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# Table of Contents

# VOLUME ONE

Introduction List of Contributors Transcription Tables Articles A-F	vii ix xiii I
Volume Two	
Transcription Tables	vii 1
Volume Three	
Transcription Tables	vii 1
Volume Four	
Transcription Tables	vii 1

The word shibboleth passed into English beginning in the mid-17th century (cf. The Oxford English Dictionary), most likely through the influence of the King James Bible (1611), with the meaning of "a peculiarity of pronunciation, behavior, mode of dress, etc., that distinguishes a particular class or set of persons; slogan, catchword" (American Heritage Dictionary of the English Language).

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## Sibilant Consonants

Fricative consonants in Hebrew can be subdivided into two classes: bgdkpt and sibilants. In the latter class of sounds "the principal source of the sound is the turbulent airstream produced when the jet of air created by the dental or alveolar constriction strikes the teeth, which form an obstacle downstream from the constriction itself" (Ladefoged and Maddieson 1996:145). The constriction is formed by the tongue by forming a tongue hollowing or dome and results in high frequency frication (> 3000 Hertz). The Hebrew class of sibilants consists of tz, Ds, Ys, w š, and w ś and has been characterized in Tiberian Hebrew as the class of rilled consonants by Malone (1993:28-30) (i.e., [+RIL]).

### I. PROTO-SEMITIC

All Proto-Semitic (PS) consonants, including sibilants, could be geminated. The consonant inventory of PS is characterized by consonant triads of voiceless, voiced, and 'emphatic' members. Sibilant triads that have been reconstructed for PS are (Huehnergard 2004):

- (a) the affricates /ts, dz, ts'/ (traditionally transcribed \*s or  $s_3$ , \*z, \*s);
- (b) the laterals /1, 1,  $\frac{1}{2}$  (traditionally \*\sigma\$ or  $s_2$ , \*l, \*ð or \*ś);
- (c) the interdentals  $\theta$ ,  $\theta$ ,  $\theta$ / (traditionally \* $\theta$ , \* $\eth$ , \* $\theta$ );
- (d) single /s/ (traditionally \* $\check{s}$  or  $s_{\tau}$ ).

The idea that the PS consonants traditionally transcribed as \*s, \*z and \*s were in fact the affricates \*ts, \*dz, and \*ts' (the 'affricate hypothesis') seems to have been accepted by most scholars (Streck 2006). This is based on internal evidence from Akkadian and other languages (Faber 1981; 1985), as well as evidence from transcriptions of Semitic words into other languages (e.g., Egyptian; Hoch 1994). Alternation of \*s with \*z and \*s is well attested in the Semitic languages (Steiner 1977:118; 1982:44, 84) and may even have existed in Proto-Semitic (Steiner 1982:84, n. 144). Most of the attested Semitic languages underwent deaffrication of \*ts and \*dz. The retention of \*ts' as an affricate is seen as a possibility by Steiner (1982), due to the fact that its glottalic articulation made it immune to deaffrication. In Tiberian Hebrew, it has been argued based on descriptions in the Palestinian Hidāyat al-qāri 'guide for the reader' that there existed an emphatic allophone of \*z, so-called zāy makrūķ (Eldar 1984-1985:32; "[z]" in Khan 1997).

PS \*s and \*s represent the laterals A/ and A'/ (Cantineau 1941; Steiner 1977). An illustrative example of the evidence supporting this idea is Greek βάλσαμον from Semitic \*bśm 'balsam-oil'. The laterals underwent drastic changes in most Semitic languages, though /4/ is still a phoneme in the Modern South Arabian languages, and was preserved in early stages of Akkadian and Arabic (Huehnergard 2004). In Hebrew, the phoneme A/(\*s) remained distinct during the classical period, but was written with the same Hebrew sibilants also derive from the Proto-Semitic interdentals \* $\theta$ , \* $\delta$ , and \* $\theta$ ', which merged with \*s, \*dz, and \*ts' (Hebrew  $\psi$   $\check{s}$ , t z, and v s), respectively. Exactly when the interdentals disappeared cannot be determined with certainty, though some would suggest that at least one dialect of Hebrew retained interdentals into the biblical period, based on an interpretation of the *Shibboleth* incident in Judg. 12.6 ( $\rightarrow$  Shibboleth). Others argue that Judg. 12.6 merely demonstrates a difference in the pronunciation of the /f/ phoneme between Gileadites and Ephraimites (Hendel 1996; Woodhouse 2003).

In most West-Semitic languages the voiceless alveolar fricative /s/, which did not have its own consonantal triad, underwent a change to /h/ when prevocalic (e.g., /\*su?a/ > /hu?a/ 'he'), though this process was blocked in nominal and verbal forms due to the integrity of the root system and general paradigm pressure (Huehnergard 2004; Rubin 2010). In Hebrew, Aramaic, some varities of Modern South Arabian, and the Babylonian dialects of Akkadian, /s/ was palatalized to /ʃ/ (e.g., Arabic and Ethiopic /salaɪm/ 'well-being, peace', but Aramaic /ʃəlaɪm/ and Hebrew /ʃaɪloɪm/; Huehnergard 2004).

Summing up, the following sound changes affected the Semitic sibilants in Hebrew:

- (a) deaffrication: /ts/ > /s/; /dz/ > /z/ (but /ts'/ remained an affricate /ts/);
- (b) palatalization: /s/ > /J/;
- (c) delateralisation:  $\frac{1}{4} > \frac{1}{5}$ ;  $\frac{1}{4} > \frac{1}{5}$ ;
- (d) disappearance of interdentals:  $/\theta$ ,  $\delta$ ,  $\theta'/ > /J$ , z, ts'/.

### 2. PRESENT-DAY HEBREW

The phonetic values of sibilants (i.e., אותיות שורקות 'otiyot šorqot 'whistling letters') in standard Israeli Hebrew are the following: D and w [s]; w []]; t [z]; y [ts] (Glinert 1989:9; Coffin and Bolozky 2005:18-20). Pronunciation variation is often related to (geographical) community (Morag 2007). Only in the Samaritan community is  $\boldsymbol{\boldsymbol{\upsilon}}$  not homophonous with  $\boldsymbol{v}$ , but with  $\boldsymbol{v}$ . In some Greek communities  $\psi$  has [s] as a variant pronunciation; and this [s] articulation is also typical of northwest Italian communities (and northeast Italy to a lesser extent; Morag 2007). No distinction was made between the articulation of D (and שׁ and שׁ in the northeastern Ashkenazi communities, with some local variations. Also in some Moroccan communities, the articulation of both graphemes lay "between [s] and [š]" (Morag 2007:558). The grapheme 2 is realized as a velarized alveolar fricative [s<sup>y</sup>] in Arabic communities and the Aramaic community of Iraqi Kurdistan. A realization of 2 as [s] occurs in "the Persian-speaking communities, in the Aramaic-speaking communities of eastern Kurdistan and Azarbaijan, in the Georgian-speaking community, in the community of Cochin (India), and in some communities of the Balkan countries" (Morag 2007:558). Exceptions to the tendency to realize 7 as [z] are some Italian-speaking communities that articulate \in as [s], [dz] or [ts] depending on its position in the word. In some communities of Morocco † is realized as "a sound intermediary between [z] and [ž] (i.e., [3])" (Morag 2007:558).

### 3. METATHESIS

Metathesis is a phonological process that, in Hebrew, involves sibilants. This process applies to the sequence of /t/ + an immediately following voiceless sibilant (i.e., contiguous metathesis). The result is, at least from a synchronic point of view, an interchanging in position of the two segments. In Biblical Hebrew it occurs mainly in the *hitpa'ēl* conjugation, though exceptions have been recorded (see below). Metathesis is thought to have operated even as early as Proto-Semitic (Joüon and Muraoka 2006:67, \$17b; Brockelmann 1908:268). The /t/ is sometimes

assimilated to the sibilant, as the following examples demonstrate.

- (a) ts > st: אַיִּסְתַּבֵּל wə-yistabbēl < \*yitsabbēl 'he shall drag himself along' (Eccl. 12.5);
- (b) tś > śt: וְיִשְׂתְעֵׂר wə-yiśtā̈́rēr < \*yitśā̈́rēr 'he shall storm (against him)' (Dan. 11.40);
- (c) tš > št: אְשְׁשְׁתַּמֵּׁר wā̄-ʾɛštammēr < \*ʾɛtšammēr 'and I kept myself from' (Ps. 18.24);
- (d) tṣ > ṣṭ: וֹמָה־נְצְטַדֶּק *u-ma-nniṣṭaddāq* < \*nitṣaddāq 'we shall justify ourselves' (Gen. 44.16).

Interestingly, /tz/ is avoided either by metathesis with progressive assimilation, or merely by full regressive assimilation, e.g., הַּזְבֹּׁל hizzakkū < \*hitzakkū 'cleanse yourself!' (Isa. 1.16). Deviations from the general tendency of metathesis were "noted already by Qimhi in the Rabbinic Bible (...) as an attempt to avoid the cacophony of two adjacent t-like sounds which would otherwise arise" (Joüon and Muraoka 2006:146, n. או: והתשוטטנה wə-hitšōtatnā 'run to and fro' (Jer. 49.3); but cf. יְשָׁתוֹמֶם yištōmmēm 'it is appalled' (Ps. 143.4). Non-metathesised forms occur abundantly in Jewish Aramaic from the Bar Kosiba period, such as in the Bar Kosiba letters (e.g.,  $yt\check{s}kh$  (1.10) or  $ht\check{s}dr$  (4.4); Folmer 2003:234). This feature is also found in some other dialects of Middle Aramaic (e.g., Nabataean and Palmyrene Aramaic; not in Qumran Aramaic) and in the Hebrew Bar Kosiba letters and Qumran Hebrew (Folmer 2003).

Assimilation of /t/ is also known to occur with other (i.e., non-sibilant) following consonants, for example:

- (a) tk > kk: תְּבֶּמֶה tikkasse < \*titkasse 'it covers itself' (Prov. 26.26);
- (b) tn > nn: הַּנְּבְּאָן hinnabbə'u < \*hitnabbə'u 'prophesy!' (Jer. 23.13);
- (c) td > dd: מְדַבֵּר middabbēr < \*mitdabbēr 'speaking' (Num. 7.89);
- (d) tṭ. > ṭṭ: אֵטֶבֶּי yiṭṭammā̄ < \*yitṭammā̄ 'he will defile himself' (Lev. 21.1).

Since in various Semitic languages an infixed t-conjugation exists, there have been doubts about whether this process really involves metathesis. It has been suggested that it concerns a conditioned residue of an earlier t-infixed conjugation, for example in Ugaritic, Moabite (Joüon and Muraoka 2006:67, \$17b),

and the Aramaic variety represented by the Gozan-inscription (Gzella 2009). Arguments for this claim include the absence of metathesis outside of the verbal domain, its confinement to the hitpa'ēl (but see below), and the existence of roots/words such as ש"ח.t-š 'to abandon', עש"ע tēša' 'nine', and Aramaic ש"ח.t-š 'to crush', all of which preserve the sequence tš (cf. Lipiński 1997:§41.24–25).

From a lexicographical point of view, metathesis involving sibilants is sometimes found outside the *hitpa'ēl* conjugation, for example:

- (a) בֶּבֶשׁ kɛḇɛś 'lamb', attested 107 times, versus sus גַּבֶשׁ kɛśɛb, attested thirteen times;
- (b) בְּבְשָׁה  $ki\underline{b}ś\bar{a}$  '(female) lamb', attested eight times, versus בְּשִׁבָּה  $kiśb\bar{a}$ , attested once.

In Modern Hebrew, metathesis applies to all sibilants, including 7 *z* (with voice assimilation):

- (a) ts > st: הסתדר histader < \*hitsader 'to manage';
- (b) tś > śt: השׂתרך hiśtarex < \*hitśarex 'to trail behind':
- (c) tš > št: השתמר hištamer < \*hitšamer 'to be preserved';
- (d) ts > st: הצטדק histadeq < \*hitsadeq 'to justify oneself';
- (e) tz > zd: הזדמן hizdamen < \*hitzamen 'to occur, happen, chance'.

Metathesis is, in Modern Hebrew, restricted to the hitpa'ēl conjugation alone; cf. hif'il forms like החסים hitsis, not \*histis, 'to cause to ferment'; and the noun זאָנעים, not \*štuva, not \*štuva, 'answer' (Bolozky 1978b:21; 1997:296). Voicing assimilation, as in the case of הזדמן hizdamen < \*hitzamen, should apply simultaneously with metathesis in order to block \*\*histamen < \*hitzamen (Bolozky 1978b:22; Bolozky 1997:297).

### 4. Acquisition

The acquisition of → phonological competence in the articulation of sibilants is, cross-linguistically, acquired relatively late; also in Modern Hebrew (Jedwab 1975; Ben Zvi 1981; Gabay 1986: after seven years of age; cf. Lavie 1978: not prior to 5 years). The most frequent misarticulations in general are substitution of /s/ for /ʃ/ or /ts/ and interdental production of all sibilants (Ben-David 2001; Ben-David and

Berman 2007). Bolozky (1978a) argues that, in adult speech, /s/ to /ʃ/ assimilation occurs more often than assimilation in the opposite direction due to the fact that /s/ requires more precise neuromotor coordination. He claims that this is supported by the fact that children often acquire /// before they master /s/, though this goes counter Ben-David's (2001) findings (Ben-David and Berman 2007:445, table 44-3). Sibilants also have special status with respect to word-initial consonant clusters. Although complex consonant clusters (i.e., more than two members) are rare in Modern Hebrew, they occur mainly in loans (e.g., ספריי sprey 'spray') in which the first consonant is typically a sibilant (Laufer 1992; Ben-David and Berman 2007). In consonant cluster acquisition, although near full mastery occurs at around the age of four, initial s-clusters are particularly difficult for children to acquire (Yavaş et al. 2008; Ben-David et al. 2010).

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# Sign Language in Hebrew

Sign languages are natural languages, emerging spontaneously when a group of deaf people meets and interacts on a regular basis over a period of time. They differ from spoken languages in terms of the physical modality in which they are transmitted. However, like spoken languages, they arise within a community, and are not contrived systems of communication. Since they develop within communities, sign languages differ from one another; there is no one uniform universal sign language. Sign languages are also not visual representations of the surrounding spoken languages; they are independent languages, with their own grammatical and lexical structures.

The major sign language in Israel is Israeli Sign Language (ISL). As its name indicates, it is not a manual-visual representation of Hebrew,

but rather an independent language, which is used by the Jewish Deaf community in Israel, and also by some Arab, Bedouin, and Druze communities in the country. It is a relatively young language, which came into existence about seventy-five years ago, with the initial crystallization of an emergent deaf community in Israel. The present-day community of ISL users consists of four generations: from the very first generation, that contributed to the earliest stages of the formation and development of the language, to the fourth generation, that has acquired the language as a full-fledged system. This unique socio-linguistic situation makes it possible to study the development of a language almost from its inception throughout a period of about seven decades, a rare and precious opportunity for linguists.

### 1. THE HISTORY OF ISL

In the first two decades of its existence (1930s-1950s), ISL developed simultaneously within two different venues (Meir and Sandler 2008): the emerging deaf community and the thennewly-established schools for the deaf. The members of the first generation of the deaf community came from different backgrounds, in terms of both their countries of origin and their languages. A few were born in Israel, but the majority were immigrants who came to Israel from Europe (Germany, Austria, France, Hungary, Poland), and later on from North Africa and the Middle East. Some of these immigrants brought with them the sign languages of their respective countries. Others had no signing, or had some kind of a homesign (gestural communication system developed and used among the members of a single family). The conditions under which the new sign language emerged, namely, language discontinuity and contact with other sign languages and signing systems, are characteristic of pidgin formation.

The other venue for the development of the language was the schools for the deaf. The first school was founded in Jerusalem in 1932, followed by the founding of schools in Tel-Aviv and Haifa in the 1940s (Plaut 2007). The children who attended these schools in those early days had no sign language, and the educational approach in the schools was strictly oral; that is, children were required to lip-read and speak, and signing was forbidden in the classrooms. However, the schools served as a fixed locale for