

Deterrorizing Sanskrit

Past perfect participle and passive voice

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Past perfect participle

The formation of the PPP follows the general pattern

zero-grade root + *ta*

This is obvious from these examples:

- with *ṛ*

√ in zero grade	3. pers. sg.	PPP
<i>kṛ</i> ("to make")	<i>kar-ô-ti</i>	<i>kṛ-ta</i>
<i>smṛ</i> ("to remember")	<i>smar-a-ti</i>	<i>smṛ-ta</i>
<i>vṛt</i> ("to turn, to happen, to be")	<i>vart-a-te</i>	<i>vṛt-ta</i>

Past perfect participle

- with *i*

√ in zero grade	3. pers. sg.	PPP
<i>kṣip</i> ("to throw")	<i>kṣip-a-ti</i>	<i>kṣip-ta</i>
<i>jī</i> ("to conquer")	<i>jay-a-ti</i>	<i>jī-ta</i>

- with *u*

√ in zero grade	3. pers. sg.	PPP
<i>yuj</i> ("to join")	<i>yu-na-k-ti</i>	<i>yuk-ta</i>
<i>muc</i> ("to release")	<i>muñc-a-ti</i>	<i>muk-ta</i>
<i>stu</i> ("to praise")	<i>stau-ti</i>	<i>stu-ta</i>
<i>vac</i> ("to speak") (full grade!)	<i>vak-ti</i>	<i>uk-ta</i>
<i>vap</i> ("to sow") (full grade!)	<i>vap-a-ti</i>	<i>up-ta</i>
<i>śṛ</i> ("to hear"), really <i>śru</i>	<i>śṛ-nô-ti</i>	<i>śru-ta</i> (!)

Past perfect participle with *na*

Instead of the *to* marker, a few verbs also use *no*, for example from *sad* (“to sit”), we obtain

pra-sanna ← *pra-sad-na* (“favourable”).

Many of these end in *d*:

√ in zero grade	3. pers. sg.	PPP
<i>chid</i> (“to cut”)	<i>chi-na-t-ti</i>	<i>chin-na</i>
<i>bhid</i> (“to break”)	<i>bhi-na-t-ti</i>	<i>bhin-na</i>
<i>tud</i> (“to hit”)	<i>tud-a-ti</i>	<i>tun-na</i>
<i>khid</i> (“to be depressed”)	<i>khid-ya-tê</i>	<i>khin-na</i>

But stems that end in *oi*. *j* are also present:

- *bhañj* (“to break”) with PPP *bhag-na*
- *majj* (“to sink”) with PPP *mag-na*
- many others??

Past perfect participle

oi. roots ending in a nasal

√ in full grade	3. pers. sg.	PPP
<i>gam</i> ("to go")	<i>gacch-a-ti</i>	* $\underbrace{gm}_{\text{root}}$ -to → <i>ga-ta</i> in zero grade
<i>tan</i> ("to stretch")	<i>tanôti</i>	* $\underbrace{tn}_{\text{root}}$ -to → <i>ta-ta</i> in zero grade

Past perfect participle

oi. roots ending in a nasal

and this list:

√ in full grade	3. pers. sg.	PPP
<i>nam</i> ("to salute")	<i>nam-a-ti</i>	<i>na-ta</i>
<i>man</i> ("to think")	<i>man-y-a-te</i>	<i>ma-ta</i>
<i>yam</i> ("to control")	<i>yacch-a-ti</i>	<i>ya-ta</i>
<i>ram</i> ("to enjoy")	<i>ram-a-te</i>	<i>ra-ta</i>
<i>han</i> ("to hit")	<i>han-ti</i>	<i>ha-ta</i> (!)

Past perfect participle

aspiration shift (Bartholomae's law)

√	3. pers. sg.	PPP
<i>kṣubh</i> ("to be upset")	<i>kṣubh-y-a-ti</i>	<u><i>kṣubh</i></u> -ta → <i>kṣub-dha</i> oi. root in zero grade
<i>labh</i> ("to obtain")	<i>labh-a-te</i>	<u><i>labh</i></u> -ta → <i>lab-dha</i> oi. root in full grade
<i>vṛdh</i> ("to grow")	<i>vṛdh-a-te</i>	<i>vṛdh-ta</i> → <i>vṛd-dha</i>

Past perfect participle

both aspiration laws

Remember

ie. $dh\ t \rightarrow oi.\ d\ dh$

Thus, together with deaspiration

✓	3. pers. sg.	PPP
<i>bandh</i> ("to bind")	<i>badh-nā-ti</i>	* <i>bh_ondh</i> -to → <i>bad-dha</i> root in zero grade
<i>budh</i> ("to know")	<i>bôdh-a-ti</i>	* <i>bh_udh</i> -to → <i>bud-dha</i> root in zero grade

Past perfect participle

both aspiration laws

Remember

ie. $gh/g^w h \rightarrow oi$. $\begin{cases} gh, & \text{bef. dark vowel or cons.} \\ h, & \text{bef. light vowel (sec. palatalization)} \end{cases}$

For example, we have

√	3. pers. sg.	PPP
<i>snih</i> ("to love")	<i>snih-y-a-ti</i>	* $\underbrace{snig^w h}$ -to $\rightarrow$ <i>snig-dha</i> root in zero grade
<i>dah</i> ("to burn")	<i>dah-a-ti</i>	* $\underbrace{dheg^w h}$ -to $\rightarrow$ <i>dag-dha</i> root in full grade

Past perfect participle

both aspiration laws

... and

√	3. pers. sg.	PPP
<i>duh</i> ("to milk")	<i>dôg-dhi</i>	* <u><i>dhugh</i></u> -to → <i>dug-dha</i> root in zero grade
<i>dih</i> ("to milk")	<i>dêg-dhi</i>	* <u><i>dhigh</i></u> -to → <i>dig-dha</i> root in zero grade

Past perfect participle

both aspiration laws

Or, in more detail,

- snig^w h-to* (zero grade and *to*-marker of past participle)
- *snigh-ta* (no sec. palatalization before *to*)
- *snig-dha* (aspiration shift)

and

- dhieg^w h-to* (full (!) grade and *to*-marker of past participle)
- *dhagh-ta* (no sec. palatalization before *to*)
- *dagh-ta* (deaspiration)
- *dag-dha* (aspiration shift)

Past perfect participle

cerebralization laws

Remember

$$\text{oi. } \dot{s}/\acute{s} + t \rightarrow \dot{s}t$$

Thus,

- *viś* (“to enter”) ← ie. *veik* with

ie. **vik-to* (zero grade and *to*-marker of past participle)

→ **viś-ta* (primary palatalization)

→ *viṣ-ṭa* (cerebralization oi. $\acute{s} + t \rightarrow \dot{s}t$),

and ...

Past perfect participle

cerebralization laws

- *drś* (“to see”) ← ie. **derk* with
 - ie. **dr̥k-to* (zero grade and *to*-marker of past participle)
 - **dr̥ś-ta* (primary palatalization)
 - *dr̥ṣ-ṭa* (cerebralization oi. $\acute{s} + t \rightarrow \acute{\text{ṣṭ}}$),
- *pracch* (“to ask”) ← ie. **prek* (“to dig, to nuzzle”) with
 - ie. **pr̥k-to* (zero grade and *to*-marker of past participle)
 - **pr̥ś-ta* (primary palatalization)
 - *pr̥ṣ-ṭa* (cerebralization oi. $\acute{s} + t \rightarrow \acute{\text{ṣṭ}}$),

Past perfect participle

cerebralization laws + ruki

Remember

oi. *s* after ruki, but not word-final $\rightarrow$ oi. $\dot{s}$.

Thus,

- $v\ddot{r}\dot{s}$ (“to rain”) $\leftarrow$ ie. * ??

$v\ddot{r}\dot{s}$ -to ?? (zero grade and *to*-marker of past participle)

$\rightarrow$ $v\ddot{r}\dot{s}$ - $\dot{t}a$ (cerebralization oi. $\dot{s} + t \rightarrow \dot{s}t$)

- $k\ddot{r}\dot{s}$ (“to plough”) $\leftarrow$ ie. * ??

$k\ddot{r}s$ -to (zero grade and *to*-marker of past participle)

$\rightarrow$ * $k\ddot{r}\dot{s}$ - $\dot{t}a$ (ruki)

$\rightarrow$ $k\ddot{r}\dot{s}$ - $\dot{t}a$ (cerebralization oi. $\dot{s} + t \rightarrow \dot{s}t$)

Past perfect participle

cerebralization laws + ruki

- *dviṣ* (“to hate”) ← ie. **dveis* with

dviṣ-to (zero grade and *to*-marker of past participle)

→ **dviṣ-ta* (ruki)

→ *dviṣ-ṭa* (cerebralization oi. $\dot{s} + t \rightarrow \dot{s}\dot{t}$)

- *iṣ* (“to wish”) ← ie. **H₂eis* with

ie. **H₂iṣ-to* (zero grade and *to*-marker of past participle)

→ **iṣ-ta* (ruki)

→ *iṣ-ṭa* (cerebralization oi. $\dot{s} + t \rightarrow \dot{s}\dot{t}$)

Past perfect participle

cerebralization laws + ruki

Remember ruki and

ie. $\acute{g}$ before voiceless consonant $\rightarrow$ oi. $j \rightarrow s$

Thus, the PPP of $sṛj$, $sṛj-a-ti$ (“to throw, to create”):

$sṛ\acute{g}-to$ (zero grade and to -marker of past participle)

$\rightarrow sṛs-ta$ (third $s-z$ law before voiceless consonant)

$\rightarrow sṛṣ-ta$ (ruki)

$\rightarrow sṛṣ-ṭa$ (forward cerebral assimilation)

and,

Past perfect participle

cerebralization laws + ruki

very similarly, the PPP of *yaj*, *yajate* (“to sacrifice”) (from ie. **yeg*):

- iḡ-to* (zero grade and *to*-marker of past participle)
- *is-ta* (third *s-z* law before voiceless consonant)
- *iṣ-ta* (ruki)
- *iṣ-ṭa* (forward cerebral assimilation)

Interestingly, *iṣ-ṭa* is the regularly formed PPP of

- oi. *yaj*, *yajate* (“to sacrifice”) as well as of
- oi. *iṣ*, *icchatī* (“to wish”)

Past perfect participle

aspiration and cerebralization laws

The PPP *ū-dha* from *vah*, *vah-a-ti* (“to flow, to drive”) goes back to ie. **veǵh*:

- uǵh-to* (zero grade and *to*-marker of past participle)
- *uǵ-dha* (aspiration shift)
- *uz-dha* (second *s-z* law before voiced consonant)
- *uṛ-dha* (ruki)
- *uṛ-dha* (forward cerebral assimilation)
- *ū-dha* (*z* drops with comp. lengthening).

Past perfect participle

aspiration and cerebralization laws

Similarly, but with Grassmann's law, *guh*, *gūhati* ("to hide") goes back to ie. **gheugh* and we get

- ghuġh-to* (zero grade and *to*-marker of past participle)
- *guġ-dha* (deaspiration and aspiration shift)
- *guz-dha* (second *s-z* law before voiced consonant)
- *guṛ-dha* (ruki)
- *guṛ-ḍha* (forward cerebral assimilation)
- *gū-ḍha* (z drops with comp. lengthening)

Past perfect participle

aspiration and cerebralization laws

Here the PPP *lī-ḍha* of *lihati* (“he licks”):

- līgh-to* (zero grade and *to*-marker of past participle)
- *līg-dha* (aspiration shift)
- *liz-dha* (*s-z* law before voiced consonant)
- *liṛ-dha* (*ruki*)
- *liṛ-ḍha* (forward cerebral assimilation)
- *lī-ḍha* (*z* drops with comp. lengthening)

Past perfect participle

laryngeals

Remember

neighborhood of laryngeal	sound law
between consonants	ie. $CHC \rightarrow oi. CiC$
between consonant and vowel	ie. $CHV \rightarrow oi. CV$
after $i/u/e/o$	ie. $iH/uH/eH/oH \rightarrow oi. \bar{i}/\bar{u}/\bar{a}/\bar{a}$
after $\underset{\circ}{n}$	ie. $C\underset{\circ}{n}H \rightarrow oi. C\bar{a}$
after $\underset{\circ}{m}$	ie. $C\underset{\circ}{m}H \rightarrow oi. C\bar{a}m$
after $C^{\text{labial}}\underset{\circ}{r}$	ie. $C^{\text{labial}}\underset{\circ}{r}H \rightarrow oi. C\bar{u}r$
after $C^{\text{not labial}}\underset{\circ}{r}H$	ie. $C^{\text{not labial}}\underset{\circ}{r}H \rightarrow oi. C\bar{i}r$

Past perfect participle

larnygeals

Thus,

✓	PPP
<i>bhū</i> ("to be")	ie. * $\underbrace{bhuH}$ -to → <i>bhū-ta</i> root in zero grade
<i>pū</i> ("to purify")	ie. * <i>puH-to</i> → <i>pū-ta</i>
<i>bhī</i>	ie. * <i>bhiH-to</i> → <i>bhī-ta</i>
<i>pā</i> ("to drink")	* <i>pH₃i-to</i> → * <i>piH₃-to</i> → <i>pī-ta</i>

- ie. root **peH₃* in *pā*, *pi-b-a-ti* ("to drink")
- zero grade **pH₃i* could **not** have lead to long $\bar{i}$
- Therefore, assume metathesis **piH₃*.

Past perfect participle

larnygeals

Thus,

√	PPP
$n\bar{i}$ ("to lead")	* $niH-to \rightarrow n\bar{i}-ta$
$g\hat{a}i$ ("to drink")??	* $?? \rightarrow g\bar{i}-ta$
$\bar{l}i \leftarrow *liH$ ("to cling")	* $liH-no \rightarrow \bar{l}ina$
$\bar{l}u \leftarrow *luH$ ("to cut, to tear")	* $luH-no \rightarrow \bar{l}una$

Past perfect participle

laryngeals

Now laryngeals between consonants:

✓	PPP
$dhā$ ("to place")	* $\underbrace{dhh_1}$ -to $\rightarrow$ hi -ta root in zero grade
$dā$ ("to give")	* $\underbrace{dh_3}$ -to $\rightarrow$ di -ta besides dat -ta root in zero grade
$sthā$ ("to stand")	* $sthH_2$ -to $\rightarrow$ $sthi$ -ta

$sthā$ - from ie. * $steH_2$ but

ti - $sthā$ - mi and $sthi$ -ta show double effect of laryngeal (h by levelling)

Past perfect participle

laryngeals

Next, nasal + laryngeal in

✓	PPP
<i>khan</i> ("to dig")	* <i>khṇH-to</i> → <i>khā-ta</i>
<i>jan</i> ("to be born")	* <i>ǵṇH-to</i> → <i>jā-ta</i>
<i>kam</i> ("to love")	* <i>kṃH-to</i> → <i>kān-ta</i>
<i>jñā</i> ("to know")	* <i>ǵṇh₃</i> ~~~~~ root in zero grade <i>-to</i> → <i>jñā-ta</i>

Past perfect participle

larnygeals

Remember

$$\begin{aligned} \text{ie. } C^{\text{labial}} rH &\rightarrow \text{oi. } C\bar{u}r, \\ \text{ie. } C^{\text{not labial}} rH &\rightarrow \text{oi. } C\bar{i}r \end{aligned}$$

Thus,

✓	PPP
$t\bar{r} \leftarrow *trH$ ("to cross")	* $\underbrace{trH}_{\text{root}}$ -no $\rightarrow t\bar{i}r\eta a$ in zero grade
$d\bar{r} \leftarrow *drH$ ("to tear")	* $\underbrace{drH}_{\text{root}}$ -no $\rightarrow d\bar{i}r\eta a$ in zero grade

Past perfect participle

laryngeals

and

✓	PPP
$p\bar{r} \leftarrow *p_r H$ ("to fill")	$* \underbrace{p_l H}_{\text{root}} -no \rightarrow p\bar{u}r\eta a$ in zero grade
$j\bar{r} \leftarrow *g_r H$ ("to waste away")	$* \underbrace{g_r H}_{\text{root}} -no \rightarrow j\bar{i}r\eta a$ in zero grade

Root nouns

Root nouns are typically indicated by

- the root in zero grade and
- the nom. sg. which does not exhibit any case ending (in Sanskrit, originally *s*).

Loss of voice and aspiration:

- *yut* (stem *yudh*) (“battle”)
- *mṛt* (stem *mṛd*) (“clay”)
- *vidyut* (stem *vidyut*) (“flash of lightning”)

Root nouns

Sometimes full grade (if zero grade impossible or unclear),
for example from ie. **sed*:

- *upa-ni-ṣat* (stem *upa-ni-ṣad*) (“*upa-ni-ṣad*”)
- *saṃ-sat* (stem *saṃ-sad*) (“assembly”)
- *pari-ṣat* (stem *pari-ṣad*) (“assembly”)

Root nouns

Sometimes, ie. ie. palatal $\acute{k}$ reemerges:

- $dṛk$ (stem $dṛś$) (“sight”) ← ie. $*der\acute{k}$

But, not “correct”:

- $viṭ$ (stem $viś$) (“house, people”) ← ie. $*vei\acute{k}$

Feminine action noun with suffix *ti*

√	PPP	<i>ti</i> noun
<i>muc</i> ("to liberate")	<i>muk-ta</i>	<i>muk-ti-s</i> ("release, liberation")
<i>vac</i> ("to speak")	<i>uk-ta</i>	<i>uk-ti-s</i> ("speech")
<i>yuj</i> ("to yoke")	<i>yuk-ta</i>	<i>yuk-ti-s</i> ("connection, application")
<i>kṛ</i> ("to make")	<i>kṛ-ta</i>	<i>kṛ-ti-s</i> ("doing, deed")
<i>vṛt</i> ("to turn, to be")	<i>vṛt-ta</i>	<i>vṛt-ti-s</i> ("event, lifestyle")
<i>smṛ</i> ("to remember")	<i>smṛ-ta</i>	<i>smṛ-ti-s</i> ("commemoration, tradition")
<i>śru</i> ("to hear")	<i>śru-ta</i>	<i>śru-ti-s</i> ("hearing, ear, vedic text")
<i>stu</i> ("to praise")	<i>stu-ta</i>	<i>stu-ti-s</i> ("praise, hymn")

Feminine action noun with suffix *ti*

Oi root *i* (“to go”) with prefixes:

	<i>ti</i> noun
<i>ud-i</i> (“to rise (stars)”)	<i>ud-i-ti-s</i> (“sunrise”)
<i>abhi-i</i> (“approach”)	<i>abhī-ti-s</i> ← * <i>abhi-i-ti-s</i> (“attack”)
<i>adhi-i</i> (“to study”)	<i>adhī-ti-s</i> ← * <i>adhi-i-ti-s</i> (“study”)
<i>upa-i</i> (“to go towards”)	<i>upê-ti-s</i> ← * <i>upa-i-ti-s</i> (“approach”)
<i>pra-i</i> (“to set off, to die”)	<i>prê-ti-s</i> ← * <i>pra-i-ti-s</i> (“escape”)

Feminine action noun with suffix *ti*

Nasal roots:

√	PPP	<i>ti</i> noun
<i>gam</i> ("to go")	<i>ga-ta</i>	<i>ga-ti-s</i> ("path")
<i>tan</i> ("to stretch")	<i>ta-ta</i>	<i>ma-ti-s</i> ("sequence, degree")
<i>nam</i> ("to salute")	<i>na-ta</i>	<i>na-ti-s</i> ("salutation")
<i>man</i> ("to think")	<i>ma-ta</i>	<i>ma-ti-s</i> ("thought")
<i>yam</i> ("to control")	<i>ya-ta</i>	<i>ya-ti-s</i> ("control")
<i>ram</i> ("to enjoy")	<i>ra-ta</i>	<i>ra-ti-s</i> ("pleasure")
<i>han</i> ("to hit")	<i>ha-ta</i>	<i>ha-ti-s</i> ("killing")

Feminine action noun with suffix *ti*

Aspiration and/or cerebralization are involved in these examples:

√	PPP	<i>ti</i> noun
<i>vah</i> ("to carry")	<i>ūdha</i>	<i>ūdhis</i> ("carrying")
<i>dṛṣ</i> ("to see")	<i>dṛṣ-ṭa</i>	<i>dṛṣ-ṭis</i> ("sight")
<i>vṛṣ</i> ("to rain")	<i>vṛṣ-ṭa</i>	<i>vṛṣ-ṭis</i> ("rain")
<i>sṛj</i> ("to create")	<i>sṛṣ-ṭa</i>	<i>sṛṣ-ṭis</i> ("creation")
<i>yaj</i> ("to sacrifice")	<i>iṣ-ṭa</i>	<i>iṣ-ṭis</i> ("sacrifice")
<i>iṣ</i> ("to wish")	<i>iṣ-ṭa</i>	<i>iṣ-ṭis</i> ("wish")
<i>budh</i> ("to understand")	<i>bud-dha</i>	<i>bud-dhis</i> ("idea, understanding")
<i>ruh</i> ("to grow")	<i>rū-dha</i>	<i>rū-dhis</i> ("increase, growth")

If you like that sort of thing, *vṛd-dhis* ("growth, lengthened grade") is in zero grade!

Feminine action noun with suffix *ti*

Roots containing laryngeals:

√	PPP	<i>ti</i> noun
<i>dhā</i> ("to place")	<i>hi-ta</i>	<i>hi-ti-s</i> ("mission, mandate")
<i>dā</i> ("to give")	<i>di-ta</i>	<i>di-ti-s</i> ("giving, offering, largess")
	<i>dat-ta</i>	<i>dat-ti-s</i> ("giving, gift")
<i>sthā</i> ("to stand")	<i>sthi-ta</i>	<i>sthi-ti-s</i> ("standing, rank")
<i>pā</i> ("to drink")	<i>pī-ta</i>	<i>pī-ti-s</i> ("drinking, drink")
<i>pṛ</i> ("to fill, to fulfill")	<i>pūr-ta</i>	<i>pūr-ti-s</i> ("filling, remuneration")
<i>bhū</i> ("to be")	<i>bhū-ta</i>	<i>bhū-ti-s</i> ("power, happiness")
<i>jan</i> ("to be born")	<i>jā-ta</i>	<i>jā-ti-s</i> ("birth, caste")

From *as* ("to be")

- *s-ti-s* ("being (close to a master) → dependent, vassal")
- *sti-pā* ("protecting the dependents", see *pā*).

Adjectives

Oi root *i* (“to go”) with prefixes:

	PPP
<i>vi-i</i> (“to disappear”)	$\bar{v}i-ta \leftarrow vi-i-ta$ (“gone, freed from”)
<i>pra-i</i> (“to set off”)	$prê-ta \leftarrow *pra-i-ta$ (“gone forth $\rightarrow$ dead”)

Adjectives with *ra*

✓	ra adjective
kṣip ("to throw, to dash")	kṣip-ra ("fast, quick") ← ie. *ksip-ro
kṣud ("to stamp, to crunch")	kṣud-ra ("miserable, mean") ← ie. *ksud-ro
gṛdh ("to be greedy")	gṛdhra ("greedy") ← ie. *gṛdh-ro
	also gṛdhras, m. ("vulture") ← ie. *gṛdh-ro
vip ("to tremble, to be excited")	vip-ra ("excited, wise") ← ie. *vip-ro
cit ("to observe, to appear")	cit-ra ("bright, colourful") ← ie. *??-ro
	also citram, n. ("picture")
sthā ("to stand")	sthi-ra ("steady, durable")
chid ("to split, to cut")	chid-ra ("with holes") ← ie. *vip-ro??
nādh ("to be needy, to beg")	ādh-ra ("needy, weak, poor") ← ie. *nHdh-ro
hiṃs ("to hurt, to damage")	hiṃs-ra ("hurting, vicious") ← ie. *??-ro
ie. *kruH2- ("to form a crust")	krū-ra ("bloody, raw, cruel") ← ie. *kruH2-ro

Passive voice

Formation of passive voice is

oi. root + *y* + *a* + ātmanêpada ending

Thus,

	oi. root	3. pers. sg.
ie. root with <i>er</i>	<i>vṛt</i> , <i>vart-a-tê</i> ("to be")	<i>vṛt-y-a-tê</i>
	<i>vṛdh</i> , <i>vardh-a-tê</i> ("to grow")	<i>vṛdh-y-a-tê</i>
ie. root with <i>ei</i>	<i>viś</i> , <i>viś-a-ti</i> ("to enter")	<i>viś-y-a-tê</i>
	<i>kṣip</i> , <i>kṣip-a-ti</i> ("to throw")	<i>kṣip-y-a-tê</i>
	<i>kliś</i> , <i>kliś-y-a-tê</i> ("to suffer") (!!)	<i>kliś-y-a-tê</i>
	<i>likh</i> , <i>likh-a-ti</i> ("to write")	<i>likh-y-a-tê</i>
ie. root with <i>eu</i>	<i>ruh</i> , <i>rôh-a-ti</i> ("to climb")	<i>ruh-y-a-tê</i>
	<i>nud</i> , <i>nud-a-tê</i> ("to push, to incite")	<i>nud-y-a-tê</i>
	<i>mud</i> , <i>môd-a-ti</i> ("to rejoice")	<i>mud-y-a-tê</i>
	<i>budh</i> , <i>bôdh-a-ti</i> ("to awake")	<i>budh-y-a-tê</i>

Passive voice with root-initial halfvowel

oi. root	3. pers. sg.
<i>yaj</i> , <i>yaj-a-ti</i> ("to sacrifice")	<i>ij-y-atê</i>
<i>vac</i> , <i>vak-ti</i> ("to say")	<i>uc-y-atê</i>
<i>vas</i> , <i>vas-a-ti</i> ("to live, to dwell")	<i>uṣ-y-atê</i> (with ruki)
<i>vad</i> , <i>vad-a-ti</i> ("to speak")	<i>ud-y-atê</i>
<i>vah</i> , <i>vah-a-ti</i> ("to flow, to carry")	<i>uh-y-atê</i>

Passive voice with n in root

Remember that syllabic *n* turns into *a*.
Thus,

oi. root	3. pers. sg.
<i>bandh</i> ("to bind") (full grade)	<i>badh-y-a-tê</i>
<i>manth</i> ("to stir, to shake") (full grade)	<i>math-y-a-tê</i>
<i>granth</i> ("to bind, to compile") (full grade)	<i>grath-y-a-tê</i>

Passive voice with n in root

Remember

ie. $CCiV \rightarrow$ oi. $CCiyV$

Some examples are passive forms:

oi. root	3. pers. sg.
$hṛ$ ("to take")	$hr-iy-a-tê$
$sṛ$ ("to flow, to move")	$sr-iy-a-tê$
$kṛ$ ("to make")	$kr-iy-a-tê$
$mṛ$ ("to die")	$mr-iy-a-tê$
$vṛ$ ("to choose")	$vr-iy-a-tê$

Passive voice with laryngeals

oi. root	3. pers. sg.
<i>bhū</i> ("to be")	ie. $\underbrace{*bhuH}_{\text{root}}$ → <i>bhū-y-a-tê</i> in zero grade
<i>bhī</i> ("to be afraid")	ie. $*bhiH$ → <i>bhī-y-a-tê</i>
<i>pū</i> ("to purify")	ie. $*puH$ → <i>pū-y-a-tê</i>
<i>pā</i> ("to drink")	$*pH_3i$ → $*piH_3$ → <i>pī-y-a-tê</i>
<i>nī</i> ("to lead")	ie. $*niH$ → <i>nī-y-a-tê</i>
<i>jñā</i> ("to know")	$\underbrace{*gñh_3}_{\text{root}}$ → <i>jñā-y-a-tê</i> in zero grade

Passive voice with laryngeals

Whereas long $\bar{i}$ is expected for $p\bar{a}$ (“to drink”), it has crept into other forms by analogy. For example

$p\bar{a}$ -tum (infinitive)	with passive:	$p\bar{i}$ -y-a-tê
just as		
$d\bar{a}$ -tum (infinitive)	with passive:	$d\bar{i}$ -y-atê

These long $\bar{u}$ or long $\bar{i}$ have also found their way into forms like

oi. root	3. pers. sg.
hu (“to sacrifice”)	$h\bar{u}$ -y-atê
stu (“to praise”)	$st\bar{u}$ -y-atê
$sth\bar{a}$ (“to stand”)	$sth\bar{i}$ -y-atê
$dh\bar{a}$ (“to set”)	$dh\bar{i}$ -y-atê
$h\bar{a}$ (“to abandon”)	$h\bar{i}$ -y-atê
$g\bar{a}i$ (“to sing”)	$g\bar{i}$ -y-atê

Passive voice with irregular full grades

oi. root	3. pers. sg.
<i>smṛ</i> ("to remember")	<i>smar-y-a-tê</i>
<i>sad</i> ("to sit")	<i>sad-y-a-tê</i>
<i>cur</i> ("to steal")	<i>côr-y-a-tê</i>
<i>tyaj</i> ("to abandon")	<i>tyaj-y-a-tê</i>
<i>pat</i> ("to fall")	<i>pat-y-a-tê</i>
<i>paṭ</i> ("to read")	<i>paṭ-y-a-tê</i>
<i>labh</i> ("to obtain")	<i>labh-y-a-tê</i>
<i>ghuṣ</i> ("to proclaim")	<i>ghôṣ-y-a-tê</i>

Passive voice with irregular full grades

√ in full grade	3. pers. sg.	3. pers. sg.
<i>gam</i> ("to go")	<i>gacch-a-ti</i>	<i>gam-y-atê</i>
<i>tan</i> ("to stretch")	<i>tanôti</i>	<i>tan-y-atê</i>
<i>nam</i> ("to salute")	<i>nam-a-ti</i>	<i>nam-y-atê</i>
<i>man</i> ("to think")	<i>man-y-a-te</i>	<i>man-y-atê</i>
<i>yam</i> ("to control")	<i>yacch-a-ti</i>	<i>yam-y-atê</i>
<i>ram</i> ("to enjoy")	<i>ram-a-te</i>	<i>ram-y-atê</i>
<i>han</i> ("to hit")	<i>han-ti</i>	<i>han-y-atê</i>

Regular zero grade would have lead to forms like **na-y-a-tê* (*a* from syllabic *m̐*).

bhuj, *bhu-na-k-ti*, *bhu-n-k-tê*, 7. class

desiderative *bu-bhuj-s-* → *bu-bhuk-s-* (backward assimilation)
→ *bu-bhuk-ṣ-* (ruki)

with three forms

- *bu-bhuk-ṣ-a-tê*, 1.class (“he wants to eat”)
- *bu-bhuk-ṣ-u* (“hungry”)
- *bu-bhuk-ṣ-ā* (“hunger”)

Formula

- zero-grade root, reduplicated with
 - u for u -root
 - i otherwise
- $s +$
 - thematic $a +$ ending for verbs
 - u for adjectives
 - $\bar{a}$ for abstract nouns

Desideratives

- Future forms with *sy* are desideratives originally—“I want to go” became “I will go”—, but use the full grade together with the *sy* suffix.
- Third-class verbs also use reduplication (example: *dhā*, *dadhāti*).
- Perfect forms are mostly formed by reduplication.
- One of the aorist formations is by way of reduplication.

Desideratives

✓	3. sg.	adjective	noun
<i>bhuj</i>	<i>bu-bhuk-ṣ-a-tê</i> “he wants to eat”	<i>bu-bhuk-ṣ-u</i> “hungry”	<i>bu-bhuk-ṣ-ā</i> “hunger”
<i>jñā</i>	<i>jī-jñā-s-a-tê</i> “he wants to know”	<i>jī-jñā-s-u</i> “inquisitive”	<i>jī-jñā-s-ā</i> “curiosity”
<i>pā</i>	<i>pi-pā-s-a-ti</i> “he wants to drink”	<i>pi-pā-s-u</i> “thirsty”	<i>pi-pā-s-ā</i> “thirst”
<i>muc</i>	<i>mu-muk-ṣ-a-ti</i> “he wants to liberate”	<i>mu-muk-ṣ-u</i> “wanting liberation”	<i>mu-muk-ṣ-ā</i> “desire for lib.”

bhid, *bhi-na-t-ti*, 7. class (“to split”)

desiderative *bhi-bhid-s-*

→ *bi-bhit-s-* (backward assimilation, Grassmann)

→ *bi-bhit-s*, *bi-bhit-s-a-ti*, 1.class (“to wish to split”)
+ *bi-bhit-s-u* (“wishing to split”)

yuj, *yu-na-k-ti*, 7. class (“to yoke”)

desiderative *yu-yuj-s-* → *yu-yuk-s-* (backward assimilation)

→ *yu-yuk-ṣ-* (ruki)

→ *yu-yuk-ṣ*, *yu-yuk-ṣ-a-ti* (“to wish to yoke”)

yudh, *yudh-y-atê*, 4. class (“to fight”)

desiderative *yu-yudh-s-*

- *yu-yut-s-* (backward assimilation, deaspiration)
- *yu-yut-s*, *yu-yut-s-a-ti*, 1. class (“to wish to fight”)
+ *yu-yut-s-u* (“combative”)

āp, *āp-nô-ti*, 5. class (“to obtain”) ← ie. **H₁ep*

desiderative *H₁i-H₁p-s-*

- *īp-s-* (sound law “ie. **iH* → oi. *ī*”)
- *īp-s*, *īp-s-a-ti*, 1. class (“to wish (to obtain)”)
+ *īp-s-u* (“wishing, appetent”)

bhaj, *bhaj-a-ti*, 1. class (“to divide, to allot”) from ie. **bheǵ*
desiderative *bhi-bhǵ-s-*

- *bhi-pk-s-* (backward assimilation, deaspiration, *s* not aspiratable)
- *bhi-k-s-* (cluster simplification)
- *bhik-ṣ-* (ruki)
- *bhikṣ*, *bhikṣ-a-tê*, 1. class (“to wish to share, to beg”)
+ *bhik-ṣ-u* (“begging”)

śak, *śak-nô-ti*, 5. class (“to be able”) ← ie. **ék*??

desiderative **kí-kk-s-*

→ *śi-śk-s-* (primary palatalization)

→ *śi-k-s-* (cluster simplification)

→ *śi-k-ṣ-* (ruki)

→ *śikṣ*, *śikṣ-a-ti*, 1. class (“to learn, to try, to donate”)

+ *śik-ṣ-u* (“generous”)

+ *śik-ṣ-akas* (“teacher”)

+ *śik-ṣ-ā* (“science”)

Desideratives

In some verbs, we see a suffix *Ḥs* rather than just *s*. We then have zero-grade root, reduplicated with *i/u* + *Ḥs* + *a* + ending.

√	3. sg.	adjective	noun
<i>jī</i>	<i>jī-gī-ṣ-a-ti</i> “he wants to conquer”	<i>jī-gī-ṣ-u</i> “imperialist”	<i>jī-gī-ṣ-ā</i> “desire to conquer”
<i>mṛ</i>	<i>mu-mūr-ṣ-a-ti</i> “he wants to die”	<i>mu-mūr-ṣ-u</i> “wanting to die”	<i>mu-mūr-ṣ-ā</i> “desire to die”

Desideratives

$g^w hi-g^w h\underset{\circ}{n}-Hs-$

→ $jhi-g^w h\underset{\circ}{n}-Hs-$ (sec. pal. before i ??)

→ $jhi-ghāṃs-$ (??)

→ $ji-ghāṃs-$ (Grassmann)

→ $ji-ghāṃs-a-ti$ ("he wishes to kill") / $ji-ghāṃs-u$ ("wanting to kill")

The desiderative noun does not involve Grassmann's law:

$g^w hi-g^w h\underset{\circ}{n}-s-\bar{a}$

→ $hi-g^w h\underset{\circ}{n}-s-\bar{a}$ (sec. pal. before i)

→ $hi-\underset{\circ}{n}-s-\bar{a}$ (loss of guttural ??)

→ $hi-\underset{\circ}{m}-s-\bar{a}$

Compound-final zero grades

- *gam*, *gacch-a-ti* (“to go”) with PPP *ga-ta*
 - *kha-ga* (“flying”)
- *nī*, *nayati* (“to lead”) with PPP **niH-to* → *nī-ta*
 - *pat-nī*, f. (“lead by husband *pati* → wife”)
 - *sêna-nī*, m. (“army leader, general”)
 - *grāma-nī*, m. (“village leader”)
 - *agra-nī*, m. (“leader”)
- *dhā*, *dadhāti* (“to set”) with PPP **dhh₁-to* → *hi-ta*
 - *ab-dhis*, m. (“holding water → ocean”) ← *ap* (“water”) with apparent backward assimilation

Compound-final zero grades

- *vid*, *vêt-ti* (“to know”) with PPP *vit-ta*, *vid-i-ta*
 - *vêda-vit* (“*Veda* knowing”)

One odd example adds *t* (in analogy to *vêda-vit* ?):

- *jī*, *jayati* (“to lead”) with PPP *jī-ta*
 - *indra-jit*, m. (“conqueror of *Indra*”)
 - *apsu-jit* (“conquering the waters”), with loc. pl. of *ap* (“water”) instead of stem form (probably due to analogy with *apsu-ja* where the loc. makes sense)

Compound-final zero grades

The other examples presented below do not use the zero grade, but just short *a*:

- *jan*, *jāyatê* (“to beget, to be born”) with PPP $*\acute{g}\eta H\text{-}to \rightarrow j\bar{a}\text{-}ta$
 - *dvi-ja* (“twice-born”) with *dvi-jas*, m. (“brahmin, bird, tooth”)
 - *ātma-ja* (“self-produced”) with *ātma-jas*, m. (“son”) and *ātma-jā*, f. (“daughter”)
 - *pra-jas*, f. (“progeny (!), offspring”)
 - *apsu-ja* (“born in the waters”) with loc. pl. of *ap* (“water”) instead of stem form
- *jñā*, *jānāti* (“to know”) with PPP $*\acute{g}\eta h_3\text{-}to \rightarrow j\tilde{n}\bar{a}\text{-}ta$
 - *sarva-jñā* (“all-knowing”)

Compound-final zero grades

- $pā$, $pibati$, 1. class (“to drink”) with PPP $*pH_3i-to \rightarrow *piH_3-to \rightarrow pī-ta$
 - $sōma-pa$ (“drinking *Soma*”)
- $pā$, $pā-ti$ (“to protect”) with PPP $pā-na$
 - $pra-jā-pa$ (“protecting the subjects”)
 - $nṛ-pa$ (“man protecting, king”)

Compound-final zero grades

- *dā*, *dadāti* (“to give”) with PPP $*dh_3$ -to $\rightarrow$ *di-ta* besides *dat-ta*
 - *vara-da* (“giving boons”) with *vara-das*, m. (“*Brahmā*”)
 - *ab-das*, m. (“water giver $\rightarrow$ cloud”, “when clouds reappear $\rightarrow$ year”) $\leftarrow$ *ap* (“water”) with apparent backward assimilation
- *sthā*, *tī-ṣṭh-a-ti* (“to stand”) with PPP $*stH_2$ -to $\rightarrow$ *sthi-ta*
 - *gr̥ha-sthas*, m. (“householder”)
- *bhū*, *bhavati* (“to be”) with PPP $*bhuH$ -to $\rightarrow$ *bhū-ta*
 - *pra-bhu-s*, m. (“lord, master”) ??