



synopsis of the phonological rules for
Transforming Sanskrit into Pāli

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Pāḷi and Sanskrit are very closely related and the common characteristics of Pāḷi and Sanskrit easily recognized by those who are familiar with both. Indeed, a very large proportion of Pāḷi and Sanskrit word-stems are identical in form, differing only in details of inflection.

Technical terms from Sanskrit were converted into Pāḷi by a set of conventional phonological transformations. These transformations mimicked a subset of the phonological developments that had occurred in Proto-Pāḷi. Because of the prevalence of these transformations, it is not always possible to tell whether a given Pāḷi word is a part of the old Prakrit lexicon, or a transformed borrowing from Sanskrit.

However, the existence of a Sanskrit word regularly corresponding to a Pāḷi word is not always secure evidence of the Pāḷi etymology, since, in some cases, artificial Sanskrit words were created by back-formation from Prakrit words.

The following phonological processes are not intended as an exhaustive description of the historical changes which produced Pāḷi from its Old Indic ancestor, but rather are a summary of the most common phonological equations between Sanskrit and Pāḷi, with no claim to completeness.

Vowels and Diphthongs

Sanskrit **ai** and **au** always monophthongize to Pāli **e** and **o**, respectively

Examples:

maitrī → **mettā**,
auśadha → **osadha**

Sanskrit **aya** and **ava** likewise often reduce to Pāli **e** and **o**

Examples:

dhārayati → **dhāreti**,
avatāra → **otāra**,
bhavati → **hoti**

Sanskrit **avi** becomes Pāli **e** (i.e. **avi** → **ai** → **e**)

Example:

sthavira → **thera**

Sanskrit **ṛ** appears in Pāli as **a**, **i** or **u**, often agreeing with the vowel in the following syllable. **ṛ** also sometimes becomes **u** after labial consonants.

Examples:

kṛta → **kata**,
tṛṣṇa → **taṇha**,
smṛti → **sati**,
ṛṣi → **isi**,
dr̥ṣṭi → **diṭṭhi**,
ṛddhi → **iddhi**,
ṛju → **uju**,
spṛṣṭa → **phuṭṭha**,
vṛddha → **vuddha**

Transforming Sanskrit into Pāli – 4

Sanskrit long vowels are shortened before a sequence of two following consonants.

Examples:

kṣānti → **khanti**,
rājya → **rajja**,
īśvara → **issara**,
tīrṇa → **tiṇṇa**,
pūrva → **pubba**

Consonants

Sound changes

The Sanskrit sibilants ś, ṣ, and s merge as Pāli s

Examples:

śaraṇa → **saraṇa**,
doṣa → **dosa**

The Sanskrit stops ḍ and ḍh become ḷ and ḷh between vowels (as in Vedic)

Examples:

cakravāḍa → **cakkavāḷa**,
virūḍha → **virūḷha**

Assimilations, General Rules

Many assimilations of one consonant to a neighboring consonant occurred in the development of Pāli, producing a large number of geminate (double) consonants. Since aspiration of a geminate consonant is only phonetically detectable on the last consonant of a cluster, geminate **kh**, **gh**, **ch**, **jh**, **ṭh**, **ḍh**, **th**, **dh**, **ph** and **bh** appear as **kkh**, **ggh**, **ccch**, **jjh**, **ṭṭh**, **ḍḍh**, **tth**, **ddh**, **pph** and **bbh**, not as **khkh**, **ghgh** etc.

Transforming Sanskrit into Pāli – 5

When assimilation would produce a geminate consonant (or a sequence of unaspirated stop+aspirated stop) at the beginning of a word, the initial geminate is simplified to a single consonant.

Examples:

prāṇa → **pāṇa** (*not ppāṇa*),
sthavira → **thera** (*not tthera*),
dhyāna → **jhāna** (*not jjhāna*),
jñāti → **ñāti** (*not ññāti*)

When assimilation would produce a sequence of three consonants in the middle of a word, geminates are simplified until there are only two consonants in sequence.

Examples:

uttrāsa → **uttāsa** (*not utttāsa*),
mantra → **manta** (*not mantta*),
indra → **inda** (*not indda*),
vandhya → **vañjha** (*not vañjjha*)

The sequence **vv** resulting from assimilation changes to **bb**

Examples:

sarva → **savva** → **sabba**,
pravrajati → **pavvajati** → **pabbajati**,
divya → **divva** → **dibba**,
nirvāṇa → **nivvāṇa** → **nibbāna**

Total Assimilation

Total assimilation, where one sound becomes identical to a neighboring sound, is of two types: progressive, where the assimilated sound becomes identical to the following sound; and regressive, where it becomes identical to the preceding sound.

Regressive Assimilations

Internal *visarga* assimilates to a following voiceless stop or sibilant

Examples:

duḥkr̥ta → **dukkata**,
duḥkha → **dukkha**,
duḥprajña → **duppañña**,
niḥkrodha (=niṣkrodha) → **nikkodha**,
niḥpakva (=niṣpakva) → **nippakka**,
niḥśoka → **nissoka**,
niḥsattva → **nissatta**

In a sequence of two dissimilar Sanskrit stops, the first stop assimilates to the second stop

Examples:

vimukti → **vimutti**,
dugdha → **duddha**,
utpāda → **uppāda**,
pudgala → **puggala**,
udghoṣa → **ugghosa**,
adbhuta → **abbhuta**,
śabda → **sadda**

In a sequence of two dissimilar nasals, the first nasal assimilates to the second nasal

Examples:

unmatta → **ummatta**,
pradyumna → **pajjunna**

j assimilates to a following **ñ** (i.e., **jñ** becomes **ññ**)

Examples:

prajñā → **paññā**,
jñāti → **ñāti**

Transforming Sanskrit into Pāli – 7

The Sanskrit liquid consonants **r** and **l** assimilate to a following stop, nasal, sibilant, or **v**

Examples:

mārga → **magga**,
karma → **kamma**,
varṣa → **vassa**,
kalpa → **kappa**,
sarva → **savva** → **sabba**

r assimilates to a following **l**

Examples:

durlabha → **dullabha**,
nirlopa → **nillopa**

d sometimes assimilates to a following **v**, producing **vv** → **bb**

Examples:

udvigna → **uvvigga** → **ubbigga**,
dvādaśa → **bārasa** (*besides* **dvādasa**)

t and **d** may assimilate to a following **s** or **y** when a morpheme boundary intervenes

Examples:

ut+sava → **ussava**,
ud+yāna → **uyyāna**

Progressive Assimilations

Nasals sometimes assimilate to a preceding stop (in other cases epenthesis occurs)

Examples:

agni → **aggi**,
ātman → **atta**,
prāpnoti → **pappoti**,
śaknoti → **sakkoti**

m assimilates to an initial sibilant

Examples:

smarati → **sarati**,
smṛti → **sati**

Nasals assimilate to a preceding stop+sibilant cluster, which then develops in the same way as such clusters without following nasals

Examples:

tīkṣṇa → **tikṣa** → **tikkha**,
lakṣmī → **lakṣī** → **lakkhī**

The Sanskrit liquid consonants **r** and **l** assimilate to a preceding stop, nasal, sibilant, or **v**

Examples:

prāṇa → **pāṇa**,
grāma → **gāma**,
śrāvaka → **sāvaka**,
agra → **agga**,
indra → **inda**,
aśru → **assu**
pravrajati → **pavvajati** → **pabbajati**,

y assimilates to preceding non-dental/retroflex stops or nasals

Examples:

cyavati → **cavati**,
jyotiṣ → **joti**,
rājya → **rajja**,
matsya → **macchya** → **maccha**,
lapsyate → **lacchyate** → **lacchati**,
abhyāgata → **abbhāgata**,
ākhyāti → **akkhāti**,
saṅkhyā → **saṅkhā** (*but also saṅkhyā*),
ramya → **ramma**

y assimilates to preceding non-initial v, producing **vv** → **bb**

Examples:

divya → **divva** → **dibba**,
veditavya → **veditavva** → **veditabba**,
bhāvya → **bhavva** → **bhabba**

y and v assimilate to any preceding sibilant, producing **ss**

Examples:

paśyati → **passati**,
śyena → **sena**,
aśva → **assa**,
īśvara → **issara**,
kariṣyati → **karissati**,
tasya → **tassa**,
svāmin → **sāmī**

v sometimes assimilates to a preceding stop

Examples:

pakva → **pakka**,
catvāri → **cattāri**,
sattva → **satta**,
dhvaja → **dhaja**

Partial and Mutual Assimilation

Sanskrit sibilants before a stop assimilate to that stop, and if that stop is not already aspirated, it becomes aspirated; e.g. **śc**, **st**, **ṣṭ** and **sp** become **cch**, **tth**, **ṭṭh** and **pph**

Examples:

paścāt → **pacchā**,
asti → **atthi**,
stava → **thava**,
śreṣṭha → **seṭṭha**,
aṣṭa → **aṭṭha**,
sparśa → **phassa**

In sibilant-stop-liquid sequences, the liquid is assimilated to the preceding consonant, and the cluster behaves like sibilant-stop sequences; e.g. **str** and **ṣṭr** become **tth** and **ṭṭh**

Examples:

śāstra → **śasta** → **sattha**,
rāṣṭra → **raṣṭa** → **raṭṭha**

t and **p** become **c** before **s**, and the sibilant assimilates to the preceding sound as an aspirate (i.e., the sequences **ts** and **ps** become **cch**)

Examples:

vatsa → **vaccha**,
apsaras → **accharā**

A sibilant assimilates to a preceding **k** as an aspirate (i.e., the sequence **kṣ** becomes **kch**)

Examples:

bhikṣu → **bhikkhu**,
kṣānti → **khanti**

Any dental or retroflex stop or nasal followed by **y** converts to the corresponding palatal sound, and the **y** assimilates to this new

consonant, i.e. **ty, thy, dy, dhy, ny** become **cc, cch, jj, jjh, ññ**; likewise **ṅy** becomes **ññ**. Nasals preceding a stop that becomes palatal share this change.

Examples:

tyajati → **cyajati** → **cajati**,
satya → **sacya** → **sacca**,
mithyā → **michyā** → **micchā**,
vidyā → **vijyā** → **vijjā**,
madhya → **majhya** → **majjha**,
anya → **añya** → **añña**,
puṇya → **puñya** → **puñña**,
vandhya → **vañjhya** → **vañjjha** → **vañjha**

the sequence **mr** becomes **mb**, via the epenthesis of a stop between the nasal and liquid, followed by assimilation of the liquid to the stop and subsequent simplification of the resulting geminate.

Examples:

āmra → **ambra** → **amba**,
tāmra → **tamba**

Epenthesis

An epenthetic vowel is sometimes inserted between certain consonant sequences. As with **r̥**, the vowel may be **a, i, or u**, depending on the influence of a neighboring consonant or of the vowel in the following syllable. **i** is often found near **i, y,** or palatal consonants; **u** is found near **u, v,** or labial consonants.

Sequences of stop + nasal are sometimes separated by **a** or **u**

Example:

ratna → **ratana**,
padma → **paduma** (**u** influenced by labial **m**)

The sequence **sn** may become **sin** initially

Examples:

snāna → **sināna**,
sneha → **sineha**

i may be inserted between **a** consonant and **l**

Examples:

kleśa → **kileśa**,
glāna → **gilāna**,
mlāyati → **milāyati**,
ślāghati → **silāghati**

An epenthetic vowel may be inserted between an initial sibilant and **r**

Example:

śrī → **sirī**

The sequence **ry** generally becomes **riy** (**i** influenced by following **y**), but is still treated as a two-consonant sequence for the purposes of vowel-shortening

Examples:

ārya → **arya** → **ariya**,
sūrya → **surya** → **suriya**,
vīrya → **virya** → **viriya**

a or **i** is inserted between **r** and **h**

Example:

arhati → **arahati**,
garhā → **garahā**,
barhiṣ → **barihisa**

There is sporadic epenthesis between other consonant sequences

Examples:

caitya → **cetiya** (*not cecca*),

vajra → **vajira** (*not vajja*)

Other Changes

Any Sanskrit sibilant before a nasal becomes a sequence of nasal followed by **h**, i.e. **ṣṇ**, **sn** and **sm** become **ṇh**, **nh**, and **mh**

Examples:

ṭṛṣṇa → **taṇha**,

uṣṇīṣa → **uṇhīsa**,

asmi → **amhi**

The sequence **śn** becomes **ñh**, due to assimilation of the **n** to the preceding palatal sibilant

Example:

praśna → **praśña** → **pañha**

The sequences **hy** and **hv** undergo metathesis

Examples:

jihvā → **jivhā**,

grhya → **gayha**,

guhya → **guyha**

h undergoes metathesis with a following nasal

Example:

grhṇāti → **gaṇhāti**

y is geminated between **e** and **a** vowel

Examples:

śreyas → **seyya**,

Maitreya → **Metteyya**

Voiced aspirates such as **bh** and **gh** on rare occasions become **h**

Examples:

bhavati → **hoti**,
-ebhiṣ → **-ehi**,
laghu → **lahu**

Dental and retroflex sounds sporadically change into one another

Examples:

jñāna → **ñāṇa** (*not ñāna*),
dahati → **ḍahati** (*besides Pāli dahati*)
nīḍa → **nīla** (*not nīḷa*),
sthāna → **ṭhāna** (*not thāna*),
duḥkr̥ta → **dukkaṭa** (*besides Pāli dukkata*)

Exceptions

There are several notable exceptions to the rules above; many of them are common Prakrit words rather than borrowings from Sanskrit.

ārya → **ayya** (*besides ariya*)
guru → **garu** (**adj.**) (*besides guru (n.)*)
puruṣa → **purisa** (*not purusa*)
vṛkṣa → **rukṣa** → **rukkha** (*not vakkha*)

Pāli and Old-Indic Equivalence

(based on von Achim Fahs, Grammatik des Pali, Leipzig, 1985,
and compiled by the Pali Yahoo Group)

Beginning of a word

In the middle of a word

Pāli	Old Indic		Pāli	Old Indic
		a-o		
a	a, ā, ṛ		a	a, ṛ
i	i, ṛ		i	i, ṛ
u	u, ṛ		u	u, ṛ
e	e, i		e	e, ai
o	o, u, ava, apa		o	o, au
		m̐		
			m̐kh	m̐khy, msk
			m̐p	m̐pr
			m̐s	śm
		k		
k	kr		kiy	ky
kir	kr		kk	kn, ky, kr, kṣ, kv, kl, ṭk, tk, rk, lk
kil	kl		kkh	kṣ, kṣm, kṣy, khy, tkh, rk, ṣk, ṣkr
kur	kr			
		kh		
kh	kṣ, khy, sk		kh	kṣ
			khin	kṣn
			khum	kṣim
			khiy	khy
		g		
g	gr		gg	gn, gy, gr, ḍg, dg, rg, lg
gil	gl		ggh	ghn, ghr, gr, dkṣ, dgh, rgh

Transforming Sanskrit into Pāli – 16

		ṅ		
			ṅk	ṁsk, ṅks, mk
			ṅkh	ṁkh
		c		
c	kṣ, cy, ty		cc	cy, tc, ty, rc, rty
ch	kṣ, ps		ch	tch
			cch	kṣ, cchr, ts, tsy, thy, ds, ps, rch, śc, skṣ
		j		
j	jy, jv, dy		jir	jr
jiy	jy		jj	gj, jy, dj, dy, bj, rj, rjy, rdy
jh	dhy		jjh	jhy, dhy
		ñ		
ñ	jñ, ny		ñc	nty
			ñj	ñjy
			ññ	jñ, ñc, ñy, ny, mñn, my
			ñh	śn
		ṭ		
ṭh	sth		ṭṭ	rt
			ṭṭh	ṣṭr
		ḍ		
			ḍḍ	ḍy, rd
			ḍḍh	dhy, rdh, ht
			ḍh	ht
		ṇ		
			ṇ	jñ
			ṇṭh	ṁsth, ṁṭh
			ṇḍ	ṁḍ
			ṇṇ	ñc, ṇḍ, ṇv, ṇṇ

Transforming Sanskrit into Pāli – 17

			ṇṇiy	rṇy
			ṇh	ṅks, tsṇ, rṣṇ, ṣṇ, hṇ
		t		
t	tr, tv		tt	kt, ktr, tn, tm, ttr, tr, ttv, tv, pt, rt, str
tuv	tv		ttiy	tby
th	st, sth, str, ts		tth	kth, gth, tr, thn, rth, str
			ty	tvv
			tr	ttr
			tv	ktv, ptv
		d		
d	jy, dv		diy	dy
duv	dv		dd	jv, dm, dv, dr, dl, bd, rd
dh	dhv, dhr		ddh	gdh, dhn, dhv, d+h, dhr, bdh, bdhv, rdh, rdhv, ht
dhum	dhm			
		n		
nsh	sn		nt	ntr, mtr, mt
nh	sn		nd	ndr
			nn	nc, dn, nm, nv
		p		
p	pr, pl		pp	tp, pn, py, rp, lp, spr
pal	pl		ppil	tpl
pil	pl		pl	tpl
ph	pr, sp, sph		pph	sph
		b		
b	dv		bb	ḍv, dh, dv, rb, rv, lb, lv, vy, vr
by	vy		bbh	gbh, dbh, bhy, bhr, rbh, rdhv, lbh

Transforming Sanskrit into Pāli – 18

bh	bhr			
		m		
m	mr, śm		m	rm
mil	ml		mb	mr, ṁb
mih	sm		mbil	ml
			mm	km, ḍm, nv, mn, mb, my, rm, lm, ṁm
			mh	rṣm, śm, ṣm, sm, hm
		y		
			y	ry
			yir	ry
			yy	dy, ry, hy
			yh	hy
		r		
r	hr		r	ry, rr, mr
rh	hr		riy	ry
		l		
			ll	rl, ly, lv, ml
			.lh	ht
		v		
v	vy, vr		vh	hv
vīy	vy			
		s		
s	śm, śy, śr, śl, śv, sm, sr, sv		s	rṣ, sr
sin	sn		sin	tsn
siy	sy		sir	cchr
sir	śr		st	str
sil	śl		sv	stv

Transforming Sanskrit into Pāli – 19

sum	sm		ss	cchr, rś, rṣ, rṣy, śy, śr, śv, ṣm, ṣy, sr, sv, hśr, ts, ds
suv	śv, sv			
		h		
h	hr		h	d+h, rh, ṣy, sy
han	hn			
har	hr			
hiy	hy			
hiyy	hy			
hir	hr			
hil	hl			