

II. Reconstructing Proto-Semitic and Models of Classification

6. Proto-Semitic Phonetics and Phonology

- 1. Consonantism
- 2. Vocalism
- 3. Stress
- 4. References

Abstract

This chapter provides an overview of the reconstruction of the Proto-Semitic phoneme system and its representation in the individual Semitic languages.

1. Consonantism

1.1. Canonical reconstruction

In its traditional reconstruction, the PS consonantal system comprises 29 phonemes, as shown in Table 6.1.

Tab. 6.1: Traditional reconstruction of the Proto-Semitic consonantal system

	Obstruents						resonants		
	stops			fricatives					
	voiceless	emphatic	voiced	voiceless	emphatic	voiced			
bilabial	p		b				w		m
dental	t	ṭ	d					r	n
interdental				ṯ	ṯ̤	ḏ			
hissing				s	ṣ	z			
hushing				š					
lateral				ṣ̌	ṣ̤̌			l	
palatal								y	
velar									
uvular	k	q	g	ħ		ʕ			
pharyngeal				ħ					
laryngeal		ʾ		h					

1.2. Regular correspondences

Regular consonantal correspondences are illustrated by the chart in Table 6.2.

This consonantal inventory is very stable and only two of its segments – sibilants and gutturals – have been subject to substantial changes in individual Semitic languages. Lexical illustrations can thus be limited to 15 proto-phonemes belonging to these two groups.

Tab. 6.2: Regular correspondences of the Proto-Semitic consonants

PS	Akk.	Ugr.	Hbr.	Syr.	Arb.	Sab.	Gez.	Tgr., Tna.	Amh.	Har.	Gur.	Mhr.	Jib.	Soq.
*p	p	p	p	p	f	f	f	f	f	f	f	f	f	f
*b	b	b	b	b	b	b	b	b	b	b	b	b	b	b
*m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
*w	w	w, y-	w, y-	w, y-	w	w	w	w	w	w	w	w	w	w
*t	t	t	t	t	t	t	t	t	t, č	t, č	t, č	t	t	t
*d	d	d	d	d	d	d	d	d	d, ž	d, ž	d, ž	d	d	d
*t̥	t̥	t̥	t̥	t̥	t̥	t̥	t̥	t̥	t, č̣	t, č̣	t, č̣	t̥	t̥	t̥
*n	n	n	n	n	n	n	n	n	n, ñ	n, ñ	n, ñ	n	n	n
*r	r	r	r	r	r	r	r	r	r	r	r	r	r	r
*l	l	l	l	l	l	l	l	l	l	l	l	l	l	l
*t̪	š	ṭ	š	t̪	ṭ	ṭ	s	s, š	s, š	s, š	s, š	ṭ	ṭ	t̪
*d̪	z	d, ḏ	z	d̪	ḏ	ḏ	z	z	z, ž	z, ž	z, ž	ḏ	ḏ	d̪
*t̪̥	š̥	ṭ̪, γ	š̥	t̪̥	ḏ̥	ḏ̥	s̥	s̥, č̣̥	t̪̥, č̣̥	t̪̥, č̣̥	t̪̥, č̣̥	ḏ̥	ḏ̥	t̪̥
*s	s	s	s	s	s	s ₃	s	s, ṣ̌	s, ṣ̌	s, ṣ̌	s, ṣ̌	s	s	s
*z	z	z	z	z	z	z	z	z	z, ẓ̌	z, ẓ̌	z, ẓ̌	z	z	z
*š	š	š	š	š	š	š	š	s, č̣̣	t̪̣, č̣̣	t̪̣, č̣̣	t̪̣, č̣̣	s, ṣ̣̌	ṣ̣̌	ṣ̣̌
*ṣ̌	ṣ̌	ṣ̌	ṣ̌	ṣ̌	ṣ̌	s ₁	s	s, ṣ̣̌	s, ṣ̣̌	s, ṣ̣̌	s, ṣ̣̌	ṣ̣̌, ḥ̣	ṣ̣̌, ṣ̣̌	ṣ̣̌, ḥ̣
*ṣ̣̌	ṣ̣̌	ṣ̣̌	ṣ̣̌	ṣ̣̌	ṣ̣̌	s ₂	ṣ̣̌	s, ṣ̣̣̌	s, ṣ̣̣̌	s, ṣ̣̣̌	s, ṣ̣̣̌	ṣ̣̣̌	ṣ̣̣̌	ṣ̣̣̌
*ṣ̣̣̌	ṣ̣̣̌	ṣ̣̣̌	ṣ̣̣̌	ṣ̣̣̌	ḏ̣̣̣	ṣ̣̣̌	ṣ̣̣̌	ṣ̣̣, č̣̣̣	t̪̣̣̣, č̣̣̣̣	t̪̣̣̣, č̣̣̣̣	t̪̣̣̣, č̣̣̣̣	ṣ̣̣̣̌	ṣ̣̣̣̌	ṣ̣̣̣̌
*y	y, Ø	y	y	y	y	y	y	y	y	y	y	y	y	y
*k	k	k	k	k	k	k	k	k	k, č̣̣̣	k, č̣̣̣	k, č̣̣̣	k	k	k
*g	g	g	g	g	ḡ	g	g	g	g, ẓ̣̣̌	g, ẓ̣̣̌	g, ẓ̣̣̌	g	g, ẓ̣̣̌	g, ẓ̣̣̌
*ḳ	ḳ	ḳ	ḳ	ḳ	q̣	ḳ	ḳ	ḳ	ḳ, č̣̣̣̣	ḳ, č̣̣̣̣	ḳ, č̣̣̣̣	ḳ	ḳ, ṣ̣̣̣̌	ḳ, ṣ̣̣̣̌
*ḡ	ḡ	ḡ	ḡ	ḡ	ḡ	ḡ	ḡ	ḡ	ḡ	ḡ	ḡ	ḡ	ḡ	ḡ
*γ	Ø	γ	ḡ̣̣̣	ḡ̣̣̣	γ	γ	γ	γ	Ø	Ø	Ø	γ	γ	ḡ̣̣̣
*ḥ̣̣	Ø	ḥ̣̣	ḥ̣̣	ḥ̣̣	ḥ̣̣	ḥ̣̣	ḥ̣̣	ḥ̣̣	Ø	ḥ̣̣	Ø	ḥ̣̣	ḥ̣̣	ḥ̣̣
*ḡ̣̣̣	Ø	ḡ̣̣̣	ḡ̣̣̣	ḡ̣̣̣	ḡ̣̣̣	ḡ̣̣̣	ḡ̣̣̣	ḡ̣̣̣	Ø	Ø	Ø	ḡ̣̣̣	ḡ̣̣̣	ḡ̣̣̣
*ḥ̣̣̣	Ø	ḥ̣̣̣	ḥ̣̣̣	ḥ̣̣̣	ḥ̣̣̣	ḥ̣̣̣	ḥ̣̣̣	ḥ̣̣̣	Ø	ḥ̣̣̣	Ø	ḥ̣̣̣	ḥ̣̣̣	ḥ̣̣̣
*ḡ̣̣̣̣	Ø	ḡ̣̣̣̣	ḡ̣̣̣̣	ḡ̣̣̣̣	ḡ̣̣̣̣	ḡ̣̣̣̣	ḡ̣̣̣̣	ḡ̣̣̣̣	Ø	Ø	Ø	ḡ̣̣̣̣	ḡ̣̣̣̣	ḡ̣̣̣̣

1.2.1. *t̪

*talg- ‘snow’ > Akk. *šalgu*, Hbr. *šäläg*, Syr. *talgā*, Arb. *ṭalḡ*-, Jib. *ṭalg* (AHw. 1147, HALOT 1503, LSyr. 825, Lane 350, JL 284);

**ṭV'Vl-*, **ṭa'lab-* 'fox' > Akk. *šēlebu*, Hbr. *šū'āl*, Syr. *ta'lā*, Arb. *tu'āl-*, *ṭa'lab-*, Jib. *ṭē'él* (SED II No. 237);

**parṭ-* 'food in the stomach' > Akk. *paršu*, Hbr. *pārāš*, Syr. *pertā*, Arb. *farṭ-*, Tna. *färsi*, Mhr. *farṭ*, Soq. *fört* (SED I No. 221).

1.2.2. *ḡ

**uḡn-* 'ear' > Akk. *uznu*, Ugr. *'udn*, Hbr. *'ōzän*, Syr. *'ednā*, Arb. *'uḡn-*, Sab. *'ḡn*, Gez. *'əzn*, Jib. *'idén*, Soq. *'idihen* (SED I No. 4);

**ḡkr* 'to remember' > Akk. *zakāru*, Hbr. *zkr*, Syr. *dkr*, Arb. *ḡkr*, Sab. *ḡkr*, Gez. *zakara*, Mhr. *ḡēkar*, Soq. *dekir* (AHw. 1503, HALOT 269, LSyr. 153, Lane 968, SD 38, CDG 636, ML 80, LS 127);

**ḡVb(V)b-* 'fly' > Akk. *zubbu*, Hbr. *zəbūb*, Syr. *debbābā*, Arb. *ḡubāb-*, Amh. *zəmb*, Mhr. *ḡabbēt*, Soq. *'edbīboh* (SED II No. 73).

1.2.3. *ṭ

**ṭipr-* 'nail' > Akk. *šupru*, Hbr. *šippōrān*, Syr. *ṭepṛā*, Arb. *ḡifr-*, Gez. *ṣəfr*, Amh. *ṭəfər*, Mhr. *ḡfēr*, Soq. *tīfer* (SED I No. 285);

**ṭill-* 'shadow' > Akk. *šillu*, Ugr. *ṭl*, Hbr. *ṣēl*, JPA *ṭwlh*, Arb. *ḡill-*, Gez. *ṣəlālot*, Amh. *ṭəla*, Har. *ṣāy* (AHw. 1101, DUL 1002, HALOT 1024, DJPA 224, Lane 1915, CDG 555, AED 2083, EDH 52);

**nṭr* 'to look, to watch' > Akk. *naṣāru*, Ugr. *nṭr*, Hbr. *nṣr*, Syr. *nṭr*, Arb. *nḡr*, Sab. *nṭr*, Gez. *naṣṣara*, Mhr. *nəḡāwr* (AHw. 755, DUL 624, HALOT 718, LSyr. 426, Lane 2810, SD 102, CDG 406, ML 283).

1.2.4. *s

**'sr* 'to tie' > Akk. *esēru*, Ugr. *'sr*, Hbr. *'sr*, Syr. *'sr*, Arb. *'sr*, Sab. *'s₃r*, Gez. *'asara*, Amh. *assärä*, Jib. *'ésór* (AHw. 249, DUL 114, HALOT 75, LSyr. 37, Lane 57, SD 8, CDG 44, AED 1664, JL 4);

**sās-*, **sūs-* 'moth, worm' > Akk. *sāsu*, Hbr. *sās*, Syr. *sāsā*, *sūsā*, Arb. *sūs-*, *sās-*, Amh. *šuš*, Har. *sūs*, Mhr. *sust* (SED II No. 198);

**ḡsr* 'to lose, to be deficient': Ugr. *ḡsr*, Hbr. *ḡsr*, Syr. *ḡsr*, Arb. *ḡsr*, Min. *ḡs₃r*, Gez. *ḡasra*, Mhr. *ḡəsōr*, Soq. *di-ḡósir*, perhaps Akk. *ḡesēru* 'to chip off' (DUL 410, HALOT 338, LSyr. 248, Lane 736, LM 44, CDG 265, ML 449, LS 184, AHw. 329).

1.2.5. *z

**gzz* 'to cut, to shear, to divide' > Akk. *gazāzu*, Ugr. *gzz*, Hbr. *gzz*, Syr. *gzz*, Arb. *ḡzz*, Sab. *gzz*, Tgr. *gäzzä*, Mhr. *gəz*, Soq. *gez(z)* (AHw. 284, DUL 315, HALOT 186, LSyr. 111, Lane 416, SD 53, WTS 596, ML 128, LS 105);

**ʿinz-* ‘goat’ > Akk. *enzu*, Ugr. *ʿz*, Hbr. *ʿēz*, Syr. *ʿezzā*, Arb. *ʿanz-*, Sab. *ʿnz*, Jib. *ʿz*, perhaps Cha. *anz* ‘heifer’ (SED II No. 35);

**zmr* ‘to emit musical sounds’ > Akk. *zamāru*, Hbr. *zmr*, Syr. *zmr*, Arb. *zmr*, Gez. *zammara* (AHw. 1508, HALOT 273, LSyr. 199, Lane 1250, CDG 639).

1.2.6. *š

**ʷšbV-* ‘finger’ > Ugr. *ʷšbʿ*, Hbr. *ʷšbaʿ*, Syr. *šebʿā*, Arb. *ʷšbaʿ-*, Gez. *ʷašbāʿt*, Tgr. *čəbʿət*, Har. *aṭābiñña*, Jib. *ʷišbāʿ* (SED I No. 256);

**šby* ‘to soak, to dye’ > Akk. *šabû*, Hbr. *šbʿ*, Syr. *šbʿ*, Arb. *šby*, Gez. *šabḥa* (AHw. 1082, HALOT 998, LSyr. 620, Lane 1647, CDG 546);

**šyd*, **šwd* ‘to prowl, to hunt, to fish’ > Akk. *šādu*, *šayyādu*, Ugr. *šd*, Hbr. *šwd*, *šayid*, Syr. *šwd*, *šaydā*, Arb. *šyd*, Mhr. *əštəyūd*, Soq. *šóde* (AHw. 1073, 1075, DUL 778, HALOT 1010, 1020, LSyr. 623, 626, Lane 1752, ML 369, LS 349).

1.2.7. *š

**lišān-* ‘tongue’ > Akk. *lišānu*, Ugr. *lšn*, Hbr. *lāšōn*, Syr. *leššānā*, Arb. *lišān-*, Sab. *ls₁n*, Gez. *læssān*, Jib. *elšén*, Soq. *léšin* (SED I No. 181);

**šim-* ‘name’ > Akk. *šumu*, Ugr. *šm*, Hbr. *šem*, Syr. *šmā*, Arb. *ʷism-*, Sab. *s₁m*, Gez. *səm*, Cha. *šəm*, Mhr. *ham*, Jib. *šum*, Soq. *šem* (AHw. 1274, DUL 882, HALOT 1548, LSyr. 784, Lane 1435, SD 126, CDG 504, EDG 545, ML 158, JL 262, LS 418);

**bšl* ‘to be ripe, to cook’ > Akk. *bašālu*, Ugr. *bšl*, Hbr. *bšl*, Syr. *bšl*, Arb. *bsl*, Sab. *m-bs₁l*, Gez. *basala*, Tgr. *bäšlā*, Amh. *bässälä*, Mhr. *bəhəl*, Jib. *béšəl*, Soq. *béhel* (AHw. 111, DUL 242, HALOT 164, LSyr. 99, TA 28 84, SD 32, CDG 109, WTS 283, AED 896, ML 45, JL 30, LS 83).

1.2.8. *š

**kariš-* ‘stomach’ > Akk. *karšu*, Hbr. *kārēš*, Syr. *karsā*, Arb. *kariš-*, Gez. *karš*, Amh. *kärs*, Mhr. *kīrəš* (SED I No. 151);

**ašr-* ‘ten’: Akk. *ešer*, Ugr. *šr*, Hbr. *ʿāšär*, Syr. *ʿsar*, Arb. *ʿašr-*, Sab. *ʿs₂r*, Gez. *ʿašr-u*, Tna. *ʿassärtä*, Mhr. *ʿōšər*, Jib. *ʿššər*, Soq. *ʿāšer* (AHw. 253, DUL 188, HALOT 894, LSyr. 537, Lane 2052, SD 21, CDG 73, TED 1859, ML 32, JL 17, LS 331);

**šayb(-at)-* ‘grey hair’ > Akk. *šibtu*, Ugr. *šbt*, Hbr. *šēb*, Syr. *saybātā*, Arb. *šayb-*, Gez. *šibat*, Har. *šibät*, Mhr. *šayb*, Jib. *šub* (SED I No. 66).

1.2.9. *š

**arš-* ‘earth’ > Akk. *eršetu*, Ugr. *ʷarš*, Hbr. *ʷäräš*, Syr. *ʷarʿā*, Arb. *ʷard-*, Sab. *ʷrš*, Jib. *ʷerž* (AHw. 245, DUL 106, HALOT 90, LSyr. 51, Lane 48, SD 7, JL 4);

**rhš* ‘to wash’ > Akk. *raḥāšu*, Ugr. *rhš*, Hbr. *rhš*, Off. Arm. *rhʿ*, Arb. *rhq*, Sab. *rhš*, Wol. *raṭū*, Mhr. *rəḥāz*, Soq. *rāḥaḏ* (AHw. 942, DUL 738, HALOT 1220, DNWSI 1072, Lane 1052, SD 116, EDG 528, ML 322, LS 398);

**šbt* ‘to seize’ > Akk. *šabātu*, Ugr. *m-šbt-m*, Hbr. *šbt*, Arb. *ḏbt*, Gez. *abaṭa*, Sod. *täbbätä*, Mhr. *žáybat*, perhaps Mnd. *abt* ‘to bind, take captive’, JBA ‘*bt* ‘to seize’ (AHw. 1066, DUL 585, HALOT 997, CDG 148, EDG 611, ML 472, DM 3, DJBA 840).

1.2.10. *ḥ

**naḥīr*- ‘nostril’ > Akk. *naḥīru*, Hbr. *nəḥīrayim*, Syr. *nḥīrē*, Arb. *nuḥrat*-, Mhr. *nəḥrīr*, Soq. *nāhrīr* (SED I No. 198);

**warḥ*- ‘moon, month’ > Akk. *warḥu*, Ugr. *yrḥ*, Hbr. *yārēaḥ*, Syr. *yarḥā*, Sab. *wrḥ*, Gez. *warḥ*, Amh. *wär*, Har. *währi*, Mhr. *warḥ* (AHw. 1466, DUL 979, HALOT 438, LSyr. 309, SD 162, CDG 617, AED 1499, EDH 159, ML 430);

**ḥamiš*- ‘five’ > Akk. *ḥamiš*, Ugr. *ḥmš*, Hbr. *ḥāmēš*, Syr. *ḥameš*, Arb. *ḥams*-, Sab. *ḥms*₁, Gez. *ḥams*, Tna. *ḥamməšä*, Mhr. *ḥáyməḥ*, Jib. *ḥiš*, Soq. *ḥámoš* (AHw. 317, DUL 396, HALOT 331, LSyr. 242, Lane 810, SD 61, CDG 262, TED 174, ML 443, JL 302, LS 181).

1.2.11. *y

**yārib*-, **yurāb*- ‘raven’ > Akk. *āribu*, *ēribu*, Hbr. ‘*ōrēb*, Syr. ‘*urbā*, Arb. *yurāb*-, Mhr. *yə-yəráyb*, Soq. ‘*áreb* (SED II No. 89);

**yby* ‘to be thick’ > Akk. *ebū*, Ugr. *yḇ-n*, Hbr. ‘*ābā*, Syr. ‘*bī*, Arb. ‘*aybā*, *yabiyy*-, *yabā*ʿ-, Gez. ‘*abya* (AHw. 183, DUL 316, HALOT 777, LSyr. 507, Lane 2228, Dozy 2 201, CDG 55);

**ypr* ‘to cover’ > Akk. *apāru*, Ugr. *ypṛt*, Arb. *yfr*, Gez. ‘*afara*, *māʿfart*, Mhr. *yəfūr*, Jib. *yófor* (AHw. 57, DUL 323, Lane 2273, CDG 58, ML 135, JL 84).

1.2.12. *ḥ

**ḥVmṭ*- ‘lower belly’ > Akk. *emšu*, Ugr. *ḥmṭ*, Hbr. *ḥōmāš*, Gez. *ḥəms*, Amh. *əms*, Mhr. *ḥamṭ* (SED I No. 122);

**šaḥ(a)r*- ‘dawn, morning’ > Akk. *šēru*, Ugr. *šḥr*, Hbr. *šaḥar*, JPA *šaḥrā*, Arb. *saḥar*-, Jib. *šḥor* (AHw. 1218, DUL 812, HALOT 1466, DJPA 545, Lane 1317, JL 261);

**niḥnu* ‘we’ > Akk. *nīnu*, Hbr. ‘*ānaḥnū*, Syr. *ḥnan*, Arb. *naḥnu*, Gez. *nəḥna*, Amh. *əñña*, Mhr. *nəḥā*, Soq. *ḥan* (AHw. 791, HALOT 71, LSyr. 242, LA 13 527, CDG 395, AED 1254, ML 291, LS 182).

1.2.13. *ʿ

**aṭm*- ‘bone’ > Akk. *eṣemtu*, Ugr. ‘*ṭm*, Hbr. ‘*āšām*, Syr. ‘*aṭmā*, Arb. ‘*aḍm*-, Gez. ‘*ašm*, Amh. *aṭənt*, Mhr. ‘*aḍamēt* ‘back’ (SED I No. 25);

**tis*^ʕ- ‘nine’ > Akk. *tiše*, Ugr. *tš*^ʕ, Hbr. *tēša*^ʕ, Syr. *tša*^ʕ, Arb. *tis*^ʕ-, Sab. *ts*₁^ʕ, Gez. *tas*^ʕ-*u*, Tna. *täš*^ʕ*attä*, Mhr. *sē*, Jib. *sə*^ʕ, Soq. *sé*^ʕ*eh* (AHw. 1362, DUL 880, HALOT 1802, LSyr. 838, Lane 306, SD 148, CDG 580, TED 1254, ML 338, JL 220, LS 289);

**tawli*^ʕ (-*at*)- ‘worm’ > Akk. *tūltu*, Hbr. *tōlē*^ʕ*ā*, Syr. *tawl*^ʕ*ā*, Amh. *ṭal*, Jib. *ṭab*^ʕ*ólát* (SED II No. 230).

1.2.14. **h*

**muhr*- ‘foal’ > Akk. *mūru*, Syr. *muhrā*, Arb. *muhr*-, Sab. *mhrt*, Tna. *məhir* (SED II No. 149);

**hadad*- ‘thunder’ > Akk. *adad*, *addu*, Ugr. *hd*, *hdd*, Arb. *hāddat*-, Tgr. *hadud*, *hədud*, Tna. *hadādä*, Mhr. *həd*, Jib. *hid* (Schwemer 2001, 34–58, DUL 334, Lane 2883, WTS 26, TED 50, ML 152, JL 94);

**V-bhān*- ‘thumb’ > Akk. *ubānu*, Hbr. *bōhän*, Arb. *ʾibhām*-, Mhr. *hābén* (SED I No. 34).

1.2.15. *ʾ

*ʾ*anp*- ‘nose’ > Akk. *appu*, Ugr. *ʾap*, Hbr. *ʾap*, Syr. *ʾappē*, Arb. *ʾanf*-, Gez. *ʾanf*, Har. *ūf* (SED I No. 8);

**šʾl* ‘to ask’ > Akk. *šālu*, Ugr. *šʾil*, Hbr. *šʾl*, Syr. *š(ʾ)el*, Arb. *sʾl*, Sab. *s*₁^ʾ*l*, Gez. *saʾala*, Amh. *salä*, Mhr. *söl*, Jib. *šəl*, Soq. *hoʾol* (AHw. 1151, DUL 795, HALOT 1371, LSyr. 748, Lane 1282, SD 121, CDG 480, AED 441, ML 338, JL 220, LS 139);

*ʾ*arḥ*- ‘heifer’ > Akk. *arḥu*, Ugr. *ʾarḥ*, Arb. *ʾarḥ*-, Tna. *ʾarḥi*, Soq. *ʾarḥ* (SED II No. 12).

1.3. Phonetic realization of PS consonants

1.3.1. The emphatics

1.3.1.1. Phonetic realization of the ‘emphatics’ in modern Semitic languages

Two types of phonetic realization of the emphatic consonants are attested in modern Semitic:

- (a) Glottalized stops and affricates are typical of ES (cf. Faber 1980, 124–130 for Amharic; Fre Woldu 1988 for Tigrinya). This realization has been known since the earliest European descriptions of modern ES, but opinion is divided as to whether it is original or imported from Cushitic (Cantineau 1951–1952, 92–93; Ullendorff 1955, 151–157; Faber 1980, 155–156).

Glottalized emphatics in Jibbāli, discovered by Fresnel in 1838 (Lonnet 1991, 68–69), were ignored for many decades (with the exception of Yushmanov 1930, 383). Glottalization in MSA (also outside Jibbāli) was rediscovered in Johnstone 1975b (with no mention of Fresnel, cf. Steiner 1977, 22; 1982b, 192) and is now

- generally acknowledged in MSA linguistics (Lonnet–Simeone-Senelle 1983, 191 and 1997, 348–349; Lonnet 1993, 47). The existence of glottalized emphatics in Mehri has been recently put to doubt by Watson and Bellem (2010), for whom this articulation is feasible only for the velar *k*. The present author's observations from his fieldwork on Soqatra are in agreement with this claim.
- (b) In spoken Arabic, the emphatics have been variously described as pharyngealized, velarized, uvularized or backed (Faber 1980, 116–122, 168; Zemánek 1996, 1–15; Roman 1983, 148–155).
 - (c) Velarized or pharyngealized emphatics coupled with backing of the adjacent vowels and spread of the emphasis to the neighboring consonants have been described in Eastern Neo-Aramaic (Hoberman 1985; Odisho 1988, 49–50, 114–119; Fox 1997, 13–14; Younansardaroud 2001, 1963; Khan 1999, 21–24, 39–40; 2002, 27; 2004, 22–23; Talay 2008, 84–86). For Hoberman (1997, 316), 'the 'emphatic' co-articulation is identical, both phonetically and phonologically, to the same phenomenon which is familiar in Arabic'. Tsereteli's isolated report of 'abruptive' emphatics *p̣*, *ṭ*, *ḳ* and *č̣* among Soviet Assyrians (1978, 37–38; reproduced in Dolgopolsky 1977–1999, 29; Bomhard 1988, 115; cf. Diakonoff 1991–1992, 63–64) raises questions of recent influence from Georgian or Armenian (cf. Krotkoff 1982, 11, Faber 1980, 135, Diakonoff 1991–1992, 63–64). Velarized emphatics are also typical of Tūrōyo (Jastrow 1993, 3–7) as well as of the Western Neo-Aramaic of Ma'lūla (Arnold 1990, 16).

Which of the two realizations has to be postulated for PS? The supporting arguments fall into two categories: evidence from ancient Semitic languages and structural evaluation of the PS consonantal system.

1.3.1.2. Glottalized emphatics in Ancient Semitic Languages

Glottalized emphatics have been postulated for Akkadian. Thus, 'Geers' Law' stipulates that two etymological emphatics are not compatible within an Akkadian root: *šabātu* 'to seize' < **šbṭ*, *katānu* 'to be thin' < **ḳtn*, *kašāru* 'to bind' < **ḳsr*, *siāku* 'to be narrow' < **ṣ̌yk*, etc. (Geers 1945, GAG § 51e). Dissimilation of this type is more likely if the emphatics were glottalized (Faber 1980, 145–147; Huehnergard 1997, 438). The same is true of the dissimilation *kaḳḳadu* > *kaḳḳadu* 'head' and *kaḳḳaru* > *kaḳḳaru* 'land', mostly in OB and NA (Knudsen 1961).

The verb *našā'u* (**nṣ̌'*) 'to lift' displays peculiar behavior in MA and NA. Whenever *ṣ̌* and ' are in contact, the outcome is spelled as ŠV: *it-ta-ŠU* 'they have brought' < *ittaṣ'ū* etc. (Parpola 1974). Since *ṣ̌* was likely pronounced as [s] in Assyrian (see 1.5.1.4.), this process can be described as [s] + ['] = [s']. The ŠV spelling of [s'] indicates that *ṣ̌* was realized as [s'] (or, better, [c']) in Assyrian (Aro 1977, 8, Voigt 1986).

Forms of the verbs *mašā'um* 'to be sufficient', *wašā'um* 'to go out', *kašā'um* 'to be cold' and *nada'um* 'to lay down' often avoid the expected broken spellings indicating a post-consonantal glottal stop: *i-ta-ša-am* 'he went out to me' instead of *i-ta-aš-a-am* or *i-dā* 'lay down!' instead of *id-a* (Kouwenberg 2003, unrecognized in Diakonoff 1991–1992, 62). In structurally similar forms of other verbs broken spellings are regular (*ta-am-a-am* rather than ***ta-ma-am* 'swear to me!'). The spelling *i-ta-ša-am* reflects the combination [s'] + ['] (= [s'']), simplified into [s'], whereas *i-dā* renders a glottalized [t'] emerging from [d] + ['].

Outside OA, glottalization may explain non-etymological gemination in forms like *hiṭṭu* ‘sin’ or *kuṣṣu* ‘cold’ ([ḥitʰu] > [hiṭʰu], Huehnergard 1997, 437).

Akkadian emphatics have no backing effect on the neighboring vowels, which would be expected if they were pharyngealized (Knudsen 1961, 89–90, cf. Faber 1980, 146).

Pharyngealized realization of Akkadian emphatics has been inferred from the assimilation *-kt-* > *-kṭ-* in MA and NA (*iḳṭibi* ‘he said’, GAG §§ 29e, 96f), but the relevance of this feature has been dismissed (Faber 1980, 146; Kouwenberg 2003, 84; cf. Huehnergard 1997, 438 for a possible CS influence).

Evidence from ancient WS is scarce. According to Faber (1980, 140–141), the assimilation **-št-* > *-št-* in the Dt stem in Hebrew (*hiṣṭaddēk* ‘he declared himself righteous’) suggests backing rather than glottalization. The same assimilation is attested in Aramaic (*yiṣṭabbaʿ* ‘he will be moistened’ in Da 4:12, Bauer / Leander 1927, 33) and in Arabic (Fischer 1987, 25–26).

1.3.1.3. Structural arguments for glottalization in PS

There are structural arguments in favor of glottalization and against backing in PS:

- (a) Glottalization is cross-linguistically common, whereas pharyngealization and velarization are rare (Cantineau 1951–1952, 92; Faber 1980, 164–165).
- (b) The triadic organization of stops and affricates agrees with the glottalic hypothesis: while backed consonants can be both voiceless and voiced, glottalized consonants can only be voiceless (Moscatti 1954a, 25; Dolgopolsky 1977, 3, 1999, 29; Faber 1980, 157; Bomhard 1988, 116).
- (c) Transformation of backing into glottalization is difficult, but the reverse is easily conceivable (Haudricourt 1950; Cantineau 1951–1952, 93; Moscati 1954a, 26; Dolgopolsky 1977, 6–7; Faber 1980, 160–162; Tropper 2000a, 97).
- (d) Lack of reliably reconstructed emphatic labial **p* (cf. 1.4.1.) agrees with the (physiologically motivated) cross-linguistic rarity of the glottalized bilabial stop (Martinet 1953, 69–70; Bomhard 1988, 116).

In view of these arguments, glottalized emphatics are usually postulated for PS (Haupt 1890, 252–254; Bergsträsser 1983[1928], 4; Vilenčik 1930, 89–90; Cantineau 1951–1952, 93; Martinet 1953; Moscati 1964, 23–24; Dolgopolsky 1977; Faber 1980, 154–167; Diakonoff 1988, 35; Bomhard 1988, 115–117; Stempel 1999, 64–67; objections in Garbell 1954, 234–236 and Lipiński 1997, 105–106 are mostly groundless). Its shift to backing has been considered a CS innovation (Faber 1980, 162–163; cf. Huehnergard 2005a, 165–166).

1.3.2. The affricate hypothesis and **š*

The traditional PS reconstruction has no affricates, but according to a growing consensus this realization is to be ascribed to at least some of the traditional sibilants. Three varieties of the ‘affricate hypothesis’ can be detected: narrow, middle and broad (Steiner 1982a, 1–5). Within the narrow variety, the emphatic **š* becomes [ç] The middle variety extends to the non-emphatic sibilants: **s* and **z* become [c] and [ʒ]. The broad variety subsumes lateral sibilants and interdental.

1.3.2.1. The narrow variety of the affricate hypothesis

The narrow variety is the most persuasive and popular hypothesis. Its classic exposition is Steiner 1982a.

1.3.2.1.1. Geez

PS *š appears as a glottalized affricate [ç] in the traditional pronunciation of Geez. As shown by Cardona (1968, 8–9), Steiner (1982a, 82–83) and Podolsky (1991, 18), this pronunciation is assured already for the Aksumite period by Greek renderings with τ and τς for the toponym *ṣayāmo* (RIÉ 188:4) = Τιαμῶ (RIÉ 270:4), Τιάμαα (RIÉ 277:6), Τζιαμω (Bernard/Drewes/Schneider 1991, 380) and the royal name 'l 'šbh (RIÉ 191:7–8, 192:7), referred to as Ἑλατζβάας by Cosmas Indicopleustes (Wolska-Conus 1968, 369). In modern ES, the affricate realization of š is (*contra* Ullendorff 1955, 112, 117–118) assured by experimental phonetics (Palmer 1956, 146; Sumner 1957, 5–9). Besides, a hushing affricate ç is attested throughout modern ES (Ullendorff 1955, 129–157; Podolsky 1991, 34–47) as an outcome of palatalization of *š (cf. 1.5.4.2.). In Southern ES, *š usually shifts to ʃ unless palatalized (Strelcyn 1968; Ullendorff 1955, 117–123; Podolsky 1991, 22–24).

1.3.2.1.2. Hebrew traditions

The affricate ʕ in (pre-)modern traditions of Hebrew has been extensively dealt with in Steiner 1982a, 11–40. The grapheme ʕ renders affricates of early New Persian (ʕ for čē ‘what’, צמה for *žāmah* ‘material’, Steiner 1982a, 13–15), Karaim and Old Osmanli Turkic (נוצין for *núčūn* ‘why’, צלבי for *čelebi* ‘gentleman’, *ibid.* 19–20), Old Italian (צנמו for *cennamo* ‘cinnamon’, לנצה for *lancia, lanza* ‘lance’, *ibid.* 25), Old Czech (פיוצ for *pjěvicě* ‘leeches’, צטוירט for *čtvrť* ‘quarter’, *ibid.* 27), Middle High German (הולצ for *holz* ‘wood’, ציט for *zit* ‘time’, *ibid.* 27–28), and Old French (נוציש for *noces* ‘nuptials’, בירציל for *bercel* ‘cradle’, *ibid.* 30). Similarly, Hebrew ʕ was rendered by the Old French affricates *c, z* (*cedek* for צדק, *arez* for ארץ, *ibid.* 28–29). In the Cyrillic alphabet, the Slavic affricates [c] and [č] are rendered by the graphemes Ц and Ч borrowed from ʕ and ʕ̣ respectively (*ibid.* 17–18).

1.3.2.1.3. Pre-medieval Hebrew and Phoenician/Punic

There is some evidence for the ‘affricated *šade*’ in pre-medieval Hebrew and Phoenician / Punic.

In Phoenician personal names of Egyptian origin, š renders the Egyptian affricate *ḏ* (Muchiki 1999, 47–50, cf. *ibid.* 53 for *ḏ*): *ḥrwš* = *ḥr-wḏ*(š) ‘Horus is prosperous’, *šḥ*’ = *ḏ(d)-ḥ(r)* ‘The face speaks’, *šḥpmw* = *ḏ(šy)-ḥp-(i)m.w* ‘Apis can seize them’, *šknsmw* = *ḏ(šy)-ḥns(w)-(i)m.w* ‘Khons can seize them’ (Muchiki 1999, 24, 41; Benz 1972, 192–193).

The same is true of Egyptian proper names and loanwords in Biblical Hebrew (Muchiki 1999, 261, 263–264, 267): *šī* ‘ship’ < *ḏ(ʒ)y* (HALOT 1020), *šāpənāt pa‘nēah* (the Egyptian name of Joseph in Gn 41:45), probably = *ḏf(ʒ.ī)-nṯ(r) p(ʒ)-‘nh* ‘My provision is god, the living one’, *šō‘an* ‘Tanis’ (HALOT 1042) = *ḏ‘n(.t)* (cf. already Olshausen 1879, 568–569).

The name of the Hebrew letter **צ** (*šādē*) appears as *ταδη* in the Vatican codex of LXX (Cantineau 1950, 88; Steiner 1982a, 40–41; Beyer 1994, 37).

The Punic term **hāšīr* ‘plant, herb’ (cf. Hbr. *hāšīr*, HALOT 343–344) is transcribed as *αστειρ*, *ατειρ*, *ασιρ* and *atir* in Greek and Latin (Löw 1881, 404–405; Steiner 1982a, 60–61; Friedrich/Röllig 1999, 26). The same applies to the Punic plant name *αμουτιμ*, which corresponds to **hāmūšīm* (Löw 1881, 402; Steiner 1982, 61–62).

In Latino-Punic inscriptions from Tripolitania, *š* is rendered by a special sign (conventional transcription *ç*) which represents a ligature of *s* + *t* (Cardona 1968, 10; Steiner 1982a, 63; Friedrich/Röllig 1999, 28; cf. Kerr 2007, 81–85).

According to Cardona (1968, 11), affricated realization of Punic *š* can be inferred from Sardinian *mittsa*, *mintsa* ‘spring, fountain’, going back to a form similar to Hbr. *mōšā’* ‘source’ (Wagner 1957, 105–106; Friedrich 1957, 223; cf. Steiner 1982a, 63–64).

The letters *san* and *sampi* of early Hellenic scripts are possibly derived from **צ** and render sounds which, on etymological grounds, are to be interpreted as affricates (Steiner 1982, 65; Diakonoff 1991–1992, 51; cf. Brixhe 1991, 324–335; Krebernik 2007, 129–130). Diakonoff surmises the same origin for *ψ* (*psi*) and believes that *ψ* renders Semitic **š* in *γύψος* ‘gypsum’, borrowed from a Semitic source like Akk. *gaššu* or Syr. *gaššā* (Frisk 1960, 336; CAD G 54, LSyr. 129, for *-i*- cf. Arb. *ǧiṣṣ-*, Lane 428). According to Steiner (1982a, 66), the use of double *σσ* for *š* in *βύσσος* ‘linen’ (cf. Hbr. *būš*, HALOT 115; Frisk 1960, 278) and *κασσία* ‘cassia’ (cf. Hbr. *kašī‘ā*, HALOT 1122) points to an affricate *š* in the source language, as *σσ* is the reflex of etymological affricates in early Greek. The name of the Phoenician city known as *Šumur* in EA and *Šimirra* in NA is rendered as *ξίμυρα* by Strabo (Wild 1973, 284, Steiner 1982, 69). Note, finally, *š* – *στ* in Greek *στύραξ* ‘storax’, borrowed from a WS source like Hbr. *šōrī* (Frisk 1960, 814; HALOT 1055; cf. Vitestam 1987–1988; Sima 2000, 270).

1.3.2.1.4. Ugaritic

Ugr. *mḥš* ‘to kill’ is realized as *mḥš* before the 1 sg. suffix *-t*: *mḥšt* ‘I killed’ (DUL 540–541). As seen already by Held (1959), this phenomenon is inseparable from the shift *maršu* > *maruštu* in Akkadian (cf. 1.3.2.2.1) and should be interpreted as de-affrication of [c] before *t* (Troppner 2000a, 105–106).

1.3.2.1.5. Aramaic

Evidence for an affricate *š* in Aramaic is assembled in Steiner 1982, 45–59. Aramaic loanwords and proper names with *š* are spelled with the affricate *c* in Old Armenian (Hübschmann 1892, 229; Cardona 1968, 5; Steiner 1982a, 47–48; Dolgopolsky 1999, 32): *com* ‘fast’ (Syr. *šawmā*, LSyr. 623, Hübschmann 1892, 239; 1897, 306), *crar* ‘bundle’

(Syr. *šrārā*, LSyr. 636, Hübschmann 1892, 239, 1897, 306), *cur* ‘Tyre’ (Syr. *šūr*, PS 3388, Hübschmann 1897, 293), *nacr-ac^{hi}* ‘Christian’ (Syr. *nāšrāyā*, LSyr. 444, Hübschmann 1892, 245; 1897, 312).

The Aramaic name of the letter 𐤆 appears as *cadey* in early Georgian manuscripts (Steiner 1982a, 45–47).

Aramaic-based Middle Iranian orthographies use 𐤆 to render *č* (Cardona 1968, 5; Steiner 1982a, 52–53; Skjærvø 1996, 516). In Aramaic loanwords in Middle Iranian, *č* renders *š* (GVG 208; Cardona 1968, 5; Steiner 1982a, 55): Christian Sogdian *člyb* ‘*čalīpā* ‘cross’ (Syr. *šlibā*, LSyr. 629), MP *gač* ‘lime’ (Syr. *gaššā*, LSyr. 129). And *vice versa*, *č* is rendered by *š* in Iranian loanwords in Aramaic (Olshausen 1879, 570; Vilenčik 1931, 506; Steiner 1982a, 54; Ciancaglini 2008, 81): JBA *šhr* / *šhr* ‘four’ (MP *čahār*, Steiner 1982a, 53; cf. DJBA 514), Syr. *’ešārē* ‘condiments, spices’ (NP *āčār*, LSyr. 44; Ciancaglini 2008, 115), *dāršīnī* ‘cinnamon’ (NP *dār-čīnī*, LSyr. 168; Ciancaglini 2008, 158), *šāngā* ‘cymbal’ (NP *čang*, LSyr. 632; Ciancaglini 2008, 244), *šandal* ‘sandalwood’ (NP *čandal*, LSyr. 633; Ciancaglini 2008, 245), Mnd. *šinga* ‘claw’ (NP *čang*, MD 394).

In Steiner 1982a, 57, the letter 𐤆 rendering *č* of Central Asian Turkic is described (*vytyṇs* = *yitinč* ‘seventh’, *syšk’n* = *sičqan* ‘mouse’).

PS **š* is rendered by *ts* in the Aramaic texts of Papyrus Amherst 63 (Steiner/Nims 1983, 263; Kottsieper 2003, 91). Steiner 1982a, 57–59 deals extensively with *tsp3n3* designating the divine mountain Šāpōn (cf. Vleeming / Wesselius 1985, 55; Hoch 1994, 409). More examples are found in DNWSI 1252–1266: *tsyry3* (18:5) ‘the emissaries’ (DNWSI 1263; = Hbr. *šīr*, HALOT 1024), *n3tsyn* (20:4) ‘quarreling’ (DNWSI 1261; = JPA *nšy*, DJPA 359), *tsw3rb3hn* (6:15) ‘their necks’ (DNWSI 1263; = Syr. *šawrā*, LSyr. 625), *ts3bk3* (10:12) ‘righteous’ (DNWSI 1263; = Hbr. *šaddīk*, HALOT 1001). This spelling agrees with Arm. *š* = Eg. *ḏ* in Egyptian personal names and titles (Steiner 1982a, 59): *wšḥwr* = *wḏ(3)-ḥr* ‘May Horus be prosperous’, *phykšš* = *p(3)-ḥy-(r)-ḳ-(3y)-ḏ(3)-ḏ(3)* ‘He who ascends to the high head’, *šmḥw* = *ḏ(d)-mḥ(y.t)* ‘the North speaks’, *pšmšnwt* = *p(3)-šḥ-mḏ(3.t)-nt(r)* ‘The scribe of the god’s book(s)’ (Muchiki 1999, 77, 110, 140, 170).

In the Aramaic incantation from Wadi Ḥammamat, Aramaic *š* is rendered by the Egyptian affricate *t*: *ḫy.t* = *sydt* ‘Huntress’ (Steiner 2001, 267).

The Old Persian rendering *n-b-u-ku-(u)-d-r-č-r* of the Akkadian royal name *Nabû-kudurrî-ušur* has been used as an argument for an affricate *š* in Akkadian (Olshausen 1879, 568–569; Haupt 1890, 262; Vilenčik 1930, 93; Cardona 1968, 5; Diakonoff 1980, 10), but an Aramaic intermediary is likely (Steiner 1982a, 50, 70–71).

1.3.2.1.6. Arabic

As observed by Vilenčik (1931, 505) and Cardona (1968, 11–12), Arabic *š* renders *č* in loanwords and proper names from a variety of Oriental languages. Persian loanwords are prominent in Steiner 1982a, 75–77: *šanār*- ‘plane tree’ < *čanār*, *šarm*- ‘hide’ < *čarm*, *šawlažān*- ‘polo stick’ < *čawgān*, *šin*- ‘China’ < *čīn*- (Eilers 1971, 590, 607–608). For Steiner (1982a, 76, 79–81), most of this evidence is inconclusive because of the possibility of an Aramaic intermediary.

Outside the Iranian domain, note perhaps *šūfu l-baḥri* ‘sea-weed’ (Lane 1748), which has been considered a loanword from Coptic ⲭⲟⲟⲩⲣ ‘papyrus’ (Wb. V 359, Steiner 1982:76; for Eg. *ṭwfy* see further Muchiki 1994:252, Ward 1974).

According to Yushmanov (1998[1940], 144), alternations between *ṣ* and *k*, *q*, *ṣ̣* as the third root consonant observed in Colin 1934 (*trṣ* / *trṣ̣* ‘to be strong’, LA 7 11, TA 5 438 or *bḥṣ* / *bḥq* ‘to pick out (one’s eye)’, LA 7 4, 10 15) may point to an affricate *ṣ*, which would be phonetically close to the affricate *ṣ̣* and palatalized (> affricate) allophones of *k* and *q*.

Egyptian Arabic ص may render Coptic affricates *č* and *č̣*: *baṣrōṣ* ‘oats’ < πι-χρωχ, πε-σοοσ ‘seed’, *ṣīr* ‘salt fish’ < χιρ (Behnstedt 1981, 84; Vycichl 1983, 331)

Hypothetic affricate realization of ص contrasts with its description by native grammarians (notably, Sibawayhi), to whom only a fricative ص was known (Steiner 1982a, 79).

1.3.2.1.7 Latin -st- and Greek -στ- rendered as *ṣ* in Hebrew, Aramaic and Arabic

Hebrew, Aramaic and Arabic *ṣ* may render Latin -st- and Greek -στ- (Cardona 1968, 11): Arb. *qaṣr*- ‘castle’ < Greek *κάστρα* < Latin *castra* (Jeffery 1938, 240–241) or Arb. *ṣirāt*- < Greek *στράτα* < Latin *strata* (Jeffery 1938, 195–196). For Steiner (1982a, 42), these examples are irrelevant in view of the similar *t*-excrecence in such transcriptions as Μεστραιμ and Βόστρα for *misrayim* and *bosrā* (Vitestam 1987–1988, 33), but the similarity is only partial: in *castra* and *strata*, -t- is already present in the source-word and disappears rather than emerges in the Semitic forms. Since in all pertinent examples *st* = *ṣ* appears before *r*, Steiner’s doubts may still be not unfounded, but it is remarkable that a realization [st] for ص has been described for some varieties of Yemenite Arabic (Behnstedt 1987, 7–9; Watson/Bellem 2010, 351).

1.3.2.1.8. Egyptian *d̥* is rendered by ŠV signs in Neo-Assyrian and Neo-Babylonian

Egyptian *d̥* is rendered by ŠV signs in NA and NB Akkadian (Ranke 1910, 93): ŠI-²-nu = *d̥*’n ‘Tanis’ (Ranke 1910, 34; Borger 1996, 20; Vergote 1973, 97–98), ŠI-ḥa-a = *d̥*(*d*)-ḥ(*r*) (Ranke 1910, 34; Borger 1996, 21; Vergote 1973, 98), u-ŠI-ḥa-an-ša = *wd̥*-ḥnsw (Ranke 1910, 36; Johns 1901, 537), ga-ŠU-ŠU = *k̥*ṣ̣-d̥ṣ̣ (Vittmann 1984, 65), ŠU-u-a-ŠU = *d̥*(*d*)-w̥ṣ̣ḍ̣(*t*) (Ranke 1910, 34).

1.3.2.2. The narrow variety of the affricate hypothesis

The narrow variety proven (*contra* Moscati 1964, 33), structural considerations may prompt one to think that if **ṣ* was an affricate, the non-emphatic members of the **s* – **ṣ* – **z* triad were affricates as well. Steiner (1982a, 84–89) rightly warns against this extrapolation. If the PS emphatic were glottalized (1.3.1), an affricate realization of **ṣ* is nearly inevitable given the cross-linguistic rarity of glottalized sibilants (Martinet 1953, 71; Steiner 1982a, 84–89) and has no bearing on the phonetic identity of **s* and **z*. Affrication can be genuine for the whole triad: its preservation in the ‘emphatic’ member being secured by glottalization (Vilenčik 1930, 92; Martinet 1953, 71–72), but

the reverse is also possible: glottalization may secondarily induce affrication into an originally fricative sound (cf. Voigt 1986, 55–56).

The middle variety must therefore be supported by independent evidence.

1.3.2.2.1. Akkadian

The affricate interpretation of Akkadian *s*, *z* and *š* is now generally accepted (W. Sommerfeld in GAG § 30). Its pillars are laid by Diakonoff (1980; 1991–1992, 36–55) and Faber (1985a), followed by Girbal 1997, Tropper 1996 and Streck 2006. The available evidence can be subdivided into internal and external sources.

Internal evidence comes from phonotactic rules affecting the sibilants in early Akkadian orthography.

- (a) When pronominal enclitics in *š*- are attached to forms ending in a dental, the outcome is spelled as (VZ)ZV: *mu-ZA/mu-UZ-ZA* ‘her husband’ < **mut-ša*, *aš-ša-ZU/aš-ša-AZ-ZU* ‘his wife’ < **aššat-šu*, *il-ma-ZI* ‘he knew her’ (all examples, after Streck 2006, 228–230, are from CH). As observed in Streck (2006, 231–232) and Westenholz (2006, 253, 258), the same spelling characterizes the combinations of *š*- with word-final *s*, *z* and *š* (*iḥ-ḥa-AZ-ZI* ‘he will take her’ < **iḥḥaz-ši*, Streck 2006, 232).

It fell to Diakonoff (1980, 11 and 1991–1992, 52) and Faber (1985a) to explain this phenomenon in terms of the affricate hypothesis: the combination dental + sibilant becomes an affricate and is spelled with the corresponding signs (cf. already Goetze 1958, 148; Hecker 1968, 63). Since double spellings (like *mu-UZ-ZA*) are common in some OB corpora, the affricate was probably geminated ([mucca]), although the origin of the doubling is uncertain (Girbal 1997, Streck 2006, 230).

As observed by Goetze (1958, 142–143; cf. Westenholz 2006, 253), when pronominal suffixes in *š*- are attached to forms ending in *-š* in the ‘northern’ OB orthography, the outcome may appear as ZV (*er-re-ZA* ‘her tenant farmer’ < **errēš-ša*, CH, Streck 2006, 239) instead of SV, which is more common in such cases (*lu-la-bi-SI* ‘I will clothe her’ < **lulabbiš-ši*, Sippar, Westenholz 2006, 259). The emergence of an affricate from the contact of two plain sibilants ([šš] or [ss] > [c(c)]) is hard to explain (Buccellati 1997, 29; Streck 2006, 242).

- (b) Before the feminine suffix *-t*, there is a shift of *š*, *s* and *z* to *št*: *maršu* ‘sick’, fem. *maruš-t-u*, *naplasu* and *naplaš-t-u* ‘look, glance’, *manzazu* and *manzaš-t-u* ‘position’. Since the sign *ÁŠ* used in such cases belongs to the SV series (Streck 2006, 216–217), the outcome of the shift is actually *-st-* rather than *-št-*. This phenomenon has been plausibly interpreted by Diakonoff (1991–1992, 53) as de-affrication: [ʔst], [ʔšt], [ʔzt] > [st] (cf. already Knudsen 1982, 7 as well as Tropper 1996, Girbal 1997, Streck 2006, 216–218). Outside this morphological position, cf. *eldu* (= **ešdu*) ‘reaped’ < *ešēdu* ‘to harvest’ (CAD E 338). In Knudsen 1961, 7 and Streck 2000, 230, the same explanation is proposed for the WS onomastic element *ia-AŠ-du-uḫ/ia-ÁŠ-du-uḫ* (instead of the expected *ia-AZ-du-uḫ*) < **šdk* ‘to be just’.
- (c) According to Diakonoff (1991–1992, 52), Tropper (1996, 648) and (Streck 2006, 218), assimilation of the reflexive marker *t* to the first radical *š*, *s* and *z* (*issaḥar* ‘he turned’) favors the affricate realization of these consonants. While the [ʔst]

cluster in *[i-ʰs-ta-ḥar] is certainly unwelcome, the assimilation [ʰst] > [ʰss] is (*contra* Diakonoff) hardly a natural way of resolving such a cluster (as observed by Streck, such a development would be radically divergent from the phonetically justified shift [ʰst] > [st] discussed in section b). More attractive is, therefore, the reconstruction *[i-t-ʰaḥar], with the *t*-marker prefixed rather than infix (as against *i-p-ta-ras* in the regular paradigm; the contrast is explicit in the infinitive *tī-ṣbutum* vs. *pī-t-rusum*, GAG § 18a). Within such a reconstruction, the assimilation *[i-t-ʰaḥar] > [iʰaḥar] is indeed quite natural. It is thus the unusual prefixed position of *t* – be it an archaism or a secondary metathesis (Diem 1982, 73–74; Huehnergard 1997, 440–441) – that is relevant for the affricate hypothesis: verbs *primae* *š*, *s* and *z* behave like verbs *primae* *d* or *t* (cf. *iddakaš* ‘it separated itself’, *tī-dkušat* ‘it is separated’, CAD D 34), with which they share the dental onset, but differ from verbs *primae* *š* (cf. *i-š-ta-pak* ‘he poured’, *ši-t-pukum* ‘to pour’), which is a plain sibilant (cf. Streck 2006, 227–228, 241).

- (d) The shift *š* > *l* discussed in 1.3.3.14. is best known to occur before dentals, but also affects *šs* and *šz*: *ulziz* (< *ušziz*) ‘he established’, *ilsi* (< *išsi*) ‘he shouted’ (GAG § 301). Since the lateral realization of *š* is elsewhere conditioned by the following dental, its presence before *s* and *z* favors their affricate realization (a dental onset).

Some of the above phenomena are attested already in Sargonic (Hasselbach 2005, 143–144), whereas the OA picture is largely identical to that of OB (Hecker 1968, 59–66).

External evidence for the affricate realization of the ZV series comes from non-Semitic languages which used Akkadian cuneiform.

The best known example is Hittite (Albright 1946, 318; Haudricourt 1951–1954, 37–38; Martinet 1953, 71; Diakonoff 1980, 10 and 1991–1992, 42–43), where the affricate value [c] for ZV is assured by the rules of IE historical phonology (Friedrich 1974, 32, Vanséveren 2006, 45–46).

The ZV series renders the affricate *t* in Egyptian words in EA: *pa-ZI-t[e]* ‘vizier’ (EA 71:1) < *p(ʒ)-t(ʒ)t(y)* (CAD P 221, Muchiki 1999, 300), *ZA-ab-na-ku-u* ‘a vessel’ (EA 14 III 54) < *t(ʒ)b-na-k(ʒ)* (CAD Z 9, Ranke 1910, 20, Vergote 1973, 101, Muchiki 1999, 303).

The signs ZA, ZÍ, AZ, IZ render the Old Iranian affricates *č* and *ž* in Elamite (Paper 1955, 28–29; Tavernier 2010), *da-ZA-ra*, *da-IZ-ZA-ra(-um)* = *tačara-* ‘palace’, *ha-ra-an-ZA-na-um* = *āranžanam* ‘color’, *ba-ZÍ-iš* = *bāžiš* ‘tax’ (Tavernier 2007, 36). An affricate value of the ZV series in Akkadian has been often deduced from this practice (Vilenčik 1931, 506; Diakonoff 1980, 10 and 1991–1992, 44; cf. Steiner 1982a, 49–50, 71–72).

1.3.2.2.2. Early Canaanite

Early Canaanite reflexes of **s*, **z* and **š* are rendered by the Egyptian graphemes *t* (for **s*) and *ḏ* (for **z* and **š*):

ʾaṯi₂-ra ‘prisoner’ – Hbr. *ʾāsīr*; *kuṯi₂* ‘cup’ – Hbr. *kōs*; *kuṯi₂-ta* ‘cloth’ – Hbr. *kāsūt*; *tu₂pi₂-s-r* ‘scribe’ – Hbr. *sōpēr*; *ti₂pa-ra* ‘bowl’ – Hbr. *sēpāl*; *t-r-r-t* ‘siege ramp’ – Hbr. *sōlālā*; *tu₂ru₂-ta* ‘groats’ – Hbr. *sōlāt* (Hoch 1994, 45, 338–339, 341, 364, 368–369, 369–370; HALOT 73, 466, 488, 767, 764, 757, 758);

ḥaʿfiʿda ‘to hurry’ – Hbr. *ḥfz*, Arb. *ḥfz*; *ḥiʿdi₄ru₂ta* ‘sow’ – Hbr. *ḥāzīr*, Arb. *ḥinzīr*; *di₃tu* ‘olive’ – Arb. *zayt*, Hbr. *zayit* (Hoch 1994, 225, 254, 395; HALOT 339, 302, 268; Lane 601, 732, 1274);

kaʿda ‘gypsum’ – Akk. *gaššu*, Arb. *ḡiṣṣ*; *daʿbaʿgaʿba₃ka* ‘dunking, soaking’ – Arb. *šby*, Hbr. *šb^c* (Hoch 1994, 307–308, 383–384; AHw. 282; Lane 428, 1647; HALOT 998).

Since Eg. *t* and *d* were affricates ([č] and [ž] or [č] and [č̣] respectively, Vergote 1945, 48–57; Vycichl 1990, 45–47, 65–66; Schenkel 1990, 39–40; cf. Hoch 1994, 408, 429–430), the Egyptian spellings provide a solid piece of evidence for an affricate realization of *s* and *z* in early Canaanite (Albright 1928, 232 and 1946, 318; Vilenčik 1930, 91–92; Steiner 1982a, 68–69; Hoch 1994, 408).

Some time later, the affricate realization of Canaanite *s* [c] and *z* [ž] was lost. For Tropper (1994, 22; 1995b, 511), Phoenician 𐤎 as the rendering of the ‘general sibilant’ of various non-Semitic languages (Friedrich/Röllig 1999, 27–28) means that 𐤎 was unsuitable for this purpose and, hence, still an affricate until ca. mid-3rd century B.C. (cf. already Garbini 1971, Gumpertz 1942, 115; Garbell 1954, 237). However, as pointed out in Albright (1928, 232), Steiner (1982, 68–89) and Dolgopolsky (1999, 61) the use of Egyptian *s* (instead of earlier *t*) to render Canaanite *s*, attested since ca. 1000 B.C., suggests that already at the turn of the 1st millennium B.C. the affricate realization of 𐤎 was lost (cf. Woodhouse 2003, 273). The explanation of the Phoenician picture is, therefore, to be sought in the phonetic nature of the ‘general sibilant’ of the non-Semitic languages in question, probably closer to 𐤎 [š] than to 𐤎 [s] (cf. Lipiński 1997, 122).

1.3.2.2.3. Modern South Arabian ‘nine’

Throughout MSA, *t*- in the reflexes of PS **tiš^c*- ‘nine’ is lost: Mhr. *sē*, Jib. *so^c*, Soq. *se^ceh* (ML 338, JL 220, LS 289). Incidentally, these forms display the shift PS **š* > *s*, which is unusual for the basic strata of the MSA vocabulary, where *š*, *ṣ* or *h* are expected (cf. 1.5.5.). Taken together, these two peculiarities point to *š* = [s] and *s* = [c] in proto-MSA (Testen 1998, SED I p. XCI and cf. already Yushmanov 1934, 102): PS **[tiš^c]* > proto-MSA **[tsa^c]* (**[ca^c]*) > Jib. *so^c*. Neat structural parallels are found in Neo-Aramaic, where the numeral ‘nine’ exhibits *č* (otherwise atypical for the genuine lexicon of these languages) instead of *tš*: Tur. *ča^c* (Tezel 2003, 122–123), Jewish Neo-Aramaic (Sulemaniyya, Köy Sanjak) *’iç^ca* (Khan 2004, 596; Mutzafi 2004, 213), M. Mnd. *ečča* (Macuch 1965, 20). Tigre *sə^c* ‘nine’ (WTS 311), obviously explainable in the same way, is not relevant for the affricate hypothesis since **š* and **s* are not distinguished in ES.

1.3.2.2.4. West Semitic loan words in Armenian

According to Dolgopolsky (1999, 33), in the older stratum of Semitic loanwords in Armenian the reflexes of PS **s* and **z* appear as affricates: *ch^hec^h* ‘moth’ (Hbr. *sās*, Syr. *sāsā*, SED II No. 198, cf. Hübschmann 1892, 251 and 1897, 317), *žer^h* ‘olive, oil’ (Hbr.

zayit, Syr. *zaytā*, HALOT 268, LSyr. 195, Hübschmann 1892, 243 and 1897, 309–310), *zivt^h* ‘pitch’ (Hbr. *zāpāt*, Syr. *zeptā*, HALOT 277, LSyr. 203, cf. Hübschmann 1897, 185, 310), *xənʒor* ‘apple’ (Syr. *ħazzūrā*, LSyr. 226, cf. Hübschmann 1892, 238; 1897, 305).

1.3.2.2.5. Letter of the Greek alphabet

The Greek letter Σ for [s] goes back to 𐤓 rather than 𐤔, which is unexplainable if the traditional values [š] and [s] for 𐤓 and 𐤔 are maintained. Similarly unclear is 𐤔 as the source of Ξ [ks]. Conversely, the values [s] and [c] for 𐤓 and 𐤔 provide a suitable background for both adaptations (Diakonoff 1991–1992, 51; Tropper 1995b, 510; Kribnik 2007, 128–129, 156).

1.3.2.2.6. Punic

For Cardona (1968, 10) and Tropper (1999, 735), the use of σδ and *sd* in the Greek and Latin renderings of the Punic name ‘*zrbʿl*’ (Ασδρουβας, (*H*)*asdrubal*, Friedrich / Röllig 1999, 45) points to an affricate *z* ([ʒ]) in the source-form. This is probably not the case (Steiner 1982, 41–43; Dolgopolsky 1999, 153): the dental ‘excrescence’ in such cases is conditioned by *r* and seems to affect manifest plain sibilants as well (Ἰστροαήλ = *yištrāʿēl*).

1.3.2.2.7. Arabic

There is no evidence for an affricate س in Arabic (Steiner 1982a, 7–8, 81). *Contra* Corriente 1976, 76, Old Spanish affricates *ç* and *z* rendering س do not prove that it was an affricate, since Old Spanish *s*, phonetically far removed from [s], was unsuitable to render a plain hissing sibilant.

Summing up, there is sufficient independent evidence for the affricate realization of PS **s* and **z*. The middle variety can be considered proven, as witnessed by its growing authority in modern Semitic linguistics (Cantineau 1960[1941], 46; Dolgopolsky 1999, 27–28, 32–35; Stempel 1999, 51–54; Tropper 2000a, 102; Huehnergard 2004, 142–143).

1.3.2.3. The phonetic interpretation of *š

The middle variety bears on the phonetic interpretation of *š. As soon as **s* becomes an affricate, there emerges an unusual phonological system, with [š] as the widely used ‘general sibilant’ and [s] missing altogether. Cross-linguistic improbability of such a system (Faber 1980, 211–213; Dolgopolsky 1999, 33) prompts one to interpret *š either as a hissing [s] (Garbini 1984, 54–55), or an intermediate hissing-hushing alveolar phone typical of languages with only one plain sibilant, such as Peninsular Spanish, Modern Greek or Finnish (Yushmanov 1998[1940], 153; Martinet 1953, 73; Faber 1986,

169; Krebernik 2007, 129). Furthermore, according to Faber (1985b, 67–72) the shift [š] > [h] (cf. 1.5.6.) is more plausible than [š] > [h].

This reinterpretation contradicts the joint evidence of Neo-Aramaic and MSA (where the realization [š] for *š is attested synchronically), as well as the most widespread reading tradition of *š in Biblical Hebrew and the widely accepted phonetic reconstruction of *š in OB Akkadian (cf. 1.5.1.3.). The contradiction is usually solved by postulating an independent push-chain shift triggered by de-affrication of *s [c]: the natural outcome of de-affrication is [s], which can either merge with the old [s], or displace it from its original phonetic slot to a hushing [š] (Faber 1980, 202–203, 219, 224–225; 1985b, 66, 82–83, 86, 108–112; Voigt 1987, 56–57).

The shift [s] > [š] is to be postulated for Hebrew, Aramaic, MSA and OB Akkadian. The merger of [s] and [c] took place in ES and Arabic.

In Arabic, the outcome of the merger was likely a hissing-hushing sibilant rather than a pure [s] (Martinet 1953, 73; Murtonen 1966, 138; less probably a pure [š] advocated in Beeston 1962a and Lipiński 1997, 124; cf. Voigt 2001–2002, 169). This realization is probably reflected in the Maghrebi tradition of the *Abjad* alphabetic order, where س (traditional [s]) corresponds to Hebrew / Aramaic ש [š] rather than to ס [s]. The latter's equivalent is the emphatic ص [š], whereas ش (traditional [š]) is relegated to the end of the list (McDonald 1974). The same correspondences (س – ש vs. ص – ש) are common in early Aramaic borrowings into Arabic (Murtonen 1966, 137–138; McDonald 1974, 41; contrast Blau 1970, 100–104 and Diem 1980, 75–82). Last but not least, it was Aramaic ש (rather than ס) that gave origin to the Arabic letter س (McDonald 1974, 41).

1.3.2.4. Problems of the push-chain solution

The main problem of the otherwise highly persuasive push-chain shift solution is that [š] sometimes coexists with a still affricate [c]. Thus, in the Southern OB norm, the reflex of *s was still an affricate [c], but the 'general sibilant' is the same as in the rest of OB, viz. [š] (cf. 1.5.1.3.). Similarly, the 'general sibilant' of early Canaanite is rendered by Egyptian š, presumably identical to its Coptic reflex [š], but, incidentally, there is clear Egyptian evidence for an affricate *s [c] (cf. 1.3.2.2.2.). It means that the presence of an affricate *s [c] does not necessarily presuppose a hissing *š [s] in the reconstructed sibilant systems of ancient Semitic languages, *contra* Knauf (1994, 118), Voigt (1998, 181) and Sima (2001, 251) who oppose the 'affricate' Sabaic system *[s] – *[š] – *[c] to the 'de-affricate' Hadramitic system *[š] – *[š] – *[s] (cf. the Minaean system *[š] – *[š] – *[c] unanimously accepted by Knauf, Voigt and Sima).

As an alternative to the push-chain shift solution, a reverse sequence of events is tentatively postulated in Dolgopolsky (1999, 60–61), where the shift [s] > [š] is ascribed to the common WS stage and thought to trigger the de-affrication [c] > [s] independently in individual WS languages (cf. also Stempel 1999, 53). But this solution is even more problematic: there is no reason for the spontaneous shift [s] > [š] in PWS; SV spelling of the 'general sibilant' in WS personal names in OB Akkadian sources (cf. 1.5.2.1.) is not compatible with [s] > [š] already in PWS; de-affrication must have started many centuries after the emergence of its alleged trigger; a fully identical shift [s] > [š] in OB Akkadian is disregarded.

1.3.2.5. Secondary emergence of affricates?

Reliable PS reconstructions with *s [c] in the basic lexicon are not many, and those with *z [ʒ], exceedingly rare (Faber 1985b, 118–129). PS *š [ç] is not treated by Faber, but its rarity is even more conspicuous (Stempel 1999, 51–52). Faber's claim about the secondary emergence of these phonemes at some pre-PS stage is, therefore, theoretically sound, even if difficult to substantiate.

1.3.2.6. The broad variety of the affricate hypothesis

The broad variety extends the affricate articulation to the traditional interdental and lateral sibilants. Thus, Vilenčik (1930, 93) reinterprets *t – *t̰ – *d as hushing affricates *č – *č̰ – *ž (so also Martinet 1953, 46; Diakonoff 1980, 9–10 and 1991–1992, 6; Roman 1983, 697–705; Stempel 1999, 46–50; cf. Cuny 1908, 16). A different (but still affricate) realization for the same triad is postulated in Voigt (1979, 98; 2001–2002, 173–176). Cantineau (1960[1941], 54), Martinet (1953, 71, 77), Voigt (1979, 104), Diakonoff (1980, 9, 1991–1992, 6) and Stempel (1999, 59) reinterpret the lateral sibilants *š and *š̰ as lateral affricates *č̰ and *č̰̰.

The broad variety has been mostly supported by structural arguments: if the PS emphatics were glottalized (cf. 1.3.1.), an emphatic lateral sibilant or interdental becomes improbable (Steiner 1977, 156). The affricate realization is then extrapolated on the non-emphatic members of each triad.

The available material evidence mostly pertains to the emphatic lateral *š̰. Its reflex is realized as an affricate in Jibbali (cf. 1.3.3.1.), whereas Μάτλια = *ʾmθ* (cf. 1.3.3.24.) suggests an affricate realization of š in early Geez (Weninger 1998, 14: 'd = τλ'). In fact, Greek τλ does not necessarily render affrication, since *tl* is well attested in foreign spellings of non-affricate lateral sibilants as well (Steiner 1977, 18, 23). Rodinson (1981, 104–111) spends considerable attention to *ι* in the Greek form (with no trace in the Geez original) and believes that τλ renders palatalization (*mouillure*) due to a 'latent' *y*. For Rodinson, τλ in Μάτλια is a forerunner of č in modern toponyms presumably related to *ʾmθ* (such as *Dämba Məčč*), but it is more likely that *ι* in τλ renders affrication (cf. *τι* in *τιαδη* = *šādē*, cf. 1.3.2.1.3.).

According to Streck (2006, 245–247), the 'general sibilant' š in Akkadian was realized as a lateral affricate [č̰]. This reconstruction explains why the combination 'dental + š-' yields a double Z (VZ-ZV = [cc]) in the script (Buccellatti 1997, 29): if š was an affricate, gemination of the dental onset becomes self-evident (Streck 2006, 245). At the same time, this reconstruction creates an unusual phonological system with no plain sibilants at all and the lateral affricate č̰ as one of the most frequent phonemes.

1.3.3. The lateral hypothesis

The necessity of reconstructing two lateral sibilants – the unvoiced *š̰ [t̰] and the emphatic *š̰̰ [t̰̰] – has been demonstrated in Steiner 1977 and 1991. Although the lateral interpretation of the traditional *š̰ and *d̰ (GVG 128; Moscati 1964, 28, 34) is older than 1977 (Cantineau 1960[1941], 54–55 and 1951–1952, 84–87; Diakonoff 1965,

20–22), Steiner's contribution was decisive for the hypothesis' wide recognition today (Bomhard 1988, 128–129; Lipiński 1997, 129–132; Dolgopolsky 1999, 18; Stempel 1999, 56–60).

1.3.3.1. Modern South Arabian

The unvoiced lateral *š is preserved in MSA (Lonnet / Simeone-Senelle 1997, 348). The reflex of *š also preserves its lateral articulation throughout MSA, although its exact realization has been controversially described. According to Johnstone (ML XII, HL XIII, JL XIV, 1984, 390), *š has become a non-emphatic voiced lateral sibilant ž in Mehri (but cf. Watson/Bellem 2010, 346) and Soqotri and a non-emphatic voiced lateral affricate ʃ in Jibbali (for the non-emphatic affricate in Mehri see also Lonnet/Simeone-Senelle 1983, 197). The non-emphatic realization of *š in Jibbali was observed already by Fresnel (Lonnet 1991, 69; Yushmanov 1930, 384; Steiner 1977, 2, 13, 41), but according to Dolgopolsky (1994, 5, 1999, 30–31) the Jibbali phone is clearly glottalized. The Soqotri reflex of *š is reported to be an ejective in Simeone-Senelle 1996, 312–313. A special feature of Central Jibbali is the voiced ž as a palatalized allophone of *l* (JL XIV), correctly described by Fresnel (Lonnet 1991, 64–65; Yushmanov 1930, 385; Steiner 1977, 14, 21, 32–34).

1.3.3.2. Arabic ض according to the native grammarians

A major fundament of the lateral theory is the lateral pronunciation of Arabic ض (*dād*) in the native grammatical tradition (Steiner 1977, 57–67 and 1991, 1503; Versteegh 1999, 273–274). Steiner deals extensively with the description of ض by Sībawayhi, for whom ض is articulated *min bayni 'awwali ḥāffati l-lisāni wa-mā yalihi mina l-'aḍrās* 'between the beginning of the tongue's edge and the corresponding molars' (Bravmann 1934, 52; Cantineau 1960[1941], 55; Steiner 1977, 60; cf. Roman 1983, 170–176).

1.3.3.3. Early North Arabian

The earliest piece of evidence for a lateral *š in a North Arabian idiom comes from the name of an Arabian deity whose image was restored to the Arabs by Esarhaddon (Moscatti 1964, 28; Steiner 1977, 92–94). This name, spelled as *ru-ul-da-a-a-u* in cuneiform (Borger 1956, 129), was identified by Ryckmans (1956, 1) and Borger (1957) with the North Arabian theonym *rdw / rdy* (Teixidor 1977, 70), vocalized as *ruḏa'* in later sources (Lane 1100). Borger successfully explained the correspondence *ld – d* by the lateral articulation of *d*. According to Teixidor 1977, 69, the same prototype is behind the theonym *Orotalt* reported by Herodotus (Steiner 1991, 1503–1504).

1.3.3.4. Arabic loanwords

Lateral ض is reflected in Arabic loanwords in several geographic areas (Steiner 1977, 68–91, Yushmanov 1926, 43):

- (a) Arabic ض is rendered as *dl* or *l* in three Arabisms in Spanish (Colin 1930, 101, Cantineau 1960[1941], 56, Giese 1964, Steiner 1977, 68–73, Corriente 1977, 46, 1989, 97–98, Versteegh 1999, 277–278, cf. Roman 1983, 194–199): *alcalde* ‘judge, mayor’ < ‘*al-qāḍī*’, *albayalde* ‘white lead’ < ‘*al-bayād*’, *arrabal* (Portuguese *arrabalde*) ‘suburb’ < ‘*ar-rabaḍ*’ (Corominas 1987, 127, 116, 345). According to Corriente 1989, 98, ط is rendered by *l* in Andalusian Arabic *nicayāl* / *cayālt* ‘to spend the summer’ = *qāyaḍa* (Lane 2579), which implies a merger of ض and ط into one lateral sound in the source-dialect.
- (b) Arabisms with *d* > *dl* or *l* are found in Malay (Steiner 1977, 75, Versteegh 1999, 280–283): *dloha* ‘morning’ (Favre 1875, 826, Wilkinson 1955, 700) < *ḍuḥā*, *dlā’if* / *la’if* ‘weak’ (Favre 1875, 826, Wilkinson 1955, 639) < *ḍa’if*. The same is true for etymological *ḍ* (ط): *lalim* / *dlalim* ‘tyrannical’ (Wilkinson 1955, 643, Favre 1875, 831) < *ḍālim*, *dlil* ‘shadow’ (Favre 1875, 831) < *ḍill* (Steiner 1977, 75).
- (c) Lateral ض is common in Arabic loanwords in West African languages, such as Hausa, Kanuri and Fula (Steiner 1977, 81–89, Versteegh 1999, 278–279): Hausa *lā’ifi* ‘impotent’ (Bargery 1934, 712; Abraham 1962, 608) < *ḍa’if*, *lāmūrī* ‘personal pronoun’ (Bargery 1934, 718; Abraham 1962, 613) < *ḍamūr*, *lārūrā* ‘necessity’ (Bargery 1934, 721; Abraham 1962, 615) < *ḍarūra*, *hailā* ‘menstruation’ < *ḥayḍ* (Bargery 1934, 436; Abraham 1962, 361).
- (d) In East Africa, Arabisms with *d* > *l* are found in Somali (Steiner 1977, 90; cf. Reinisch 1903, 12): *ārli* ‘country’ < ‘*arḍ*’ (Reinisch 1902, 38; Agostini 1985, 24), *hayl* ‘menstruation’ < *ḥayḍ* (Reinisch 1903, 230; Agostini 1985, 630), *rāalli* ‘content’ < *rādī* (Agostini 1985, 510, *rāli* ‘grace, favour’ in Reinisch 1902, 323), *la’if* ‘weak’ (Reinisch 1902, 272; Agostini 1985, 382), *faral* < *farḍ* ‘religious precept’ (Agostini 1985, 219; cf. Reinisch 1902, 155).

The attestations of *ld*-Arabisms in Spanish range from 1062 (*alcalde*) to 1439 (*albayalde*), but the lateral ض was hardly preserved until these very late dates: the relevant words must have entered the spoken language much earlier (Steiner 1977, 71). Most *dl/l*-loanwords in Malay are recorded from the 19th century onwards (Steiner 1977, 74–80), in earlier sources ض is usually represented by *d*. This suggests a source-dialect which preserved a lateral ض (< ض + ط) until quite recently. As for the small group of more ancient Arabisms with ض > *l* (*hil* ‘menstruation’ < *ḥayḍ*, *ramalan* ‘Ramadan’ < *ramāḍān*, Steiner 1977, 76–77), they must be due to earlier contacts with Southern Arabia (van den Berg 1886, 102). The same is true of Arabic loanwords with *dl/l* for ض/ط in Southern Mindanao and Sulu (*lad* ‘the letter ض’ < *ḍād*, *ramadlan* ‘Ramadan’ < *ramāḍān*), which must go back to an early Malay intermediary (Steiner 1977, 78–79). The relevant Arabisms in West African languages are almost impossible to date (cf. Steiner 1977, 83–84).

The geographical source of diffusion of the lateral ض seems to be South Arabia (Corriente 1977, 46; Garbini 1984, 149–150; Versteegh 1999, 284; 2006, 545). The Yemenite roots of Andalusian Arabic are widely acknowledged (Colin 1930, 101–102; Corriente 1989, Steiner 1977, 71–72; Rodinson 1981, 103). In Malay, introduction of the lateral ض/ط in recent loanwords is due to the influx of Hadrami immigrants, which does not predate the 19th century (van den Berg 1886, 105–122; Steiner 1977, 76), whereas the earlier stratum must derive from a South Arabian source as well (Colin 1930, 102; Steiner 1977, 78; Versteegh 1999, 280). The South Arabian origin of *l*-Arabisms in Somali is a feasible probability. Steiner’s evidence for the South Arabian origin of

ض > *l* in West Africa (1977, 87–88) is slim, but a South Arabian origin of sub-Saharan Bedouin Arabic, from which this feature possibly derives, has been advocated in Kampffmeyer 1889 and Corriente (1977, 46; 1978b, 155).

1.3.3.5. //ḏ lexical doublets

Laterality of ḏ is assured by //ḏ lexical doublets collected in Corriente 1978b (cf. Colin 1930, 102–103; Yushmanov 1998 [1933–1934], 84; [1940]148–149; Cantineau 1960 [1941], 55–56; Steiner 1977, 95–98). Corriente's impressive evidence leaves some questions unanswered (Steiner 1977, 95–96). Are we always faced with the shift ḏ > *l*, as in *ddd* (III) → *ldd* 'to overcome in litigation' (Lane 1775, 2656) or does *l* also shift to ḏ, as in *lhb* 'to flame, to blaze' → *ḏhb* 'to roast' (Lane 2674, 1807)? Can we differentiate between widely attested roots (like *lmm* – *ḏmm* 'to collect, to gather', Lane 3013, 1801) and (dialectal) occasionalisms (like 'ilṭaṣa' instead of 'idṭaṣa' 'he lay down on his side' or ṣaḏd- instead of ṣald- 'hard', Kofler 1940, 97)? Are there any phonetic conditions triggering the emergence of the doublets, as seems to be the case in 'ilṭaṣa' and ṣald-, where ḏ is preceded by a dental stop?

1.3.3.6. Incompatibility of ḏ and *l*

Since Cantineau 1960[1946], 200, laterality of ḏ has been tested by its (in)compatibility with *l*. Cantineau (and Fischer 1968, 59) raised doubts over laterality because the incompatibility between ḏ and *l* is not absolute, but Greenberg's more elaborate results (1950) prompt one to reconsider the issue: roots combining ḏ and *l* are 11, as against 22,9 statistically expected. For Greenberg, these data 'do not lend much support to the lateral theory' but, as shown by Steiner (1977, 109–110), they actually do: compare the statistics for *l* + ṣ (40 attested vs. 32 expected) or ḏ + *n* (29 attested vs. 22 expected). Destructive criticism of Steiner's results in Beach / Daniels (1980, 220) and Beeston (1979, 267) is unfounded (cf. Steiner 1991, 1504–1506).

1.3.3.7. Arabic dialects

Lateral ض is lost in most Arabic dialects, where it merges with ط (for Arab grammarians' descriptions of this merger, cf. Steiner (1977, 71), Versteegh (1999, 275), Brown 2007; for North Yemenite dialects where they are still kept apart v. Behnstedt (1987, 5–6). The outcome of the merger is either [ḏ] or [ḑ], the former in 'urban' dialects and the latter, in 'Bedouin' / 'rural' ones (Cantineau 1960[1941], 56; Fischer 1968, 55; Corriente 1978a, 50–51; Brown 2007, 335–336). The opposition ض [ḏ] vs. ط [ḑ] in the reading tradition of Classical Arabic is thought to be artificial and irrelevant for the original pronunciation of ض (Fischer 1968, 55; Steiner 1977, 36–37).

Lateral ض has been reported for Arabic dialects of South Arabia, such as Hadramaut, Dathina and Dhofar (Cantineau 1960[1941], 56; Landberg 1901, 637; van den Berg 1886, 239; Rhodokanakis 1911, 82; Steiner 1977, 18–19, 23), although it seems that Arabic dialects of the area were not always properly distinguished from MSA (cf.

Steiner 1977, 15). Preservation of laterality may be due to the phonological conservatism of these dialects, but substratum / adstratum MSA influence is also conceivable (cf. Corriente 1978a, 50, 52; Versteegh 1999, 284; Brown 2007, 343–345). Several examples of *l* for ض are found in the wordlists of sub-Saharan Bedouin dialects in Kampffmeyer (1889, 148–163: *lūfdu* ‘frog’, *mārāla* ‘sick’ = *difdi*-, *mrd*), where *r* and *r* (= غ) for ض are also attested (*rāifu*, *raif* ‘guest’, *ābiar* ‘white’ = *dayf*-, ‘*abyaḍ*-, *bāir* ‘egg’ = *bayḍ*-), see further Kampffmeyer 1889, 196, 204. Lateral ض in the reading tradition of Classical Arabic has been reported for Mauritania and Turkey (cf. Cohen 1963, 11; Rabin 1951, 33; Brown 2007, 337–338; Versteegh 1999, 276–277).

1.3.3.8. Phonetic realization of ش according to Arab grammarians

PS *š yields ش in Arabic. Its exact phonetic nature as described by Arab grammarians has been hotly debated (Bravmann 1934, 49–52; McDonald 1974, 42–43; Beeston 1962a, 223–224; 1979, 267; Faber 1980, 183–186; Roman 1983, 144–147). For Corriente (1976, 76; 1978a, 50–51), both ض and ش ‘are clear laterals’ in Sībawayhi’s description, whereas Steiner (1977, 99, 101) believes that ‘Sībawayhi ... knows nothing of a lateral ش’ and ‘everyone agrees ... that it [Sībawayhi’s account of ش] does not describe a lateral’ (see also *ibid.* 36, 54, 66).

1.3.3.9. Further evidence for the lateral ش in early Arabic

According to Steiner (1977, 95, following Cantineau 1960[1941], 63), a direct piece of evidence for the lateral ش in early Arabic comes from the pair of doublets *qišdat*-/*qildat*- ‘sediment of butter’ (LA 3 433, 451) reported by 9th century Arab grammarian al-Kisāʾī. The same scholar relates that Rabīʿites and Yemenites ‘make *šin* into a *dād*’ (*yaḡʿalūna š-šina dādan*, Kofler 1940, 92; Steiner 1977, 99–101). Laterality of ض being established, one can infer from this report that ش in Rabīʿites’ and Yemenites’ speech shared with it this feature. For Steiner, lateral ش in the speech of the ‘Mesopotamian tribe of Rabīʿa’ (cf. Kindermann 1995, 353) demonstrates that it is not bound to South Arabia, but cf. Beeston 1979, 267 for whom Rabīʿa is a ‘southern’ dialect.

1.3.3.10. *ḍ* > *š* in the Koran

Cantineau (1960[1941], 46), Corriente (1976, 76) and Roman (1983, 203–204) report the reading tradition *li-baʿš šaʿnihim* for *li-baʿḍi šaʿnihim* in the Koran (24:62). The assimilation *ḍ* > *š* points to a close phonetic similarity between ش and ض, since ض does not assimilate to any other consonant.

1.3.3.11. *ḍ*/*š* lexical doublets

Phonetic proximity between ش and ض is deduced from *ḍ*/*š* lexical doublets (Steiner 1977, 102–107). Already Rabin (1951, 33) explained ‘*illawḍ*- / ‘*illawš*- ‘jackal’ (cf. LA

6 385, 7 216) and *nāḍa* / *nāša* ‘to carry’ by the laterality of ش and ض. Both lexemes are traditionally associated with Yemen (but cf. al-Selwi 1987, 162, 210), which restricts their validity for Classical Arabic (Fischer 1968, 59). However, more examples with no apparent Yemenite connections are found in Yushmanov (1998[1933–1934], 84; [1940], 148–149), Maizel (1983, 159), Fischer (1968, 59–60), Kuryłowicz (1972, 28–29) and Steiner (1977, 105). The relevance of these doublets is uneven (Steiner 1977, 103–105), and the queries raised in 1.3.3.5. are also valid here: the direction of the shift has not been clarified (*d* > *š* seems to be typical, as in *bayyaḍa* / *bayyaša* ‘to whiten’, Lane 282, LA 6 323); semantically close, but clearly independent lexemes (*šarr-* ‘evil’ – *ḍarr-* ‘harm’, Lane 1524, 1776 or *mšy* ‘to walk’ – *mḍy* ‘to pass’, Lane 3020, 3021) are not separated from occasional deviations (*šummaḥr-* / *ḍummaḥr-* ‘corpulent; arrogant’, LA 4 497, 569); conditions triggering the shifts are not investigated. Steiner (1977, 105) is, nevertheless, correct to assert that ‘there are enough unassailable doublets to justify a claim that ض and ش were phonetically similar’.

1.3.3.12. š// lexical doublets

A more straightforward set of doublets, viz. *š*//*l*, can be found in Yushmanov (1998 [1933–1934], 84 and [1940], 148–149): *šakis-* / *lakis-* ‘stubborn’ (LA 6 523), *kšḥ* ‘to bear enmity’ / *klḥ* ‘to look fierce’ (WKAS K 205, 315), *tašš-* / *tall-* ‘fine rain’ (Lane 1853, 1862).

1.3.3.13. Incompatibility of ش and l

Laterality of ش is deduced from its incompatibility with *l* (Steiner 1977, 108–109; cf. Cantineau 1951–1952, 87 and 1960 [1946], 200): 19 existing roots vs. 40,2 statistically expected, sharply contrasting with *š* and *n* (50 attested vs. 39 expected) or *l* and *s* (63 attested vs. 51 expected).

The repeatedly observed absolute incompatibility between *š* and *ḍ* (Cantineau 1951–1952, 87; 1960 [1946], 200; Kuryłowicz 1972, 28; Stempel 1999, 58) has no bearing on the lateral hypothesis, as *ḍ* is not compatible with other sibilants either (Steiner 1977, 5–6; Roman 1983, 205–206): thus, the only root with *ḍ* and *s* in Arabic is the primary noun *ḍirs-* ‘molar tooth’ (Greenberg 1950, 174).

1.3.3.14. The shift *št* > *lt* in Akkadian

A remarkable argument for the laterality of *š comes from the shift *št*, *šd*, *št* > *lt*, *ld*, *lt* in Akkadian (Yushmanov 1998[1940], 149; Gumpertz 1942, 114; Diakonoff 1965, 22; 1980, 11; Steiner 1977, 144–148; Swiggers 1980; Streck 2006, 238, 243–251). Regular from MB on, this shift may have some precedents in OB (*il-ta-nu-um* ‘north’, *lil-di* ‘butter’, *gi-il-tu-ú* ‘cross-bar’; Lieberman 1977, 8; Streck 2006, 238, contrast Keetman 2009, 449–451) and is attested already in Ebla (Krebernik 1982, 200, 217; Conti 1990, 14). The Ebla examples are disregarded in Keetman 2006, 370–377 (but cf. now Keetman 2009), whose thesis about the non-genuine (presumably Chaldean) origin of the

št > *lt* shift in Akkadian is unacceptable (Streck 2008, 251). Laterality of *š* in Akkadian is the best (perhaps the only) way of explaining this shift (Hoch 1994, 404 *contra* Faber 1985b, 88), but its implications are rather problematic: PS **š* must have absorbed **š* (more frequent and less marked), producing a peculiar consonantal system with the lateral *š* as the ‘general sibilant’ (Diakonoff 1988, 38), but no *s* or *š* whatsoever (Beach/Daniels 1980, 221; Keetman 2006, 270; cf. Steiner 1977, 146 and Faber 1985b, 73). As a palliative, a positional distribution has been postulated, with **š* absorbing **š* before dentals, but *vice versa* elsewhere (Steiner 1977, 146–147; Fales 1978, 97; Streck 2000, 217). The lateral allophone must have also been preserved after *l*, as shown by the assimilation *lš* > *šš* in *a-ap-pa-aš-šu* < *appal-šu* ‘I will satisfy him’ or *a-ka-šu* < *akal-šu* ‘his bread’ (Swiggers 1980; Streck 2006, 238).

1.3.3.15. Lateral traces of Proto-Semitic **š* in Akkadian

Steiner (1977, 158, cf. SED I p. LXXIII) tentatively proposed that PS **š* also left a lateral trace in Akkadian, supposedly reflected in the shift **št* > *lt* in such examples as *maršu* ‘sick’, fem. *marultu* (< PS **mrš*) or *emšu* ‘sour’, fem. *emiltu* (< PS **hmš*). The improbability of this hypothesis was recognized by Steiner himself: there is no direct shift from **št* to *lt*, but rather a three-stage development **št* > *št* > *lt* (**maruštu* > *maruštu* > *marultu*), which affects every *š* independently of its origin, cf. *hālištu* ‘female wool-comber’ (CAD H 43) < PS **hlš* (Arb. *hlš* ‘to be free from admixture’, II ‘to clarify’, Lane 785).

There may be a different piece of evidence for a lateral *š* in early Akkadian. Akk. *arallū* ‘Netherworld’ (CAD A₂ 226) goes back to Sumerian *arali* (PSD A₁ 136–140), with no transparent internal etymology. Could the Sumerian word be borrowed from an early Semitic **arš*- ‘earth’, whose reflexes commonly denote the Netherworld in Akkadian, Ugaritic and Hebrew (CAD E 308, DUL 106, HALOT 91)? Phonetically, PS **arš*- > Sum. *arali* would be very close to Arb. *’arḍ*- > Somali *árli* ‘country’ (cf. 1.3.3.4.). The OB *e*-form *eršetum* is clearly not a suitable source for the borrowing, but the Sargonic *a*-form *ar-ša-tim* (Westenholz 1974, 98) is much more so. The feminine marker *-t-* in Akk. *eršetum* is a secondary addition (Lipiński 1997, 230), cf. *napiš-t-um* ‘soul’ < PS **napš*-, *ešem-t-um* ‘bone’ < PS **aṭm*-, *iš-āt-um* ‘fire’ < PS **iš*- and the corresponding forms without *-t-* in the personal name *tu-tá-na-ap-šum* ‘She has found life’ (George 2003, 153), *ešem-šēru* ‘backbone’ (CAD E 343) and the theonym *išum* (Roberts 1972, 40–41).

1.3.3.16. Incompatibility between *š* and *l* in Hebrew

Low compatibility between *š* and *l* in Hebrew has been considered as proof of the laterality of *š* (Koskinen 1964, 45–47, followed by Kuryłowicz 1972, 28), but the difference between the attested and the expected number of roots with *š* and *l* (5 vs. 10,7) is hardly relevant statistically (Steiner 1977, 6).

1.3.3.17. Proto-Semitic *šhk ‘to laugh’

Close proximity between *š and *s is deduced from the history of the PS root for ‘to laugh’ (Steiner 1977, 110–120; Hetzron 1972, 37; Kuryłowicz 1972, 29; cf. Diakonoff 1965, 22). This root, reconstructible as *šhk (SED I No. 69, following Steiner 1977, 119), displays a complex evolution. Ugr. *šhk* and *ṭhk* (DUL 782), Hbr. *šhk* (HALOT 1019) and Gaf. *šaḳä* (Leslau 1956, 236) are immediately traceable to the prototype. More often, one of the two types of dissimilation (*šhk > *šhk or *šhk > *shk) is attested: Mnd. *ahk* (MD 9), Arb. *dhk* (Lane 1771), Mhr. *žəḥāk* (ML 475, v. JL 325, LS 361 for other MSA) vs. Hbr. *šhk* (HALOT 1315), Htr. *šhk* (DNWSI 1121; cf. Beyer 1998, 74, 185), Mnd. *shk* (MD 320), Gez. *šaḥaḳa* (CDG 528). As shown by Hbr. *šhk* and Gez. *šaḥaḳa*, the outcome of the second type of dissimilation is š – the non-emphatic partner of the lateral emphatic š.

Both dissimilated forms might be traced to common prototypes already in PS (Diakonoff 1965, 22; Hetzron 1972, 37). This would assure the laterality of *š in PS, but not in individual Semitic languages. If, conversely, dissimilation took place independently in Hebrew, Mandaic and ES, a lateral š must have existed in these languages, too. Within the Biblical corpus, both *šhk* and *shk* are attested, most of the š-forms being comparatively recent (Steiner 1977, 116–117; cf. Blau 1982, 4–5). Does it mean that the emphatic lateral š still existed as an independent phoneme in Biblical Hebrew behind the polyphonic grapheme ש (Steiner 1977, 112, 117)? Such an explanation is, at any rate, unsuitable for the *šhk / *shk doublet pair in Mandaic (Steiner 1977, 115): already in proto-Aramaic *š became [kx’] (cf. 1.5.2.7.2), from which no sibilant š could have evolved via dissimilation.

1.3.3.18. βάλαμον

The laterality of *š is suggested by Greek βάλαμον, which denotes the tree *Commiphora opobalsamum* and its aromatic sap. The Semitic origin of βάλαμον is clear (Frisk 1960, 217), but the origin of λ has long remained puzzling (Masson 1967, 77–78): no -l- is apparent in Hbr. *bōšām*, *bāšām* (HALOT 163), Syr. *besmā* (LSyr. 80) or Arb. *bašām*- (Lane 209). As suggested by Steiner (1977, 123–129, following Gumpertz 1942, 114), -λσ- renders a lateral š, which finds now a splendid confirmation in the Neo-Babylonian spelling *ba-al-tam-mu* (Jursa 2009, 156–157). Steiner asserts that the source-language of βάλαμον was Hebrew or Phoenician (which implies a polyphonic ש in the Phoenician alphabet; Steiner 1977, 129; Dolgopolsky 1999, 18, 30), but does not exclude a South Arabian origin (cf. Beach/Daniels 1980, 221; Lipiński 1997, 129).

1.3.3.19. Jewish Babylonian Aramaic ‘arslā

JBA ‘*arslā* ‘hammock’ (DJBA 165) / ‘watching hut’ (Steiner 1977, 132–135) is identified with PS *‘*ars-* ‘bed’ in Steiner (1977, 130–136), represented by Akk. *eršu*, Ugr. ‘*rš*, Hbr. ‘*äräš*, Syr. ‘*arsā* ‘bed’ (CAD E 315, DUL 185, HALOT 889, LSyr. 549) and Arb. ‘*arš-* ‘booth, shed; throne’ (Lane 2000). As suggested by Steiner, -sl- in ‘*arslā* is due to a meta-analysis of a lateral *š.

A similar process may explain the origin of the pan-Aramaic verbal root **slk* ‘to go up’ (Kogan 2005b, 525). Since Arb. *tasallaqa* ‘to climb’ is highly isolated and probably not genuine (LSyr. 477, *contra* Nöldeke 1903, 419), Common Arm. **slk* can be plausibly compared to PS **šky* ‘to be high’ (Haupt 1910, 712–713), represented by Akk. *šakû* ‘to grow high’ (CAD Š₂ 19) and Arb. *šqy* ‘to grow’, *šāqī* ‘high, inaccessible’ (LA 14 539).

1.3.3.20. The ethnonym *Kaldu*

For Steiner (1977, 137–143; cf. Yushmanov 1998 [1940], 149), the Akkadian name of the Chaldaeans, *kaldu* (Edzard 1976–1980, 291–297), suggests that *š* was a lateral in the Chaldeans’ native tongue. Steiner’s treatment of the Chaldean problem was criticized by Beeston (1979, 265–267; cf. Steiner 1991, 1507–1509 and Keetman 2006, 373–377), but the dilemma is linguistic rather than historical: does the *-l-* of *kaldu* render the Chaldean lateral *š*, or does it represent the genuinely Akkadian shift *šd > ld* (Steiner 1977, 141; Edzard 1976–1980, 296; Keetman 2006, 372–373)? The proto-form **kašdu* is not attested (*contra* Gumpertz 1942, 114), and it may be doubted that the shift *šd > ld* was still operative when Akkadian speakers became acquainted with Chaldeans (Edzard 1976–1980, 296). Still, at least one Aramaic loanword in NA and NB – *kinaštu / kinaltu* ‘priesthood’ (CAD K 369) – is indeed affected by the shift (Keetman 2006, 373).

1.3.3.21. Early Aramaic theonyms in *ilt-*

The early Aramaic theonym *il-te-eḫ-ri* (Zadok 1977, 42) goes back to PS **šahr-* ‘moon’: Syr. *sahrā*, Arb. *šahr-*, Sab. *s₂hr* (LSyr. 462, Lane 1612, SD 132). Similarly, *il-ta-meš-* (Zadok 1977, 39–42) reflects PS **šamš-* ‘sun’ (peculiarly, in its Arabian rather than NWS form, viz. with *š-* instead of *š-*, cf. Beyer 1984, 102, 715). The onomastic element *il-ta-gi-bi* has been identified (Zadok 1977, 103; cf. Lipiński 1975, 104–108) with Hbr. *šgb* ‘to be exalted’ (HALOT 1305). According to Zadok (1977, 42, 102–103), the segment *il-* represents PS **’il-* ‘god’, either as the subject of a nominal sentence (*il-ta-gi-bi* ‘god is exalted’), or as an incorporated element of the theonym itself (**’il + *šahr*). Within this approach, early Aramaic *š* in these forms is rendered by *t* (Lipiński 1975, 104–108; Zadok 1976, 229–230; Beyer 1984, 100). For Fales (1978; followed by Steiner 1991, 1506 and Lipiński 1997, 130), it is rather *ilt-* that is a complex rendering of a lateral *š*, alternating with *t*-spellings like *te-ri-*, *tam-meš-* and *ta₅-gi-bi*. Fales’ attractive hypothesis is not compelling for IL-*ta-meš-* and IL-*te-eḫ-ri-*, since incorporation of **’il-* ‘god’ into theonyms is well attested in the cuneiform tradition (Schwemer 2001, 32–33) and easily explains the ‘phonetic’ spellings with IL instead of the expected 𐎶 = DINGIR (which predominate elsewhere in theophoric names in Zadok 1977, 361–363). It is more persuasive for *il-ta-gi-bi* (Fales 1978, 92–93), but no full certainty is possible in this case either.

1.3.3.22. The Moabite name *ka-ma-as-ḥal-ta-a*

The NA rendering *ka-ma-as-ḥal-ta-a* of a Moabite personal name is interpreted as **Kamoš-ʿašā* ‘(the god) Kamosh has made’ in Knauf/Maáni (1987, 93; accepted in Lipiński 1997, 129; Berlejung 2000, 600). The verb *ʿšh* ‘to do, make’, actually attested in Moabite (DNWSI 890), is common in Hebrew theophoric names (BDB 795), and NA *ḥ* does render WS ʿ (Zadok 1977, 245–247). Knauf’s interpretation is thus attractive. The use of *-lt-* for *š* points to the lateral sibilant as an independent phoneme in Moabite.

1.3.3.23. Μάτλια

As demonstrated by Rodinson (1981) and Weninger (1998), the Greek rendering Μάτλια for the place name *ᾠθ* in epigraphic Geez (RIÉ 185 I 15, II 16, 185bis I 16, II 14 for Geez, 270:26, 270bis:22 for Greek; read differently and therefore unrecognized in Littmann 1913, 8–17) is clear proof of the lateral pronunciation [ç] for *θ* (traditional *ḏ*).

1.4. Hypothetic proto-phonemes outside the canonical system

1.4.1. The emphatic labial **p̣*

Absence of **p̣* from the traditional PS reconstruction is justified, since glottalized bilabial stops are uncommon cross-linguistically (Martinet 1953, 69–70; Stempel 1999, 44–45). The emphatic bilabial *p̣* is, however, attested in Geez. Most of its occurrences are in Greek borrowings (Podolsky 1991, 13), but already Dillmann (1907, 57) was able to detect *p̣*-words elsewhere in the Geez lexicon. Voigt’s attribution of such lexemes to Cushitic influence is unsuccessful: only one among five supposed Cushitisms (Voigt 1989, 635) has a tentative Cushitic etymology (SED I, pp. CXI–CXII).

For Dillmann, Geez *p̣* mostly corresponds to *b* elsewhere in Semitic: Gez. *hepa* ‘to strike, to pierce’ – Arb. *hbb* ‘to cut’ (LLA 16–17, CDG 221, Lane 2873) or *koḫḫon* ‘boot’ – Arb. *qabqāb-* ‘clog’ (LLA 472, CDG 438, Lane 2479). Many of Dillmann’s etymologies are to be rejected as unreliable, like *māḡʾanpā* ‘quiver’ – Arb. *ḡaʿbat-* id. (LLA 1182, CDG 198, Lane 428).

A list of Geez *p̣*-words supposed to substantiate a regular correspondence between Gez. *p̣*, Arb. *b*, Hbr. *p* and Arm. *p* is found in Grimme (1914, 261–262). Most of these 16 examples are unreliable: Gez. *ganḫala* ‘to distort’ – Arb. *qlb* ‘to invert’ (LLA 1182, CDG 198, Lane 2552), Gez. *māḡʾanpā* ‘quiver’ – Arb. *ḡulbat-* ‘a piece of skin enclosing an amulet’ (LLA 1182, CDG 198, Lane 440), Gez. *ʾakraḫa* ‘to scratch’ – Hbr. *ḥlp* ‘to cut through’, Syr. *ḥāloptā* ‘knife’ (CDG 293, HALOT 321, LSyr. 237), Gez. *karāpa* ‘to work’ – Arb. *krb* ‘to plow’ (CDG 293, WKAS K 111, omitting Syr. *krb* ‘to plow’, LSyr. 342), Gez. *ʾanpāʾānpe* ‘ulcers’ – Arb. *ʾunbūbat-* ‘node, knot’ (CDG 30, Lane 2752, omitting Hbr. *ʾābaʾbūʾot* ‘ulcers’, HALOT 9, compared in LLA 780). Only two examples are relatively exact illustrations of the proposed set of correspondences: Gez. *sarāpa* ‘to sip’ – Syr. *srp* id. – Arb. *šrb* ‘to drink’ (CDG 514, LSyr. 500, Lane 1525)

and Gez. *ḥarḥaḥa* ‘to be rebellious’ – Hbr. *ḥrp* ‘to taunt’ – Arb. *ḥrb* ‘to be angry’ (CDG 243, HALOT 355, Lane 540).

This evidence is clearly insufficient for a reliable PS reconstruction. As an alternative, a slightly different set of correspondences, not involving the problematic Geez phoneme, has been postulated in Grimme (1914, 262–263), viz. PS **p* > Gez. *b* (‘weakened’ from *p*), Arb. *b*, Hbr. *p*, Arm. *p*. Most of the reliable examples (as well as their geographic distribution) were known already to Barth (1893, 23–29): Hbr. *pšt*, Syr. *pšt* – Arb. *bst*, Mhr. *abōsəṭ* ‘to spread’ (HALOT 980; LSyr. 611; Lane 203; ML 55; Grimme 1914, 261; SED I, p. CXIII), Akk. *perša’u*, Hbr. *par’ōš*, Syr. *purta’nā* – Arb. *buryūt* ‘flea’ (Grimme 1914, 262, SED II No. 185), Akk. *šalāpu*, Hbr. *šlp*, Syr. *šlp* – Arb. *slb*, Gez. *salaba*, Mhr. *sālōb* ‘to draw, to pull out’ (AHw. 1144; HALOT 1543; LSyr. 783; Lane 1398; CDG 498; ML 348; Grimme 1914, 263; SED I, p. CXIV). Grimme’s own convincing examples are rare: Hbr. *pā’ā* ‘to moan’, Syr. *p’ā* ‘to bleat’ – Arb. *bḡy* ‘to bleat’ (HALOT 949, LSyr. 585, Dozy 1 100), Hbr. *nāpās* ‘driving storm’ – Arb. *nbq* ‘to sprinkle’ (BDB 658, Lane 2830), Hbr. *špa’* ‘abundance’, Syr. *šp’* ‘to be abundant’ – Arb. *sby* ‘to be complete, full’ (HALOT 1634, LSyr. 796, Lane 1298), Akk. *zappu*, JBA *zīpā*, Syr. *zaptā* – Arb. *zabb* ‘hair’ (SED I No. 297). Much more often, Grimme’s examples are questionable or wrong (SED I, pp. CIX–CX): Hbr. *pll* (hitpa.) ‘to pray’ – Gez. *bāhla* ‘to say’, Arb. *bhl* (VIII) ‘to supplicate’ (HALOT 933, CDG 89, Lane 267), Hbr. *tpš* – Arb. *bš* ‘to seize’ (HALOT 1779, Lane 218), Hbr. *p’r* ‘to glorify’ – Gez. *barha*, Arb. *bhr* ‘to shine’ (HALOT 908, CDG 103, Lane 265, omitting Hbr. *bahārāt* ‘white spot’, HALOT 112). It is therefore not surprising that Grimme’s reconstruction was met with utmost skepticism (Ullendorff 1955, 109; Moscati 1954a, 26–27; 1964, 24–25; Voigt 1989, 635; Cantineau 1951–1952, 80–81). Critical remarks against Grimme’s etymologies are scattered throughout Möller 1916, but most of Möller’s own comparisons, supposed to substantiate the reconstruction of PS **p* > Gez. *p/b*, Hbr. *b*, Arm. *b*, Arb. *b*, are also extremely weak.

The existence of PS **p* has been nevertheless admitted by many Russian Semitists (Vilenčik 1930; Yushmanov 1998[1940], 145–146, 151–152; Militarev 1976; Diakonoff 1988, 35; 1991–1992, 11–12, 59). Militarev (1976) provides some additional examples, such as Hbr. *z’p*, Syr. *z’p* – Arb. *z’b* (V) ‘to be angry’ (HALOT 277, LSyr. 202, Lane 1230) or Akk. *šapāku*, Hbr. *špk*, Syr. *špk* – Arb. *sbk* (also *sfk*!), Gez. *sabaka* ‘to pour’ (AHw. 1168, HALOT 1629, LSyr. 795, Lane 1300, 1374, CDG 483). A few other (mostly debatable) cases are discussed in SED I, pp. CXV–CXVI.

Only an exhaustive etymological analysis of Semitic roots with labials will enable one to decide whether the reliable examples of *b/p* fluctuation are due to an accidental phonological variation (Voigt 1989, 636; cf. Dolgopolsky 1999, 30) or represent regular reflexes of **p* (A. Militarev in SED I, pp. CV–CXVI and SED II, pp. LX–LXI). A few examples with geographic distribution different from that postulated by Grimme and Militarev suggest that the former view is correct: cf. Ugr. *bṭn*, Arb. *baṭan*- vs. Syr. *patnā* ‘snake’ (SED II No. 63) or Akk. *šibāru* vs. Hbr. *šippōr*, Syr. *šeprā*, Arb. *šāfir* ‘bird’ (SED II No. 212).

1.4.2. The labiovelars

The labiovelars *k^w*, *g^w*, *k^w*, *h^w* are typical of Geez and most of modern ES. The uvular *h^w* is rare and scarcely opposed to *h*, but *k^w*, *g^w* and *k^w* are clearly independent phonemes (Ullendorff 1955, 76): *sakaya* ‘to flee’ – *sak^waya* ‘to go astray’, *gadala* ‘to strive’ –

g^wadala ‘to be missing’, *karaba* ‘to draw near’ – *k^waraba* ‘to receive Holy Communion’, *baql* ‘mule’ – *baq^wl* ‘plant’ (CDG 498, 182, 440, 100–101).

Labiovelars are common in Geez words whose Semitic cognates display velars followed (more rarely, preceded) by *ǣ* or *w* (Dillmann 1907, 51–54): Gez. *k^wall-* – Hbr. *kōl*, Arb. *kull-* ‘all’ (CDG 281, HALOT 474, WKAS K 292), Gez. *g^wərn* ‘threshing floor’ – Hbr. *gōrān*, Arb. *ǧurn-* (CDG 203, HALOT 203, Lane 414), Gez. *k^wəlfat* – Arb. *qulfat-* ‘foreskin’ (CDG 472, Lane 2992), Gez. *k^wənfəz* – Arb. *qunfuḍ-* ‘hedgehog’ (SED II No. 133), Gez. *k^wərr* ‘cold’ – Hbr. *qōr*, Syr. *qurrā*, Arb. *qurr-* (CDG 443, HALOT 1128, LSyr. 689, Lane 2500), Gez. *k^wərḥat* ‘bald patch’ – Hbr. *qorḥā*, Arb. *qurḥat-* (SED I No. 38v), Gez. *bak^wr* ‘first-born’ – Akk. *bukru*, Hbr. *bəqōr*, JPA *bwkrh* (CDG 94, AHw. 137, HALOT 131, DJPA 102), Gez. *k^wəlit* ‘kidney’ – JPA *kwlyyh*, Arb. *kulyat-*, Jib. *kužét* (SED I No. 156), Gez. *ḥaḳ^we* ‘hip, loin’ – Arb. *ḥaqw-*, Sab. *ḥkw-nhn* (SED I No. 113), Gez. *ləg^wat* ‘abyss, depth, pool’ – Arb. *lužžat-* (CDG 308, WKAS L 216), Gez. *ənk^w* ‘precious stone’ – Akk. *unqu* ‘ring, stamp-seal’ (SED I No. 15). The same conditions are observed in borrowed lexemes: *k^wəryāk* < Κυριαχός (LLA 1420), *k^wərbān* ‘offering, Eucharist’ < Syr. *qurbānā* (CDG 440, LSyr. 692), *k^wəhl* < Syr. *kuhlā*, Arb. *kuhl-* (CDG 38, LSyr. 324, WKAS K 73), *rək^wām* ‘marble’ < Arb. *ruḥām-* (CDG 470, Lane 1060), *k^wəds* ‘sanctuary, Jerusalem’ < Arb. *quds-* (CDG 423, Lane 2497), *k^wəṭn* ‘silk’ < Arb. *quṭn-* (CDG 454, LA 13 421), *targ^wama* ‘to translate’ < Hbr. *targūm* (CDG 579, Jastrow 1695).

Dillmann’s observations (refined in Kuryłowicz 1933 and Voigt 1989, 639–640) do not explain why the conditional factors are so often not apparent (paradigmatic diffusion – **kurr-* > *k^wərr* ‘cold’ > *k^warara* ‘to be cold’ – discussed in Kuryłowicz 1933, 42 can be valid for just a few examples), whereas Dillmann’s ‘general preference in the language for such sounds’ (1907, 53) is by no means a serious argument.

For some scholars, the problem becomes less acute if Cushitic influence is considered as a major factor in the emergence of the labiovelars (GVG 124; Moscati 1954a, 57; 1964, 38; Podolsky 1991, 14; Voigt 1989, 639; cf. Ullendorff 1951, 81–82; 1955, 83–86), but note the objections against the ‘substratum theory’ in Klingenhoben (1959, 34–36, 40–41).

The traditional concept has been rejected (partly on good grounds) in Grimme 1901, where an alternative theory has been developed: PS labiovelars, lost elsewhere in Semitic, are preserved intact in ES. Grimme’s arguments rarely withstand critical scrutiny, first of all because the regularity of phonetic and/or semantic correspondences tends to be drastically neglected, as shown by equations such as Gez. *šəgg^w* – Hbr. *ḥūš* ‘street’, Gez. *tak^wlā* ‘wolf’ – Arb. *ta‘lab-* ‘fox’, Gez. *g^wəmə* – Syr. *‘ōnūtā* ‘melody’, Gez. *g^wagg^wə’a* ‘to hurry’ – Hbr. *ḥargōl* ‘locust’ (1901, 417, 420, 422, 441).

Grimme’s reconstruction has been categorically rejected by most Semitists (GVG 124; Kuryłowicz 1933, 37; Ullendorff 1951, 71; 1955, 75, 83; Klingenhoben 1959, 35), but hardly ever critically analyzed. In recent decades, labiovelars have been included into the PS consonantal inventory by Diakonoff (1970; 1988, 34; 1991–1992, 22–28) and Militarev (SED I, pp. CXX–CXXIII, SED II, pp. LXI–LXV). None of the two theories seems convincing (L. Kogan in SED I, pp. CXXIII–CXXIV, SED II, pp. LXII).

1.4.3. The lateral sibilant *š_x

Hebrew *š* may correspond to *š* in Arabic, instead of the expected *s* (cf. 1.5.2.4.2.). The same irregularity has been observed between Arabic and MSA (Leslau 1937, 217):

Soq. *šwb*, *šbb* ‘to heat’ – Arb. *šbb*, *šbw* ‘to burn’ (LS 410, Lane 1492, 1501). According to Diakonoff (1988, 34–38; 1991–1992, 15–18) and Militarev (SED I, pp. XCIX–CV), the correspondence Hbr. *š* – Arb. *š* – MSA *š* represents a hitherto unrecognized PS lateral sibilant **š_x*, contrasting with the ‘traditional’ **š* (> Hbr. *š* – Arb. *š* – MSA *š*). Within the affricate hypothesis (1.3.2), **š* and **š_x* are opposed as [č̤] (lateral affricate) and [š̤] (lateral sibilant).

While bilateral Hebrew-Arabic cognate pairs with *š* are not rare (cf. 1.5.2.4.2.), reliable MSA-Arabic examples are scarce and hard to separate from recent Arabisms (Leslau 1937, 215–217). For this reason, hypothetic PS roots with **š_x* attested in Hebrew, Arabic and MSA are extremely few. The most remarkable case is Hbr. *šāmāš* – Arb. *šams* – Jib. *šum*, Soq. *šam* ‘sun’ (HALOT 1589, Lane 1597, JL 267, LS 418, SED I, p. CI, Faber 1984, 215–219, 1986). Reconstruction of **š_x* is, therefore, highly problematic.

1.4.4. The emphatic lateral **š̤*

In the traditional PS reconstruction, only two lateral sibilants are postulated: **š* and **š̤*. The voiced member of the lateral triad is often supplanted by **l* (Yushmanov 1998[1940], 145, 148; Steiner 1977, 156; cf. Martinet 1953, 77–78), but this is not universally accepted (Cantineau 1951–1952, 87; 1960[1941], 16, 54–55; Voigt 1979, 95–96, 104–105; 1992, 50). In Voigt 1992, the existence of the PS voiced lateral **ž* is deduced from the spelling variation of the traditional reflex of **š̤* in Egyptian Aramaic: *k*-spellings supposedly reflect PS **š̤* (**rk* ‘land’ < **ʾarš̤*), whereas ʿ-spellings point to **ž* (**lʿ* ‘rib’ < **žilaʿ*-, **rhʿ* ‘to wash’ < **rhž*). Voigt’s hypothesis is hard to accept: the supporting evidence is meager (Stempel 1999, 60), whereas alternative ʿ-spellings are known for most of the *k*-lexemes (Muraoka/Porten 2003, 8–9). That no *k*-variants are attested for **lʿ* and **rhʿ* is not surprising given the rarity of these lexemes in the extant textual corpus (and see, moreover, cf. 1.5.2.7.2. for **rhžk* ‘to wash’ in Papyrus Amherst 63, 3:10–11).

1.4.5. The sibilant *s_x*

In the ‘southern’ orthographic norm of OB Akkadian (cf. 1.5.1.3.1.), the SV series is exceptionally used for the following lexemes (Goetze 1958, 140–141): *sebe* ‘seven’, *sādidu* ‘foraying party’, *sadāru* ‘to arrange’, *salīmu* ‘peace’, *sāmu* ‘red’ / *sūmu* ‘red spot’, *bussurtu* / *tabsirtu* ‘tidings’, *mansû* ‘leader’, *šasû* ‘to call’ (AHw. 1033, 1022, 1000, 1015, 1019, 1058, 142, 1299, 619, 1195). According to Goetze, this orthographic peculiarity reflects an unrecognized PS sibilant **s_x*. Goetze’s solution has been unanimously rejected (Aro 1959, 332–335; GAG § 30a; Steiner 1977, 48–51; SED I, pp. LXXII–LXXIII) with no persuasive alternative explanation (cf. Westenholz 2006, 254).

The sibilant in the pertinent lexemes has no uniform correspondences elsewhere in Semitic, which makes Goetze’s hypothesis *a priori* unlikely.

PS **š* and **š̤* are behind *s* in *sebe* (< **šab̤*ʿ-, CDG 482), *salīmu* (< **šlm*, CDG 499) and *bussurtu* (< **bšr*, CDG 110). The presence of *s* (instead of the expected *š̤*) in these lexemes throughout Babylonian is even more puzzling than the unusual SV spellings

in the ‘southern’ OB orthography, but there are other Akkadian words displaying the same feature (SED I, pp. LXXII–LXXIII, Faber 1986, 166, cf. SED II, p. LVII): Akk. *sa’ālu* – Syr. *š’al*, Sab. *s₁’l* ‘to cough’ (SED I No. 61_v, Faber 1986, 166), Akk. *silūu* – Hbr. *šilyā*, Syr. *šlūā* ‘afterbirth’ (SED I No. 246, Faber 1986, 166), Akk. *sābu* – Hbr. *š’b* ‘to draw water’ (AHw. 1000, HALOT 1367, Faber 1986, 166), Akk. *salāku* – Syr. *šlak* ‘to boil’ (AHw. 1014, LSyr. 784). In one such case, PS **ṭ* is involved: Akk. *samāne* ‘eight’ – Arb. *ṭamānīn* (AHw. 1017, Lane 355, cf. Streck 2008).

Akk. *mansū* is a Sumerism (< MAŠ.SUD, Lieberman 1977, 388–389), the remaining Goetze’s lexemes are etymologically problematic: *sādidu* (with Streck 2000, 112–113, probably a WS loanword, cf. Hbr. *šdd* ‘to despoil’, HALOT 1418), *sadāru* (Hbr. *sēdār* is an Akkadism and, therefore, etymologically irrelevant, with Aro 1959, 331, Westenholtz 2006, 254 and *contra* Streck 2006, 224), *sāmu* (comparable to Ugr. *šmt* ‘reddish shade’, Hbr. *šōham* ‘carnelian’, with DUL 831 and HALOT 1424, but cf. Bulakh 2003, 7–8), *šasū* (perhaps related to Gez. *šā’šā’a* ‘to speak clearly’, CDG 524).

As supposed by Aro (1959, 331; cf. Steiner 1977, 50–51; Faber 1985, 105–106; 1986, 167–168), the emergence of ‘Goetze’s sibilant’ is to be explained in phonetic terms: the ‘general sibilant’ [s] occasionally preserves its old value without shifting to [š]. Such a preservation is easily conceivable for one specific morphophonemic environment (Goetze 1959, 148; Kogan/Markina 2006, 569) such as the juncture of -š and š- (*re-SA* < *rēš-ša* ‘her head’, *li-pu-SU-um* ‘let him do for him’, Goetze 1959, 141), but is more difficult to explain as far as a few scattered lexical items are concerned. WS influence may be responsible for *salīmu* (cf. the regular *šalāmu* ‘to be sound’, Edzard 1985, 125; Diakonoff 1991–1992, 41; Streck 2000, 115–116) and *sādidu* (Streck 2000, 112–113), whereas in *sadāru* the shift [s] > [š] may be blocked by the contact with *d* (Streck 2006, 224; 2008, 250–251). An explanation by paradigmatic analogy has been proposed for *sebe* and *samāne* in Streck 2008, 252.

1.4.6. The emphatic uvular **ḫ*

Ever since GVG 128, the irregular correspondence Arb. *ḥ* vs. Akk. *ḥ* (cf. 1.5.9.2.) – ca. 50 examples according to Huehnergard (2003, 106) – has been explained by the influence of the adjacent consonants. According to Tropper 1995a, the irregularity is observed in the presence of sonorants, sibilants and glides, as well as in roots *mediae geminatae*. As shown in SED I, pp. LXXIV–LXXV and Huehnergard (2003, 107–109), these conditioning factors are too numerous and heterogeneous. Moreover, there are many examples of PS **ḥ* yielding Ø in Akkadian in spite of the presence of sonorants, sibilants and glides (like *edēšu* ‘to be new’ < **ḥdt* or *erēšu* ‘to till’ < **ḥrt*).

Huehnergard’s alternative approach (2003, 113–117; cf. already Yushmanov 1989[1940], 145–146) implies the reconstruction of a new PS phoneme **ḫ* (a glottalized uvular affricate, i.e. the emphatic partner of **ḥ* and **ḡ*). This attractive solution prompts some reservations. Persuasive statistical evaluation of ‘regular’ and ‘irregular’ examples requires an exhaustive etymological analysis of all Akkadian roots with **ḥ* in the prototype, which is still a desideratum (50 *ḥ*-roots vs. 80–90 Ø-roots in Huehnergard 2003, 109 is just a preliminary approximation; cf. Tropper 1995a, 61). Unmotivated variation of *ḥ* and *ḫ* is not unknown outside Akkadian (Kogan 1995, 159–160; Hueh-

nergard 2003, 111), cf. Ugr. *h̄dr* – Arb. *h̄idr*-, Sab. *h̄dr* ‘room’ (DUL 355, Lane 708, SD 59). Last but not least, pharyngeal *h̄* as a reflex of the glottalized uvular affricate **χ* is phonetically unusual (the (post-)velar emphatic *ḳ* would be more expected).

1.5. Proto-Semitic consonantism as reflected in individual languages

1.5.1. Proto-Semitic sibilants in Akkadian

1.5.1.1. Ebla

Orthographic representation of PS sibilants in Ebla has been studied by Krebernik (1983, 211–218) and Conti (1990, 9–16). Three sign series are opposed, viz. SV for **š* and **ṣ*, ŠV for **t* and **d*, ZV for **s*, **z*, **ṣ*, **t* and **ṣ*:

SI-*nu-u*[*m*] = Sum. ZÚ.URUDU ‘tooth’ (VE 174) – Arb. *šinn*-, Akk. *šinnu* (Krebernik 1983, 6, SED I No. 249), *nu-pù-UŠ-tum* = Sum. ZI ‘soul, life’ (VE 1050) – Arb. *nafs*-, Akk. *napištu* (Krebernik 1983, 37, SED I No. 46_v), SI-*tum* = Sum. Û.DI ‘sleep’ (VE 1131) – Arb. *wsn*, Akk. *šittu* (Krebernik 1983, 40, SED I No. 82_v).

kār-SU-um = Sum. ŠÀ.GAL ‘stomach’ (VE 576) – Arb. *kariš*-, Akk. *karšu* (Krebernik 1983, 22, SED I No. 151), *ká-SA-tum* = Sum. GIŠ.TIR ‘wood’ (VE 400) – Mhr. *ḱəšnūt*, Akk. *kīštu* (Krebernik 1983, 15, ML 242, AHw. 923), SI-*bù-um* = Sum. NÌ.UL ‘grey hair, old age’ (VE 108) – Akk. *šību*, Arb. *šayb*- (Conti 1990, 79, SED I No. 66_v).

ŠU-*ba-tum* = Sum. GAR.DÛR ‘residence’ (VE 88) – Sab. *wṭb*, Akk. *wašābu* (Krebernik 1983, 4, SD 165, AHw. 1480), *i-ŠA-wu* = Sum. A.GÁL ‘to be’ (VE 624) – Ugr. *’it*, Akk. *išû* (Krebernik 1983, 24, DUL 123, AHw. 402), IŠ₁₁-*kà-um* = ŠE.GEŠTIN ‘cluster of grapes’ (VE 660) – Arb. *’itkāl*-, Hbr. *’ăškōl* (Conti 1990, 177, Lane 21, HALOT 95).

ŠA-*ḱá-núm* = Sum. SU₆.DÛ ‘beard’ (VE 199) – Arb. *ḱaqan*-, Akk. *ziḱnu* (Krebernik 1983, 8, SED I No. 63), ŠĒ-*na-bù* = Sum. KUN ‘tail’ (VE 1371) – Arb. *ḱanab*-, Akk. *zibbatu* (Krebernik 1983, 44, SED I No. 64), ŠA-*la-um* = Sum. ŠE.MAR ‘to sow’ (VE 659) – Ugr. *ḱr*-, Akk. *zēru* (Krebernik 1983, 26, DUL 280, AHw. 1521).

ḫa-ZI-ZU-*um* = Sum. GÈŠTU ‘ear’ (VE 389) – Arb. *’al-ḫasīsāni*, Akk. *ḫasīsu* (Krebernik 1983, 15, SED I No. 115), *kà-ZA-pù* (VE 104) = Sum. NÌ.KU₅.GAR ‘to break in pieces’ – Akk. *kasāpu*, Arb. *ksf* (Conti 1990, 78, WKAS K 190, AHw. 453), ku₈-ZI-*tum* TÚG ‘a garment’ (ARET 2 14 *passim*) – Hbr. *ḱəsūt*, Akk. *kusītu* (Fronzaroli 1984, 168, HALOT 488, AHw. 514).

wa-ZA-*núm* = Sum. GIŠ.MÁḤ ‘to weigh’ (VE 409a) – Arb. *wzn* (Krebernik 1983, 16, Lane 3052), ar-ZA-*tum* = Sum. GIŠ.NUN.SAL ‘cedar’ (VE 471) – Arb. *’arz*- (Krebernik 1983, 17, Lane 47).

wa-ZI-lu-*um* = Sum. BAḤAR ‘potter’ (VE 1012) – Arb. *ṣwr*, Akk. *ešēru* (Krebernik 1983, 36, Lane 1744, AHw. 252).

ZA-*ba-a-tum* = Sum. DĀRA.MAŠ.DĀ ‘gazelle’ (VE 1191) – Arb. *ḱaby*-, Akk. *ṣabītu* (Krebernik 1983, 42, SED II No. 242), a-ZA-*mu-um* = Sum. GIŠ.GI.NA ‘bone’ (VE 417) – Arb. *’aḱm*-, Akk. *ešemtu* (Krebernik 1983, 16, SED I No. 25), na-ZA-*lum* = Sum. EN.NUN.AG ‘to watch’ (VE 34) – Sab. *nṭr*, Akk. *našāru* (Krebernik 1983, 34, SD 102, AHw. 755).

wa-ZA-um = Sum. ŠU.DU ‘to go out’ (VE 507) – Sab. *wšʾ*, Akk. *wašû* (Krebernik 1983, 18, SD 156, AHw. 1475), *ʾà-me-ZU* = Sum. NINDA.AD₆ ‘leavened bread’ (VE 128) – Arb. *ḥmḍ*, Akk. *emēšu* (Conti 1990, 83, Lane 644, AHw. 214), *i-ZU ba-ne* = Sum. GIŠ.ŠINIG ‘tamarisk tree’ (VE 395) – Arb. *ʾidat-*, Akk. *išu* (Krebernik 1983, 15, Lane 2076, AHw. 390).

The sign AŠ seems to be attested only before dentals (AŠ-*tár* = Sum. DINGIR.IN-ANNA in VE 805, *tá-AŠ-tá-me-lum* = Sum. LÚ.ME.I.I in VE 1377, *tá-AŠ-tá-NI-lum* = Sum. IGI.TÙR in EV 0130), a curious reversal of the OB practice described in 1.5.1.3.

1.5.1.2. Sargonic Akkadian

The use of sibilant signs in Sargonic Akkadian is similar to that practiced in Ebla, although **d* is written with the ZV series as in later Akkadian: *aḥ-ZA-nim* ‘take for me’ (Di 4:9) < **ḥd*, *zu-ḳú-na* ‘bearded’ (Di 4:10) < **ḏaḳan-*. Hasselbach (2005, 72–73) assumes a true merger of **d* and **z* into *z*, whereas for Krebernik (1985, 58) only a change of scribal habits is involved. There are, indeed, some indications that *d* was still a separate phoneme in Sargonic. The forms *āḥuz* / *īḥuz* / *līḥuz* ‘I took’ / ‘he took’ / ‘let him take’ are spelled with the sign EŠ in MAD 5 8:12, 13, 15, 32, MAD 1 127:8 and Gir 3:9, whereas SU (instead of the expected ZU) is found in *u-šá-ḥi-SU-ni* ‘he made them take’ (RIME 2.1.1.1:101) < **yušāḥid-šunī* (Westenholz / Westenholz 1977, 208; Edzard 1991, 261–262). The verb *izuzzu* ‘to stand’, possibly going back to **dwd* (Streck 1997–1998: 321–322, Huehnergard 2002, 178), is twice spelled with the sign VD instead of VZ: *i-za-AD* (RIME 2.1.5.6 II 5) and *li-zi-ID* (RIME 2.1.4.26 IV 10).

The ŠV series renders PS **t*, whereas the outcome of the merger of **š* and **ṣ* is spelled with the SV series. In the wake of von Soden/Röllig 1991: XXI, SV signs for the ‘general sibilant’ in Sargonic are often transcribed as ŠV. As shown by W. Sommerfeld in GAG § 30 (cf. Streck 2008, 251), this conventional device creates much confusion, since *š* is the traditional Semitological notation for the PS lateral sibilant **š* (cf. Blau 1977, 88, 90, 106; Diem 1974, 248; Steiner 1977, 146), which has never been a separate phoneme in Akkadian (for a possible lateral allophone of *š* in Akkadian cf. 1.3.3.14.).

The ŠV–SV opposition in Sargonic is less stable than in Ebla. Orthographic deviations in both directions are attested, probably reflecting phonological mergers. ŠV spellings tend to be used correctly in Sargonic royal inscriptions (including OB copies): *a-ša-rí-šu* ‘its places’ (RIME 2.1.1.1:98) < **ʾatar-* (Arb. *ʾatar-*, Lane 18), *ša-ni-am* ‘other’ (RIME 2.1.4.3 V 33), *iš₁₁-ni-a-ma* ‘they did for the second time’ (RIME 2.1.4.6 III 23) < **tin-ā* (Ugr. *tn*, DUL 918), *tám-ši-il-šu* ‘his monument’ (RIME 2.1.4.23:15) < **mīl* (Arb. *timtāl-*, LA 11 730), *ša-bir₅* ‘one who destroys’ (RIME 2.1.4.30:8) < **tbr* (Ugr. *tbr*, DUL 897). True exceptions are rare and mostly involve SI and IŠ instead of ŠI and IŠ₁₁: *IŠ-ni-a-ma* (RIME 2.1.1.3:24), *tám-SI-il-šu* (RIME 2.1.4.1001:10), *li-IŠ-bir₅* (RIME 2.1.1.2:128).

Outside royal inscriptions, etymologically correct use of ŠV is also well attested: *u-ša-ab* ‘he resides’ (Gir 35:7) < **wṭb* (Sab. *wṭb*, SD 165), *ʾà-ra-šē* ‘cultivators’ (Di 10:14) < **ḥrt* (Ugr. *ḥrt*, DUL 371), *ši-na-tim* ‘urine’ (MAD 5 8:16) < **tin-at-* (Ugr. *tn*, DUL 924), *iš₁₁-ḳú-lu* ‘he paid’ (MAD 5 65:34) < **tql* (Arb. *tql*, Lane 343). However, SV instead of ŠV is quite frequent in this corpus: *tu-SA-bu* ‘you will sit’ (Ad 12:16), *a-SA-ḳá-al* ‘I will pay’ (Eš 3:21), *e-ra-SI-iš* ‘in order to cultivate’ (Ga 3:23), *tá-SA-bi-ir* ‘you

will break' (OSP 1 7 I 5'), *i*-SU 'he has' (MAD 5 21:5) < **y**l**w* (Ugr. *'il*, DUL 123). And, conversely, ŠV can be found instead of the expected SV: *ú*-ŠU-*ri*-*dam* 'he led down' (MAD 4 10:4), *ma*-*ḥa*-*ar*-ŠU-*nu* 'in front of them' (OAIC 8:16, 12:16), *è*-*rí*-ŠU-*kà* 'they will request from you' (Ki 1:10) < **r**š* (Hbr. *'ārāšūt*, HALOT 92), ŠU-*up*-*ra*-*am*-*ma* 'send me' (Ki 1:16) < **š**pr* (Arb. *sfr*, Lane 1370), [*u*-Š]A-*ti*-*kú*-*ni* 'that he made cross' (MC 4 73:18), *la tá*-*pá*-ŠA-*ḥi*-*ni* 'you will not find peace' (MAD 5 8:38) < **p**š**h* or **p**š**h* (Huehnergard 1991, 694).

The reflexes of PS **s*, **z*, **š*, **ṣ* and **ṣ̣* are uniformly rendered by ZV signs.

1.5.1.3. Old Babylonian

The opposition **š*/*ṣ̣* – **ṣ̣* is lost in OB. The outcome is rendered by ŠV signs – the new 'general sibilant' which absorbed the reflexes of **š*, **ṣ̣* and **ṣ̣*. As plausibly argued in Streck (2000, 217), the phonetic value of *š* in OB was [š], with a lateral allophone [ṣ̌] in some environments (cf. 1.3.3.14.). The [ṣ̌] realization agrees well with the regular use of ÁŠ [as] instead of AŠ [aš] before dentals in CH (Streck 2006, 233–237, Sommerfeld 2007, 368), to be interpreted as assimilation: *ik*-*ta*-ÁŠ-*da*-*am* [sd] 'he reached' vs. AŠ-*ku*-*un* [šk] 'I placed'. A similar opposition between UŠ [us] vs. ÚŠ [uš] and IŠ₇ [is] vs. IŠ [iš] is postulated by Streck for the OB Mari corpus. The value [s] for OB *š* (Troppe 2000b, 738–741) is not compatible with the bulk of the available evidence.

The [ṣ̌] realization may look undesirable for the affricate hypothesis, as [s] is more suitable to account for the shifts VT + ŠV > (VZ-)ZV, VŠ + ŠV > (VŠ-)SV and VZ + TV > VS/VŠ-TV described in 1.3.2.2.1. (Streck 2006, 243). This contradiction is, however, only apparent, as these shifts do not belong to the synchronic phonology of OB, but to an older stage when the outcome of the blend of **š* and **ṣ̣* was still pronounced as [s] and rendered by SV signs (Faber 1985, 105; cf. Streck 2006, 231).

The orthographic shift from SV in Sargonic to ŠV in OB implies the phonetic shift [s] > [ṣ̌], which presents a difficulty (cf. Streck 2006, 248): ŠV is much rarer than SV in Sargonic, and it is SV that most usually evolves from the merger of SV and ŠV described in 1.5.1.2. Why did ŠV (= [ṣ̌]) become the 'general sibilant' in such conditions? Streck connects this unexpected shift with de-affrication of *s* [c]: the outcome of de-affrication is [s], of necessity spelled with SV signs and, in a push-chain shift, relegating the 'general sibilant' to [ṣ̌], spelled as ŠV (Haudricourt 1951–1954, 37). However, the 'general sibilant' is spelled with ŠV also in 'southern' OB, where *s* [c] was still an affricate (Keetman 2006, 367–368). Furthermore, ŠV spellings for the 'general sibilant' are common in Ur III Akkadian (Hilgert 2002, 128–133), where de-affrication of *s* [c] is hardly apparent (Hilgert 2002, 680–681; duly acknowledged in Streck 2006, 225), and already in Sargonic ŠV spellings instead of the expected SV are not to be underestimated (cf. 1.5.1.2. and Kogan 2011).

Whereas the use of ŠV for the 'general sibilant' is normal for all varieties of OB, the behavior of PS **s* and the use of the SV series are not uniform. Since Goetze 1958, two main orthographic varieties ('southern' and 'northern') are distinguished.

1.5.1.3.1. South Old Babylonian orthography

Within the 'southern' norm, **s* is always spelled with ZV signs: *a*-ZU-*ur*-*ra*-*šu* = *asur-rašu* 'its foundation', *pi*-ZA-*an*-*na*-*šu* = *pisannašu* 'its drainpipe' (RIME 4.2.13a.2:29,

33, royal inscription, Larsa), *ka-ZA-am*, *ka-ZI-im* = *kāsam*, *kāsim* ‘cup’, *ḥa-AZ-ra* = *ḥasrā* ‘they are chipped’, *pi-ZI-il-tum* = *pisiltum* ‘misadventure’, *ik-ZU-UZ* = *iksus* ‘it consumed’ (CT 5 4–6:5, 20–21, 16, 46, 68, oil omina). In this two-member sibilant system, ŠV renders the ‘general sibilant’ and ZV is used for *s*, *z* and *ṣ*. In phonetic terms, [s] shifted to [š] (as in the rest of OB), but the affricate [c] was preserved. The SV series is thus unnecessary and out of use. A sibilant system with *š* but no *s* was, however, inherently unstable, and it was probably for that reason that the phone [s] (and the SV sign series) did not disappear completely, but are preserved in some words and morphological positions (cf. 1.4.5.). This archaic feature is fundamentally different from the use of SV in the ‘northern’ system: ‘southern’ *s* is not connected with deaffrication and goes back to *š or *ṣ rather than *s.

1.5.1.3.2. North Old Babylonian orthography

‘Northern’ orthography makes use of each of the three sibilant series and is thus a three-member system. ŠV signs render the ‘general sibilant’, ZV is used for *z* and *ṣ*. As for *s*, it is spelled with ZV and SV following a positional distribution elicited by Goetze (1937), Sommerfeld (GAG § 30; 2007, 372–373) and Westenholz (2006, 253–254). ZV is used when *s* is word-initial or geminated, SV appears elsewhere: *ZA-ar* = *sar* ‘he is a liar’, *i-na-ZA-aḥ* = *inassaḥ* ‘he will tear out’, *in-na-AZ-ZA-aḥ* = *innassaḥ* ‘he will be torn out’ vs. *pa-ra-SI-im* = *parāsim* ‘to cut’, *ri-ik-SA-tim* = *riksātīm* ‘agreement’ (all examples, after Streck (2006, 218–224), are from CH). Streck (2006, 218–224) provides some refinements for this rule: ZV may occur for intervocalic non-geminated *s* (*i-ZA-ak-ki-il* = *isakkil* ‘she acquires illegally’); syllable-final *s* is rendered by ÁŠ and UŠ (*ir-ta-ka-ÁŠ* = *irtakas* ‘he bound’, *ip-ru-UŠ* = *iprus* ‘he decided’) and, unexpectedly, by IZ (*ik-ki-IZ* = *ikkis* ‘he cut’), although in Mari a special sign ĬŠ may be used instead (on syllable-final *s* see further Sommerfeld 2007, 367). As convincingly suggested by Sommerfeld and Streck, the SV spellings reflect [s] as an outcome of deaffrication of [c]. The emergence of the new [s] in opposition to the ‘general sibilant’ [š] re-establishes a balanced system of sibilants which persisted throughout the history of Babylonian.

1.5.1.4. Assyrian

According to a broad consensus, the ‘general sibilant’ was pronounced as [s] in MA and NA, but spelled with ŠV signs as in Babylonian (Parpola 1974; Kaufman 1974, 140–142; Huehnergard 1997, 439–440; Kouwenberg 2003, 86). This realization explains, in particular, such MA spellings as *UZ-bat* ‘she is dwelling’ (vs. *tu-ŠA-ab* ‘she will dwell’) or *UZ-bal-ki-it* ‘he has changed’: instead of the problematic shift *-šb- > -sb-* (GAG § 30d, Mayer 1971, 21), a straightforward assimilation *-sb- > -zb-* is postulated (Girbal 1997; *contra* Girbal, this specifically Assyrian phenomenon is not to be extrapolated for 2nd millennium Akkadian as a whole).

Parpola and Kouwenberg ascribe the ŠV = [s] realization to a comparatively late sound change, thus assuming that the OA pronunciation was the same as in OB (viz. [š] or [ṣ]). For Kouwenberg, lack of *ṣ*-forms of the verb *našāu* ‘to lift’ (1.3.1.2) in OA

excludes the realization [s] for ŠV in this period. There is, nevertheless, some evidence in its favor (Kogan/Markina 2006, 571–572).

- (a) The set of signs for the ‘general sibilant’ in OA is heterogeneous: ŠA = *ša*, ŠU = *šu*, but SI = *šī* (Hecker 1968, 59). If the ‘general sibilant’ was [š], its special behavior before *i* as opposed to *a* and *u* is hard to explain (cf. Woodhouse 2003, 277), but if it was [s], the difference can be plausibly ascribed to the palatalizing effect of *i* ([si] > [ši]). The combination [ši] is rendered by the sign SI from the SV series, a default set of signs otherwise out of use in the two-member sibilant system of the OA orthography.
- (b) When pronominal enclitics in *š-* are attached to forms ending in *-š*, the outcome is spelled as ŠV (*ru-pu-ŠU* ‘its breadth’, *e-pu-ŠU-um* ‘do for him’, Hecker 1968, 65) – differently from OB, where SV signs are used in this position (cf. 1.3.2.2.1.). The [s] realization for the ŠV series in OA allows one to harmonize the evidence of the two dialects in this important morphophonemic environment.

ŠV = [s] is thus an archaic feature of the Assyrian dialect as a whole (Hecker 1968, 63–64; Goetze 1958, 137; Friedrich 1974, 32; Diakonoff 1988, 38; Huehnergard 1997, 439; Hasselbach 2005, 234; cf. Keetman 2006, 366–367 and *contra* GVG 136, Faber 1985b, 88–89). In OA, the ‘general sibilant’ [s] was still opposed to the affricate [c]. In later Assyrian, the affrication of [c] was lost, but the expected push-chain shift [s] > [š] did not occur: it was rather the outcome of de-affrication that shifted to [š], as proven by foreign transcriptions (Parpola 1974, 4). The phonetic background of the shift [c] > [š] is admittedly problematic (cf. Faber 1985b, 86–88; Huehnergard 1997, 440; Keetman 2006, 366–367).

1.5.2. Proto-Semitic sibilants in North-West Semitic

1.5.2.1. Early second millennium BC

The earliest evidence comes from WS personal names in OB Akkadian documents. The set of cuneiform signs used to spell these names differs from the contemporary OB system, but is largely identical to the Sargonic one (Streck 2000, 221–222; 2006, 249): SV for the ‘general sibilant’ (< *š, *ś), ŠV for *š, and ZV for *s, *z and *š (Streck 2000, 214–218, 221–230). In phonetic terms, it means that *s was still an affricate [c], the ‘general sibilant’ was realized as [s] and the reflex of *š was a separate phoneme. There is no trace of *š, *ś and *š (cf. Tropper 2000b, 743 for Streck’s attempt to detect a separate rendering of *š in *yš* ‘to go out’). A certain amount of *d*-spellings for *š (including *d/z* doublets like *za-ki-ru-um* / *da-ki-ru-um* < PS *škr ‘to mention, to remember’) point to a separate status of this phoneme (Streck 2000, 209–214).

1.5.2.2. Late second millennium BC: Egyptian transcriptions

PS *š is rendered by Egyptian š (Sivan/Cochavi-Rainey 1992, 21–22; Hoch 1994, 410): *ra-bi-ša-ya* ‘leather armour’ – Ugr. *lbš*, Hbr. *lbš* ‘to wear’; *ru-ša* ‘peak, summit’ – Ugr. *r’iš*, Hbr. *rō(’)*š ‘head’; *ša-a-r* ‘price’ – Hbr. *šā’ar*, Arb. *si’r*; *ši-b-da₂* ‘staff,

rod' – Sab. *s₁bṭ* 'to beat', Hbr. *šēbūt*; *ša-m*^ε 'to hear' – Ugr. *šm'*, Hbr. *šm'*; *ša-m*^ε*ša* 'sun' – Hbr. *šāmāš* (contrast Arb. *šams*-); *ša-ra-ma*₄ 'peace' – Hbr. *šālōm*, Arb. *salām*-; *ša-ḥa-ka* 'dust cloud' – Hbr. *šahak*, Arb. *shq* 'to pulverize' (Hoch 1994, 202, 209, 273, 276–278, 279, 280, 285, 287–288; HALOT 519, 1164, 1618, 1388, 1570, 1589, 1506, 1464; DUL 492, 724; SD 123; Lane 1363, 1415, 1318).

PS **t* is rendered by Egyptian *s* (Sivan / Cochavi-Rainey 1992, 23–24, Hoch 1994, 402–405): *'a₂-r-ka-bi-sa* 'a precious stone' – Ugr. *'algbṭ*, Hbr. *'algābīš*; *'as-pa₂-ta* 'quiver' – Ugr. *'uṭpt*, Hbr. *'ašpā*; *ḥa-da-sa-ta₅* 'new' – Ugr. *ḥdṭ*, Hbr. *ḥādāš*; *sa-ra-ku₂* 'snow' – Arb. *talš*-, Hbr. *šālāg*; *sa-pa-ta* 'to judge' – Ugr. *ṭpt*, Hbr. *špṭ* (Hoch 1994, 30, 40–41, 238–239, 264–265, 278; HALOT 51, 96, 294, 1503, 1622; DUL 54, 126, 355, 926; Lane 350).

PS **š* is also thought to be rendered by Egyptian *s*, but reliable examples are scanty (Cochavi-Rainey / Sivan 1992, 21, Hoch 1994, 409): *sa-^εa-ra-ta* 'wool' (Hoch 1994, 256) – Arb. *šā'r*-, Hbr. *šē'ār* (SED I No. 260), perhaps *sa-^εa-ru₂*, *sa-^εa-r* 'barley (field)' (Hoch 1994, 255) – Arb. *šā'ir*-, Hbr. *šē'ōrā* (Lane 1561, HALOT 1345), *sa-ga* 'sackcloth' (Hoch 1994, 269) – Hbr. *šak* (HALOT 1349).

Exceptions to these rules are rare and uncertain (Rainey 1998, 452).

The best known example of Eg. *š* rendering PS **t* is *ša-^εa-ra*, *ša-^ε-r-^εa* 'gate' (Hoch 1994, 273–274; contrast Rainey 1998, 448–449; Quack 1996, 511) – Ugr. *ṭyr*, Hbr. *šā'ar* (DUL 901, HALOT 1614). The same deviation is found in *ḥa₂-d-ša-ta* 'new' (Hoch 1994, 238–239, contrast *ḥa-da-sa-ta₅* above), *šū₅-^εa-ru₂-ta* 'vixen' (Hoch 1994, 274, cf. Vittmann 1997, 285; Rainey 1998, 449) – Arb. *tu'āl*-, Hbr. *šū'āl* (SED II No. 237), *ša-pa-ta*, *š-f-ta* 'to judge' (Hoch 1994, 278, contrast *sa-pa-ta* above and cf. Rainey 1998, 449).

PS **š* is rendered by Eg. *s* in *gas-mu* 'storm' (Hoch 1994, 354; cf. Rainey 1998, 450; Woodhouse 2003, 281) – Ugr. *gšm*, Hbr. *gūšām* (DUL 310, HALOT 205).

The reflex of **q* has been supposed to differ from **z* in that it can be rendered by either *q* or *t* (Hoch 1994, 387, 405, 408), but reliable examples are rare (Sivan / Cochavi-Rainey 1992, 23; Quack 1996, 513): *'i-ti₂* 'which' – Hbr. *'ē-zā* (BDB 32) < PS **'ayyu dayu* (Hoch 1994, 43; cf. Rainey 1998, 436–437), *ti₂-ku-ra* 'to remember' (in the PN *ti₂-ku-ra b-^ε-ra* 'Baal remembered', Hoch 1994, 372–372; cf. Rainey 1998, 451) – Arb. *ḍkr*, Hbr. *zkr* (Lane 968, HALOT 269), *'u-ḍi₄-r* 'helper' (Hoch 1994, 88; cf. Rainey 1998, 438–439) – Ugr. *'ḍr*, Sab. *'ḍr*, Hbr. *'ōzēr* (DUL 153, SD 13, HALOT 810).

Contra Hoch 1994, 201 and 405 (cf. Sivan/Cochavi-Rainey 1992, 22–23), there is hardly any evidence for a separate status of **t*, which is rendered by *q* in both reliable examples: *'u-^ε-r-ḍu₂-t* 'terrifying' (Hoch 1994, 78) – Ugr. *'rṭ*, Hbr. *'rṣ* (DUL 185, HALOT 888) and *ḍa-ma-t* 'thirsty' (Hoch 1994, 386) – Arb. *ḍm'*, Hbr. *šm'* (SED I No. 79_v). The only *t*-rendering (Hoch 1994, 201; Rainey 1998, 451) seems to be *ra-wi₂-ti₂* 'runner' (as a PN) – Ugr. *rṭ*, Hbr. *rāš* (DUL 750, HALOT 1207).

PS **š*, rendered by *q* (Hoch 1994, 405), does not differ from **š*: *ḥu₄-ma-da* 'vinegar' – Arb. *ḥmqḍ*, Hbr. *ḥōmāš*; *ḍa-bi-^εi* 'army' – Sab. *šb'*, Hbr. *šābā*(?); *ḍi₄-ra-^ε-tu* 'plank' – Arb. *ḍila'*-, Hbr. *šēlā'* (Hoch 1994, 228, 382, 394; HALOT 329, 994, 1030; Lane 644; SD 40; SED I No. 272).

1.5.2.3. Late second millennium BC: Amarna Canaanite

Cuneiform renderings of Canaanite words in EA are mostly irrelevant for the sibilant problem, as the ŠV series is used indiscriminately for **š*, **t* and **š* (Diem 1974, 238):

ma-al-ba-ši ‘garment’ (EA 369:9; Sivan 1984, 243) – Ugr. *lbš*, Hbr. *lbš* (HALOT 519, DUL 492), *nu-ḥu-uš-tu₄* ‘copper’ (EA 69:28; Sivan 1984, 255) – Hbr. *nəḥōšūt*, Arb. *nuḥās-* (HALOT 691, Lane 2775), *ru-šu-nu* ‘our head’ (EA 264:18; Sivan 1984, 265) – Hbr. *rō(ʿ)š*, Arb. *raʿs-* (SED I No. 225), *šu-lu-uḥ-ta* ‘shipment’ (EA 265:8; Sivan 1984, 275) – Ugr. *šlh*, Hbr. *šlh* (DUL 816, HALOT 1511);

ka-aḥ-šu ‘chair’ (EA 120:18; Sivan 1984, 235) – Ugr. *khṭ* (DUL 434), *ša-aḥ-ri* ‘gate’ (EA 244:16; Sivan 1984, 281) – Ugr. *ṭyr*, Hbr. *šaʿar* (DUL 901, HALOT 1614), *aḥ-ri-šu* ‘I am cultivating’ (EA 365:11; Sivan 1984, 225) – Ugr. *hrl*, Hbr. *hrš* (DUL 371, HALOT 357), *ši-ip-ṭi-^dIM* ‘Judgment of DN’ (personal name, EA 330:3; Hess 1993, 143–144) – Ugr. *lpt*, Hbr. *špt* (HALOT 1622, DUL 926);

du-ma-aš-ka ‘Damascus’ (EA 107:28; ‘correction’ to *-as-* in Sivan 1984, 50 is wrong) – Hbr. *dammāšāk*, Arb. *dimašq-* (HALOT 227).

A remarkable exception is provided by the EA letters from Jerusalem (EA 285–290), where Canaanite words can be spelled with both SV and ŠV (Harris 1939, 34–35, 62–63; Diem 1974, 239; Moran 1975, 152; Steiner 1977, 146; Sivan 1984, 50; Rainey 1996, 16):

ú-ru-sa-lim (EA 287:25, 46, 61, 63, 290:15; Sivan 1984, 284) = *yərūšālayim* (HALOT 437), É *sa-a-ni* (EA 289:20; Sivan 1984, 271) = *bēt šāʿān* (HALOT 1375), *l[a-k]i-si* = *lākīš* (EA 288:43; Sivan 1984, 240; *la-ki-ši* in EA 289:13, adduced as a variant in Diem (1974, 239), is interpreted as *la-ḳi-ši* ‘they took it’ in Knudtzon (1915, 873) and Moran (1992, 332);

še-e-ri (EA 288:26; Sivan 1984, 277) = *šēʿīr* (HALOT 1342), *ša-de₄-e* ‘field’ (EA 287:56; Sivan 1984, 277) = *šādā* (HALOT 1307), *ša-ak-mi* (EA 289:23; Sivan 1984, 1494) = *šākām* (HALOT 1495).

The SV series seems to be used when etymology (as well as Egyptian transcriptions) point to *š: *ú-ru-sa-lim* = PS *šlm ‘to be complete’, *sa-a-ni* = Eg. *ša-ar* (Albright 1934, 40) and perhaps = PS *šʿn ‘to be quiet’ (HALOT 1374–1375), *l[a-k]i-si* = Eg. *ra-ki-ša* (Albright 1934, 48). The ŠV series is used for *š and *t: *še-e-ri* = Hbr. *šēʿīr*, Eg. *sa-^ci-r* (Rainey / Notley 2006, 109), *ša-de₄-e* = Hbr. *šādā*, *ša-ak-mi* = Eg. *sa-ka-ma* (Albright 1934, 55) and perhaps = PS *takm- ‘back, shoulder’ (SED I No. 281, cf. Dolgopolsky 1999, 64).

1.5.2.4. Ugaritic and Canaanite: lateral sibilants

1.5.2.4.1. Proto-Semitic *š

PS *š yields *š in Phoenician and Hebrew. In Ugaritic, *š > š is also normal: *ʾarš* ‘earth’ < *ʾarš-, *š* ‘tree’ < *iš-, *šʾin* ‘small cattle’ < *šaʿn- (DUL 106, 186, 775). Reliable *ṭ*-examples are *ṭi* ‘go out!’ (KTU 1.12 I 14, 19) < *wš and *yḥk* ‘he laughed’ (KTU 1.12 I 12) < *šhk (Tropper 2000a, 93). In view of another phonological peculiarity of KTU 1.12 (for which cf. 1.5.2.5.2.), Tropper is right that the twofold (cf. *ʾarš* ‘earth’ < *ʾarš- in KTU 1.12 I 3) reflexation of *š in this archaic text points to *š as a still independent phoneme in early Ugaritic (cf. Blau 1968, 525; 1977, 78; Steiner 1977, 48).

Supposed examples of *š > ṭ outside KTU 1.12 (Tropper 1994, 22–23; 2000a, 93–94) are unreliable (Blau 1977, 78–79). Thus, *ṭu* ‘secretion, excrement’ (DUL 1003) does not belong to *wšʿ ‘to go out’ (cf. SED I No. 286), whereas *ḥṭr* ‘mansion’ (DUL

382) is not to be separated from PS **hVtVr-* ‘sheepfold, courtyard’ in favor of Arb. *ḥḍr* ‘to stay, to be present’ (Blau 1977, 78). Ugr. *trw* ‘balsam’ (DUL 1006) does correspond to Sab. *šrw* and Arb. *ḍirw-* (Sima 2000, 269–270), but the variant root **tṛw-* (Blau 1977, 79) is preserved in JPA as *trw* (DJPA 230, Kutscher 1976, 25).

1.5.2.4.2. Proto-Semitic **š*

PS **š* yields *š* in Phoenician and Ugaritic. In Hebrew, the opposition between **š* and **s* is preserved in the Masoretic pointing: the grapheme **שׁ** appears as **שׁ** when pronounced as **š*, but as **שׂ** when pronounced as *s* (Steiner 1996). According to the traditional concept, in early Hebrew *š* was an independent phoneme, for which no special sign was available in the Phoenician alphabet (Kutscher 1965, 41; Blau 1977, 87–88; Steiner 1977, 41–47; 1991, 1501–1503). The Hebrew grapheme **שׁ** was thus polyphonic. Later on, *š* began to merge with *s*, as witnessed by numerous **שׁ/שׂ** doublets in the consonantal text of the OT (Blau 1970, 23–25, 114–125). By the Masoretic period the merger of **שׁ** and **שׂ** in the traditional pronunciation of Hebrew was complete (Steiner 1996, 174).

According to the opposite theory, the distinction between **š* and **s* was alien to Hebrew (not unlike Phoenician and Ugaritic) and was secondarily introduced by Masoretes under the influence of their spoken tongue (Aramaic), where **š* and **s* are indeed opposed as *s* and *š* (Diem 1974). A serious advantage of Diem’s presentation in comparison to its predecessors in Garbini (1960, 41–48, 1984, 132–133 and 1988, 105–107) is that **š* is not excluded from the PS consonantal inventory: for Diem, **š* and **s* were opposed in PS, but this opposition was lost in Hebrew (so already Moscati 1954a, 35–38, 54).

Diem’s arguments against the traditional concept are mostly of theoretical nature: preservation of *š* in Hebrew is inconsistent with its loss in Phoenician and Ugaritic (Diem 1974, 223), whereas the merger of **š* and **t* into *š* – which must precede the merger of **š* and **s* within the traditional concept – is phonetically unlikely (the supposedly more natural merger of **t* and **s* into *š*, in its turn merging with **š*, is postulated instead, Diem 1974, 225–227, 247).

Both of Diem’s arguments are subject to serious objections.

- (a) Phonological evolution of Hebrew need not be identical to that of its sister tongues: preservation of **š* can be one of several ‘non-Canaanite’ features in the Hebrew grammar and lexicon (cf. Kogan 2006, 251–252). More disturbing for the traditional concept (Beyer 1969, 12) is the [š] pronunciation of **שׁ** in the Samaritan tradition (Ben-Hayyim 2000, 35–37), but, as argued in Steiner (1977, 43), it may reflect Northern Hebrew phonetics which probably differed from that current in more Southern areas, such as Jerusalem (cf. also Diem 1974, 225).
- (b) The phonetic values of **š*, **s* and **t* in early Canaanite cannot be ascertained with the degree of precision necessary for a reliable typology of phonetic shifts and, at any rate, the shift *t > š* is actually attested elsewhere in Semitic (Blau 1977, 105; 1998, 103). Egyptian and Jerusalem Amarna renderings may suggest that reflexes of **t* and **š* were phonetically similar, but tell nothing about their merger (Blau 1977, 105; Marrassini 1978, 174). The uniform rendering of **t* and **š* in proto-

Sinaitic inscriptions (Diem 1974, 236, 241) is potentially more relevant, but the available evidence is too scarce for a definite conclusion (Sass 1988, 24). Last but not least, the phonetically ‘natural’ shift [t] > [s] expected by Diem was not possible in early Canaanite, where the reflex of PS *s was still an affricate [c] (Blau 1977, 106; cf. Diem 1974, 222, 226, 247).

As far as more concrete arguments are concerned, Hebrew š-words with no Aramaic cognates have been in the focus of the debate. Indeed, how could the Masoretes ascertain that ש was to be read as [s] when no cognate lexeme was present in their usual guide, Aramaic? In Kutscher (1965, 40), five relevant Hebrew words are adduced: *šyš* ‘to rejoice’, *šmḥ* id., *šimlā* ‘garment’, *šrr* ‘to rule’, *šrd* ‘to escape’ (HALOT 1314, 1334, 1337, 1362, 1353). Blau (1977, 101–102) expands this list with *šādā* ‘field’, ‘šy ‘to do’ and *šʿr* ‘to know’ (HALOT 1307, 889, 1344). A few additional examples can be found in Marrassini 1978, 163.

Kutscher’s argumentation is by no means blameless either.

- (a) Firstly, our knowledge of the early Aramaic lexicon is not exhaustive. Some lexemes missing from (or poorly represented in) the extant sources could be known to the speakers in the Masoretic period (Diem 1974, 246). Blau’s rejoinder to this claim (1977, 101) is reasonable: exceedingly rare Aramaic words are not expected to influence widely used Hebrew ones. Still, a deeper inquiry into the Aramaic lexicon is desirable. Thus, *šādā* is, for Blau, ‘an extraordinary frequent Hebrew word ... altogether absent from Aramaic’, for which no Aramaic cognate ‘has ... yet been detected and perhaps never will’ (1977, 101). Now, at least two unambiguous attestations of Mandaic *sadia* ‘field, open space, plain, desert’ are registered in MD 310!
- (b) Secondly, Kutscher and Blau hardly ever provide etymological evidence for PS *š in Hebrew words spelled with ש. However, the very existence of Hebrew lexemes with ש and no Aramaic parallels is not sufficient: one has to show that ש in such words is etymologically justified. Indeed, if the Masoretes were normally guided by Aramaic cognates, their pointing must have become more or less chaotic when such cognates were not available: at least some lexemes with PS *š could be spelled with ש and *vice versa*.

True, PS *š in *šimlā*, *šrd* and *šʿr* is assured by Arb. *šamlat*-, *šrd* and *šʿr* (Lane 1600, 1531, 1559). But for *šyš*, *šmḥ* and *šrr* there are no cognates pointing to PS *š – unless one accepts semantically remote comparisons with Arb. *šawšāʿ* ‘swift she-camel’ (Lane 1618, Nöldeke 1904, 43) and Arb. *šmḥ* ‘to be high’ (Lane 1595, Greenfield 1958). The only reliable witness for *š in *šādā* comes, paradoxically, from Mnd. *sadia*, as the translations ‘mountain’ or ‘cultivated land’ for Sab. *s₂dw* (SD 131) are hardly justified (Sima 2000, 309). But the most problematic case is ‘šy ‘to do’, whose only straightforward cognate – ESA *ʿs₁y* ‘to do’ (SD 20, LM 16, LIQ 125) – overtly contradicts the traditional rules (ESA *s₁* = Hbr. *š* ≠ Hbr. *š*).

Diem’s examples of Hbr. *š* = Arb. *š* in the absence of Aramaic cognates (1974, 246–247; after Yahuda 1903, 707–713) are notoriously infelicitous (Blau 1977, 103–104), as they exhibit more than one sibilant in the root (Hbr. *šahaš* ‘pride’ – Arb. *šḥs* ‘to be raised, elevated’, HALOT 1463, Lane 1516), other consonantal irregularities (Hbr. *šns* ‘to gird’ – Arb. *šnš* ‘to be bound’, HALOT 1607, LA 7 55), or metathesis (Hbr. *nāḥāš* – Arb. *ḥanaš* ‘snake’, cf. SED II No. 159). The same is true of the majority of

cases adduced in Magnanini 1974 (cf. Marrassini 1978, 168–173). More persuasive examples are, nevertheless, not lacking. Thus, as Blau (1977, 92, 95, 104) admits, Hbr. *tašūkā* ‘desire, longing’ (HALOT 1801) = Arb. *šwq* ‘to excite one’s desire’ (Lane 1620) is convincing (after Barth 1893, 46 and *contra* Marrasini 1978, 172). Another Barth’s example (1893, 47–48) is Hbr. *šgʿ* ‘to be mad’ (HALOT 1415) – Arb. *ʿašʒaʿ* ‘mad’ (Lane 1508). Further possible cases include Hbr. *ʿkš* – Arb. *ʿqš* ‘to twist’ (HALOT 875, TA 17 271, Magnanini 1974, 407; cf. Blau 1977, 95), Hbr. *ḵārāš* ‘wooden plank’ – Arb. *qrš* ‘to cut’ (HALOT 1149, TA 17 323, Magnanini 1974, 407; cf. Blau 1977, 95), Hbr. *šwt* ‘to roam about’ – Arb. *šwt* (II) ‘to make a long journey’ (HALOT 1439, Lane 1619, Magnanini 1974, 406; Blau 1977, 95). However, Blau is right to observe (*contra* Diem 1974, 246) that Hbr. *š* – Arb. *š* is also attested when Aramaic cognates are available: Hbr. *ntš* – Syr. *ntš* – Arb. *ntš* ‘to pull, tear away’ (HALOT 737, LSyr. 453, Lane 2762, Magnanini 1974, 407; Blau 1977, 95; Marrassini 1978, 169) or Hbr. *šābīb* ‘spark’ – Syr. *šbībā* id. – Arb. *šbb* ‘to burn’ (HALOT 1392; LSyr. 750; Lane 1492; Barth 1893, 50; Magnanini 1974, 405; Blau 1977, 95; Marrassini 1978, 168).

Both approaches to the *ʕ* problem are often presented as axiomatic in modern Semitics (contrast Hoch 1994, 416–418 and Beyer 1984, 102–103; Krebernik 2007, 128), but the question should remain open before a complete and unbiased etymological analysis of all Hebrew words with *ʕ* is carried out.

1.5.2.5. Ugaritic and Canaanite: interdentals

1.5.2.5.1. Reflexes of Proto-Semitic **t̪* in Ugaritic

PS **t̪* is preserved in Ugaritic (Troppe 2000a, 107). Ugr. *t* may apparently also reflect PS **š*, but pertinent examples (Troppe 1994, 37–42; 2000a, 108–113) are rarely compelling (Blau 1977, 73–78). Thus, *gtr* as a title of deified royal ancestors (DUL 314) need not be related to Arb. *šsr* ‘to be courageous’ (Lane 424; Blau / Greenfield 1970, 12–13; Blau 1977, 75). The form *dt* in *ydt mʿkbbk* (KTU 1.18 I 19) may be related to Arb. *dyt* ‘to be soft’ rather than to *dws* ‘to tread’ (DUL 283, Blau 1977, 75–76). Identification of *ytn* ‘old’ with Arb. *snn* ‘to become old’ (Troppe 2000a, 109) is conjectural (Blau 1977, 77), and even more so (Blau 1956, 243) are the equations Ugr. *lhn* ‘table’ – Arb. *salh-* ‘skin, hide’ (Lane 1403) and Ugr. *tnn* ‘type of soldier’ – Arb. and Gez. *snn* ‘to be sharp’ (Lane 1436, CDG 507). Ugr. *ktr* I ‘skilful’ and *ktr* II ‘vigour’ (DUL 471) are hard to dissociate from Arb. *ktr* ‘to be numerous’ (WKAS K 60), which assures **t̪* in PS in spite of the irregular *š* in Aramaic (Wagner 1966, 68). *Contra* Testen (2000, 86) and Troppe (2000a, 111; cf. Blau 1972a, 58–61), the PS prototype of Ugr. *ʾit* ‘there is’ (DUL 123) is to be reconstructed as **ytw* (cf. Arm. *ʾitay*, Beyer 1984, 509 and *i-ŠA-wu* = Sum. A.GÁL, AN.GÁL in VE 624, 789, Krebernik 1983, 24). Ugr. *ngt* and *ngš* (‘to pursue’ and ‘to make one’s way’ respectively in DUL 623–624, cf. Troppe 2000a, 109) are semantically difficult and therefore unsuitable for safe diachronic conclusions (Blau 1977, 76–77). Ugr. *trm* ‘to eat’ (DUL 931) has been connected with Syr. *šrm* and Arb. *srm* ‘to slit’ (LSyr. 809, LA 12 333), but, apart from the semantic difference, there is also Arb. *trm* ‘to break (the teeth)’ (LA 12 88; cf. Blau 1977, 77; Troppe 2000a, 110).

For Blau (1977, 73–75), the only persuasive case of Ugr. *t* < PS *š is *ḥtb*, *ḥtbn* ‘bill, account’ (DUL 377) – Hbr. and Syr. *ḥšb*, Arb. *ḥsb* ‘to reckon’ (HALOT 359, LSyr. 260, Lane 564). But even this example is problematic given the uncertain relationship between the Semitic root and Eg. *ḥsb* (already in the Pyramid texts, Wb. III 166). Also probable is, *contra* Blau (1977, 75), Ugr. *mṭk* ‘to take (by the hand)’ (DUL 605) – Arb. *msk* ‘to maintain, to withhold’ (Lane 3019). In any case, this meager evidence is too scarce for a true phonological irregularity.

1.5.2.5.2. Reflexes of Proto-Semitic *d in Ugaritic

PS *d yields *d* in Ugaritic (Troppe 2000a, 101): *ḥd* ‘to take’ < **ḥd* (Arb. *ḥd*), *dkr* ‘male’ < **dakar*- (Arb. *dakar*-), *dkn* ‘beard’ < **dakan*- (Arb. *daqan*-), *dbh* ‘to sacrifice’ < **dbh* (Arb. *dbh*), etc. (DUL 36, 269, 278, 261, Lane 28, 969, 953, SED I No. 63). In the syllabic transcriptions, etymological *d is spelled with DV signs: *da-ab-ḥu* ‘sacrifice’, *da-ka-rū* ‘male’ (Huehnergard 1987, 223–224).

In a few lexemes *d is preserved (Troppe 2000a, 116–117): *dnb* ‘tail’ (DUL 288) < **danab*- (Arb. *danab*-, SED I No. 64), *dr* ‘arm’ (DUL 288) < **dirā*- (Arb. *dirā*-, SED I No. 65), *dr* ‘to help’, *drt* ‘help’ (DUL 153; syllabic *i-zi-ir[-tu₄]*, Huehnergard 1987, 224) < **dr* (Sab. *dr*, SD 13), *ḥd(d)* ‘downpour’ (DUL 387) < **ḥidīd*- (Arb. *ḥindīd*-, LA 3 598). Sometimes *d/d* doublets are attested: *dr*‘/’*dr* ‘grain, seed’ (DUL 280; syllabic *mi-dā-ar-ū*, Huehnergard 1987, 224) < **dar*- (Ebla *ša-la-ù*, *šar-ù*, Sab. *mḍr*‘t, Krebernink 1983, 26, SD 40), *mḍr* ‘vow’, *ndr* ‘to promise’ (DUL 529, 621) < **ndr* (cf. 1.5.2.5.4.), perhaps *dbt* ‘company, band’, *db* ‘to prepare, arrange’ (DUL 148, 152) < **db* (Sab. *db*, SD 12).

In the archaic text KTU 1.12 (cf. 1.5.2.5.1.), PS **ḥd* and **db* appear as *ḥd* (ll. 31–35) and *db* (l. 26), but the relative pronoun **dū* appears as *d* in l. 3 (*ygmḍ* ‘he rejoiced’ in l. 13 is etymologically obscure). Conversely, in KTU 1.24:45 *d is preserved precisely in the relative pronoun (contrast *dt* in ll. 38, 43; Troppe 2000a, 235–236).

The background of the double reflexation of *d is uncertain (Blau 1968). For Gordon (1965, 26–27), preservation of *d* is conditioned by *r* as a root consonant, whereas Troppe (2000a, 116) expands the list of conditioning factors with *n*, *m* and *b*. Nevertheless, many regular *d*-lexemes display the same phonetic environments (Kogan 2000, 721–722): *dkr* ‘male’, *dkn* ‘beard’, *dry* ‘to winnow’, *udn* ‘ear’.

1.5.2.5.3. Reflexes of Proto-Semitic *ṭ in Ugaritic

PS *ṭ is usually preserved in Ugaritic (Troppe 2000a, 113): *ṭby* ‘gazelle’ (DUL 1003) < **ṭaby*-, *ṭl* ‘shadow’ (DUL 1003) < **ṭill*-, *ṭm* ‘bone’ (DUL 197) < **aṭm*-.

On several occasions, *ṭ yields Ugr. *γ* (Segert 1988). Three examples are certain (Troppe 2000a, 94): *nγr* ‘to pay attention; to guard’ (DUL 624) < **nṭr*, *γm* ‘to be thirsty’ (DUL 322) < **ṭm*, *γr* ‘mountain’ (DUL 324) = Hbr. *šūr* (HALOT 1016), Syr. *ṭūrā* (LSyr. 272) < **ṭVrr*- ‘flint’ (Fronzaroli 1968, 271). Also probable is *yḳγ* ‘to be alert’ (*‘ištm*‘ *w tḳγ* *’udn* ‘listen and let (your) ear be alert’, KTU 1.16 VI 42) < **yḳṭ* (Arb. *yqd*, LA 7 527).

Alternative etymologies for these roots implying $*\gamma$ in PS (Blau 1977, 70–72) are rarely convincing. Thus (*contra* Blau 1977, 72), there is no reason to follow Rössler (1961, 165–167) who dissociated Ugr. γr ‘mountain’ from its NWS cognates in favor of Arb. γawr - ‘lowland’ (Lane 2308). Ugr. $n\gamma r$ (syllabic *na-ḥi-ru*, *ni-iḥ-ri*) is inseparable from PS $*n\gamma r$, *contra* Loewenstamm (1980, 362–365, 433–439) and Rössler (1961, 164–165), see Huehnergard (1987, 153). Aistleitner’s explanation of $t\gamma$ as ‘to incline’ (1963, 279) = Arb. $\gamma\gamma$ (Lane 1692) is phonologically unacceptable (Blau 1977, 71). Finally, scribal errors assumed by Rössler for γm ’ and $y\gamma$ are just hard to imagine (Blau 1977, 70).

Other examples of PS $*t >$ Ugr. γ are admittedly more problematic (Troppe 1994, 24–25). Thus, $m\gamma\gamma$ ‘to come’ (DUL 533) is not to be derived from PS $*m\dot{t}$ ’ since ‘ does not yield γ in Ugaritic (Blau 1972a, 67–72; 1977, 72). Similarly, Ugr. γlmt ‘darkness’ (DUL 320) need not be related to PS $*t\dot{l}m$ in view of Hbr. ‘ lm ‘to conceal’ (Blau 1977, 72, cf. HALOT 834–835). It is remarkable that both $*m\dot{t}$ ’ and $*t\dot{l}m$ have regular Ugaritic reflexes with \dot{t} ($m\dot{t}$ ’ ‘to meet’ and $t\dot{l}mt$ ‘darkness’, DUL 608, 1004) but, *contra* Blau 1977, 72, this argument is not decisive, as γm ’ ‘to be thirsty’ also has a regular \dot{t} -doublet $m\dot{t}m’a$ (DUL 609).

There is no convincing explanation for the split of PS $*t$ into γ and \dot{t} in Ugaritic.

Gordon (1965, 27–28) reconstructs a hitherto unknown PS phoneme, but this unlikely solution has rightly been rejected in Rössler 1961, Blau (1977, 70) and Troppe (2000a, 96). Blau’s ‘composite character of the dialectal structure of Ugaritic’ and ‘dialect mixture’ (1977, 70) are scarcely helpful either, as is Blau’s attribution of this phenomenon to the ‘weak sound change’ (within this approach, Ugr. γm ’ ‘to be thirsty’ is treated as a ‘blend’ of PS $*t\dot{m}$ ’ with the ‘bilateral root γm ’, represented by Arb. γamy ‘fainting’ and γym ‘to be clouded’, both of which supposedly to go back to an original meaning ‘to be covered’, from which ‘both fainting and thirst’ must have developed!). For Troppe (2000a, 96), the shift $*t > \gamma$ is due to the influence of sonorants, but in five (out of nine) regular examples one or two sonorants are also involved.

1.5.2.5.4. Reflexes of Proto-Semitic interdentals in Hebrew

PS interdentals merge with sibilants in Hebrew ($*t > \dot{s}$, $*d > z$, $*t > s$), but $*d$ is thought to yield d instead of z in some lexemes. The fullest collection of potentially relevant examples can be found in Rabin 1970 (cf. also Garbini 1960, 194–196).

Most of Rabin’s 32 examples do not withstand critical scrutiny (Blau 1977, 110). Some comparisons are semantically far-fetched: Hbr. $d’g$ ‘to be anxious’ (HALOT 207) – Arb. $\dot{d}’\dot{z}$ ‘to inflate a vessel in order to check whether it is broken or not’ (LA 2 320), Hbr. $k\dot{i}d\dot{o}n$ ‘scimitar’ (HALOT 472) – Arb. $k\dot{a}d\dot{a}t$ - ‘upper thigh’ (WKAS K 426), Hbr. ‘ $\dot{a}d\dot{a}r$ ‘herd’ (HALOT 793) – Arb. ‘ $\dot{i}d\dot{a}r$ - ‘a mark on a camel’s cheek’ (Lane 1986), Hbr. ‘ $\dot{e}d\dot{u}t$ ‘testimony’ (HALOT 790) – Arb. $\gamma d\dot{y}$ ‘to feed’ (Lane 2236), Hbr. $d\dot{a}g$ ‘fish’ (HALOT 213) – Arb. $\dot{d}\dot{a}z\dot{a}$ ‘to drink’ and ‘to move quickly’ (TA 5 586). In a few other lexemes there is an additional phonological irregularity: Hbr. $s\dot{u}s$ $d\dot{o}h\dot{e}r$ ‘dashing horse’ (HALOT 214) – Arb. $\dot{d}u\dot{h}l\dot{u}l$ - ‘a swift horse’ (Lane 984), Hbr. $h\dot{a}p$ ‘to push’ (HALOT 239) – Arb. $\dot{h}\dot{a}f$ ‘to reject’ or $\dot{h}\dot{a}f$ ‘to hasten’ (Lane 535, 712), Hbr. $\dot{s}dd$ ‘to devastate, despoil’ (HALOT 1418) – Arb. $\dot{s}udd\dot{a}d$ - ‘people apart from their companions’ (Lane 1522), Hbr. $\dot{s}\dot{o}h\dot{a}d$ ‘bribe’ (HALOT 1457) – Arb. $\dot{s}h\dot{d}$ ‘to beg im-

portunately', Hbr. *škd* 'to watch' (HALOT 1638) – Arb. *šqd* 'to be awake' (Lane 1580).

Potentially more reliable examples are scanty: Hbr. *ndr* 'to make a vow' (HALOT 674) – Arb. *ndr* id. (Lane 2781; Rabin 1970, 294; Blau 1977, 80), Hbr. *kdr* 'to be dark' (HALOT 1072) – Arb. *qdr* 'to be dirty' (Lane 2498; Rabin 1970, 295; Blau 1977, 80), *kippōd* 'hedgehog' (HALOT 1117) – Arb. *qunfuḍ* id. (Lane 2569; Rabin 1970, 296; Blau 1977, 81–82), Hbr. *ḥdl* 'to cease' – Arb. *ḥdl* 'to neglect' (Lane 713, Rabin 1970, 293, Blau 1977, 80), Hbr. *dll* 'to be little', *dal* 'poor' (HALOT 223, 221) – Arb. *dll* 'to be low, vile' (Lane 972; Rabin 1970, 292; Blau 1977, 81), Hbr. *dlk* 'to set on fire' (HALOT 223) – Arb. *dlq* 'to give light' (Lane 974; Rabin 1970, 292; Blau 1977, 81).

Various factors have been considered in order to account for different lexemes from this heterogeneous group, such as the influence of liquids (Rabin 1970, 297; Blau 1977, 81) and labials (Rabin 1970, 297), and contamination or dialect mixture (Blau 1977, 81). *Contra* Rabin 1970, 297, Aramaic influence is not to be excluded in some cases (cf. Wagner 1966, 102, 42–43 for *kippōd* 'hedgehog' and *d'b* / *dwb* 'to pine away', Blau 1977, 110 for *pahad* 'thigh'). A detailed etymological inquiry into Hbr. *ndr* 'to vow' and *nzr* 'to consecrate' (Boyd 1985) reveals a complex interplay of **ndr* / **ndr* / **nzm* within and outside Hebrew. The same may be true of *kippōd* / *kippōz* (Wagner 1966, 102; Blau 1977, 81) and *dll* / *zll* (Blau 1977, 81).

1.5.2.6. Canaanite sibilants and interdentals: a summary

When the history of **š*, **ʃ* and **t̪* in Canaanite is investigated, evidence in foreign scripts (cuneiform and Egyptian) should be carefully distinguished from data in native alphabets.

Both cuneiform and Egyptian scripts have only two sets of sibilant signs (ŠV vs. SV, *š* vs. *s*). They are, therefore, *a priori* unsuitable for rendering three different sibilant phonemes. These scripts can provide valuable information about the separate existence of certain sibilants, but they cannot be conclusive concerning sibilant mergers (Diem 1974, 228–230).

Conversely, native alphabets (such as Ugaritic and Phoenician) were with all likelihood specifically designed for the consonantal systems of the respective languages (Diem 1974, 237; Knauf/Maāni 1987, 91; Krebernik 2007, 112, 126; contrast Hoch 1994, 414–418) and can provide direct evidence about their sibilant inventories.

The OB renderings of NWS personal names suggest that **t̪* (rendered by ŠV signs) was a separate phoneme in the first half of the 2nd millennium BC. The use of the SV series for both **š* and **ʃ* does not necessarily imply their merger. This evidence is thus compatible with all sibilant systems of later periods.

The Egyptian renderings suggest that **š* (= Eg. *š*) was different from **t̪* and **ʃ* (= Eg. *s*) in the second half of the second millennium BC. But they are not helpful in deciding whether **t̪* and **ʃ* merged into one phoneme (Diem 1974, 234, 242; Hoch 1994, 402). If they did, this system is not compatible with the traditional Hebrew one, where **ʃ* is opposed to **š*. If they did not, it can be considered as an immediate forerunner of the Hebrew system. The same is true of the evidence from the Jerusalem Amarna letters (Diem 1974, 239–241).

The Egyptian and Jerusalem Amarna systems are incompatible with the Ugaritic one, where **ṭ* is kept apart and **š* merges with **ṣ*. They are equally incompatible with the ‘short’ Ugaritic alphabet, where one symbol is used for **ṣ*, **š* and **ṭ* (Tropper 2000a, 73, 77), which suggests a complete sibilant merger (as later in Phoenician).

Since the three systems (Egyptian/Jerusalem Amarna, ‘long Ugaritic’ and ‘short Ugaritic’) are largely contemporary, the evolution of PS sibilants in early Canaanite could not be uniform. In the North, either complete sibilant merger (Ugaritic ‘short alphabet’ = (proto-)Phoenician; Tropper 2000a, 79–80; Rainey 1998, 452–453) or the shift **ṣ* > **š* (Ugaritic ‘long alphabet’) are attested. In more Southern (and more inland) areas, the merger either affected **ṭ* and **š* in opposition to **ṣ* (Diem 1974), or there was no merger at all (Blau 1977). It is to such ‘Southern’ dialects that the Egyptian renderings should be traced (but cf. Hoch 1994, 415, 482–486).

Phonetic interpretation of **š* in early Canaanite is debatable. The Egyptian renderings with *š* suggest a hushing [ʃ] – the value commonly ascribed to Eg. *š* (Schenkel 1990, 38; Peust 1999, 125; cf. Faber 1985b, 48). SV-spellings in Jerusalem Amarna letters do not contradict this reconstruction in view of the Assyrian-like features of this sub-corpus (Moran 1975, 152–155): SV = [ʃ] is a well established Assyrian peculiarity (cf. 1.5.1.4.). According to Streck (2006, 249), de-affrication of *š* [c] into *š* in Ugr. *mḥšt* ‘I killed’ (< *mḥš*) suggests that Ugr. *š* was pronounced as [s]. But if Ugr. *s* was still an affricate [c], the ‘general sibilant’ *š* – be it realized as [s] or [ʃ] – was the only possible outcome of de-affrication (cf. Tropper 2000a, 105). The realization [ʃ] for early Canaanite *š* is thus a feasible possibility (Tropper 2001, 630–632; contrast Streck 2002, 186–187; 2006, 250), at least partly confirmed by the fact that foreign ‘general sibilant’ (presumably [s]) is normally rendered by *ṭ* and not by *š* in Ugaritic (Tropper 2000, 111–113).

1.5.2.7. PS lateral sibilants in Aramaic

1.5.2.7.1. Reflexes of Proto-Semitic **š* in Aramaic

PS **š* was rendered by the polyphonic grapheme 𐤔 in OArm. (Degen 1969, 36): *šm* ‘he put, erected’ < **šym* (KAI 201:1), etc. The same spelling predominates in EArm. and BArm. (Muraoka/Porten 2003, 6–7; Bauer/Leander 1927, 26) as well as in some later traditions (Beyer 1984, 102–103). In the cuneiform Uruk incantation, **š* is rendered by ŠV signs ([*n*]*a-šá-ṛa-a-ta*₅ ‘you raised’ < **nš*², *šá-am-lat* ‘dress’ < **šamlat*-, TCL 6 58:1, 20) and differs from **s* = SV (*si-ip-pa-a* ‘threshold’ < **sapp*-, *a-si-ir* ‘bent’ < **sr*, *ḥa-as-si-ir-ta-a* ‘deficient’ < **ḥsr*, TCL 6 58:2, 5, 15).

The shift **š* > *s* becomes apparent in EArm. and BArm. (Muraoka/Porten 2003, 6–7, Bauer/Leander 1927, 27). In Papyrus Amherst 63, *s*-spellings are regular (Steiner/Nims 1984, 93; 1985, 67–68; Vleeming/Wesselius 1983–1984, 124; 1985, 26–27): *sḥr*₃ ‘moon’ < **šahr*- (11:13, Steiner/Nims 1983, 265), *nšt* ‘she raised’ < **nš*² (9:18, DNWSI 1261), *bšmt*₃ ‘it was pleasing’ < **bšm* (18:11, DNWSI 1254), *bšr*₃ ‘meat’ < **bašar*- (6:6, DNWSI 1254), *šmthy* ‘I put him’ < **šym* (19:2, DNWSI 1261). Exceptional *š*-spellings found in DNWSI 1252–1266 are *yšrp* ‘he will burn’ < **šrp* (20:10) and *šk*₃ ‘large’ < **šg*² (21:1, cf. *sḥk*₃ in 19:10).

The merger is complete from Middle Aramaic onwards (PS **ʿašr*- ‘ten’ > Syr. *ʿesrā*, LSyr. 537, Mnd. *asra*, MD 30, Mal. *ʿasra*, GNDM 7), but historical orthography with *š* may persist for some lexemes (cf. DJPA 421 and DJBA 884 for עשר ‘ten’).

The shift **š* > *s* assures the independent status of **š* in early Aramaic (Steiner 1977, 38), since other sources of the polyphonic 𐤑 behave differently in later periods: OArm. 𐤑 = PS **š* yields *š* (*šm* ‘he heard’ in KAI 201:4 > Syr. *šma*, LSyr. 786), OArm. 𐤑 = PS **t* yields *t* (*yšbr* ‘he will break’ in KAI 222A:38 > Syr. *tbar*, LSyr. 815).

1.5.2.7.2. Reflexes of Proto-Semitic **š* in Aramaic

PS **š* yields *ʿ* from Middle Aramaic on: **ʿarš*- ‘earth’ > Syr. *ʿarʿā*, Tur. *arʿo* (LSyr. 51, LTS 157), **šān*- ‘small cattle’ > Syr. *ʿānā*, Tur. *wono* (LSyr. 533, LTS 157), **šamr*- ‘wool’ > Syr. *ʿamrā*, Tur. *ʿamro* (LSyr. 533, LTS 156).

In Old Aramaic, the reflex of **š* is rendered by *k* (Degen 1969, 36–37): *ʿrk* ‘land’ < **ʿarš*- (KAI 202B:26), *rkh* ‘to placate’ (KAI 224:6) < **ršy*, *mrk* ‘disease’ (KAI 309:9) < **mrš*. The grapheme 𐤌 was thus polyphonic (Steiner 1977:38). The earliest *ʿ*-spellings (*mr* ‘wool’, *ʿrʿ* ‘land’) go back to the end of the 6th century B.C. (Beyer 1984, 101).

Spellings with *k* still predominate in EArm. (Folmer 1995, 63–69; Muraoka / Porten 2003, 8–9), but *ʿ*-variants may occur even within a single document (*l-ʿrʿ* / *l-ʿrk* ‘to meet’). In BArm. *ʿ* is ubiquitous except for *ʿarkā* / *ʿarʿā* in Jer. 10:11 (Bauer/Leander 1927, 26). Orthographic vs. phonetic nature of this variation is disputed (Beyer 1984, 101, 420, 1994, 42, Muraoka/Porten 2003, 9–10).

Historical orthography accounts for the use of *k* in three **š*-lexemes in Mandaic: *aḵamra* ‘wool’, *aḵna* ‘small cattle’ (also *amra* and *ana*) and *arḵa* ‘earth’ (MD 23, 33; 24, 34; 39; Nöldeke 1875, 72–73; Macuch 1990, 228–230; Beyer 1984, 44, 420). The reflexes of **šamr*- and **šān*- did not survive in modern Mandaic, whereas **ʿarš*- becomes *ara* (Macuch 1965, 95–96).

According to a growing consensus, the OArm. reflex of **š* is to be interpreted as a glottalized velar or uvular affricate ([kxʰ] or [qxʰ]). According to Steiner (1991, 1499–1501), this realization is suggested by the 𐤏/𐤐(𐤑) variation in cuneiform spellings of Aramaic personal names (*ra-ḥi-a-nu* / *ra-qi-a-nu* < **ršy* ‘to be glad’; Zadok 1977, 262; Beyer 1984, 101). Since etymological **γ* is always rendered by 𐤕V and not by QV (*ba-ḥi-a-nu* < **bγy* ‘to wish, to desire’; Beyer 1984, 101; Zadok 1977, 247), [kxʰ] (< **š*) was likely opposed to [γ] (< **γ*) at least before 600 B.C. (Beyer 1984, 101, 420; 1994, 42). But it seems that the two phonemes were still unmerged even much later: in Papyrus Amherst 63, **š* can be rendered by *h* and *ḥ* (Steiner/Nims 1984, 93; Steiner 1991, 1500; Kottsieper 2003, 104–105), as in *ḥʒn-ḥʒn* ‘their flocks’ < **šān*- (6:4) and *ʒrhʒ* ‘earth’ < **ʿarš*- (15:3), but also by *k* (Vleeming/Wesselius 1983–1984, 122; Kottsieper 2003, 104–105), as in *rʒhʒk* ‘to wash’ < **rḥš* (3:10–11, DNWSI 1264) and *ʒrk(ʒ)* ‘earth’ (22:7 and 17:6, 11, DNWSI 1254). Now, *h* and *ḥ* are used also for **γ* (cf. 1.5.10.), but *k* is not.

The background of the famous ‘correspondance du *qād* arabe au *ʿayn* araméen’ (Yushmanov 1926) can thus be summarized as follows (Steiner 1977, 40–41; 1991, 1501; Voigt 1979, 101–102; Dolgopolsky 1994; 1999, 31–32; cf. Vilenčik 1930, 95):

PS	pre-Old Aramaic	Old Aramaic	Official Aramaic	Middle Aramaic
[tʰ]	[kʰ]	[kxʰ]	[γ]	[ʿ]

The shift $*\xi > \epsilon$ is not without exceptions: in some lexemes, PS $*\xi$ yields Arm. ς . Reliable examples (GVG 135, 236; Yushmanov 1998[1940], 149; Blau 1970, 61–62; Steiner 1977, 149–151) include Syr. *šmad* – Arb. *dm̄d* ‘to bind’, Syr. *maš* – Arb. *ym̄d* ‘to close one’s eyes’, Syr. *hmaš* – Arb. *hm̄d* ‘to be sour’, Syr. *šrak* – Arb. *dar̄ik* ‘poor’, Syr. *šer’ā* – Arb. *dar’* ‘breast’, Syr. *raš* – Arb. *rd̄d* ‘to break’, Syr. *npaš* – Arb. *nfd* ‘to shake’, Syr. *šarwā* – Arb. *dirw-* ‘aromatic resin’, Syr. *’rš* – Arb. *’rd* ‘to occur’, Qumran Aramaic *n’š* ‘to prick’ – Arb. *nu’q-* ‘a thorny tree’ (LSyr. 632, 530, 241, 637, 638, 742, 437, 637, 549, 435, Beyer 1994, 382; Lane 1802, 2296, 644, LA 10 557, Lane 1095, 2830, 1787, 1790, 2002, LA 7 269). For some lexemes, ‘-doublets are attested (Yushmanov 1998[1940], 150): Syr. *’era’* ‘to occur’, *hma’* ‘to be fermented’, *ra’* ‘to break’ (LSyr. 51, 240, 737). The earliest example of $*\xi > \varsigma$ (Degen 1969, 37; Steiner 1977, 150) is *hšr* ‘grass’ in KAI 222A:28, identical to Hbr. *hāšīr* (HALOT 343) and going back to PS $*hšr$ ‘to be green’ (Arb. *hḡr*, Lane 754). Steiner (1977, 150) further adduces *šr* ‘enemy’ from the Samalian inscription KAI 214 (as well as its hypothetical cognate in Mnd. *šara*, MD 388), but the reading *šry* in KAI 214:30 is disputed (cf. Tropper 1993, 93).

While some of the exceptional examples can be attributed to Akkadian or Canaanite influence (Blau 1970, 61–62), others look genuine and could be explained by the dissimilatory effect of sonorants and/or ϵ and *h*, incompatible with $\epsilon < *\xi$ (GVG 135, 237; Blau 1977, 69–70; Steiner 1977, 149–154). According to Yushmanov (1998[1940], 150, following Vollers 1893, 147 and Zimmern 1898, 27), the double reflexation of $*\xi$ in Aramaic may reflect two separate PS phonemes, but this is hard to accept. Blau’s suggestion that $*\xi > \varsigma$ was regular in some (non-documented) Aramaic dialects (1970, 63) is similarly improbable (Diem 1980, 83–84).

1.5.2.8. Proto-Semitic interdentals in Aramaic

PS $*t$, $*d$ and $*ṭ$ yield *t*, *d* and *ṭ* from Middle Aramaic on: $*tawr-$ ‘bull’ > Syr. *tawrā*, Tur. *tawro* (SED II No. 241), $*dirā-$ ‘arm’ > Syr. *drā’ā*, Tur. *dru’o* (SED I No. 65), $*ṭn$ ‘to load’ > Syr. *ṭen*, Tur. *ṭo’an* (LSyr. 283, LTS 182).

In Old Aramaic, *š*, *z* and *ṣ* regularly appear instead (Degen 1969, 35–36):

yšb ‘to sit’ (DNWSI 474) < $*wtb$ (Sab. *wtb*, Ugr. *yṭb*, Syr. *yūteb*, SD 165, DUL 994, LSyr. 311), *šbr* ‘to break’ (DNWSI 1106) < $*tbr$ (Sab., Ugr. *tbr*, Syr. *tbar*, SD 149, DUL 897, LSyr. 815), *šb* ‘to return’ (DNWSI 1114) < $*twb$ (Sab., Ugr. *twb*, Syr. *tāb*, SD 151, DUL 895, LSyr. 817), *’šr* ‘place’ (DNWSI 125) < $*’atar-$ (Sab. *’tr*, Ugr. *’atr*, Syr. *’atrā*, SD 9, DUL 127, LSyr. 55), *šwrh* ‘cow’ (DNWSI 1118) < $*tawr-at-$ (Sab., Ugr. *tr*, Syr. *tōrtā*, SED II No. 241), *’š’t* ‘ewe’ (DNWSI 1094) < $*ta’w-at-$ (Arb. *ta’w-at-*, Mnd. *tata*, SED II No. 236), *’š’l* ‘fox’ (DNWSI 1179) < $*ṭV(V)l-$ (Arb. *ṭu’āl-*, Syr. *ta’lā*, SED II No. 237), *lyš* ‘there is not’ (DNWSI 576) < $*layṭ$ (Ugr. *’iṭ*, Syr. *layt*, DUL 123, LSyr. 366), *šlšn* ‘thirty’ < $*talātūna$ (Arb. *talātūna*, Syr. *tlāūn*, Lane 348, LSyr. 826).

zhl ‘to be afraid’ (DNWSI 309) < $*dhl$ (Syr. *dhel*, LSyr. 148), *’hz* ‘to take’ < $*ḡd$ (Arb. *ḡd*, Syr. *’ehad*, Lane 28, LSyr. 11), *zkn* ‘to grow old’ < $*daqan-$ ‘beard’ (Arb. *daqan-*, Syr. *daqnā*, Lane 967, LSyr. 164), *zkrn* ‘memory’ < $*dkr$ (Arb. *dkr*, Syr. *dkīr*, Lane 968, LSyr. 153), *zhb* ‘gold’ < $*dahab-$ (Arb. *dahab-*, Syr. *dahbā*, Lane 983, LSyr. 142).

rš ‘to run’ (DNWSI 1065) < $*rwṭ$ (Ugr. *rṭ*, Syr. *rhet*, DUL 750, LSyr. 716), *nšr* ‘to guard’ (DNWSI 754) < $*nṭr$ (Sab. *nṭr*, Arb. *nṭr*, Syr. *nṭar*, Lane 2810, SD 102, LSyr.

426), *ḥṣ* ‘arrow’ (DNWSI 397) < **ḥVtt-* (Ugr. *ḥṭ*, Mnd. *ḥiṭia*, DUL 382, MD 143), *kys* ‘summer’ (DNWSI 1020) < **kayt-* (Sab. *kyt*, Ugr. *kṭ*, Syr. *kaytā*, SD 112, DUL 722, LSyr. 664), *ḥpš* ‘affair’ (DNWSI 396) < **ḥipt-* (Arb. *ḥifd-*, Syr. *ḥuptā*, LA 7 498, LSyr. 250), *šby* ‘gazelle’ (DNWSI 958) < **ṭaby-* (Ugr. *ṭby*, Arb. *ḍaby-*, Syr. *ṭabyā* (SED II No. 242)).

In the OArm. inscription from Tell Fakhariyye PS **t* is rendered by *s*: ‘*sr* ‘wealth’ (KAI 309:2) < **tr* (Syr. ‘*tar*, LSyr. 554), *ysb* ‘dwelling’ (ibid. 5, 16) < **wtb*, *ḥds* ‘anew’ (ibid. 11) < **hdt*, *sʿwn* ‘ewes’ (ibid. 20), *swr* ‘cattle’ (ibid. 20).

OArm. *š*, *z* and *ṣ* which do not go back to PS interdentalals never yield *t*, *d* and *ṭ* in later periods. Therefore, the corresponding OArm. graphemes were polyphonic and the reflexes of **t*, **d* and **ṭ* were preserved as independent phonemes (Degen 1969, 32–36).

The only exceptional dental spelling in OArm. seems to be *w-ʿl yrt* ‘he will not inherit’ (< **wrt*) in KAI 222C:24 (cf. DNWSI 471; Blau 1972a, 73; Fitzmyer 1995, 120; *btn* ‘snake’ < **batan-* in KAI 222A:32 proposed in Fitzmyer 1995, 89 is hard to accept). This single case is not sufficient to substantiate Beyer’s dating (1984, 100) of the loss of interdentalals to the 9th or even 10th century B. C. (Muraoka / Porten 2003, 3–5).

Reliable dental spellings of PS interdentalals are attested since the middle of the 7th century B. C. (*yhtb* ‘he will send back’ < **twb* in KAI 233:11, Beyer 1984, 100).

Distribution of sibilant vs. dental spellings for **d* in EArm. is discussed in Beyer (1984, 100), Folmer (1995, 49–63) and Porten/Muraoka (2003, 3–9): *z* predominates, but *d* is widely attested (especially in word-middle and word-final positions) and *z/d* doublets are known for some lexemes (*zḥb* / *dḥb* ‘gold’ < **dahab-*). The phonetic reality behind this picture is debated. Reflexes of **t* and **ṭ* are regularly spelled with *t* and *ṭ* (Folmer 1995, 70–74; Muraoka/Porten 2003, 7–9), which points to their definitive loss.

Dental spellings are regular in Papyrus Amherst 63: *dḥb* ‘gold’ < **dahab-* (9:11, DNWSI 1255), *ṭwʿryʿnʿ* ‘our bulls’ < **tawr-* (9:12, DNWSI 1166), perhaps *yʿmʿṭnʿ* ‘may he cause to reach us’ in 11:14 (Kottsieper 1988, 231; cf. Steiner/Nims 1983, 266; Vleeming/Wesselius 1985, 56) < **mṭ* (Syr. *mṭā*, Ugr. *mṭ*, LSyr. 381, DUL 608). Two exceptional sibilant spellings – *nʿsʿbʿh* ‘we shall sacrifice’ (12:2, DNWSI 1256, Vleeming/Wesselius 1985, 64) = **dbḥ* (Syr. *dbḥ*, Arb. *ḍbḥ*, LSyr. 138, Lane 953) and *yʿtsʿb* ‘council’ (11:15, DNWSI 1257) = **wʿṭ* (JPA *yʿṭ*, ‘*yṭh*, Arb. *wʿḍ*, DJPA 243, 403, Lane 2953) – are probably Hebraisms (Steiner/Nims 1983, 267; Vleeming/Wesselius 1982, 507; 1985, 56; Kottsieper 1988, 232–233; note the expected ‘*ʿbt* ‘advice’ in 18:11, DNWSI 1262).

Doublet *z/d* spellings for **d* are characteristic of Mandaic: *zahba/dahba* ‘gold’, *zikna/dikna* ‘beard’, *zikra/dikra* ‘beard’, *zinibta/dinipta* ‘tail’, *haizina/haidin* ‘this’ (Nöldeke 1875, 43–44; Macuch 1965, 66–68; 1990, 225–226). The purely orthographic nature of this orthography is evident (Beyer 1984, 44, *contra* GVG 134).

1.5.3. Proto-Semitic sibilants in Epigraphic South Arabian

1.5.3.1. Epigraphic South Arabian ḥ (s₁), ẓ (s₂) and ṣ (s₃)

The graphemes ḥ (s₁), ẓ (s₂) and ṣ (s₃) correspond to Hebrew and MSA *š*, *ṣ* and *s* respectively (Cantineau 1935–1945; Stehle 1940; Beeston 1951, 14; LaSor 1957):

Sab. *ls₁n* – Hbr. *lāšōn* – Soq. *lēšin* ‘tongue, language’ (SED I No. 181), Sab. *s₁nt* – Hbr. *šēnā* – Mhr. *šənēt* ‘sleep’ (SED I No. 82_v), Min. *tys₁* – Hbr. *tayiš* – Soq. *teš* ‘buck’ (SED II No. 231);

Sab. ‘*śr*’ – Hbr. ‘*šār*’ – Jib. ‘*śār*’ ‘ten’ (SD 21, HALOT 894, JL 17), Sab. *h-s₂b^c* – Hbr. *šb^c* – Mhr. *šiba* ‘to be sated’ (SD 131, HALOT 1302, ML 370), Sab. *s₂hr* – Hbr. *šahārōn* – Mhr. *šēhar* ‘moon, month’ (SD 132, HALOT 1311, ML 376);

Sab. ‘*s₃r*’ – Hbr. ‘*śr*’ – Jib. ‘*śśr*’ ‘to bind, to take captive’ (SD 8, HALOT 75, JL 4), Min. *hs₃r* – Hbr. *hśr* – Mhr. *hasōr* ‘to decrease; to pay’ (LM 44, HALOT 338, ML 449), Sab. *ks₃w* – Hbr. *kāsā* – Mhr. *ksū* ‘to clothe’ (SD 79, HALOT 487, ML 216).

As seen by Blau (1977, 90–92), Beeston (1977) and Marrassini (1978, 163) and confirmed by a detailed etymological analysis of all pertinent ESA roots in Okhotin 1999, probable exceptions are (*contra* Magnanini 1974) very few: Sab. ‘*s₁y*’ – Hbr. ‘*āšā*’ ‘to do’, Sab. *s₁frt* ‘extent’ – Hbr. *mispār* ‘quantity’, Sab. *s₁‘d* ‘to bestow a favor’ – Hbr. *s‘d* ‘to support’, Sab. *fs₂* ‘contagious’ – Hbr. *pāšā* ‘to spread (disease)’, Sab. *h-ws₂^c* ‘to grant a favor’ – Hbr. *hōšīa^c* ‘to help, save’ (SD 20, 125, 121, 46, 163; HALOT 889, 607, 761, 979, 448).

The PS values *š*, *ś* and *s* could thus reasonably be ascribed to 𐤃, 𐤑 and 𐤔 (Leslau 1937, 214; Cantineau 1935–1945, 323; Beeston 1951, 26). However, the early Sabaeo-logical tradition was not oriented towards the three-sibilant systems of Hebrew and MSA, but rather to the two-sibilant Arabic system (Beeston 1951, 15): 𐤃 and 𐤑 were ascribed the phonetic values of their Arabic etymological counterparts (*viz.* *s* and *š*), whereas 𐤔, with no Arabic parallel at all, was rendered by *ś*. The latter choice was especially infelicitous, since *ś* is widely used in Semitic philology to denote the unvoiced lateral sibilant (Hbr. שׁ). The phonetically neutral numerical notation (𐤃 = *s₁*, 𐤑 = *s₂*, 𐤔 = *s₃*) introduced in LS 15 is thus warranted, but the traditional renderings (𐤃 = *s*, 𐤑 = *š*, 𐤔 = *ś*) are still widely employed (e.g. Sima 2000, Stein 2003).

1.5.3.2. Further observations on sibilants and interdentals in Epigraphic South Arabian

A few other problems related to the reflexes of sibilants and interdentals in ESA are to be mentioned.

- (a) The shift *s₃* > *s₁* in Late Sabaic (*ms₃nd* > *ms₁nd* ‘inscription’, *s₃n* > *s₁n* ‘towards’, SD 138, 127, 139; Stein 2003, 26–27, 213; Sima 2001) has been interpreted by Voigt (1998, 176–177) as deaffrication [c] > [s]. The reverse shift *s₁* > *s₃*, also attested in Late Sabaic (*hs₁s₁* > *hs₁s₃*, *hs₃s₃* ‘(to) damage’, *s₁s₁lt* > *s₁s₃lt* ‘chain’, SD 62, 127) is explained by Voigt (1998, 177–180) as secondary affrication [s] > [c] (rejected in Sima 2001, 259).
- (b) The merger of *ṭ* and *s₃* in Hadramitic (Beeston 1984, 68; Voigt 1998, 175) is usually thought to be operative in both directions: *ṭny* > *s₃ny* ‘two’ vs. *ms₃nd* > *mṭnd* ‘inscription’ (Beeston 1962b, 14). However, according to Frantsouzoff (2001, 46, 50; 2007, 33, 36) *ṭ* tends to replace *s₃* in early monuments, whereas in the inscriptions dated to the end of the 1st millennium B.C. and originating from Raybūn and other sites of Inland Hadramawt (as opposed to the capital Shabwa and the Hadrami colony Sumhuram) the reverse is normal. In Frantsouzoff’s view, this merger

is part of a more general trend towards the loss of PS interdentals in Hadramitic. On this problem see further Priolella 2006, 254–256.

- (c) PS **ṭ* yields *ṣ* in Sabaic documents inscribed on wood (Kogan / Korotayev 1997, 223; Stein 2003, 27–28; Brown 2007, 341–343): *ṣbyṭ* ‘a bag’ < PS **ṭabyat*- ‘gazelle’ (Ryckmans/Müller/Abdallah 1994, 54 and 87, l. 6), *mṣʿw* ‘they came’ = monumental *mṭʿ* (ibid. 57 and 91, l. 2), *mṣṣr* ‘a measure of capacity’ = monumental *mṭṣr* (ibid. 59 and 93, l. 1).
- (d) The shift **ṭ* > *ṣ* sometimes postulated for Middle Sabaic (Beeston 1984, 8; Lipiński 1997, 121) is a purely orthographic phenomenon with no phonological basis (Kogan/Korotayev 1997, 223; Sima 2000, 168; Stein 2003, 28).

1.5.4. PS sibilants and interdentals in Ethiopian Semitic

1.5.4.1. Geez *ḥ* = *s* and *ṣ* = *ṣ*

The presence of two sibilant graphemes (*ḥ* = *s* and *ṣ* = *ṣ*) in the Geez alphabet suggests that the corresponding phonemes were opposed to each other in the language for which it was designed. The contrast is regular in early Geez inscriptions (Littmann 1913, 80): *saṃāy* ‘heaven’ (RIÉ 189:1), *saraḥomu* ‘he stole from them’ (ibid. 12), *ys-tywm* ‘he will let them drink’ (RIÉ 185bis II 16) vs. *ḥaṣar* ‘straw’ (RIÉ 189:19), *ṣalastu* ‘three’ (RIÉ 187:32), *ṣmnh* ‘we established it’ (RIÉ 185 II 23).

Gez. *s* goes back to **š*, **s* and **ṭ*, whereas Gez. *ṣ* reflects **ṣ* (Voigt 1989, 641): Gez. *ṣars* – Sab. **ṣrs*₁, Jib. *maṣṣrēš* ‘molar tooth’ (SED I No. 275), Gez. *ḥasen* – Ugr. *ḥsn* ‘kind of insect’ (SED II No. 105), Gez. *ḥaddis* – Ugr. *ḥdṭ*, Arb. *ḥadīṭ*- ‘new’ (CDG 225, DUL 355, Lane 529) vs. Gez. *karṣ* – Hbr. *kārēš*, Arb. *kariš*- ‘stomach’ (SED I No. 151).

Voigt (1994a) collected several Geez lexemes with *ṣ* < **ṭ*: Gez. **ʾaṣar* – Arb. **ʾaṭar*- ‘trace’ (CDG 45, LLA 739, Lane 18), Gez. *ḥamṣ* – Ugr. *ḥmṭ*, Mhr. *ḥamṭ* ‘lower belly’ (LLA 76, SED I No. 122), Gez. *ṣena* – Ugr. *ṭnt*, Arb. *maṭānat*- ‘to urinate’ (LLA 264, SED I No. 77_v). In a few other lexemes with **ṭ* variation between *s* and *ṣ* is attested: Gez. *saṃra* / *ṣaṃra* ‘to be pleased’ – Arb. *ṭmr*, Sab. *ṭmr* ‘to be fruitful’ (CDG 503, Lane 352, SD 150), Gez. *sor* / *ṣor* – Ugr. *tr*, Arb. *tawr*- ‘ox’ (CDG 511, SED II No. 241), Gez. *loṣa* / *loṣa* – Arb. *lwṭ* ‘to knead, to mix’ (LLA 53, CDG 321, Lane 2677). Voigt explains this phenomenon as sporadic lateralization conditioned by *r*, *ḥ* or *ʿ* as root consonants. In view of the extensive confusion of sibilant signs in Geez manuscripts (cf. 1.5.4.2.), Voigt’s hypothesis is difficult to prove (SED I pp. LXXX–LXXXI), the more so since *s*/*ṣ* variation also affects roots with **s* and **š* in the prototype (like **asara* / **ašara* ‘to bind’ < **ʾsr*, LLA 747, CDG 44, Voigt 1994a, 105, 113–114). Besides, many PS roots which combine **ṭ* with *r*, *ḥ* and *ʿ* are never spelled with *ṣ* (e.g. *ḥarasa* ‘to plow’ < **ḥrt*, Voigt 1994a, 107, 110–111). It is nevertheless remarkable that two of Voigt’s examples seem to be attested epigraphically: *yṣmr* ‘it pleases?’ (RIÉ 204:1–2) and *ṣ-r*- ‘ox’ (RIÉ 193 I 9).

1.5.4.2. Development of *ḥ* and *ṣ* in Ethiopian Semitic

The traditional pronunciation of Geez does not distinguish between *ḥ* and *ṣ*: both are realized as [s] and extensively confused in the manuscript tradition (Ullendorff 1955,

113; v. *ibid.* 114 for the doubtful reports about the interdental realization of ϖ in the traditional pronunciation). Incorrect sibilant spellings are sporadically attested already in late epigraphy (cf. Steiner 1977, 36): *ngs* ‘king’ (RIÉ 194:1, 8), *mngsty* ‘my rule’ (*ibid.* 10) instead of *ngš*, *mngšty*, *zay-s-nəyani* ‘who made good for me’ (RIÉ 193 I 12) instead of *zay-š-nəyani*. Thus, at some stage of the development of ES a complete merger of *s* and *š* must have occurred, giving way to a one-member sibilant system (Ullendorff 1955, 113–114; Podolsky 1991, 22).

A two-member system (*s* vs. *š*) is, however, re-established throughout modern ES. The emergence of the ‘new’ *š* is thought to be conditioned by palatalization, the shift *s* > *š* being structurally identical to *d* > *ḏ*, *t* > *ṭ*, *ṭ* > *č*, *š* > *č*, *z* > *ž*, *n* > *ñ* and *l* > *y* (Bergsträsser 1983 [1928], 113; Podolsky 1991, 34; Faber 1985b, 58, 96). Palatalization is triggered by the presence of *y*, *i* and *e* (Ullendorff 1955, 129) as well as by the gutturals (Podolsky 1991, 38) in the underlying form: Tgr. *šäyābā* ‘to have grey hair’, *šibat* ‘gray hair’ – Gez. *šeḇa*, *šibat* (SED I No. 66_v), Tna. *šānā* ‘to urinate’, *šanti* ‘urine’ – Gez. *šena*, *šant* (SED I No. 77_v), Amh. *ašen* ‘butterfly’ – Gez. *ḥasen* (SED II No. 105), etc.

Quite often, however, none of the aforementioned triggers is apparent (SED I pp. LXXXV–LXXXVI): Tgr. *šākəm* ‘burden’, Amh. *täšäkkämä* ‘to carry’ < **tVkm-* (SED I No. 281), Tgr. *näkšā* ‘to bite’ < **nkt* (WTS 333, CDG 402), Tgr. *bāšlā* ‘to boil’ < **bšl* (WTS 283, CDG 109), Tgr. *šāktā* ‘to fall, to be lost’ < **škt* (WTS 223, CDG 497), Tgr. *šāmṭā* ‘to tear off’ < **šmṭ* (WTS 210, HALOT 1557), Tgr. *šākrā* ‘to get drunk’ < **škr* (WTS 222, CDG 497), Tgr. *māšəfall* ‘lower slope’ < **špl* (WTS 230, HALOT 1631), Tna. *šābāṭṭ* ‘abbālā ‘to hit’ < **šbt* (TED 843, CDG 485), Tgr. *šānkā* ‘to strangle’ < **šnk* / **šnḳ* (WTS 218, Jastrow 1607, Lane 1606), Tgr. *šāfkā* ‘to be dense’ < **špk* (WTS 231, SD 131, HALOT 1349).

The clearest manifestation of this phenomenon is the so-called ‘sibilant anomaly’ in the Tigrinya numerals (Yushmanov 1937). Throughout modern ES, the numerals of the first decade display only *s*, but in Tigrinya both *s* and *š* are in evidence: *sälästä* ‘3’, ‘assärtä ‘10’ vs. *ḥammuštā* ‘5’, *šədduštā* ‘6’, *šob’attā* ‘7’, *šämmontä* ‘8’, *təš’attā* ‘9’. According to Yushmanov, this distribution is diachronically conditioned: PS **š* is preserved, whereas **s* and **t* merge into *s* (*š* in *šämmontä* ‘8’ < **tāmāniy-* is supposed to arise secondarily under the influence of *šob’attā* ‘7’). Yushmanov’s hypothesis (implicit in Müller 1983, 243 and Lipiński 1997, 124, 126) has been rejected by Ullendorff (1955, 134–137) and Voigt (1988), who ascribe the emergence of *š* to the palatalizing effect of the labials and/or the high-central vowel *a* (both missing from *sälästä* and ‘assärtä’).

Contra Ullendorff (1955, 135), there is nothing *a priori* unsound in Yushmanov’s assumption that the behavior of PS sibilants in modern ES can be different from their fate in (late) Geez. However, this hypothesis can only be verified through an exhaustive etymological analysis of all *s*- and *š*-lexemes of modern ES. The evidence available at present does not seem to favor it: in the *š*-lexemes treated above, at least three PS sibilants (**bšl*, **špk*, **tVkm-*) can be detected. Even more problematic is Meparišvili’s claim (1983; 1987) that modern ES *š* corresponds to PS **š*: all of her examples are either transparent Arabisms or easily explainable by palatalization.

1.5.4.3. Reflexes of Proto-Semitic **t* and **š*

PS **š* and **t* merge into *š* (**ʕ**) in Geez, whereas PS **š* is preserved as *š* (**θ**). Several examples of **t* rendered by **θ** (or **ʕ/θ** variation) can be found in Voigt 1994a: Gez.

ḥaṣaya ‘to betroth’ – Arb. *ḥḍw* ‘to be beloved (of one’s husband)’ (LLA 140, Lane 596), Gez. *ḥaṣe* ‘majesty’ – Arb. *ḥiḍwat-* ‘high rank’, Sab. *ḥṭy* ‘favor’ (LLA 226, Lane 596, SD 75), Gez. *‘aṣm / ‘aṣm* ‘bone’ – Arb. *‘aḍm-* (LLA 1025, SED I No. 25), Gez. *lamṣ / lamṣ* – Arb. *lamaḍ-* ‘white spot, leprosy’ (LLA 37, SED I No. 179). In Voigt’s view, such cases are due to sporadic lateralization, but this hypothesis is liable to the objections exposed in 1.5.4.1.

1.5.4.4. Development of **ṣ** and **ṭ** in Ethiopian Semitic

The opposition between **ṣ** and **ṭ** is consistent in early epigraphy (Littmann 1913, 80; *contra* Podolsky 1991, 13): *baṣaḥku* ‘I came’ (RIÉ 189:28), *‘anṣāra* ‘in front of’ (RIÉ 189:40), *yāṣawəro* ‘he carries it’ (RIÉ 189:50) vs. *‘amaḥṣanku* ‘I put under protection’ (RIÉ 189:48–49), *waṣ’u* ‘they went out’ (RIÉ 187:18), *ṣar* ‘enemy’ (RIÉ 185 II 4). Only in late monuments some confusion is attested: *mṣ* ‘he came’ instead of *maṣ’a* (DAE 13:7, RIÉ 194:1), *ṣaḥafkəwo* ‘I wrote it’ instead of *ṣaḥafkəwo* (RIÉ 202:1), *ṣ-w-k-* ‘I took booty’ instead of *ṣ-w-k-* (RIÉ 193 I 33–134).

There is no distinction between **ṣ** and **ṭ** in the traditional pronunciation of Geez (both are realized as [ç]). The merger is complete throughout modern ES (> *ṣ/ç* in Tigre and Tigrinya, *t/č* in SES).

Hetzron and Habte Mariam (1966, 19) claimed that PS **ṣ* may yield *d* in Western Gurage: Cha. *daḳä* ‘to laugh’ < **ṣḥk*, *dämädä* ‘to join’ < **ṣmd*, *adädä* ‘to mow’ < **ṣd* (EDG 216, 208, 15). This hypothesis was rejected in Goldenberg (1977, 464–466), EDG (216, 208, 15) and Podolsky (1991, 13). At any rate, Hetzron’s *‘daḳä*, in which *d* comes from the deglottalization of *ḳ*’ (1966, 19) has little to do with the laterality of **ṣ* (cf. Steiner 1977, 113).

Separate reflexes of **s* (> *s*) and **ṣ* (> *ç*) claimed for the Tigrinya dialect of Akkele Guzay (Cohen 1931, 10) are not well-founded (Ullendorff 1955, 115; Goldenberg 1977, 466; Podolsky 1991, 13; cf. Rodinson 1981, 108; Voigt 1988, 533). The same is true of the reports about an interdental realization of **ṭ** in the traditional pronunciation of Geez (Ullendorff 1955, 114; cf. Voigt 1994a, 115; Tropper 1994, 24).

1.5.5. PS **š* in Modern South Arabian

1.5.5.1. Reflexes of Proto-Semitic **š*

PS **š* is reflected as *š* or *s* in MSA. In Mehri and Soqotri *š* often shifts to *h*, whereas in Central Jibbali it may yield a peculiar labialized phone transcribed as *ṣ* by Johnstone (JL XIV, Johnstone 1984, 389; for Fresnel’s early description v. Lonnet 1991, 67).

The comparatively rare *š* (*h*, *ṣ*) reflexes (ca. 50 roots altogether) are concentrated in the most basic lexical layers (Leslau 1937, 213–214; 1988 [1939–1944], 37–38; Beeston 1951, 7–8; unrecognized in Rendsburg 1986, 256): anatomy and physiology (Jib. *ṣēn* < PS **šamn-* ‘fat’, SED I No. 248; Jib. *ṣnin* < PS **šinn-* ‘tooth’, SED I No. 246; Mhr. *ṣīt*, Jib. *ṣṣ*, Soq. *ṣéh* < PS **šīt-* ‘buttocks, genitals’, SED I No. 255; Mhr. *ṣanēt*, Jib. *ṣónūt*, Soq. *ṣínoh* < PS **šinat-* ‘sleep’, SED I No. 82.; Mhr. *ewṣēn*, Jib. *elṣén*, Soq. *lēṣin* < PS **liṣān-* ‘tongue’, SED I No. 181; Mhr. *hōḥāl*, Jib. *ṣṣāl*, Soq. *ṣāḥāl* ‘belly’

< PS *špl ‘to be low’, SED I No. 271; Mhr. *ḥə-rōh*, Jib. *rēš*, Soq. *rēh* < PS *raš- ‘head’, SED I No. 225; Hrs. *mešḥāwt*, Jib. *šḥot*, Soq. *šḥoh* < PS *šaḥāt- ‘armpit’, SED I No. 240; Jib. *māžrēš*, Soq. *māžrəh* < PS *šīrš- ‘molar tooth’, SED I No. 275; Mhr. *’āwtəh*, Jib. *’šōš*, Soq. *’ētoš* < PS *’š- ‘to sneeze’, SED I No. 4_v, Mhr. *nəfh*, Soq. *nəfoš* < PS *npš ‘to breathe’, ML 284, LS 271, SED I No. 46_v), numerals of the first decade (Mhr. *ḥāyməh*, Jib. *ḥiš*, Soq. *ḥāmoš* < PS *ḥamiš- ‘five’, Mhr. *ḥət*, Jib. *šāt*, Soq. *hite* < PS *šid- ‘six’, Mhr. *hōba*, Jib. *šō*, Soq. *hóbeḥ* < PS *šab-, SED I p. XCI), animal names (Mhr. *nōḥər*, Jib. *nūšər*, Soq. *nóyhīr* < PS *našr- ‘eagle’, SED II No. 166; Mhr. *táyh*, Jib. *tuš*, Soq. *teš* < PS *tayš- ‘buck’, SED II No. 231), nature and time (Mhr. *kəšēt*, Jib. *kəšut* ‘rainbow’ < PS *kaš-t-, ML 242, JL 153, HALOT 1155; Jib. *šḥamúm* < PS *šḥm ‘to be dark’, JL 261, LSyr. 769; Jib. *šḥan* < PS *šḥn ‘to be warm’, JL 264, HALOT 1462; Mhr. *yəmšē*, Jib. *’əmsīn*, Soq. *’imšīn* < PS *’amš- ‘yesterday’, ML 6, JL 3, LS 65, HALOT 68; Jib. *šḥor* < PS *šaḥr- ‘dawn’, JL 261, HALOT 1466), varia (Mhr. *ham*, Jib. *šum*, Soq. *šem* < PS *šim- ‘name’, ML 158, JL 262, LS 418, CDG 504; Mhr. *bəhēl*, Jib. *bēšəl*, Soq. *bēhel* < PS *bšl ‘to cook’, ML 45, JL 30, LS 83, CDG 109; Mhr. *nəhū*, Jib. *nšē*, Soq. *nēše* < PS *nšy ‘to forget’, ML 290, JL 195, LS 276, HALOT 728; Mhr. *ḥəkū*, Jib. *šəkē*, Soq. *hēze* < PS *šky ‘to irrigate’, ML 155, JL 262, LS 142, CDG 511; Mhr. *ḥərūk*, Jib. *šérók*, Soq. *héraḥ* < PS *šrk ‘to steal’, ML 159, JL 263, LS 146, CDG 514; Mhr. *hūma*, Jib. *šī*, Soq. *hémaḥ* < PS *šm ‘to hear’, ML 157, JL 262, CDG 501; Mhr. *ḥšūl*, Jib. *ḥšəl* < PS *ḥšl ‘to break, crush’, ML 451, JL 307, AHw. 333, HALOT 362; Jib. *šēb* < PS *šḇ ‘to fetch water’, JL 265, HALOT 1367; Jib. *mašḥ* ‘clarified butter’ < PS *mšḥ, JL 175, HALOT 643; Soq. *šéte* ‘woven material’ < PS *šty, LS 423, HALOT 1669).

Elsewhere, PS *š corresponds to MSA *s*. For Leslau (1988 [1939–1944], 38–39) and Beeston (1951, 9–10), this ‘irregular’ reflexation is due to the massive influx of Arabic loanwords. Gradual ousting of š-reflexes (Faber 1992, 6–7; SED I p. XCIII) could be illustrated by such doublets as Mhr. *sakf*, Jib. *səkf* – Jib. *šəkf*, Soq. *hékaḥ* ‘roof’ (ML 347, JL 227, 261, LS 146) < PS *šaḥp- (Hbr. *šākāp*, Sab. *s₁kf*, HALOT 1645, SD 127), Jib. *dəbs* – Mhr. *dabh*, Jib. *dəbš* ‘honey’ (JL 34, ML 63) < PS *dibš- (Hbr. *dəbaš*, Sab. *ds₁*, HALOT 212, SD 35), Mhr. *səkāwt*, Jib. *sókāt* – Mhr. *ḥəkāwt*, Jib. *šókāt*, Soq. *hkt* ‘to be worthless, to get lost’ (ML 348, 155, JL 228, 261, LS 146) < PS *škt ‘to fall, to get lost’ (Hbr. *škt*, HALOT 1641), Mhr. *sōfəl*, Jib. *sfəl* – Soq. *hfl* ‘to be low, worthless’ (ML 342, JL 224, LS 145) < PS *špl (Hbr. *špl*, Sab. *s₁fl*, HALOT 1631, SD 124), Mhr. *sōl* – Jib. *šēl*, Soq. *ho’ol* ‘to demand payment’ (ML 338, JL 220, LS 139) < PS *šl ‘to ask’ (Hbr. *šl*, Sab. *s₁l*, HALOT 1371, SD 121).

The main deficiency of Beeston’s explanation is that *s*-words are not restricted to the cultural vocabulary expected to be borrowed (Cantineau 1932, 187; 1939–1945, 319–320), as shown by Mhr. *libəs*, Jib. *lās* ‘to wear’ (ML 251, JL 159) < PS *lbš (Hbr. *lbš*, Sab. *lbs₁*, HALOT 519, SD 81) or Mhr. *səbəlēt*, Soq. *seboleḥ* ‘ear of grain’ (ML 340, LS 280) < PS *šunbul-at- (Hbr. *šibbōlāt*, Sab. *s₁blt*, HALOT 1394, SD 123, Faber 1992, 5–7). Moreover, a given PS root may be not attested in Arabic with the relevant meaning: Mhr. *kənsīd*, Jib. *kənséd* ‘shoulder’ < PS *kišād- ‘neck’ (Akk. *kišādu*, Gez. *kəsād*, SED I No. 147), Mhr. *səbūt*, Jib. *sót* (ML 340, JL 222) < PS *šbt (Hbr. *šēbāt*, Sab. *s₁bt*, HALOT 1388, SD 123), Soq. *’énes* ‘to be small’ (LS 68) < PS *’nš ‘to be weak’ (Hbr. *’nš*, HALOT 73). Especially disturbing in this sense (Yushmanov 1934, 102; Cantineau 1935–45, 319–320; Faber 1985b, 68; Voigt 1987, 56–57; SED I p. XCIV) are the 3rd person feminine personal pronouns (Jib. *se* ‘she’, *sen* ‘they’), whose Arabic cognates display *h*- (*hiya*, *hunna*).

1.5.5.2. The split of *š in Mehri and Jibbali

As shown by Faber (1985b, 63–63, 96–99; cf. Faber 1992, 5–6), the split of *š into š and *h* in Mehri and the split of *š into š and *ṣ* in Jibbali are mutually related: Mhr. *š* usually corresponds to Jib. *ṣ* (Mhr. *šənēt* – Jib. *ṣónút* ‘sleep’, Mhr. *əwšēn* – Jib. *əlšén* ‘tongue’, Mhr. *kəšēl* – Jib. *kəṣūl* ‘rainbow’, Mhr. *ḥšūl* – Jib. *ḥṣəl* ‘to break’), whereas Mhr. *h* is paralleled by Jib. *š* (Mhr. *ḥə-rōh* – Jib. *rēš* ‘head’, Mhr. *ḥáyṁəh* – Jib. *ḥiš* ‘five’, Mhr. *táyh* – Jib. *tuš* ‘he-goat’, etc.). According to Faber, the Soqotri split is identical to the Mehri one, but this conclusion is premature in view of numerous exceptions displaying Jib. *š* – Soq. *š* – Mhr. *h* (SED I p. XCV).

The diachronic background of these splits is uncertain (Cantineau 1932, 187, Edzard 1984, 255–256). Since Jib. *ṣ* and Mhr. *š* are known to go back to palatalized **k* (cf. 1.5.7.), it is tempting to suppose that here, too, we are faced with palatalization of PS *š (presumably realized as [s] in proto-MSA; cf. Yushmanov 1937, 85; Edzard 1984, 253; Faber 1985b, 64–65; Voigt 1987, 57). Palatalizing factors, such as **i* or **ay* preceding or following the sibilant, are indeed apparent in some cases (**šin-at* ‘sleep’, **lišān* ‘tongue’, **amš-ay(-n)* ‘yesterday’, cf. Voigt 1987, 55), but do not surface in a few others (Mhr. *ḥšūl*, Jib. *ḥṣəl* ‘to break’, etc.).

In Soqotri, *š* and *h* can alternate morphophonemically: *hérok* ‘he stole’ – *išúrak* ‘he will be stolen’, etc. (Leslau 1937, 213). A deeper inquiry into the positional factors of these alternations may be helpful for eliciting the history of the *š/h* – *š/ṣ* split.

1.5.6. PS *š > *h*/*ʔ* in non-lexical morphemes

In four non-lexical morphemes, *š* (*s*) in some Semitic languages corresponds to *h* (*ʔ*) in others: personal pronouns of the 3rd person (Voigt 1987; 1994b, 19–24); the causative marker (Voigt 1994b, 24–27); the conditional particle (Voigt 1995); the locative-terminative marker (Diakonoff 1965, 58; Faber 1985b, 70–71; Tropper 2000a, 320). The etymological priority of the sibilant is not in doubt for each of the four morphemes (Voigt 1987; 1995; Faber 1985b, 67–72), but factors triggering the shift and the distribution of sibilant vs. guttural reflexes are still poorly understood.

The only consistent *š*-language is Akkadian: *šū* ‘he’ – *u-ša-pris* ‘he made (someone) cut’ – *šumma* ‘if’ – *-iš* ‘towards’. Systematic *h*/*ʔ*-reflexation characterises most of WS: Hbr. *hū* ‘he’ – *hi-mlīk* ‘he made (someone) rule’ – *ʔim* ‘if’ – *-ā* (< **-ah*, cf. Ugr. *-h*) ‘towards’. Mixed systems are attested in Ugaritic (*hw* ‘he’ – *ʔa-š-hlk* ‘I will let go’ – *hm/ʔim* ‘if’ – *-h* ‘towards’, Tropper 2000a, 151–152), ESA (Qat. *s₁w* ‘he’ – *s₁-ḥdl* ‘he renewed’ – *hm-w* ‘if’, LIQ 158, 61, 46) and MSA (Jib. *še* ‘he’, *se* ‘she’, *-hum* ‘them’ – Jib. *ε-nsim* ‘he breathed’ – Mhr. *hām* ‘if’, Johnstone 1975, 117–118, 106, 119).

Diakonoff’s attempts to detect the *š* – *h* correspondence in lexical morphemes (such as Akk. *bašmu* ‘snake’ – Hbr. *bəḥēmā* ‘beast’, Diakonoff 1980, 9 or Akk. *bašū* ‘to be’ – Arb. *bhw* ‘to be well-shaped’, Diakonoff 1991–1992, 15) are not successful (in both cases it is evidently **ṭ* that underlies Akk. *š*). Similarly improbable (Edzard 1984, 8; Garbini 1984, 32–33; Faber 1985b, 68–72; Dolgopolsky 1999, 19; Voigt 1987, 52–53) is Diakonoff’s reconstruction of a separate PS sibilant (1965, 21; 1991–1992, 6, 15, 36, accepted in Gelb 1969, 172–173) supposedly accounting for this shift.

1.5.7. The origin of Modern South Arabian š (š) and palatalization in Modern South Arabian

A characteristic feature of MSA is the glottalized affricate [č] (Johnstone 1975b, 155; Steiner 1982b, 190–191; for Fresnel's affricate description v. Lonnet 1991, 68), usually transcribed as š (Central Jibbali š) in MSA studies (Lonnet / Simeone-Senelle 1997, 350–351; Lonnet 1993, 48–49). As seen already by Johnstone (1975a, 100) and recently confirmed by Frolova (2005), the background of š in individual MSA languages is not identical. In Jibbali, it usually goes back to *k: 'ešyét 'pigeon' – pl. 'ékéb (JL 11, cf. Arb. 'uqāb- 'eagle', Lane 2102), šūši 'he drank' – yaštéke 'he drinks' (JL 262, from PS *šky), šīh 'to be disappointing' – ekūh 'to disappoint' (JL 146, cf. Mhr. kátmaḥ, Arb. qmḥ, ML 231, Lane 2561). The same may be true of Soqotri (šádher 'pot' – Mhr. kādār, Arb. qidr-, HL 73, ML 224, Lane 2496), but the available evidence is scarce. Conversely, the main source of š in Mehri seems to be š: mišḥərrəwh 'little finger' – Jib. mənšəḥórrót, Arb. ḥinšir- (SED I No. 143), kəšáwb 'to break' – Jib. kósób, Arb. qšb (ML 243, JL 151, Lane 2528), šəbá 'finger' – Jib. 'iṣbá', Arb. 'iṣba' (SED I No. 256). It is, therefore, not surprising that there is no common MSA root displaying š in each of the languages (Lonnet 1993, 48; Lonnet/Simeone-Senelle 1997, 350). *Contra* Swiggers (1981, 359), *š is thus not to be reconstructed as a proto-MSA phoneme.

The emergence of š (š) is part of a more general process of palatalization (Johnstone 1975a, 99–101; Steiner 1982b, 190–191; Lonnet/Simeone-Senelle 1997, 350–351). Its triggers are, presumably, ĩ and y, which, however, may be hard to detect even diachronically. The shift *k > š (š) is common in Jibbali (šínit 'louse', pl. kúnúm < PS *kVnVm-, SED II No. 116, širš 'belly', pl. ekréš < PS *kariš-, SED I No. 151), more sporadic in Soqotri (kíbšib 'star' < PS *kabkab-, béše 'to weep' < *bky and further examples in LS 24) and practically non-existent in Mehri (the only reliable case is šəbdūt 'liver' < PS *kabid-at-, SED I No. 141). The shift *g > ž (ž) is well attested in Jibbali (əždírá 'kind of insect' < PS *gVdVr-, SED II No. 81) and Soqotri (žid 'nerve' < PS *gīd-, SED I No. 72), but not in Mehri. For š (š) as a possible output of palatalization of *š [s] cf. 1.5.5.2.

1.5.8. PS *w and *y in Akkadian and North-West Semitic

1.5.8.1. *y in Akkadian

Word-initial *ya- is not preserved in Akkadian, probably without exceptions (for yāti 'me', yā'um 'mine' reinterpreted as iyāti, iyā'um, see Kouwenberg 2006, 153). In most lexemes *ya- shifts to i- (idu 'hand' < *yad-, imnu 'right' < *yamin-, išaru 'straight' < *yašar-), but in the infinitives of verbs Iy it yields e (ešēru 'to be straight' < *yašār-), probably by paradigmatic analogy (Huehnergard 1994, 4; Kogan 2004a, 347; exceptions: idū 'to know' < *yadā'- and išū 'to have' < *yaṭāw-).

The semi-vowel before word-initial i (and e) was still preserved in Sargonic (Hasselbach 2005, 87–89), spelled with special signs: [yi] (= I) and [ye] (= È) as opposed to [(')i] (= Ì) and [(')e] (= E). The same contrast is observed for [yu] (= U) vs. [(')u] (= Ú or Û).

The shift **ya- > yi* (spelled with I) is well attested in Ebla (Krebern timer 1982, 219–221; Conti 1990, 19): *ma-ḥa-ṣi i-da* = Sum. ŠU.ŠU.RA ‘to strike the hands’ (VE 531a) < **yad-*, *i-ša-wu* = Sum. A.GÁL ‘to be’ (VE 624) < **yaṭāw-*, *i-sa-lum* = Sum. SI.SÁ ‘straight’ (VE 1119) < **yašār-*. Sometimes *ya-* was apparently preserved (spelled with A): *a-mi-nūm*, *a-mi-tum* (also *i-mi-tum*) = Sum. Á.ZI ‘right hand’ (VE 534) < **yamin-*, *i-ṭa-um a-bi-iš-tum* = Sum. ENGUR.UD ‘dry asphalt’ (VE 1269) < **yabiš-*.

1.5.8.2. The shift **w- > y-* in North-West Semitic

The shift **w- > y-* is a hallmark of NWS: Hbr. *yālādā* ‘she bore’ < **waladat*, cf. *hiwwālēd* ‘to be born’ and *hōlīd* (**hawlīd*) ‘he begot’ (BDB 408). In Biblical Hebrew this rule has practically no exceptions, but in Ugaritic two verbal forms with *w-* are attested: *wld* ‘to bear’ and *wpt* ‘to spit’ (Tropper 2000a, 153). According to Tropper, these are D-stem infinitives (**wullad-* and **wuppat-*, cf. DUL 962–963) and preservation of *w-* is conditioned by *-u-*. Word-initial *w-* is sporadically attested in Middle Aramaic: JPA *wālād* ‘womb, newborn’, *wwšṭ* ‘throat’, *wwtrn* ‘benevolent’, *wly* ‘fitting’ (DJPA 169–170), JBA *waldā* ‘fetus’, *waršīšā* ‘chick’, *wašṭā* ‘oesophagus’ (DJBA 395–396), Syr. *wālē* ‘fitting’, *wa’dā* ‘appointed time’, *wārīdā* ‘artery’ (LSyr. 185–186).

One wonders whether the shift **w- > y-* in NWS is somehow connected with the extreme rarity of PS roots with word-initial *y-* (Yushmanov 1998 [1940], 155), which scarcely exceed half a dozen: **yad-* ‘hand’, **yamVn-* ‘right (side)’, **yawm-* ‘day’, **yšr* ‘to be straight’, **ynḵ* ‘to suck’ (Kogan 2004a, 346).

1.5.9. Proto-Semitic gutturals in Akkadian

According to the traditional concept, PS gutturals other than **ḥ* are lost in Akkadian. PS **ʾ* and **ḥ* leave no trace, whereas **ʿ*, **γ* and **ḥ* change the neighboring **ā* into *ē* (GAG § 9a, §§ 23–25, Moscati 1964, 41–42): *ammatu* ‘elbow, cubit’ < **ʾamm-at-* (SED I No. 6), *pāšu* ‘axe’ < **paʿš-* (Arb. *faʿs-*, AHW. 846, Lane 2325); *alāku* ‘to go’ < **ḥlk* (Ugr. *hlk*, AHW. 31, DUL 337), *nāru* ‘river’ < **nah(a)r-* (Arb. *nahr-*, AHW. 748, Lane 2858); *eṣemtu* ‘bone’ < **ʿaṭm-* (SED I No. 25), *pēmu* ‘thigh’ < **paʿm-* (SED I No. 207); *emu* ‘father-in-law’ < **ḥam-* (Arb. *ḥam-*, AHW. 215, Lane 650), *rēmu* ‘womb’ < **raḥm-* (SED I No. 231); *eṭū* ‘to be dark’ < **γṭw* (Arb. *γṭw*, AHW. 266, Lane 2272), *ešū* ‘to be confused’ < **γty* (Arb. *γty*, AHW. 259, Lane 2230); *aḥāzu* ‘to take’ < **ʿḥd* (Arb. *ʿḥd*, AHW. 18, Lane 28), *naḥīru* ‘nostril’ < **naḥīr-* (SED I No. 198).

1.5.9.1. Irregular *e*-coloring

E-coloring can be missing in roots with etymological **ʿ* (Kogan 1995, 156–157): *adi* ‘until’ < **ʿaday* (Ugr. *ʿd*, Sab. *d(y)*, AHW. 12, DUL 146, SD 12), *šartu* ‘hair’ < **šaʿr-* (SED I No. 260), *rādu* ‘rainstorm’ < **raʿd-* (Arb. *raʿd-*, AHW. 941, Lane 1105), *ašāšu* ‘moth’ < **VṭVṭ-* (SED II No. 45), *akbaru* ‘jerboa’ < **ʿakbar-* (SED II No. 30). WS influence could explain such forms as *akbaru* and *ašāšu*, whereas PS doublets with **ʾ*

can be surmised in a few other cases (for Hdr. *ʾd* and Jib. *ʾed* ‘until’ v. JL 1, LM 20, Sima 1999–2000, SED II p. 336). But fully reliable examples like *šartu* remain enigmatic.

More often, *e*-coloring is present in roots with etymological **ʾ* and **h* (Rosén 1978, 450–451; Huehnergard 1994, 5; Kogan 1995, 157–158): *šumēlu* ‘left hand, side’ < **šimʾāl-* (SED I No. 265), *rēšu* ‘head’ < **raʾš-* (SED I No. 225), *šēnu* ‘small cattle’ < **šaʾn-* (SED II No. 219), *pērūrūtu* ‘mouse’ < **paʾr-* (SED II No. 170), *enēšu* ‘to be weak’ < **nš* (Hbr. *ʾnš*, AHw. 217, HALOT 73), *esēpu* ‘to collect’ < **ʾsp* (Hbr. *ʾsp*, AHw. 248, HALOT 74), *esēru* ‘to bind’ < **ʾsr* (Arb. *ʾsr*, AHw. 249, Lane 57), *mēšu* ‘to despise’ < **mʾš* (Hbr. *mʾs*, Arb. *maʾs-* ‘despised person’, AHw. 649, HALOT 540, LA 6 257; with an irregular sibilant correspondence), *eršetu* ‘earth’ < **ʾarš-* (Arb. *ʾard-*, AHw. 245, Lane 45), *šēpu* ‘foot’ < **šaʾp-* (Soq. *šaʾfi*, SED I No. 269), *šēnu* ‘shoe’ < **šaʾn-* (Gez. *šāʾn*, AHw. 1213, CDG 524), *epû* ‘to bake’ < **ʾpy* (Ugr. *ʾpy*, AHw. 231, DUL 92); *šēru* ‘back’ < **ʾahr-* (SED I No. 284), *ewû* ‘to be’ < **hwy* (Syr. *hwā*, AHw. 266, LSyr. 173), *erû* ‘to be pregnant’ < **hry* (SED I No. 20_v). Most of the above examples have sonorants (Huehnergard 1994, 5; 2005b, 592) or glides (Rössler 1959, 131) among their root consonants. Remarkably, *e*-coloring is missing in some of these lexemes in pre-OB sources: Sargonic *rāšu*, *šānu* (Gelb 1957, 232, 241), *aršatu* (Westenholz 1974, 98) and *šāpu* (George 2011; Markina 2010); Ebla *za-lum* = Sum. MURGU (EV 0357, Krebernik 1983, 47) and *sa-na* = Sum. E.LAK 173 (Fronzaroli 1984, 180); early Mari *sá-né-en* (ARM 19 300:2, CAD Š₂ 289).

1.5.9.2. Proto-Semitic **ḥ* > Akkadian **ḥ*

PS **ḥ* may yield Akk. *ḥ*. One example codified by GAG (§ 8i) is *raḥāšu* – Arb. *rḥd*, Ugr. *rḥš* ‘to wash, to bathe’ (AHw. 943, Lane 1052, DUL 738), references to other cases are scattered over Assyriological literature (Huehnergard 2003, 102–103), the largest collections being GVG 127–128; Edzard 1959, 298–299; Salonen 1975; Kogan 1995; Tropper 1995a; SED I, pp. LXXIII–LXXV; SED II, p. LVII and Huehnergard 2003.

Reliable examples include *ḥepēru* – Arb. *ḥfr* ‘to dig’ (AHw. 340, Lane 600, GVG 128, Salonen 1975, 294), *nabāḥu* – Arb. *nbḥ* ‘to bark’ (AHw. 694, Lane 2755, GVG 128, Salonen 1975, 294), *mašāḥu* – Arb. *msh* ‘to measure’ (AHw. 623, Lane 2713, Tropper 1995a, 64), *ḥiāṭu* ‘to watch’ – Arb. *ḥwt* ‘to guard’ (AHw. 343, Lane 670, Huehnergard 2003, 105), *puḥālu* ‘to breed an animal’ – Ugr. *pḥl* ‘donkey’, Arb. *fahl-* ‘stallion’ (GVG 128, Salonen 1975, 294, SED I No. 210), *paḥallu* ‘thigh, genitals’ – Mhr. *fēḥəl* ‘penis’ (SED I No. 210, Durand 2002, 136–137), *nuḥḥutu* – Arb. *nḥt* ‘to trim, clip’ (CAD N₂ 318, Lane 2773, Tropper 1995a, 59–61), *ḥašû* ‘lung’ – Arb. *ḥašaʾ* ‘entrails’ (SED I No. 128), *šalāḥu* – Ugr. *šlh*, Hdr. *s₁lh* ‘to send, to dispatch’ (SED I, p. LXXIII, CAD Š₁ 193, DUL 816, Pirenne 1990, 107), *ḥalû* ‘black mole’ – Arb. *ḥalaʾ* ‘pustule’ (SED I No. 116).

Less compelling are *ḥabābu* ‘to caress’ – Arb. *ḥbb* ‘to love’ (CAD H 2, Lane 495, Westenholz 1975, 289), *ḥubūru* ‘din’ – Arb. *ḥubūr-* ‘joy’ (AHw. 352, Lane 499, Huehnergard 2003, 104), *ḥasīsu* ‘ear’ – Arb. *ʾal-ḥasīs-āni* ‘ear cartilages’ (SED I No. 127), *ḥarbu* ‘plough’ – Ugr. *hrb* ‘knife, sword’ (AHw. 325, DUL 367, Tropper 1995a, 64), *ḥulmiṭtu* – Arb. *ḥamāṭīṭ-* ‘a reptile’ (SED II No. 99), *ḥurbabillu* – Arb. *ḥirbāʾ-* ‘chameleon’ (Salonen 1975, 294, SED II No. 101), *ḥarsapnu* ‘larva’ – Arb. *ḥaršaf-* ‘small of

animals' (Salonen 1975, 294, SED II No. 105), *meḥû* 'storm' – Arb. *maḥwat*- 'northern wind' (AHw. 642, LA 15 315), *ḥarāmu* 'to separate', *ḥarimtu* 'prostitute' – Arb., Sab. *ḥrm* 'to be forbidden' (AHw. 323, 325; Lane 553; SD 70; Salonen 1975, 293; Tropper 1995a, 62; Kogan 1995, 159).

Many examples supposed to illustrate this correspondence are not reliable.

- Akkadian lexemes attested predominantly in OB Mari, NA and NB are suspect as possible WS borrowings: *ḥuṣannu* 'sash, belt' (NB), *ḥaṣānu* 'to hug, to protect' (mostly NA) – Arb. *ḥiḍn*- 'lap, bosom' (SED I No. 129, Albright 1919, 183, Salonen 1975, 294; Tropper 1995, 62), *ḥaṣāru* (OB Mari, NB, Streck 2000, 94–95) – Arb. *ḥiḍār*-, Ugr. *ḥṭr* 'enclosure' (AHw. 331, Lane 595, DUL 382, Tropper 1995; 62; cf. rather *iṣāru* 'outbuilding', CAD I 206), *matāḥu* 'to lift' (mostly NA) – Arb. *mṭh* 'to pull, to draw' (AHw. 632; Lane 2688; Salonen 1975, 294; Tropper 1995, 62), *ḥalābu* (NA) – Arb. *ḥlb* 'to milk' (AHw. 309, Lane 623, Salonen 1975, 293). An unambiguous evaluation can be difficult in some cases, cf. different approaches to *ḥakāmu* 'to understand' < PS **ḥkm* in Edzard (1959, 298), Salonen (1975, 293), Durand (1987), Tropper (1995, 62), Kogan (1995, 159), Streck (2000, 90–91) and Huehnergard (2003, 109–110).
- Other examples are problematic for semantic reasons: *ḥarāṣu* 'to bind' – Ugr. *ḥrṣ* 'artisan' (AHw. 324, DUL 370, Tropper 1995, 62; cf. SED I, p. LXXV and Huehnergard 2003, 106, where *erṣu* 'wise', AHw. 246, is compared instead), *riāḥu* 'to remain' – Arb. *rawaḥ*- 'wideness' (AHw. 979, Lane 1180, Huehnergard 2003, 104), *mallaḥtu* 'a grass' – Arb. *milḥ*- 'salt' (AHw. 596; Lane 2732; Salonen 1975, 294; Tropper 1995, 62; cf. rather *miḥu* 'saltpetre', AHw. 653), *palāḥu* 'to fear, to revere' – Arb. *flḥ* 'to till' (AHw. 812, Lane 2438, Tropper 1995, 63), *maḥû* 'to go into a trance' – Arb. *mḥw* 'to efface' (CAD M₁ 115, Lane 3018, Tropper 1995, 64), *ṣiāḥu* 'to laugh' – Arb. *ṣyḥ* 'to shout' (AHw. 1096, Lane 1759, Tropper 1995, 64), *teḥû* 'to approach' – Arb. *ṭhw* 'to go away' (AHw. 1384, Lane 1832, Tropper 1995, 64).

Ø- and *h*-reflexes may apparently co-exist (cf. Huehnergard 2003, 110, Tropper 1995, 62–63): Arb. *lahy*- 'jaw', Ugr. *lh* 'jaw, cheek' – Akk. *lētu* 'cheek' (OA, OB on) and *lahû* 'jaw' (MB, SB) (SED I Nos. 177 and 178) or Ugr. *ḥbl*, Arb. *ḥabl*- 'rope' – Akk. *eblu* 'rope' (OB on) and *ḥabālu* 'to bind', *ḥābilu* 'trapper', *naḥbalu* 'snare' (OB on) (DUL 353, Lane 504, AHw. 183, 302, 305, 714).

Different attempts to account for this correspondence are discussed in 1.4.6.

1.5.9.3. Proto-Semitic **γ* in Akkadian

According to Rössler 1959, 130, there are only ten Akkadian lexemes involving PS **γ*, but the actual number seems to amount to 20–25 examples (Kogan 2001; 2002).

As shown by Rössler, the traditional reflex (**γ* > Ø with *e*-coloring) is quite uncommon: to *eṭû* 'to be dark' < **γṭw* and *eṣû* 'to be confused' < **γty* one can add *ebû* 'to be thick' – Ugr. *γbn* 'well-being', Arb. *ʿaybā*, *γabiyy*- 'dense', *γabā*- 'denseness' (AHw. 183; DUL 316; Lane 2228; Dozy 2 201; Rössler 1959, 131; Kogan 2001, 266; 2002, 315) and *ebētu* 'to be tied, girt' – Arb. *γubṭat*- 'a strap' (AHw. 774, Lane 2226, Kogan 2001, 267). There are, furthermore, two examples of **γ* > Ø where *e*-coloring is missing or cannot surface: *ṣabû* 'to soak' – Arb. *ṣby* 'to dip, to dye' (AHw. 1082;

Lane 1647; Rössler 1959; 131, Kogan 2001, 266) and *urullu* – Arb. *γurlat*- ‘prepuce’ (SED I No. 108, Kogan 2001, 266–267).

More often, PS **γ* is reflected (permanently or occasionally) as *ḥ*: *ṣeḥḥēru* – Ugr. *ṣyr*, Arb. *ṣyr* ‘to be small’ (AHw. 1087; DUL 780; Lane 1691; Rössler 1959, 130–131; Kogan 2001, 269), *ḥalāpu* ‘to cover’ – Ugr. *γlp* ‘husk’, Arb. *γlf* ‘to put in a sheath’ (AHw. 310; DUL 321; Lane 2283; Hecker 1968, 270; Westenholz 1978, 162; Kogan 2001, 269–271), *lašḥu* ‘inner jaw’ – Arb. *laṭayat*- ‘mouth, lip’ (SED I No. 182), *ḥarāšu* – Arb. *γrs* ‘to plant trees’ (CAD H 95, Lane 2247, Kogan 2001, 272); *āribu*, *ēribu*, *ḥēribu* – Arb. *γurāb*-, Mhr. *γə-γəráyb* ‘crow’ (SED II No. 89; Rössler 1959, 131; Kogan 2001, 278–279), *apāru*, *epēru*, *ḥepēru* ‘to cover one’s head’ – Arb. *γfr*, Mhr. *γəfūr* ‘to cover, to hide’, Ugr. *γprt* ‘a garment’ (AHw. 57; Lane 2273; ML 135; Rössler 1959, 131; Kogan 2001, 279), *adāru*, *ḥadāru* ‘to be obscured; to be worried’ – Arb. *γdr* ‘to be obscure’, IV and VII ‘to be worried’ (AHw. 11; Lane 2232; Dozy 2 202; Rössler 1959, 131; Westenholz 1978, 162, Kogan 2001, 279–280), *aparrû*, *ḥaparrû* ‘having wiry hair’ – Ugr. *γprt* ‘a garment’, Arb. *γafar*- ‘hair on the body’ (SED I No. 99; DUL 323; Kogan 2001, 280–281; 2002, 316), *urnīku*, *ḥurnīku* – Arb. *γurnīq*- ‘crane’ (SED II No. 91, Kogan 2001, 281), *ullu*, *ḥullu* – Arb. *γull*- ‘(neck) ring’ (AHw. 354, 1410, Lane 2278, Kogan 2001, 281–282), *aru*, *eru*, *ḥaru* ‘leaf’ – Arb. *γār*- ‘leaf of grapevine’ (AHw. 71, Lane 2308, Kogan 2001, 282), *uzālu*, *ḥuzālu* – Arb. *γazāl*- ‘(young of) gazelle’ (SED II No. 92; Westenholz 1978, 162; Kogan 2001, 282), *aruppu*, *uruppu*, *ḥuruppu* ‘neck, hump’ – Arb. *γārib*-, Mhr. *γōrəb* ‘camel’s back and neck’ (SED I No. 107; SED II p. 340; Weszeli 1999; Steiner 1982a, 13; Kogan 2001, 267–268).

PS **γ* can also be reflected as ‘strong aleph’ (cf. 1.5.9.4): *bu”û* – Arb. *bȳy* ‘to search’ (AHw. 145, Lane 231, Rössler 1959, 131, Kogan 2001, 275), *peršā”u* – Arb. *buryūt*- ‘flea’ (SED II No. 185; Rössler 1959, 131; Kogan 2001, 275), *ru”tu* ‘spittle, mucus, sap’ – Arb. *ruγwat*- ‘froth’ (SED I No. 229; Westenholz 1978, 162; Kogan 2001, 276), *lu”u* ‘throat’ – Hbr. *lōa’* ‘gullet’, Syr. *lō’ā* ‘jaw’, Arb. *luγn*- ‘flesh under the ears and jaws’, *luγ-at*- ‘language’ (WKAS L 902; Kogan 2001, 276–278; SED I Nos. 176, 177; cf. Nöldeke 1910, 161–162; contrast Testen 2001), *per’u* ‘shoot’ – Mhr. *fōrəγ* ‘to grow up’, *fātrəγ* ‘to bloom’, Syr. *per’ā* ‘shoot’ (AHw. 856, ML 98, LSyr. 603, Kogan 2007, 272), *ša’āru* ‘to win’ – Arb. *tȳr* ‘to break’ (AHw. 1118, Lane 338, Kogan 2002, 315–316).

This evidence suggests that **γ* in Akkadian behaves differently from other PS gutturals, notably from **ʕ* (Moscati 1964, 39; Westenholz 1978, 162; Kogan 2001, 292–293; Keetman 2004, 7–8; Kouwenberg 2006, 152; *contra* Steiner 2005, 231). Many details remain, however, obscure. Are we faced with different renderings of a still-existing phoneme (Westenholz 1978, 162) or with multiple reflexes of a lost one? The former solution appears more likely: Ø-reflexes are more common in later periods, which suggests a gradual weakening and disappearance of a once-existing separate phoneme (Kogan 2001, 287–290).

1.5.9.4. The ‘strong aleph’ in Akkadian

From MB on, the Akkadian syllabary employs a special ’-sign for the unexpectedly preserved glottal stop (von Soden/Röllig 1991, 45–56). In earlier periods, ḤV signs or ‘broken spellings’ were used in such cases (GAG § 23e, f): OB *im-šu-ḥulim-ta-aš-ú* vs.

SB *i-maš-ša-ʾ-ú* < *mašāʾu* ‘to plunder’ (CAD M₁ 360–362). The etymological background of the ‘strong aleph’ remains to be investigated. PS **γ* seems to be one of its major sources (Kouwenberg 2006, 152; 2010, 520–525), but is certainly not the only one (Westenholz 1978, 162), cf. *daʾāmu* – Arb. *dhm* ‘to be dark’ (AHw. 146, Lane 925), *laʾbu* ‘fever’ – Arb. *lahab-* ‘flame’ (AHw. 526, Lane 2675), *raʾābu* – Arb. *rhb* ‘to tremble, to fear’ (AHw. 932, Lane 1167); *daʾāpu* – Hbr. *dhp* ‘to push’ (AHw. 146, HALOT 219); *naʾāru* – Arb. *nʿr* ‘to roar, to shout’ (AHw. 694, Lane 2815), *saʾālu* – Arb. *sʿl* ‘to cough’ (SED I No. 61_v). Regrettably, many of the pertinent lexemes are etymologically obscure, like *eʾēlu* ‘to bind’, *mašāʾu* ‘to plunder’, *naʾādu* ‘to care’ or *naʾarruru* ‘to come to help’ (AHw. 189, 624, 692, 694).

1.5.9.5. Proto-Semitic gutturals in Ebla, Sargonic Akkadian and Old Assyrian

The system of correspondences provided above is best applicable to OB and SB. What follows is an outline of the specific features of PS gutturals in Ebla, Sargonic and OA.

1.5.9.5.1. Proto-Semitic gutturals in Ebla and Sargonic Akkadian

In Ebla, the sign É (ʾà) is used for **ḥa* and **ha* (Krebernik 1985, 58; 1982, 220–221, Conti 1990, 16–18): ʾà-*da-ru*₁₂ = Sum. É.TUR ‘room’ (VE 337, Krebernik 1983, 14) < **ḥadr-* (Ugr. *ḥdr*, DUL 355), ʾa-ʾà-*núm* = Sum. ŠE.ÀR.ÀR ‘to grind’ (VE 656, Krebernik 1983, 25) < **ṭhn* (Ugr. *ṭhn*, DUL 888), ṭi-ʾà-*mu* = Sum. ŠÀ.GI₄ ‘spleen’ < **ṭilḥām-* (SED I No. 278, SED II p. 344); ʾa-*ri-tum* = Sum. ŠÀ×MUNUS ‘pregnant’ (VE 594) < **hry* (Krebernik 1983, 286, SED I No. 20_v), ba-ʾà-*núm* = Sum. ŠU.DAGAL.GAL ‘finger’ < **bahān-* (Krebernik 1983, 18, SED I No. 34), ʾa-*la-GŪM* = Sum. DUDU ‘to go’ (VE 1000, Krebernik 1983, 35) < **hlk* (Ugr. *hlk*, DUL 337). The same practice is attested in Sargonic (Krebernik 1985, 57; Hasselbach 2005, 78–81, 125–135): ʾà-*ru-uš* ‘cultivate’ (Gir 19:4, 15), ʾa-*ra-sē* ‘cultivators’ (Di 10:14) < **ḥrt* (Ugr. *ḥrt*, DUL 371), tá-*la-ʾa-mu* ‘you will eat’ (Ad 12:13) < **lḥm* (Ugr. *lḥm*, DUL 495); ʾà-*wa-tim* ‘word’ (Di 10:12) < **hawat-* (Ugr. *hwt*, DUL 349). Since **ḥa* and **ha* have different reflexes in later Akkadian (*e* vs. *a*), **ḥ* and **h* must have been separate phonemes in Ebla and Sargonic (Westenholz 1978, 161–162). In Sargonic, note furthermore the use of Á for **ha* (Hasselbach 2005, 79): á-*ni* ‘behold’ (Um 3:17) < **hannay* (Ugr. *hn*, DUL 342), á-*lí-ik* ‘going’ (RIME 2.1.2.4 Caption 2’ 2) < **hlk*, á-*ra-ab-šu-nu* ‘their fugitives’ (RIME 2.1.2.4:25, Westenholz 1996, 120) < **hrb* (Arb. *hrb*, Lane 2889).

In Ebla, the signs I and U₉ render **ḥi* / **hi* and **ḥu* / **hu* respectively (Krebernik 1983, 219–221, Conti 1990, 16–18): ká-*ma-u₉* = Sum. MA₈ ‘to grind’ (VE 169, Krebernik 1983, 6) < **kḥḥ* (Ugr. *kḥḥ*, DUL 702), tal-*tá-i-bù* = Sum. NĪ.KAR.KAR ‘to drag’ (VE 74, Conti 1990, 74) < PS **šhb* (Arb. *shb*, Lane 1314). The same signs render **yi* and **yu* (Conti 1990, 19), but neither **i* / **i* nor **u* / **u*.

In both Ebla (Krebernik 1983, 209) and Sargonic (Westenholz 1978, 162, Sommerfeld 2003, 412–413), MÁ is used for **maʾ* / **maʿ*: má-*ma-du* = Sum. GIŠ.AD.ÚS ‘support’ (Conti 1990, 140) < **md* (Ugr. ‘*md*’, DUL 163–164); ù-*má* ‘I swear’ (Gir 19:29) < **wmʾ* (Arb. *wmʾ* ‘to make a sign’, Lane 2968), aš-*má-ma* ‘I heard’ (Gir 37:3) < **šmʾ*. Similarly, SÁ renders **šaʾ* and **šaʿ* (Sommerfeld 2003, 413), but this usage is not sys-

tematic: *sá-ul-tum* = Sum. AL.ËN.TAR (VE 987), but *sa-il-tum* = Sum. EN.LI (VE 90), both < *šʾl ‘to ask’ (Krebernik 1983, 34, 36); *u-sá-rí-ib* (RIME 2.1.4.28:31), but *u-sa-rí-ib* (RIME 2.1.4.9:18) ‘he brought’ < *ʿrb; *u-sá-ḫi-šu-ni* ‘he made them take’ (RIME 2.1.1.1:101) < *ḫd, but also *u-sá-dì-in* ‘he caused to give’ (Gir 17:6) < *ndn. Since *aʾ and *aʿ have different reflexes in later Akkadian (*ā* vs. *ē*), *ʾ and *ʿ must have been opposed to each other in Ebla and Sargonic (Westenholz 1978, 161–162).

The preservation of gutturals in Sargonic is not uniform. The complex picture of their occasional loss and the emergence of the *e*-coloring is analyzed in Hasselbach (2005, 73–85, 125–135). For comparable phenomena in Ebla cf. Conti (1990, 28–34).

PS *γ is spelled with HV signs in Ebla and Sargonic: *ḫa-rí-bù* = UGA.MUŠEN ‘crow’ (VE 295) < *γārib- (Krebernik 1983, 13), *ḫu-lu*, *ḫu-li* ‘yoke’ < *γull- (Pasquali 1995); *ša-ḫa-ar-tim*, *ša-aḫ-ra* ‘small’ (PBS 9 20:4, Di 4:10) < *šyr, *ru-úḫ-ti* ‘sap’ < *ruḡw-at- (MAD 5 8:12), *ḫu-ʾulʾ-lum* ‘ring’ (Tutub 47 I 1) < *γull-. Variant spellings with GV (= [kv], Kogan 2001, 276, 285–286) include *GA-rí-bù* ‘crow’ (VE 295) and *ru-GA-tim* ‘spittle’ (MAD 5 8:12). Sporadic QV-spellings for *γ-lexemes are known from later periods as well (Deller 1987, 231; Kogan 2001, 285–286): *ḫullu* ‘ring’ (AHw. 926, Stol 2000, 628), *kāribu* ‘crow’ (AHw. 903, Wasserman 1999, 345–347), *ḫalmu* ‘small’ < PS *γalm- (AHw. 895, DUL 319, Lane 2286).

1.5.9.5.2. Proto-Semitic gutturals in Old Assyrian

As indicated by ‘broken spellings’, PS *ʾ, *h, *ʿ and *ḫ are not reduced to Ø in Old Assyrian (Hecker 1968, 161): OA *malāʾum* ‘to be full’ = OB *malūm* < *mlʾ, OA *patāʾum* ‘to open’ = OB *petūm* < *pth, OA *šamāʾum* = OB *šemūm* < *šmʿ. Do such spellings reflect a merger of all gutturals into glottal stop? As shown in Kouwenberg (2006, 161–176), the reflexes of *ʾ and *ʿ do not behave in the same way as those of *h and *ḫ. In the former case, post-consonantal ‘broken spellings’ are normal (*ki-ilš-a* ‘detain!’, *šī-im-a-ni* ‘listen to me!’, *im-i-id* ‘it became numerous’); in the latter case, ‘glide spellings’ often appear instead (*li-kī-a* ‘take!’, *pī-tī-a* ‘open!’), or the guttural is not reflected at all (*li-tī-na* ‘let them grind’). In Kouwenberg’s opinion, *ʾ and *ʿ have merged into ʾ, whereas *h and *ḫ are either lost or shifted to y. In both cases, *e*-coloring triggered by *ʿ and *ḫ must have preceded the merger: *tab-e-lu* [tabʾelu] ‘you disposed of’ < *tabʿelu < *tabʾalu, *tē-i-tim* [tē(y)ittim] ‘female grinder’ < *tēḫittim < *tāḫittim.

Unlike OB, *e*-coloring in OA applies to the combinations *ḫi and *i (Hecker 1968, 26): *emārum* ‘donkey’ < *ḫimār-, *ešum* ‘wood’ < *iṣ- (cf. OB *imērum*, *išum*).

1.5.10. Proto-Semitic gutturals in North-West Semitic

In the Phoenician alphabet, *ḫ and *γ are rendered by the same graphemes as *h and *ʿ: *ḫmš* ‘five’ < *ḫamiš-, *šʿr* ‘small’ < *šyr (DWNSI 385, 971). If the alphabet was created to render adequately the Phoenician consonantal inventory (cf. 1.5.2.6.), *ḫ and *γ must have shifted to *h and *ʿ in that language (and in its forerunner in the ‘short’ Ugaritic alphabet; Dietrich/Loretz 1988, 299–300; Tropper 1998; Steiner 2005, 230–231, 259–261). But this need not be true for other NWS idioms using the Phoenician

alphabet: in these languages \aleph and \beth may have been polyphonic and render both uvulars and pharyngeals, still unmerged. It seems that this was indeed the case in most of early Aramaic and Canaanite.

- (a) In the New Kingdom Egyptian transcriptions, $*h$, $*\bar{h}$, and $*^c$ are rendered by the corresponding Egyptian graphemes, whereas for $*\gamma$ Egyptian k and g are used (Moscati 1954a, 57–58; 1964, 40; Sivan/Cochavi-Rainey 1992, 11–13; Hoch 1994, 411–414):

man=ḥ-ta ‘gift, tribute’ – Arb. *minḥat-*, Hbr. *minḥā* (Lane 2737, HALOT 601, Hoch 1994, 128), *mu₂=ra=ḥ=mu* ‘salt workers’ – Arb. *milḥ-*, Hbr. *mālah* ‘salt’ (Lane 2732, HALOT 588, Hoch 1994, 140), *ḥu₄=ma=da* ‘vinegar’ – Ugr. *ḥmš*, Hbr. *ḥōmāš* (DUL 364, HALOT 329, Hoch 1994, 228);

n=ḥ-z-r ‘wady’ – Ugr. *nḥl*, Hbr. *naḥal* (DUL 629, HALOT 686, Hoch 1994, 193), *ḥa-z-r=ba* ‘desert’ – Ugr. *ḥrb*, Hbr. *ḥrb* (DUL 403, HALOT 349, Hoch 1994, 249), *ḥi=di₄=ru₂=ta* ‘sow’ – Arb. *ḥinzīr-*, Hbr. *ḥāzīr* (Lane 732, HALOT 302, Hoch 1994, 254);

‘a=ma=di ‘to stand’ – Arb. *‘md*, Hbr. *‘md* (Lane 2151, HALOT 840, Hoch 1994, 70), *‘a=ga=ra=ta* ‘wagon’ – Arb. *‘aḡalat-*, Hbr. *‘āḡālā* (Lane 1965, HALOT 785, Hoch 1994, 83), *‘u=di₄=r* ‘helper’ (Hoch 1994, 88, cf. Rainey 1998, 438–439) – Ugr. *‘dr*, Sab. *‘dr*, Hbr. *‘ōzēr* (DUL 153, SD 13, HALOT 810);

ḡu₄=r=na=ta ‘foreskin’ – Arb. *ḡurlat-*, Hbr. *‘orlā* (SED I No. 108, Hoch 1994, 302), *da=b=k=b=k*, *da=ba₂=ga=ya*, *da=b=ga=ba₃=ka* ‘soaking’ – Arb. *šby*, Hbr. *šb^c* (Lane 1647, HALOT 998, Hoch 1994, 383), *ma=ga=ra=ta*, *ma=k=ra=tu₂* ‘cave’ – Arb. *mayārat-*, Hbr. *mā‘ārā* (Lane 2307, HALOT 615, Hoch 1994, 172).

Exceptions are rare: *ša=‘a=ra*, *ša=r=‘a* ‘gate’ – Ugr. *tyr*, Hbr. *ša‘ar* (Hoch 1994, 273–274, rejected in Rainey 1998, 448–449, Quack 1996, 511), *ḥ-z-r=ya*, *ḥar=’* ‘excrement’ – Ugr. *ḥr’u*, Arb. *ḥar²*, Hbr. *ḥārā’īm* (Hoch 1994, 232–233, SED I No. 136).

- (b) In the Aramaic texts of Papyrus Amherst 63, $*\bar{h}$ and $*\gamma$ can each be rendered by either Eg. \bar{h} or \bar{h} (Steiner/Nims 1983, 263; 1984, 92–93; Kottsieper 2003, 90; Steiner 2005, 235–237):

yḥšsṛ ‘will (not) leave unfulfilled’ (11:15–16, DNWSI 1257) < $*\bar{h}sr$ (Syr. *ḥsr*, Ugr. *ḥsr*, Arb. *ḥsr*, LSyr. 248, DUL 410, Lane 736), *mḥr* ‘tomorrow’ (11:18, Steiner/Nims 1983, 268; Vleeming/Wesselius 1985, 59) < $*maḥar-$ (Syr. *mḥār*, Sab. *mḥr*, LSyr. 381, SD 84), *ḥmr* ‘wine’ (17:16, DNWSI 1257) < $*ḥamr-$ (Syr. *ḥamrā*, Ugr. *ḥmr*, Arb. *ḥamr-*, LSyr. 241, DUL 395, Lane 808), *yḥmḥ* ‘he shall smite’ (5:7, DNWSI 1259) < $*mḥṣ$ (Syr. *mḥā*, Sab. *mḥṣ*, LSyr. 380, SD 84);

ḥrmṣy ‘lads’ (10:8, Vleeming / Wesselius 1990, 67) < $*\gamma al m-$ (Syr. *‘laymā*, Ugr. *ḡlm*, Arb. *ḡulām-*, LSyr. 528, DUL 319, Lane 2286), *sḥyrn* ‘small’ (19:11, 21:2, DNWSI 1256) < $*šyr / *zyr$ (Syr. *z‘ōrā*, Ugr. *šyr*, Arb. *šayīr-*, LSyr. 202, DUL 780, Lane 1692), *hnḥṛw* ‘they brought’ (18:2, DNWSI 1263) < $*\gamma ll$ (Syr. *‘al*, Arb. *ḡll*, LSyr. 524, Lane 2277).

Conversely, PS $*h$ and $*^c$ are rendered by Eg. \bar{h} and c respectively:

bḥt ‘under’ (6:8, DNWSI 1266) < $*taḥt-$ (Syr. *ḥet*, Arb. *taḥta*, LSyr. 821, Lane 298), *nḥṣṣn* ‘bronze’ (17:11, DNWSI 1260) < $*nuḥāš-$ (Syr. *nḥāšā*, Arb. *nuḥās-*, LSyr. 424, Lane 2775), *rḥm-h* ‘its bread’ (17:15, DNWSI 1259) < $*laḥm-$ (Syr. *laḥmā*, Ugr. *lḥm*, LSyr. 364, DUL 496);

bʿr ‘lord’ (11:18, Steiner / Nims 1983, 269) < **baʿl*- (Syr. *baʿlā*, Arb. *baʿl*-, LSyr. 83, Lane 228), *yṣṣʿbn* ‘may he sustain us’ (11:14, DNWSI 1621) < **sʿd* (JPA *sʿd*, Arb. *sʿd*, DJPA 384, Lane 1360), *ʿpr* ‘earth’ (17:11, DNWSI 1262) < **apar*- (Syr. *ʿaprā*, Arb. *ʿafar*-, LSyr. 539, Lane 2090).

- (c) In Hebrew personal names transcribed by LXX, **h* and **ʿ* appear as Ø, whereas **h* and **γ* are rendered by χ and γ respectively (GVG 125; Wevers 1970; Blau 1982; Steiner 2005; *contra* Garbini 1960, 51–53; Moscati 1954, 58–59; 1964, 40): *ʾāhīʾāzār* – αχιεζεο (Ugr. *ʾah* ‘brother’, DUL 34), *rāhēl* – ραχηλ (Arb. *raḥīl*- ‘ewe’, SED II No. 188), *ʾāhāz* – αχαζ (Ugr. *ʾhd* ‘to take’, DUL 36); *lāhām* – βηθλεεμ (Ugr. *lhm*, DUL 496), *rāhōbōt* – ρωβως (Ugr. *rhb* ‘to be wide’, DUL 736), *hāmōr* – εμμορ (Ugr. *hmr* ‘donkey’, SED II No. 98); *ʾazzā* – γαζα ‘Gaza’ (Arb. *yazzat*-, LA 5 452), *mʾārōt* – μαγαρωθ (Arb. *mayārat*- ‘cave’), *ʾäsyōn gäbār* – γασιωνωαβεο (Arb. *yaḍaʿa* ‘a shrub’, Lane 2269); *yšmāʿēl* – ισμαηλ (Ugr. *šmʿ* ‘to hear’, DUL 823), *baʿal* – βααλ, βεελ (Ugr. *bʿl* ‘lord’, DUL 206), *tōlāʿ* – θωλα (Jib. *tʾbālāt* ‘worm’, SED II No. 230).

The evidence for **γ* = γ is rather restricted (cf. Dolgopolsky 1999, 65–69, 154), and most of the examples are etymologically opaque toponyms. Circular reasoning is, therefore, to be thoroughly avoided. Thus, *ʾāmōrā* – γομορρα and *šibʿōn* – σεβεγων are confidently derived from **γmr* and **šby* in Blau (1982, 34) and Wevers (1970, 101), but according to HALOT 849 the former term has no certain etymology, whereas for the latter only **šbʿ* is postulated *ibid.* 999. Last but not least, a few transparent exceptions (like *ʾōrēb* – ωρηβ < **γārib*- ‘crow’, Blau 1982, 18) are not to be neglected.

- (d) The velar spirant *x* appears as either *h* or *k* in Iranian loanwords in Aramaic (Telegdi 1935, 197–202; Ciancaglini 2008, 80):

EArm. *hptḥpt* ‘guardian of the seventh part of the kingdom’ < OP **haftaxvapātā* (DNWSI 292, Muraoka/Porten 2003, 343), BArm. *ʾāhašdarpan* ‘satrap’ < OP *xšaθrapāvan*- (HALOT 1811), Syr. *ḥawdā* ‘helmet’ < OP **xauda*- (LSyr. 219, Ciancaglini 2008, 179), Syr. *naḥšīrā* ‘hunting’ < OP **naxačarya*- (LSyr. 424, Ciancaglini 2008, 213);

JBA *taktākā* ‘chair’ < MP *taxtag* (DJBA 1207, Telegdi 1935, 202), JBA *kar* ‘donkey’ < MP *xar* (DJBA 598, Telegdi 1935, 202), JBA *karbūz* ‘oryx’ < MP *xarbutz* (DJBA 598, Telegdi 1935, 202), JBA *ʾakwānā* < MP *xwān* (DJBA 129, Telegdi 1935, 202), Syr. *pdkšr* ‘governor’ < MP *padixšar* (Ciancaglini 2008, 228).

According to Telegdi and Ciancaglini, *h*-forms belong to an earlier stratum of Iranian loanwords, whereas *k*-forms characterize a later stratum (from ca. 200 C.E. on). Telegdi’s conclusion (1935, 198) is that *h*-renderings were possible as long as 𐤠 was polyphonic and could be used for both *h* and *ḥ* (the latter more or less identical with Iranian *x*). When *ḥ* shifted to *h*, 𐤠 was no longer suitable to render *x*, so a new orthography with 𐤡 had to be introduced.

According to an alternative explanation, this orthographic shift is due to the emergence of [x] as an allophone of *k* (cf. Telegdi 1935, 200–202). The dilemma, closely connected with the controversial dating of the spirantization of *bgdkt* (Beyer 1984, 126–128; Steiner 2005, 257–259), is difficult to solve, as one can see from different approaches to a similar dichotomy in the Phoenician spellings of Egyptian *ḥ* and *ḥ*, for which both 𐤠 and 𐤡 can be used. According to Steiner (2005, 230), the use of 𐤡 is due to the loss of *ḥ* in Phoenician, whereas for Muchiki (1994),

this practice reflects spirantization $k > x$. It is nevertheless remarkable that most Phoenician k -spellings are postvocalic, which is not the case in Aramaic, where k -spellings do not seem to be positionally restricted.

1.5.11. Proto-Semitic gutturals in Ethiopian-Semitic

1.5.11.1. *ʾ, *ʿ, *h, *ħ and *ḥ in Geez

The Ethiopic alphabet has special signs for five out of six PS gutturals ($\mathbf{h} = *ʾ$, $\mathbf{o} = *ʿ$, $\mathbf{u} = *h$, $\mathbf{a} = *ħ$, $\mathbf{r} = *ḥ$), which suggests their separate existence in early Geez. In late epigraphy, confusion between $*h$ and $*ḥ$ is sporadically attested (Littmann 1913, 82), but other guttural oppositions are fairly stable. The interchange of $*ʾ$ with $*ʿ$ and $*h$ with $*ħ$ and $*ḥ$, common in the manuscript tradition, cannot reflect the situation in late spoken Geez, but must be due to the influence of the scribes' native language(s), predominantly Amharic (Podolsky 1991, 24).

1.5.11.2. *ʾ, *ʿ, *h, *ħ and *ḥ in modern Ethiopian Semitic

In Tigré and Tigrinya, $*ʾ$, $*ʿ$ and $*h$ are preserved, whereas $*ħ$ and $*ḥ$ merge into $ħ$: Gez. *warħ*, Tgr. *wärəħ*, Tna. *wärhi* 'month, moon' (CDG 617, WTS 433, TED 1723), Gez. *hošā*, Tgr. *huša*, Tna. *hoša* 'sand, gravel' (CDG 266, WTS 101, TED 300), Gez. *ḥamməstu*, Tgr. *ḥaməs*, Tna. *ḥammuštä* 'five' (CDG 262, WTS 61, TED 174).

In Southern ES, $*ʾ$, $*ʿ$ are usually lost, although preservation of $*ʿ$ has been reported for the T'ollaha variety of Argobba (Wetter 2006, 900–901): 'of 'bird', *sämmäʿ* 'he heard', *säwʿa* '70' (for an apparently non-etymological $ʿ < *ʾ$ v. 'assär 'he tied', cf. Gez. 'asara, CDG 44). In Harari, $*ʾ$, $*ʿ$ may shift to $ħ$ (SED I pp. LXXXVII–LXXXVIII, SED II p. LIX): *ḥəta* 'die' – Gez. *əṣā* (SED I No. 24), *ḥənḵəfti* 'obstacle' – Gez. *əḵəft* (EDH 85, CDG 67), *anḵurāraḥti* 'frog' – Tgr. 'anḵorə' (SED II No. 137), *ḥiffiñ* 'vipper' – Gez. 'af'ot (SED II No. 10), *ḥarbāñño* 'hare' – Gez. 'arnab (SED II No. 14), *ḥarat* 'four' – Gez. 'arba'tu (EDH 83, CDG 46).

PS $*h$, $*ħ$, $*ḥ$ merged into h in early Amharic, which subsequently became \emptyset in the modern language (Ullendorff 1955, 38–45; Podolsky 1991, 27–29). In Harari, these phonemes merge into $ħ$ (EDH 7): *ħal* 'there is' – Gez. *hallo*, *ḥaməd* 'ashes' – Gez. *ḥamad*, *ḥarās* 'woman in childbed' – Gez. *ḥarās* (EDH 82, 83, 87). The same seems to be true of the T'ollaha variety of Argobba (Wetter 2006, 900–901; cf. Leslau 1997, 3). For $h < *h$, $*ħ$, $*ḥ$ in Gurage v. CDG LXIV.

New light on the early history of PS gutturals in Southern Ethiopian Semitic comes from the recently discovered XIVth century Arabic-Ethiopian glossary (Varisco / Smith 1998, 217–219). In this source, South Ethiopian gutturals are generally rendered by etymologically correct Arabic letters: 'nst 'woman' = Gez. 'anəst, Amh. *anəst*, 'iṣ 'hand' = Gez. 'əd, Amh. *əṣṣ*, 'iṣba't 'finger' = Gez. 'aṣba't, Amh. *ṭat*, ba'ar 'ox' = Gez. *bə'ər*, Amh. *bäre*; lahm 'cow' = Gez. *lahm*, Amh. *lam*, *nhūṣ* 'sesame' = Tgr. *nəhig*, Amh. *nug*; ḥanbart 'navel' = Gez. *ḥənbərt*, Amh. *ənəbət*, warəḥ 'moon' = Tgr. *warəḥ*, Amh. *wär*. Exceptions to this rule are infrequent: *ḥaṣṣ* 'new' = Gez. *ḥaddis*, Amh. *addis* or 'abd 'mad' = Gez. 'abd, Amh. *abd*.

1.5.11.3. Proto-Semitic * γ in Ethiopian Semitic

PS * γ is traditionally thought to yield ʿ in Geez (GVG 123, Moscati 1964, 39), but according to Voigt (1989, 640–641; 1994a, 103) the only example typically adduced for this correspondence – Gez. *ʿarba* vs. Arb. *ḡrb* ‘to set (sun)’ (CDG 69, Lane 2240) – is unreliable since related forms with ʿ are known from Sabaic and Ugaritic (SD 18, DUL 179), where * γ is normally preserved. In Voigt’s opinion, the true Geez reflex of * γ is * \hbar , attested in *rəḥba* – Ugr. *rḡb*, Arb. *rḡb* ‘to be hungry’ and *šəḥḥa* – Arb. *šbḡ*, Mhr. *šəbūḡ* ‘to dye’. Weninger (2002) reestablishes the traditional concept and considers *rəḥba* and *šəḥḥa* to be sporadic exceptions due to the influence of *b*.

A complete etymological investigation of Geez, Tigre and Tigrinya roots with * γ is Kogan 2005c, where reliable or promising examples of both * γ > ʿ and * γ > \hbar are collected.

The former group (33 examples) can be illustrated by Gez. *ʿabya* ‘to be big’ – Ugr. *ḡbn* ‘opulence’, Arb. *ʿaybā*, *ḡabiyy-* ‘dense’, *ḡabā-* ‘denseness’ (CDG 55, DUL 316, Lane 2228, Dozy 2 201), Gez. *ʿabā*, Tna. *ʿiba* ‘dung’ – Mhr. *ḡəb* ‘to defecate’ (SED I No. 103), Gez. *ʿašša* ‘to deprive’ – Arb. *ḡdḡ* ‘to diminish’ (CDG 58, Lane 2264), Tna. *ʿafaf* – Arb. *ḡafa* ‘chaff’ (TED 1952, Lane 2276), Tna. *ʿaffānā* – Mhr. *ḡátḡān* ‘to cover’ (TED 1950, ML 134), Gez. *ʿallala*, Tna. *ʿallālā* ‘to dye’ – Ugr. *ḡll*, Arb. *ḡll* ‘to insert, to plunge’ (CDG 60, TED 1823, DUL 319, Lane 2277), Tgr. *ʿlaf* ‘cover for a bowl’ – Ugr. *ḡlf* ‘sheath’, Arb. *ḡlf* ‘to hide’ (WTS 454, DUL 321, Lane 2283), Gez. *ʿammala*, Tna. *ʿammälā* – Arb. *ḡml* ‘to get mouldy’ (CDG 63, TED 1831, Lane 2297), Gez. *ʿərḡ* ‘spoon’ – Arb. *ḡrf*, Mhr. *ḡərōḡ* ‘to fetch water’ (CDG 70, Lane 2249, ML 141), Tgr. *ʿərāt* – Arb. *ḡurraṭ-* ‘white spot’ (WTS 458, Lane 2237), Tgr. *ʿars* ‘leather’, Tna. *ʿarsi* ‘skin from a calf’s head’ – Arb. *ḡirs-* ‘fetal membrane’ (WTS 458, TED 1844, Lane 2247), Tna. *tāʿazazārā* – Arb. *ḡzr* ‘to be abundant’ (TED 1909, Lane 2254), Tgr. *māʿasā* ‘to tan’ – Arb. *mḡl* (TWS 136, Lane 2725), Gez. *saʿara* ‘to destroy, violate’ – Arb. *ṡyr* ‘to break’ (CDG 481, Lane 338), Gez. *tāʿwā* – Arb. *ṡayḡ-*, *ṡayḡā* ‘calf’ (SED II No. 234), Gez. *tazāwāʿa* ‘to talk’, Tgr. *zuʿ* ‘speech’ – Ugr. *zy* ‘to low, bellow’, Arb. *zyw* ‘to shout’ (CDG 645, WTS 503, DUL 1000, TA 10 193).

The latter group (19 examples) includes such terms as Gez. *balḡa* ‘to be sharp’, *balḡ* ‘sharp edge’, *balliḡa kāl* ‘eloquent’ – Arb. *bḡy* ‘to reach the point’, *mablay-* ‘extremity’, *balīḡ-* ‘sharp in tongue’ (CDG 97, Lane 250), Gez. *dəməḡ* ‘head, skull’ – Arb. *dimāḡ-* ‘brain’ (SED I No. 52), Tgr. *ḡadār* – Arb. *ḡadar-* ‘virgin soil’ (WTS 95, Lane 2232), Gez. *rəḡba* – Ugr. *rḡb*, Arb. *rḡb* ‘to be hungry’ (SED I No. 59_v), Gez. *sāḡsəḡa* – Arb. *syṡḡ*, *šḡṡḡ* ‘to move backward and forward’ (CDG 494, LA 8 516, 518), Gez. *šəḡḡa* – Arb. *šbḡ*, Mhr. *šəbūḡ* ‘to dye’ (CDG 546, Lane 1647, ML 339), Gez. *wəḡda* ‘to be small, little, inferior’ – Arb. *wḡd* ‘to be weak, stupid’ (CDG 611, Lane 2954), Gez. *wəḡḡa* – Arb. *ḡwt*, Mhr. *ḡəṡ* ‘to gulp down’ (CDG 611, Lane 2309, ML 144).

There seems to be a distributional rule between the two reflexes (Dolgopolsky 1999, 19): ca. 76% of ʿ-reflexes are word-initial, whereas ca. 65% of \hbar -reflexes are word-middle (cf. 1.5.9.3. for a similar distribution in Akkadian).

The joint evidence of Ugaritic, Arabic, ESA and MSA (where * γ is explicitly preserved) as well as Akkadian, ES, Hebrew and Aramaic (where it displays traces which are different from those of *) assures the independent status of * γ in PS. Its allegedly secondary emergence in individual Semitic languages (Růžicka 1954; Petráček 1953; 1964; 1979; Garbini 1984, 103) is not to be accepted (Cantineau 1951–1952, 88; Moscati

1954, 40; 1964, 39; Wevers 1970; Blau 1982, 6; Weninger 2002, 289). The high proportion of PS lexemes combining **γ* and **r* may still suggest a conditioned split from **ʕ* at some stage of the development of PS (cf. Kogan 2001, 293; Steiner 2005, 231). Such a hypothesis, however, does not belong to the phonological reconstruction of Proto-Semitic as such, but only to the internal reconstruction of the proto-language.

1.5.12. Proto-Semitic uvulars in Soqotri

The shifts **γ > ʕ* and **ħ > ħ* took place in the Soqotri varieties described by early observers and codified by LS. In other dialects the uvulars are present (Naumkin / Porkhomovsky 1981, 6–7; Lonnet / Simeone-Senelle 1997, 348): *ħtē* ‘night’ (Simeone-Senelle 1996, 312) – *hte* (LS 194), *γāža* ‘woman’ (Naumkin / Porkhomovsky 1981, 7) – *ʕže* (LS 307). According to Naumkin and Porkhomovsky, this feature is probably imported from continental MSA and may not represent any genuine phonological archaism.

2. Vocalism

2.1. Traditional reconstruction

The PS vocalic inventory consists of six members (**a*, **ā*, **i*, **ī*, **u*, **ū*), all of them preserved in Akkadian, Arabic and Ugaritic (Moscatti 1964, 46–47).

2.1.1. Akkadian

In Akkadian this inventory was expanded with *e* and *ē*, which emerged out of the influence of the gutturals (1.5.9), contraction of **ay* (in Sargonic and Assyrian) and Sumerian loanwords. Synchronically, these vowels are phonemic (with Gelb 1955, 97; Diakonoff 1991–1992, 123; Huehnergard 1994; Stempel 1999, 35 and *contra* GAG § 8b), as shown by minimal pairs like *ešer* ‘ten’ (*e-še-er*, AHw. 253) vs. *išir* ‘a payment (st. const.)’ (*i-ši-ir*, CAD I 262) vs. *ašar* ‘where’ (*a-ša-ar*, CAD A₂ 413), *egrum* ‘twisted’ (*e-eg-ra-am*, CAD E 47) vs. *igrum* ‘wages’ (*i-gi-ir*, CAD I 44) vs. *agrum* ‘hireling’ (*ag-ra-am*, CAD A₁ 151); *šērum* ‘dawn’ (*še-e-ru-um*, CAD Š₂ 331) vs. *šīrum* ‘flesh’ (*ši-i-ru-um*, CAD Š₃ 113) vs. *šārum* ‘wind’ (*ša-ru-um*, CAD Š₃ 133); *šaḫēm* ‘to drink (gen.)’ (*ša-ḫē-e-em*, CAD Š₂ 27) vs. *šaḫī(m)* ‘high (gen.)’ (*ša-ḫī-i*, CAD Š₂ 17).

The extra-long vowels (*â*, *ê*, *î*, *û*) in Babylonian Akkadian go back to contracted triphthongs (**VwV*, **VyV*, **VHV*). At least word-finally, they are regularly spelled *plene* (*ša-mu-û* / *ša-me-e* ‘heaven’) and must have been opposed to ordinary long vowels by some phonemic feature, whether quantity or stress (Diakonoff 1991–1992, 98, 104, 110–111; Kogan 2004c, 379–380; Kogan/Loesov 2005, 744–747; Worthington 2010; *contra* Buccellati 1996, 21; Greenstein 1977, 81–87; 1984, 39–40; Izre’el/Cohen 2004, 5, 10–11, 31). The three-moraic status of these vowels is confirmed by the fact that C \bar{V} syllables are permitted in verse-final position in Akkadian metrics (Hecker 1974, 104; von Soden 1981, 172).

2.1.2. Canaanite

PS **ā* shifts to *ō* in Canaanite. Early manifestations of this phenomenon are found in Egyptian and cuneiform renderings of Canaanite words: *ʾa-n-ru₂na* (Hbr. *ʾallōn*) ‘oak’, *ʾu-dī₄-r* (Hbr. *ʾōzēr*) ‘helper’, *k₂-n-nu₂-ru₂* (Hbr. *kinnōr*) ‘lyre’, *mak₂-ma₂-ru₂-ta* (Hbr. **mikmārōt*) ‘nets’ (Hoch 1994, 423–424, 23, 88, 324, 168); *zu-ru-uh* (Hbr. *zərōa*) ‘forearm’ (EA 286:12), *ḥu-mi-tu* (Hbr. *ḥōmā*) ‘wall’ (EA 141:44), *ṣú-ki-ni* (Hbr. *sōkēn*) ‘official’ (EA 256:9), *a-nu-ki* (Hbr. *ʾānōkī*) ‘I’ (EA 287:66).

The shift is regular in Hebrew (*lāšōn* ‘tongue’ < **lašān-*, *ʾolām* ‘eternity’ < **ʾālam-*, *ḥāmōr* ‘donkey’ < **ḥimār-*) and Phoenician. For the latter, both *ō* and *ū* are found in Greek and Latin transcriptions (αδυν [ʾadūn] ‘lord’, sanuth [šanūt] ‘years’, salus [ša-lūš] ‘three’, con [kōn] ‘he was’, dobrim [dōbrīm] ‘they say’ (Friedrich/Röllig 1999, 41–43). If **ā* results from contraction, the shift may be blocked in Hebrew (*kām* ‘he stood’ < **kawama*, *bānā* ‘he built’ < **banaya*), but not in Phoenician (*ḥūrōm* ‘My-brother-is-high’ < **rayama*, con [kōn] ‘he was’ < **kawana*), *avo* [ḥawō] ‘he lived’ < **ḥawaya*, Friedrich / Röllig 1999, 42–43).

The ‘Canaanite shift’ is often thought to affect only stressed **ā* (GVG 142–143, Harris 1939, 43; Blau 1976, 35), but this is debatable (Birkeland 1940, 47–48; Dolgopolsky 1999, 141–142, 160).

Other diachronic developments in Hebrew and Phoenician vocalism are summarized in Friedrich–Röllig (1999, 38–47), Birkeland (1940), Cantineau (1950, 107–118), Blau (1976, 30–37) and Dolgopolsky (1999, 107–151).

2.1.3. Aramaic

A full account of the history of PS vocalism in Aramaic can be found in Beyer 1984, 77–147 (with additions in 1994, 37–56).

2.1.4. Ethiopian Semitic

PS long vowels **ā*, **ī* and **ū*, as well as the short **a*, are preserved in Geez, whereas **i* and **u* merge into *ə* (IPA [ɨ]): *ʾəzn* ‘ear’ < **ʾudn-*, *sənn* ‘tooth’ (SED I Nos. 4 and 249), which, in its turn, is scarcely opposed to Ø (cf. Podolsky 1991, 57–60). PS **aw* and **ay* often contract into *o* and *e* (Huehnergard 2005c, 30–35): *sor* ‘bull’ < **tawr-*, **arwe* ‘animal’ < **arway-* (SED II Nos. 241 and 17). In most of modern ES, this seven-member system is preserved, but the quantity opposition *a* : *ā* is transformed into a quality opposition *ä* (IPA [ə], [ɐ] or [ɛ]) : *a* (Correll 1984, Diem 1988). See further Ullendorff (1955, 158–188), Voigt (1983), Podolsky (1991, 56–77).

2.1.5. Modern South Arabian

Diachronic phonology of MSA has never been systematically investigated and, at present, little can be said about its relationship to the reconstructed PS system (for some provisional remarks v. Johnstone 1975a, 102–104).

2.2. Semitic vocalism: morphology vs. lexicon

Grammatical and lexical morphemes in Semitic differ with respect to the regularity of vocalic correspondences.

2.2.1. Grammatical morphemes

In grammatical morphemes, the reflexes of PS short vowels and the long **ā* are fairly regular throughout Semitic (Kogan 2005a, 132):

**a* – in the base of the prefix conjugation of the intensive stem (Akk. *u-parris*, Arb. *yu-qattil*, Hbr. *yə-qaṭṭēl*, Gez. *yə-kattəl*); in the adjectival patterns $C_1aC_2(C_2)VC_3$ - (Akk. *pars-*, Hbr. *kāṭVl* < **kaṭVl*-, Arb. *qaṭil*-, Gez. *kaṭṭil*); in the feminine suffix *-at-* (passim);

**i* – as the thematic vowel of derived stems (Akk. *u-parris*, Arb. *yu-qattil*, Hbr. *yə-qaṭṭēl* < **yu-kaṭṭil*, Gez. *yə-kattəl* < **yu-kattil*); in the active participle of the basic stem (Akk. *pāris-*, Arb. *qātil*-, Arm. *kāṭēl* < **kāṭil*-, Hbr. *qōṭēl* < **qāṭil*-, Tgr. *kaṭəl* < **kāṭil*-); in the genitive case marker *-i* (passim).

**u* – as the prefix vowel in the prefix conjugation of the intensive and causative stems (Akk. *u-parris*, Arb. *yu-qattil*, Hbr. *yə-qaṭṭēl* < **yu-kaṭṭil*, Gez. *yə-kattəl* < **yu-kattil*); in the infinitive patterns (Akk. *purrus-*, Hbr. *kaṭōl* < **kuṭul*, Arb. *taqattul*-, Gez. *kaṭtəlo* < **kattul*-); in the nominative case marker *-u* (passim).

**ā* – in the infinitive patterns (Akk. *parās-*, Arm. *kaṭṭālā*, Hbr. *kaṭōl* < **kaṭāl*, Arb. *ʾiqṭāl*-); in the active participle of the basic stem (Akk. *pāris-*, Arb. *qātil*-, Arm. *kāṭēl* < **kāṭil*-, Hbr. *qōṭēl* < **qāṭil*-, Tgr. *kaṭəl* < **kāṭil*-); in the nominal derivation suffix **-ān-* (passim).

As for the long vowels **ū* and **ī*, fully reliable PS reconstructions among the grammatical morphemes are difficult to find (cf. Kogan 2005a, 132).

2.2.2. Lexical morphemes

On the lexical level, PS vocalic reconstruction deals with primary nominal and verbal roots.

2.2.2.1. Nominal roots

A theoretical framework for PS reconstruction of primary nouns as consonantal-vocalic roots was laid down by Fronzaroli (1963; 1964, 11–12) and developed by Diakonoff (1970), Fox (1998; 2003, 61–87) and Kogan (2005a, 134–138). At present, ca. 120 primary nouns can be traced back to PS in full agreement with the rules of vocalic correspondences as outlined above. In most cases, short vowels are involved:

**dam-* ‘blood’ (SED I No. 50), **kapp-* ‘palm’ (SED I No. 148), **šab-* ‘seven’ (Fox 2003, 77), **ḏaḡan-* ‘beard’ (SED I No. 63), **raḡil-* ‘ewe’ (SED II No. 188), **kabkab-* ‘star’ (Fox 2003, 87);

**ʾil-* ‘god’, **iš-āt-* ‘fire’, **iṣ-* ‘tree’ (Fox 2003, 73), **šinn-* ‘tooth’ (SED I No. 249), **riʾm-* ‘aurochs’ (SED II No. 186), **kabid-* ‘liver’ (SED I No. 141);

**mut-* ‘man, husband’ (Fox 2003, 74), **muḥḥ-* ‘brain’ (SED I No. 187), **šurr-* ‘navel’ (SED I No. 254), **γull-* ‘yoke, ring’ (HALOT 827), **uḏn-* ‘ear’ (SED I No. 4), **gurn-* ‘threshing floor’ (Fronzaroli 1969, 26), **γurl-at-* ‘foreskin’ (SED I No. 108), **ḥupn-* ‘hollow of the hand’ (SED I No. 125), **mušy-at-* ‘evening’ (Fronzaroli 1965, 147).

Among the long vowels, only **ā* is in evidence, and even this is comparatively rare:

**atān-* ‘donkey mare’ (SED II No. 19), **šamāy-* ‘heaven’ (Fronzaroli 1965, 144), **ḥimār-* ‘donkey’ (SED II No. 98), **kišād-* ‘neck’ (SED I No. 147), **tihām-at-* ‘sea’ (Fox 2003, 85), **tamāniy-* ‘eight’ (Fox 2003, 87).

Reliable reconstructions of primary nouns with **ī* and **ū* are at best sporadic (cf. Kogan 2005a, 137).

2.2.2.2. Verbal roots

In the verbal domain, reconstruction of PS lexical vocalism is restricted to the thematic vowel of the short form of the prefix conjugation (–C₁C₂VC₃–), whose non-motivated nature was put forward as evidence by Fronzaroli (1963) and Kuryłowicz (1972, 34, 43), *contra* Diakonoff (1988, 47; 1991–1992, 65–66) and Fox (2003, 45). Comparison between the relevant forms in Akkadian and Arabic (the only Semitic languages where each of the three short vowels are preserved in this morphological position) carried out by Fronzaroli (1963), Aro (1964), Kuryłowicz (1972, 54–59) and Belova (1993) and summarized in Frolova 2003 and Kogan (2005a, 145–153) reveals for PS ca. 40 transitive *u*-verbs (**’kul-* ‘to eat’, **-ḏkur-* ‘to remember’, **-ḥnuḳ-* ‘to strangle’, **-ktum-* ‘to cover’, **-lkuṭ-* ‘to collect’, **-nkub-* ‘to perforate’, **-nṭur-* ‘to watch’, etc.) and 11 transitive *i*-verbs (**’sir-* ‘to shut in’, **-ḏib-* ‘to leave’, **-ḥpīr-* ‘to dig’, **-ḥrim-* ‘to cover’, **-kšīt-* ‘to cut’, **-ntip-* ‘to tear’, **-pkid-* ‘to care about’, **-pšid-* ‘to split’, **-ptil-* ‘to plait’, **-šriḳ-* ‘to steal’, **-šrim-* ‘to split’). No reliable reconstruction for intransitive verbs seems possible in view of the profound differences between Akkadian and WS in this segment of verbal morphology.

2.2.2.3. Unstable vocalic elements of nominal roots

PS primary nouns with regular reflexes throughout Semitic are by no means in the majority. More often, full regularity of the consonantal skeleton is in glaring contrast with a wide variety of unpredictable deviations in the vocalic domain. Such deviations can be conveniently classified into sporadic vocalic mutation and morphological re-building.

Sporadic mutation is postulated when disagreement in the vocalic structures of primary nouns is at least potentially attributable to phonological factors, such as influence of neighboring consonants (Kogan 2005a, 138–141). Quite often, such conditions are hard to detect: Akk. *išku*, Arb. *’iskat-* – Ugr. *’ušk* – Hbr. *’äšäk* (< **’ašk-*) ‘testicle’ (SED I No. 11), Akk. *uṣṣu* – Hbr. *ḥēš* (< **ḥitt-*) – Gez. *ḥašš* ‘arrow’ (Fox 2003, 78), Akk. *kalītu* – Hbr. *kilyā* – Arb. *kulyat-*, Gez. *k’wəlīt* ‘kidney’ (SED I No. 156), Akk. *šurru*, Hbr. *šōr* (< **ṣurr-*) – Arb. *ḏirr-* ‘flint’ (Fronzaroli 1968, 287), Arb. *ḥinṭat-*, Hbr. *ḥiṭṭā* – Akk. *uṭṭetu* ‘wheat, grain’ (Fox 2003, 80). In others cases, they are rather obvious, as it happens with the shift of **a* and **i* into **u* in the presence of labial consonants

(Fox 2003, 108–109; Huehnergard 2005c, 26–29; Kogan 2005a, 138–139): Hbr. *šēm* (< **šim*-) – Akk. *šumu* ‘name’ (Fox 2003, 73), Hbr. *’ēm* (< **’imm*-) – Akk. *ummu*, Arb. *’umm*- ‘mother’ (Fox 2003, 79), Akk. *matnu*, Arb. *matn*-, Gez. *matn* – Hbr. *mōtān* (< **mutn*-) ‘hip, sinew’ (SED I Nos. 191, 192), Akk. *emšu* (< **hamt*-) – Hbr. *hōmāš* (< **humt*-), Gez. *hamš* (< **humt*-) ‘lower belly’ (SED I No. 122). But in the latter case, too, the shift remains sporadic and unpredictable (Huehnergard 2005c, 28–29): in no Semitic language is there a phonological rule prescribing that every **a* and **i* would become *u* in the presence of *b*, *p* and *m* (contrast Stempel 1999, 36).

Morphological rebuilding is a complete structural replacement of the original morphological shape, which becomes impossible to retrieve (Fronzaroli 1964, 12; Fox 2003, 70; Kogan 2005a, 141–143): Akk. *ilku* – Hbr. *’ālūkā* – Arb. *’alakāt* ‘leech’ (SED II No. 32), Akk. *zubbū* – Hbr. *zabūb* – Arb. *ḍubāb*- – Syr. *debbābā* ‘fly’ (SED II No. 73), Hbr. *šā’ōrā* – Arb. *šā’ūr*- – Gez. *šā’r* ‘barley, straw’ (Fox 2003, 85), Akk. *imnu* (< **yamin*-) – Hbr. *yāmīn*- – Arb. *yamīn*-, *yaman*- ‘right hand’ (SED I No. 292), Akk. *lab’u* – Hbr. *lābī’* – Arb. *luba’at*-, *labu’at*- ‘lion(ess)’ (SED II No. 144).

2.2.2.4. Unstable vocalic elements of verbal roots

The vocalic elements of primary verbal roots are similarly unstable. Frolova (2003) and Kogan (2005a, 152–153) analyze 21 PS verbal roots with *-u-* in Akkadian vs. *-i-* (or vacillation between *-i-* and *-u-*) in Arabic (like **-prVs-* ‘to break’), as well as 17 verbal roots with *-u-* in Akkadian vs. *-i-* (or vacillation between *-u-* and *-i-*) in Arabic (like **-nkVp-* ‘to push, to gore’). In both groups verbs with labials as root consonants are prominent, and it is likely that the original **i* shifted to *u* under their influence. The matter is, however, by no means certain and alternative, purely morphological, explanations have also been proposed (Kuryłowicz 1972, 59).

2.2.3. Low functional load of lexical vocalism

The peculiar fate of lexical vocalism in Semitic is undoubtedly motivated by its low functional load (Kogan 2005a, 153–163; *contra* Lipiński 1997, 152): neither nominal, nor verbal roots were normally opposed by their vocalic elements in PS. Thus, contrasting pairs like **γarab-* ‘willow’ – **γārib-* ‘raven’ or **dar^c-* ‘seed’ – **dirā^c-* ‘elbow’ are difficult to find, and those which seem available are rarely fully satisfactory. The same applies, *mutatis mutandis*, to most of the attested Semitic languages as well.

2.3. Proto-Semitic vocalic reconstruction: non-traditional models

Numerous irregularities in the vocalic reflexes of PS primary nouns have brought about alternative models of PS vocalic reconstruction. Within these models, primary nouns are treated as a closed, highly archaic sub-system whose vocalic inventory may not coincide with the traditional six-member system.

2.3.1. Diakonoff's bivocalic reconstruction

Diakonoff's bivocalic reconstruction derives from three postulates about the vocalism of PS primary nouns (1970, 456; 1991–1992, 68–97): absence of long vowels; allophonic nature of **u*, which only appears in contact with labials and, more rarely, velars and glottal stop; high prominence of sonorants, semivowels and glottal stop as second and/or third root consonants. In the output, there emerges a bivocalic system **a : *ə* (cf. already Bergsträsser 1983 [1928], 5; Yushmanov 1998 [1933–1934], 86) and an expanded consonantal inventory including syllabic sonorants **l*, **n*, **ŋ*, **r* and labiovelars **kʷ*, **gʷ*, **kʷ* (Diakonoff 1988, 39–40). None of Diakonoff's postulates is groundless, but none is without exceptions either. One hesitates to accept his reconstruction as a system in view of numerous internal contradictions and rather incomplete supporting evidence (Kogan 2005a, 143–145).

2.3.2. Gazov-Ginzberg's monovocalic theory

Low functional load of the vocalic element(s) in primary nouns is the main foundation of Gazov-Ginzberg's monovocalic theory (1965a; 1965b; cf. already Yushmanov 1998 [1933–1934], 86), which denies the existence of phonemically relevant vowels in the earliest strata of PS and relegates them to undetermined vocalic elements whose only purpose was to facilitate the pronunciation. Gazov-Ginzberg's concept, based on a very restricted body of evidence and overtly disregarding numerous primary nouns with fairly regular reflexes, is difficult to accept (Diakonoff 1970, 455; Kogan 2005a, 163–164).

3. Stress

3.1. Traditional reconstruction

PS accentual patterns are poorly understood, partly because there is no direct evidence about the stress rules in the majority of ancient Semitic languages. PS stress is usually thought to be non-phonemic and fall on the third mora from the end of the word, final length not counted (Harris 1939, 50; Diakonoff 1991–1992, 109; Huehnergard 2004, 145). This reconstruction is identical to the accentual pattern of modern reading of Classical Arabic (Birkeland 1954, 5–6; Fischer 1987, 19–20). The antiquity of this tradition (standard in European scholarship since the beginning of the 17th century) cannot be verified (Lambert 1897; Sarauw 1939, 35–36; Blau 1972b, 476; Knudsen 1980, 7–10), but it finds a cross-linguistic parallel in Latin (Stempel 1999, 38) and may correlate with the 'trochaic ending rule' of Akkadian metrics (Landsberger 1926, 371–372): the penultimate syllable of every verse is long (C \bar{V} or CVC) which, in the common perception at least, amounts to its being stressed (Knudsen 1980, 14; Greenstein 1977, 46–52; 1984, 24–26).

Phonemically relevant accentual oppositions sporadically attested in individual Semitic languages (like Hbr. *kāmā* ‘she stood’ vs. *kāmā* ‘she stands’) are usually considered to be secondary and have no bearing on the PS reconstruction (Knudsen 1980, 15; Huehnergard 2004, 145).

3.2. Accentual oppositions in PS?

It has nevertheless been maintained that words and forms could be opposed accentually in PS.

3.2.1. **yāktul* ‘he killed’ vs. **yāktúl* ‘let him kill’

Accentual opposition between **yāktul* ‘he killed’ vs. **yāktúl* ‘let him kill’ is postulated in Hetzron 1969, mostly on the basis of contrasting pairs like *wa-yyākom* ‘he stood’ (**yākum*) – *yākōm* ‘let him stand’ (**yākúm*) in Hebrew. Hetzron’s arguments from Akkadian and Geez are less convincing (Greenstein 1977, 51), but further support for his theory may come from Soqotri, where the jussive is one of the few forms which display word-final stress in spite of the general retraction to the penultimate (Johnstone 1975a, 104).

3.2.2. **tabára*

As argued by Kogan (SED I pp. CXXVII–CXXVIII) and Stroomer (*apud* Fox 2003, 110), a form like Mehri *ṭabūr* ‘he broke’ cannot be derived from a standard Arabic-like proto-form **ṭabara*, but only from **ṭabára*, which finds remarkable parallels elsewhere in WS (including many ancient and modern Arabic dialects, GVG 85, Birkeland 1954, 22–24; Blau 1972b, 476): Hbr. *šābārū* ‘they broke’ (pausal), Arm. *yəhábū* ‘they gave’, Gez. *nagára* ‘he said’, *nagáru* ‘they said’ (Mittwoch 1926, 52). It means that the third mora rule was not always operative in proto-WS.

3.2.3. Accentual oppositions involving Proto-Semitic primary nouns

An elaborated system of accentual oppositions involving PS primary nouns has been proposed by Dolgopolsky (1978; 1986; 1999, 89–107) in order to account for some irregular vocalic correspondences. Within Dolgopolsky’s reconstruction, most of the traditional *nomina segolata* ($*C_1\check{V}C_2C_3-$) are reinterpreted as bi-syllabic stems stressed on the first syllable ($*C_1\check{V}_2\check{V}C_3-$), thus **kárím* ‘vineyard’, **rá’iš* ‘head’, **’ábun* ‘stone’, **’álp* ‘thousand’, **gábar* ‘man’, **’átam* ‘bone’, instead of **karm-*, **ra’š-*, **’abn-*, **’alp-*, **gabr-*, **’am-*, etc. These structures are opposed to the traditional bi-syllabic reconstructions $*C_1\check{V}C_2\check{V}C_3-$, which, according to Dolgopolsky, were stressed on the second syllable ($*C_1\check{V}C_2\check{V}C_3-$).

The first postulate is intended to explain, *inter alia*, numerous unexpected $C_1əC_2C_3$ nouns in Geez (*kərm* ‘vineyard’, *rə’s* ‘head’, *’əbn* ‘stone’, *’əlp* ‘thousand’), where *ə* (< **i* or **u*) instead of *a* is thought to be due to accommodation to the posttonic **i* or **u* (**kárím* > **kérím* > **kirm-* > *kərm*, etc.). The second postulate explains, via pretonic vocalic reduction, the almost regular shift of PS $*C_1aC_2aC_3-$ to $C_1iC_2aC_3-$ in Akkadian (**zakánum* > **ziḱánum* > **ziḱanum* > *ziḱnum* ‘beard’). Dolgopolsky’s theory provides

a wealth of insights into the history of Semitic vocalism, but cannot be accepted in its entirety because of numerous inconsistencies, factual errors and lack of attention to alternative explanations (Diakonoff 1991–1992, 105–106; Fox 2003, 13; Kogan 2004b, 486–490; 2005a, 145; Huehnergard 2005c, 27–28).

Abbreviations of lexicographic tools

- AED: T. L. Kane. *Amharic-English Dictionary*. Wiesbaden, 1990
- AHw.: W. von Soden. *Akkadisches Handwörterbuch*. Wiesbaden, 1965–1981
- BDB: F. Brown, S. R. Driver, Ch. A. Briggs. *A Hebrew and Aramaic Lexicon of the Old Testament*. Oxford, 1951
- CAD: *The Assyrian Dictionary of the Oriental Institute, the University of Chicago*. Chicago, 1956–2010
- CDG: W. Leslau. *Comparative Dictionary of Ge'ez (Classical Ethiopic)*. Wiesbaden, 1987
- DJBA: M. Sokoloff: *A Dictionary of Jewish Babylonian Aramaic of the Talmudic and Geonic Periods*. Ramat-Gan/Baltimore, 2002
- DJPA: M. Sokoloff: *A Dictionary of Jewish Palestinian Aramaic of the Byzantine Period*. Ramat-Gan, 1990
- DNWSI: J. Hoftijzer, K. Jongeling. *Dictionary of the North-West Semitic Inscriptions*. Leiden/New York/Köln, 1995
- Dozy: R. Dozy. *Supplément au dictionnaires arabes*. Paris, 1927
- DRS: D. Cohen. *Dictionnaire des racines sémitiques ou attestées dans les langues sémitiques*. La Haye, 1970–
- DUL: G. del Olmo Lete, J. Sanmartín. *A Dictionary of the Ugaritic Language in the Alphabetic Tradition*. Leiden/Boston, 2003
- EDG: W. Leslau. *Etymological Dictionary of Gurage (Ethiopic)*. Vol. III. Wiesbaden, 1979
- EDH: W. Leslau. *Etymological Dictionary of Harari*. Berkeley/Los Angeles, 1963
- Freytag: G. W. Freytag. *Lexicon arabico-latinum*. Halle, 1833
- GAG: W. von Soden. *Grundriss der akkadischen Grammatik*. Roma, 1995
- GNDM: G. Bergsträsser. *Glossar des neuaramäischen Dialekts von Ma'lûla*. Leipzig, 1921
- HALOT: L. Koehler, W. Baumgartner, J. J. Stamm. *The Hebrew and Aramaic Lexicon of the Old Testament*. Leiden/New York/Köln, 1994–2000
- HL: T. M. Johnstone. *Ḥarsūsi Lexicon*. Oxford, 1977
- Jastrow: M. Jastrow. *A Dictionary of the Targumim, the Talmud Babli and Yerushalmi, and the Midrashic Literature*. New York, 1996
- JL: T. M. Johnstone. *Jibbālī Lexicon*. Oxford, 1981
- LA: Ibn Maḡḡūr. *Lisānu l-'arab*. Bayrūt, 1990
- Lane: E. W. Lane. *Arabic-English Lexicon*. London, 1867
- LIQ: S. D. Ricks. *Lexicon of Inscriptional Qatabanian*. Roma, 1989
- LLA: A. Dillmann. *Lexicon linguae aethiopicae*. Leipzig, 1865
- LM: M. Arbach. *Le maḡābīen: lexique, onomastique et grammaire d'une langue de l'Arabie méridionale préislamique*. T. 1. *Lexique māḡbīen*. Aix-en-Provence, 1993
- LS: W. Leslau. *Lexique Soqotri (Sudarabique moderne) avec comparaisons et explications étymologiques*. Paris, 1938
- LSP: F. Schulthess. *Lexicon syropalaestinum*. Berlin, 1903
- LSyr.: C. Brockelmann. *Lexicon Syriacum*. Halle, 1928
- LOTS: O. Jastrow. *Lehrbuch der Turoyo-Sprache*. Wiesbaden, 1992
- MD: E. S. Drower, R. Macuch. *A Mandaic Dictionary*. Oxford, 1963
- ML: T. M. Johnstone. *Mehri Lexicon*. London, 1987
- PS: R. Payne Smith. *Thesaurus Syriacus*. Oxford, 1879–1901
- SD: A. F. L. Beeston, M. A. Ghul, W. W. Müller, J. Ryckmans. *Sabaic Dictionary (English-French-Arabic)*. Louvain-la-Neuve, 1982

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Abbreviations of language names

- Akk. – Akkadian
- Amh. – Amharic
- Amn. – Ammonite
- Arb. – Arabic
- Arg. – Argobba
- Arm. – Aramaic
- Ass. – Assyrian dialect of Akkadian
- BA – Biblical Aramaic
- Cha. – Chaha
- CPA – Christian Palestinian Aramaic
- CS – Central Semitic
- End. – Endegeñ
- ES – Ethiopian Semitic
- ESA – Epigraphic South Arabian

Gaf. – Gafat
 Gez. – Geez
 Gur. – Gurage (unspecified)
 Har. – Harari
 Hbr. (pB.) – Hebrew (post-Biblical)
 Hdr. – Hadramitic
 Hrs. – Harsusi
 JBA – Jewish Babylonian Aramaic
 Jib. – Jibbali
 JNA – Jewish Neo-Aramaic
 JPA – Jewish Palestinian Aramaic
 MA – Middle Assyrian
 Mal. – Neo-Aramaic of Ma'lūla
 MArm. – Middle Aramaic
 Mhr. – Mehri
 Min. – Minaean
 Mnd. – Mandaic
 Mla. – Neo-Aramaic of Mlaḥsô
 MSA – Modern South Arabian
 Muh. – Muher
 NArm. – Neo-Aramaic
 NWS – North-West Semitic
 OA – Old Assyrian
 OArm. – Old Aramaic
 OB – Old Babylonian
 PCS – Proto-Central Semitic
 Pho. – Phoenician
 PS – Proto-Semitic
 PWS – Proto-West Semitic
 Qat. – Qatabanian
 Sab. – Sabaic
 Sel. – Selti
 Sod. – Soddo
 Soq. – Soqotri
 Sum. – Sumerian
 Syr. – Syriac
 Tgr. – Tigre
 Tna. – Tigrinya
 Tur. – Turoyo
 Ugr. – Ugaritic
 Wol. – Wolane
 WS – West Semitic
 Zwy. – Zway

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7. Reconstructive Morphology

1. Introduction
2. Root and pattern morphology
3. Verbal morphology
4. Nominal morphology
5. Pronominal and deictic elements
6. Particles
7. References

Abstract

This chapter discusses Proto-Semitic morphology and methodological questions pertinent to its reconstruction, presenting certain features of PS morphology that may be regarded as safe to reconstruct.

1. Introduction

1.1. Significance

The reconstruction of Proto-Semitic (PS) morphology, together with comparative phonology (see ch. 6) and lexical cognates (see ch. 8), forms the backbone of Semitics

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Foreword

This volume, which presents a comprehensive overview of the current state of research on the Semitic languages, has undergone a long period of preparation. Our heartfelt thanks go first of all to the authors for their cooperation and patience. We are also indebted to the editor of the series, Herbert Ernst Wiegand for accepting this volume in the series *Handbooks of Linguistics and Communication Sciences*, and to Barbara Karlson of De Gruyter Mouton for her efficient and friendly manner in dealing with issues concerning this volume. Special thanks go to Melonie Schmierer (Cambridge) who did a wonderful job in editing the English. Finally, thanks are due to Michael Waltisberg (Marburg) for his help in proofreading and to the student assistants Maren Hadidi, Temesghen Tesfu and Christina Gansloser (Marburg) for their help in copy-editing and indexing.

The editors

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