixed causative/applicative, and overgeneralized to contexts where rule (1) does not apply.

4.3 Passive/Antipassive

Cases of passive or antipassive values for the *qusheng* derivation can be accounted for as a trace of the sibilant reflexive suffix, which is still productive in Kiranti, Dulong/Rawang, Thangmi, West Himalayish and Kham (Bauman 1975, 94, van Driem 1993, 320, Watters 2002, 240-7, LaPolla & Yang 2004, Turin 2012, 372-6 and Widmer 2014, 452;466).[7]

[5] I reconstruct **-l* where Baxter & Sagart (2014) have **-r* in Old Chinese, as (1) this is a way to avoid syllables with medial **-r-* and final **-r*, a structure disallowed in monomorphemic words in both Tibetic and Gyalrongic languages (Jacques 2004) and (2) this coda corresponds to *-l* in Tibetan in many examples, while correspondences with *-r* are few and less convincing. (Hill 2014b, 101-2).

[6] Loss of final **-l* after **a* is a common innovation of Burmo-Gyalrongic languages (Jacques & Michaud 2011).

[7] Gyalrongic languages have innovated reflexive prefixes (Jacques 2010, Lai 2013, 89), which replaced the *-si* derivation.

In the following I use first-hand data on Khaling (Jacques et al. 2016) as representative of the functions of the *-si* reflexive/middle suffix in Kiranti languages.

In Khaling, the *-si* derivation has three common identifiable functions: reflexive (4), autobenefactive (5) and impersonal subject (6), the last of which resembles a passive or an anticausative when used with transitive verbs (use with intransitive verbs are also found, but less common). Given the fact that Khaling verbal morphology has a complex morphophonology that is not directly relevant to the present article, stem alternations will not be commented upon, and verbs are indicated according to their root, an abstract form from which the whole paradigm can be mechanically derived (Jacques et al. 2012, 2016).

Note that in the case of the autobenefactive value of the *-si* derivation (5), both agents and patients can still be overt, the agent is syntactically an S, and cannot take the ergative suffix *-ʔɛ*, and the patient becomes an unmarked adjunct and cannot be indexed on the verb.

(3) *ʔuŋʌ sɵ wēnd-u.*
1SG:ERG meat cut-1SG→3
I cut the meat.

(4) *mu-wei-w-ʌsu.*
NEG-cut-IRR-REFL:1SG:PST
Reflexive: 'I did not cut myself.'

(5) *ʔʌ̄m sɵ wêi-si.*
3SG meat cut-REFL
Autobenefactive: 'He cuts meat for himself.'

(6) *sɵ wêi-si.*
meat cut-REFL
Impersonal subject: 'The meat is cut (by someone)' OR 'The meat cuts easily.'

It is this last use as *impersonal subject* that can be compared to the passive value of the *qusheng* derivation in Chinese, in such examples as 聞 *mjun* 'hear, smell' → 聞 $mjun^{H}$ 'be heard, be smelt'.

In addition, the *-si* derivation has an antipassive value when applied to transitive verbs expressing a feeling (whose A and P are experiencers and stimuli respectively). As shown by examples (7) and (8), the *-si* derivation removes the P (the stimulus) and changes the A of the base verb into an S. The stimulus is still recoverable, but must be assigned oblique case (the ablative *-kʌ*). This type of example offers a parallel to the antipassive use of the *qusheng* in Chinese.

(7) *lokpei ghrēmd-u.*
leech be.disgusted.by-1SG→3
I am disgusted by leeches.

(8) *gʰrēm-si-ŋʌ*
be.disgusted.by-REFL-1SG:S/P
I feel disgust.

Finally, some of the pairs that Downer classified as examples of the 'restricted meaning' category appear to be compatible with the analysis of the *qusheng* as a fossilized reflexive/middle marker. In particular the semantics of the *qusheng* in 憶 *ʔik* 'remember' → 意 $ʔi^H$ 'think' is identical to that of *-si* in the pair |*mimt*| 'think of, miss, remember' → |*mimt-si*| 'think (that)'. Even if the verb root is different, the meaning of the derivation is clearly identical in Chinese and Khaling.

If the comparison between Old Chinese **-s* and Khaling *-si* is indeed valid, it suggests that syllabic suffixes may have lost their vowel in Chinese, leaving only the consonant as a coda. This raises the question whether other examples of the same type can be proposed, but I defer this question to future investigations.

Another language with a possible trace of the *-si* derivation is Tibetan. As pointed out by Hill (2014a) (see also Uray 1953, Zeisler 2004, 864), we find in Tibetan several triplets of verbs (A, B and C). A-type verbs are intransitive and have voiced initial stops or affricates. B-types verbs are transitive and present a voicing alternation (voiced initial in the Present and Future forms, unvoiced initial in Past and Imperative). In the present form some B-type verbs have a *-d* suffix that causes fronting of *a* to *o*, while other verbs have *a* to *o* Umlaut). C-type verbs are intransitive, have unvoiced initials, and *-s* suffix (when the phonotactic constraints of the language allows it to surface) and *a* to *e* vowel alternation. The following list includes the most representative examples:

1. A: *ɴgag* 'be stopped, break off'
   B: *ɴgegs, bkag* 'hinder, prohibit'
   C: *kʰegs* 'be hindered, be prohibited'

2. A: *gaŋ* 'fill intr.'
   B: *ɴgeŋs, bkaŋ* 'fill tr.'
   C: *kʰeŋs* 'be full'

3. A: *gab* 'hide intr.'
   B: *ɴgebs, bkab* 'cover tr.'
   C: *kʰebs* 'be covered over'

4. A: *grol* ‘be free’
   B: *ɴgrol bkrol* ‘liberate’
   C: *kʰrol* ‘unravel’

5. A: *dul* ‘be tame’
   B: *ɴdul, btul* ‘tame, subdue’
   C: *tʰul* ‘be tame’

6. A: *zug* ‘pierce, penetrate’
   B: *ɴdzugs, btsugs* ‘plant, establish, insert’
   C: *tsʰugs* ‘go into, begin’

Jacques (2012) argues that verbs of type B are the base forms, and that the voicing in the Present and Future stems are due to the a nasal prefix, while type A verbs are derived by anticausative derivation (on which see Jacques 2015c,b). No explanation for type C verbs, however, has ever been proposed.

Yet, if we accept Jacques's (2012) idea that the verb roots in these triplets have unvoiced initials, and that voicing in type A and in Present and Future stem is due to morphological alternations, a solution offers itself: type C verb could be remnants of *-*si* suffixed middle verbs. This hypothesis explains the three morphological features of type C verbs:

1. The unvoiced initial is simply the bare stem without any prefix.

2. The *-s* suffix is a direct segmental trace of the *-si* suffix; note that the loss of vowel is not unexpected, given the constraint of verbs stems to remain monosyllabic.

3. The vowel alternation *a* → *e* can be explain as Umlaut due to the lost **i* in the suffix.

Thus, in this hypothesis, a verb form such as *kʰegs* ‘be hindered, be prohibited’ would originate from pre-Tibetan **kak-si*. To confirm this idea, a detailed research on the use of type C verbs in Old Tibetan texts will be necessary, particularly how they semantically differ from type A verbs.

4.4 Denominal verbalization

While the use of the *qusheng* to build verbs out of nouns in Chinese is quite common, there are barely any potential cognates in the rest of the family. In Gyalrongic languages, denominal morphology is exclusively prefixal (Jacques 2014b), and Tibetan adopts zero-derivation (adding the TAM markers N- in the present and *b-…-s* in the past, Jacques 2014c, 29).

Denominal *-t* derivation is most clearly attested in West-Himalayish. In Bunan, Widmer (2014, 426) describes the following examples of verbalizing -t suffix:

- *ken* 'birth' → *ken-t* 'give birth (animal)'
- *kur* 'load (n)' → *kur-t* 'carry a load'
- *len* 'work (n)' → *len-t* 'work (v)'
- *sur* 'weed (n)' → *sur-t* 'weed (v)'
- **ti* 'water' (lost in Bunan but attested in closely related languages) → *ti-t* 'irrigate'

A few examples of denominal *-t* are also found in various Kiranti languages:

- Limbu *thiːn* and Bantawa *din* 'egg' → |*thiːnt-*| 'lay an egg' and |*dint*| 'lay eggs' respectively.
- The Limbu transitive verb |*khaːnt*| 'wound' <**ʔwaːr-t* derives with a denominal *-t* suffix from a noun not attested in Limbu, but found in Wambule *ɓari* 'wound (n)' and Khaling *koɔ̄r* 'wound (n)'
- Limbu |*sokt*| 'to aim, to point', Khaling |*tsukt*| 'point (with a finger)', Limbu *cok* 'toe, finger' (Limbu *c* comes however from proto-Kiranti **dz*, implying that the noun underwent voicing of the initial).
- The Khaling |*kakt*| 'hoe' corresponds to the Japhug noun *qaʁ* 'hoe' outside of Kiranti (perhaps also to Limbu *kaːŋ* 'hoe', with unexplained voicing of initial as in *cok* 'toe, finger').

4.5 Adverbialization

The use of the *qusheng* to derive adverbs from verbs or nouns may originate from a locative suffix **-s* that is well attested in Tibetan and Gyalrongic languages.

In Tibetan, this suffix is not attested as such, but exists as the *-s* element in several case markers, including the ergative *-s*/*-kʲis*, the comparative *-bas*, the ablative *-las* and the elative *-nas*, the last two of which are compound cases combining the *-s* element with the allative *-la* and the locative *-na* (Konow (1909[1967]), DeLancey 1982, Zeisler 2011, 282, Hill 2012), which are all used to build various types of subordinate clauses (Tournadre 2010). It is also found in some adverbs, such as *jas* 'from above'.[8]

[8]There is some evidence that this *-s* element had an alternative form *-se* in Old Tibetan and some modern Tibetan languages (Zeisler 2011, 280-284), but I defer this question to further research.

In Gyalrongic, we find a locative *-s* in Situ (Lín 1993) and Tshobdun (Sun 1998, 129), and a locative clitic *ʑu* Japhug, which was degrammaticalized from the locative suffix (Jacques 2008, 167-9). In Japhug, this clitic *ʑu*, in addition to its function as a general locative marker, is commonly used to build subordinate clauses with various semantics (Jacques 2014a, 275;293), and can also directly appear after verbs, sometimes with only a very mild subordinating meaning as in (9).

(9) *kuki sthuci ji-kha mújɟ-pe, ɲɯ-xtɕi,*
this such 1PL.POSS-house NEG:SENS-be.good SENS-be.small
ɲɯ-ŋgʁr ʑu nʁʑo kɯ, jʁ-ɕe tɕe a-nɯ-tɯ-ɕar tɕe,
SENS-be.narrow LOC 2SG ERG IMP-go LNK IRR-PFV-2-search LNK
Our house is so bad, so small, so narrow, go there and look for (the fish to ask him for something). (140430 yufu he ta de qizi, 55)

The reanalysis of a clausal linker as an adverbializer is straightforward, and thus the examples of adverbialization collected by Downer might be cases of a former locative **-s* that underwent the same extension as Japhug, and further grammaticalized as a derivational morpheme.

4.6 Second member of compounds

In Old Tibetan, Uebach & Zeisler (2008) have brought to light examples of a *-s* suffix in the second member of nominal compounds, as for instance *lag* 'arm, hand' + *riŋ* 'long' → *lag.riŋs* 'long arms'. These examples may be analyzable as particular instances of the nominalization suffix treated in section 4.1.

Likewise, in Old Chinese, compounds with *qusheng* in the first or second element, are best analyzed as cases of nominalization, and these hardly constitute a distinct derivational category.

4.7 Perfective?

Some scholars (in particular Jīn 2006) have claimed that some examples of **-s* suffixes can be accounted for as traces of the **-s* perfective suffix found in Tibetan (*bʲed, bʲas* 'do') or in Gyalrong languages (Japhug *-t* or *-z* 1/2SG→3 perfective suffix, Situ third person intransitive perfective *-s*).[9]

This idea is tantalizing, as it would be the only inflectional use of a **-s* suffix in Old Chinese, as opposed to the previous cases, which all concern derivational functions.

[9] See Huáng (1997) for other potential examples, though many examples in Huang's study come from languages that do not preserve final **-s* and hence cannot be cognate to the Tibetan or Gyalrong suffix, unless degrammaticalization took place.

However, this idea is hardly compelling, as alternative readings are not listed systematically enough in the *Jingdian shiwen* to allow an easy reverification. Judgement on this matter must be deferred until the Chinese evidence has been clearly sifted through on the basis of an exhaustive analysis of available sources.

5 Conclusion

This paper presents all potential comparative evidence known to me in Trans-Himalayan languages of suffixes comparable to the *qusheng* derivation. While not all comparisons are equally compelling, postulating several unrelated origins for the *qusheng* derivation solves two unrelated issues, namely (1) the excess of **-s* in all reconstructions of Old Chinese is here explained as due to the fact that **-s* comes from the merger of **-s*, **-t* and **-sV* suffixes, and perhaps also from other codas such as primary **-h*. (2) the numerous and contradictory functions attributed to the *qusheng* derivation.

Future progress in the study of Old Chinese morphology can only result from collaboration between philologists familiar with the texts and the alternative readings therein, and linguists with a first-hand knowledge of conservative Trans-Himalayan languages where morphology is still visible without any need for reconstruction.

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