Sign Languages of the World

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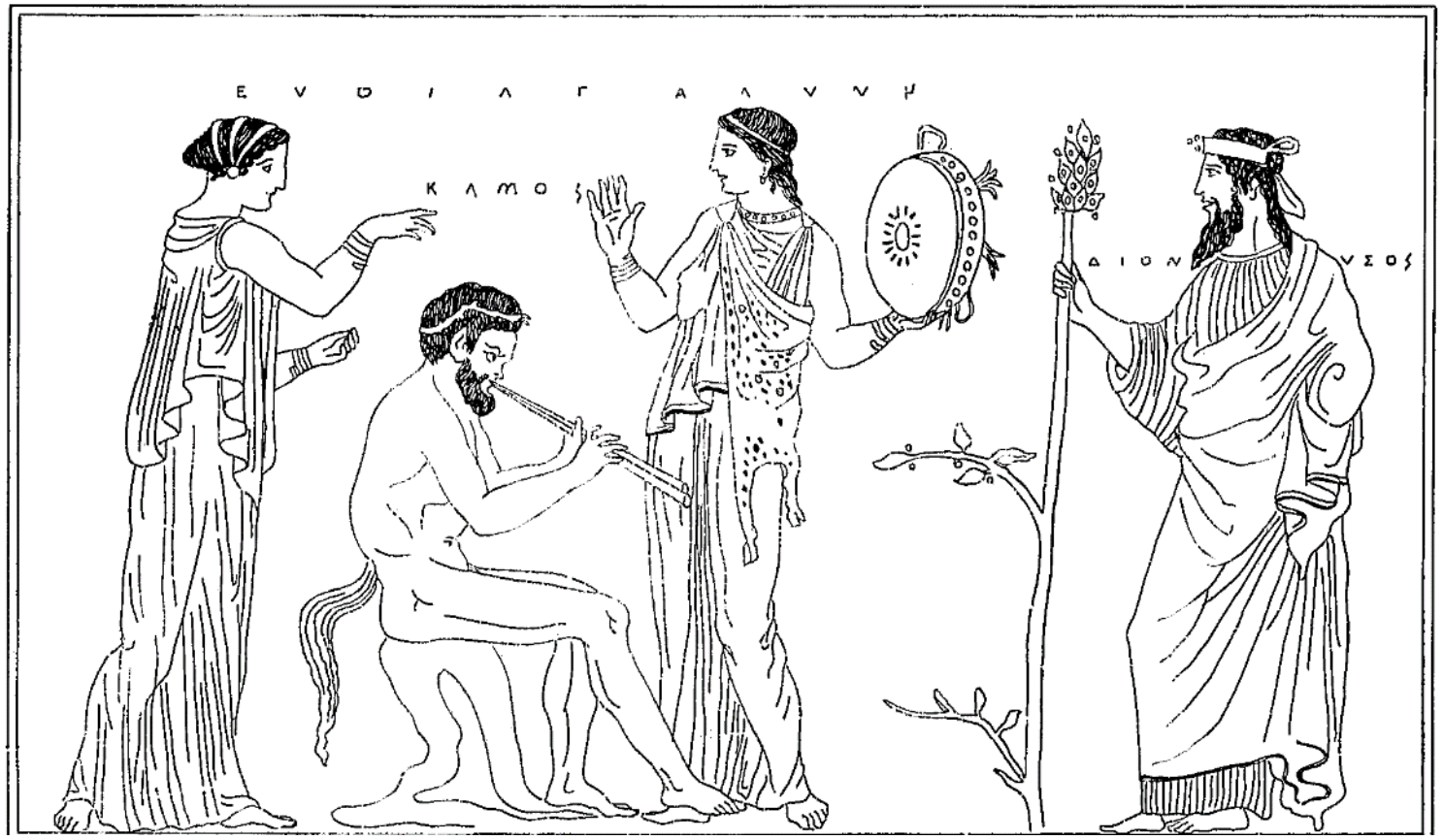
- November 11, 2021



Sign language is old
Sign languages are new

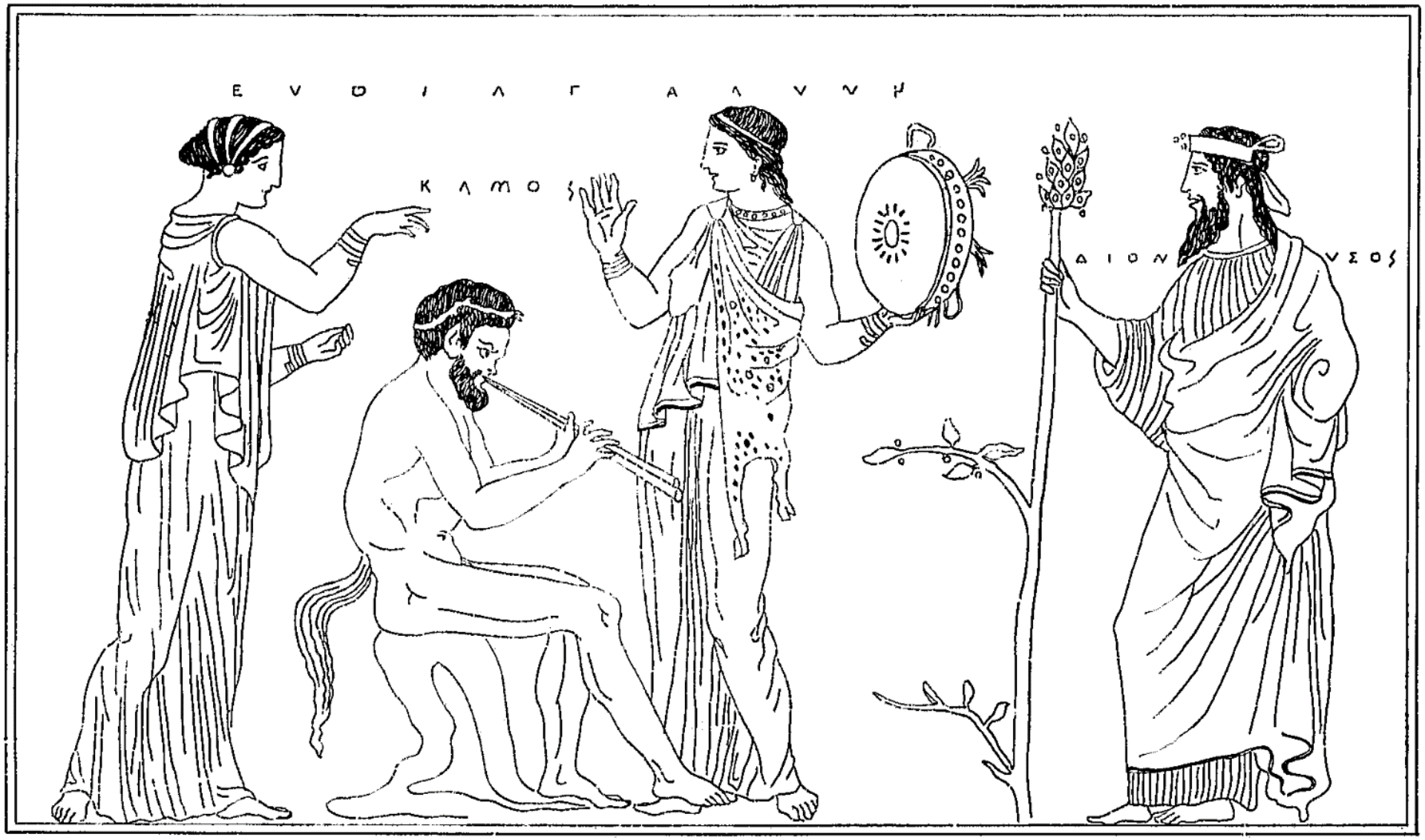
There is no reason to believe that sign language is a new phenomenon in human culture

No known current sign language is more than 300 years old

There are numerous historical references to sign languages in earlier times

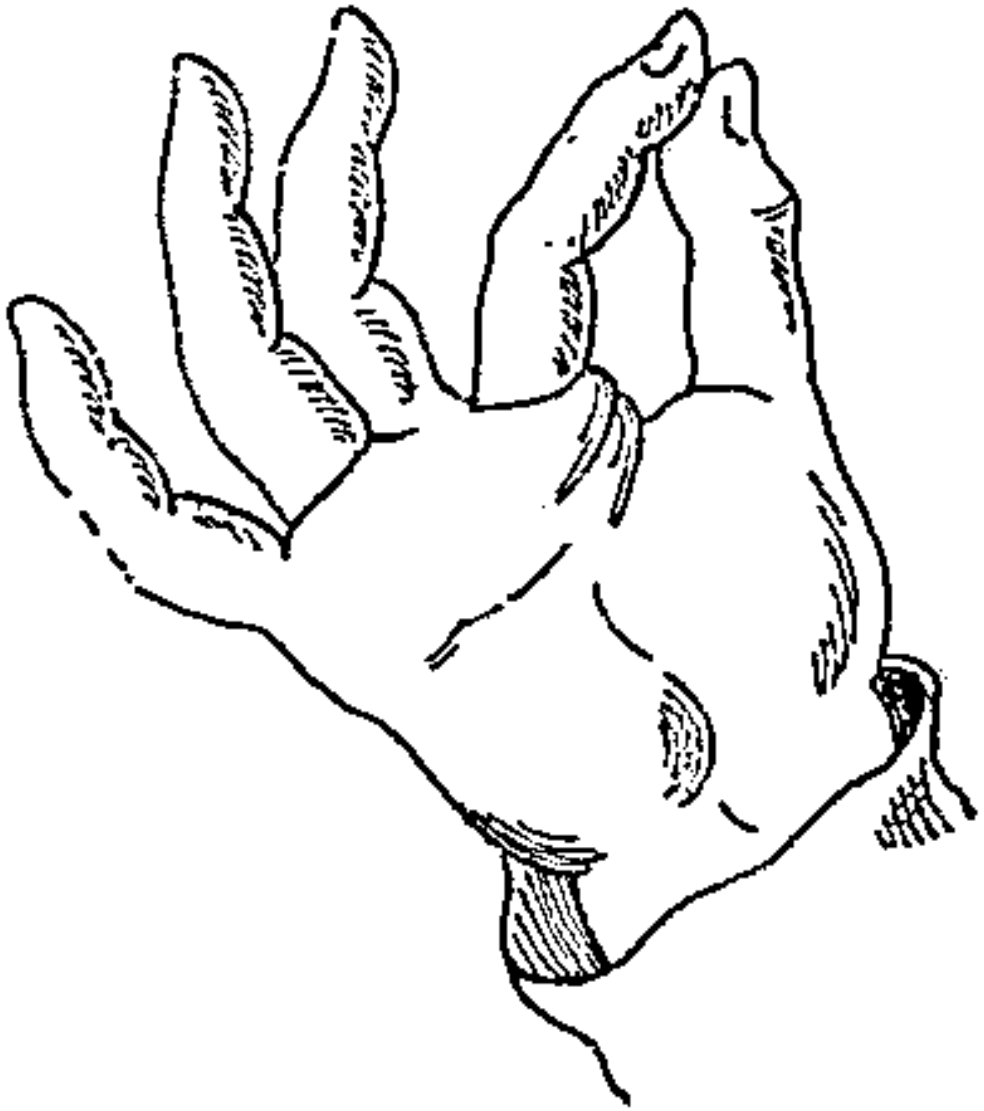
Plato refers to deaf people signing

we have no significant records of ancient sign languages


ΕΥΦΙΛΛΗ
ΚΑΜΟΣ
ΔΙΟΝΥΣΟΣ

Nam et ipsa digitorum conjunctio, et quasi molli osculo se complectans et fœderans, maritum pingit et conjugem

St. Jerome



People long thought that there was one universal sign language

- For centuries scholars from every country have sought after a universal language and failed. Well, it exists all around, it is sign language.
  - Ferdinand Berthier, nineteenth-century deaf activist and writer, 1846
- Gesture-language is so uniform because it consists everywhere chiefly of the universally human expressive movements voluntarily used for communication.
  - Leonard Bloomfield, *An introduction to the study of language*, 1914 (4-5)

Do we all understand one another?

- Sign languages are not all mutually intelligible
  - Signers of British and American sign languages do not understand one another
- Even in one country, there may be several sign languages
- Attempts have been made to create a world sign language, the equivalent of Esperanto, but they have not succeeded

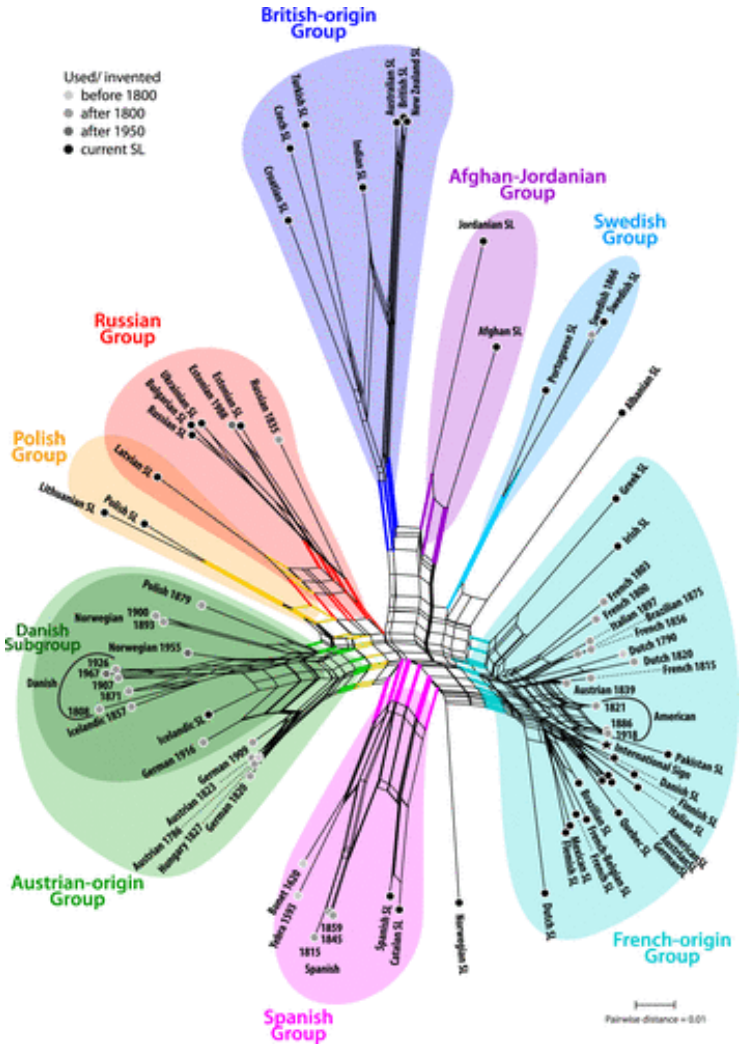
How many sign languages are there in the world today?

- https://www.ethnologue.com/subgroups/sign-language

Six ‘modern’ sign language families

- Recent research has shown that most Deaf community sign languages of the world today belong to one of five families, each originating from a single place in Europe in the 19th century
  - Austrian
  - British
  - French
  - Spanish
  - Swedish
- The analysis is based on manual alphabets, often called *finger spelling*
- In communities that do not use the Roman alphabet, this method does not work

Evolutionary dynamics in the dispersal of sign languages, Volume: 7, Issue: 1, DOI: (10.1098/rsos.191100)



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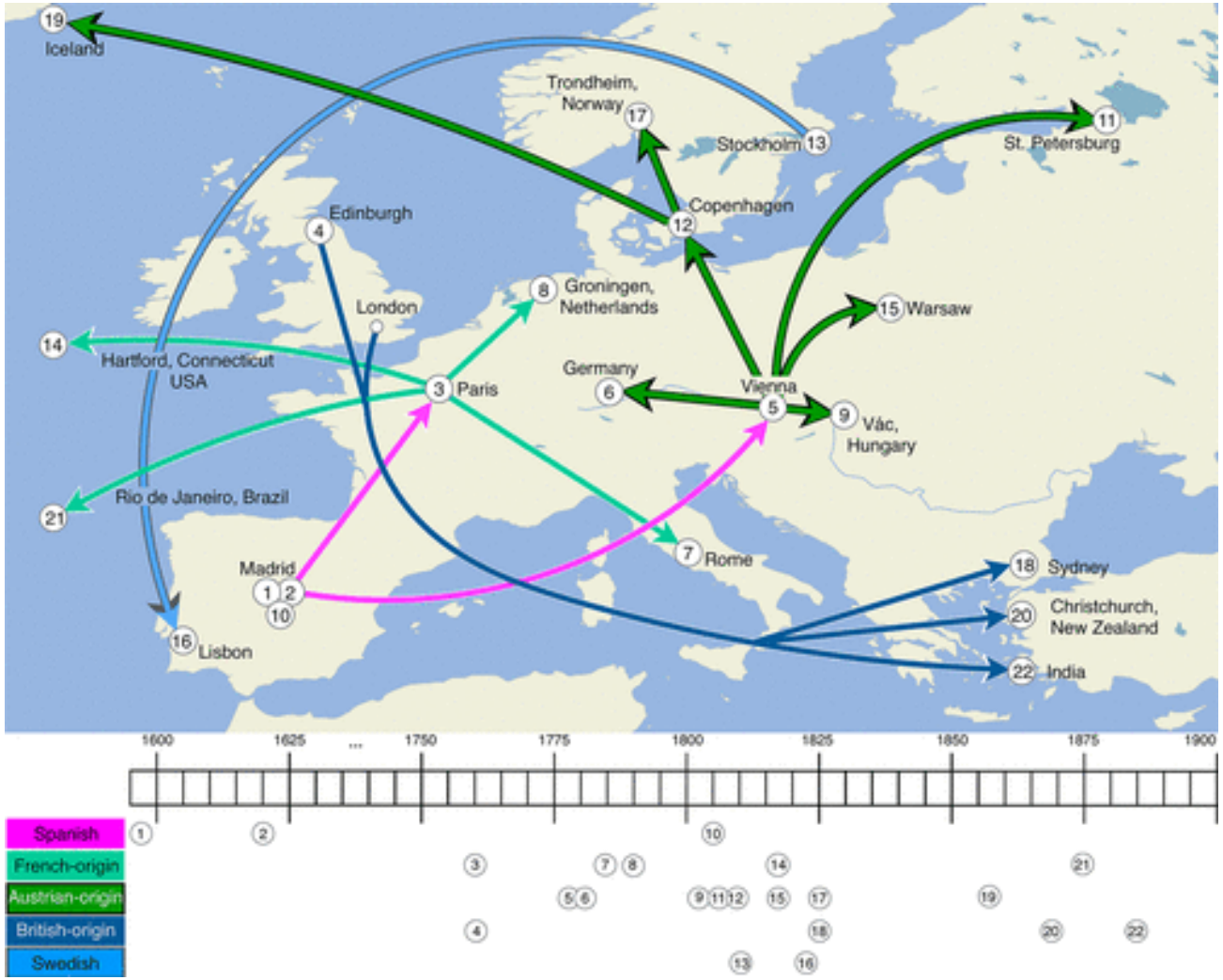


Sign languages of Asia

The sign languages of Asia fall into two unrelated groups

Chinese Sign Language (CSL)

Japanese, Korean, and Taiwanese Sign Language (JSL, KSL, TSL)

Chinese Sign Language (CSL)

- The first school for the Deaf in China was founded in Shandong Province in 1887
- The Shanghai school was founded in 1892
- CSL is rooted in the language of the Shanghai school
- The two major dialects today are northern (Beijing) and southern (Shanghai)
- Deaf education in China uses a mix of oral-based and sign language-based methods
- CSL uses character signs, similar to those used by hearing people to draw characters in the air or on the palm of the hand

Japanese, Korean, and Taiwanese Sign Language

- Japanese emissaries were sent to European schools for the Deaf as early as 1862, but JSL can not be directly traced to any one source
- The first school for the Deaf in Japan was opened in Kyoto in 1878
- The language spread to Korea and Taiwan during the Japanese occupation period
- Users of the three languages understand each other quite well to this day
- One hallmark of the language family is the use of gender markers

Some myths about sign language

Myth 1: Sign language is mime.

Sign language does exhibit more **iconicity** than spoken language, but as in spoken language, words in sign language are often completely arbitrary.

ASL: WHERE

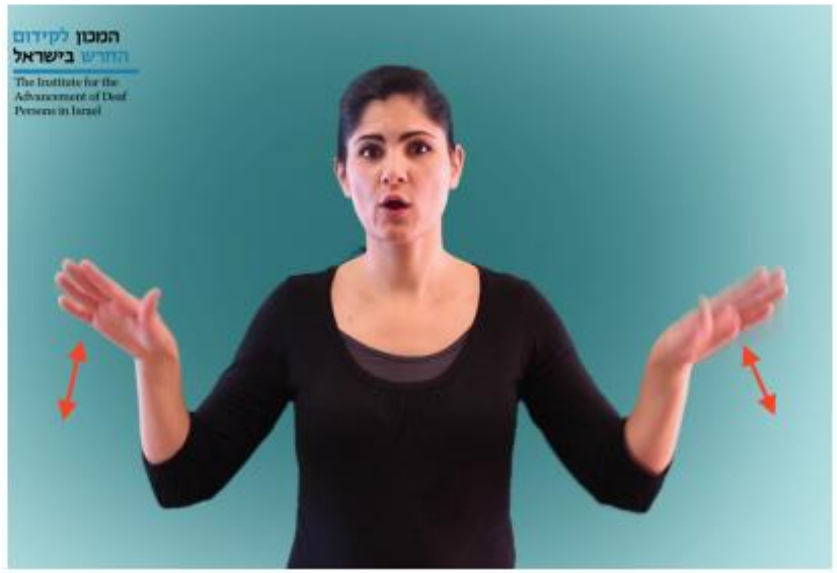
LIS: NOT

RSL: WHAT

Some myths about sign language

- Now, there *is* iconicity in sign language...
- ...but what is iconically represented is not predictable.

BIRD



Israeli Sign Language

American Sign Language

Chinese Sign Language | Danish Sign Language | American Sign Language

‘tree’

LSF

NGT

ASL

‘chat’

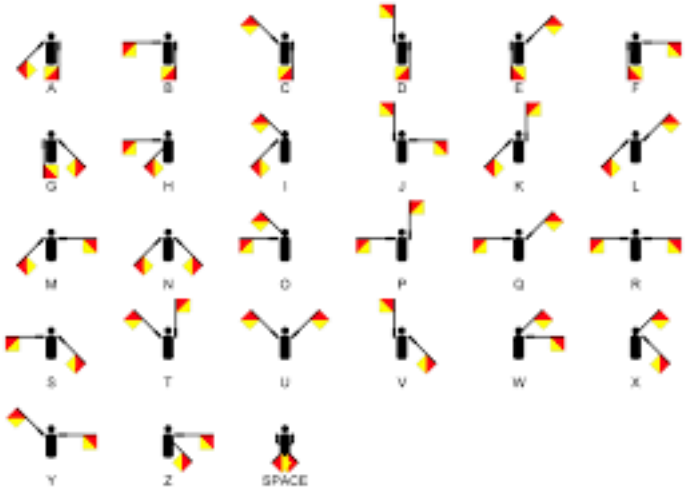
Myth 2: The grammar of a sign language is based on the grammar of the spoken language of the area

- French
- Jean est arrivé après que Marie est partie
- French sign language
- MARIE LEAVE AFTER, JEAN ENTER

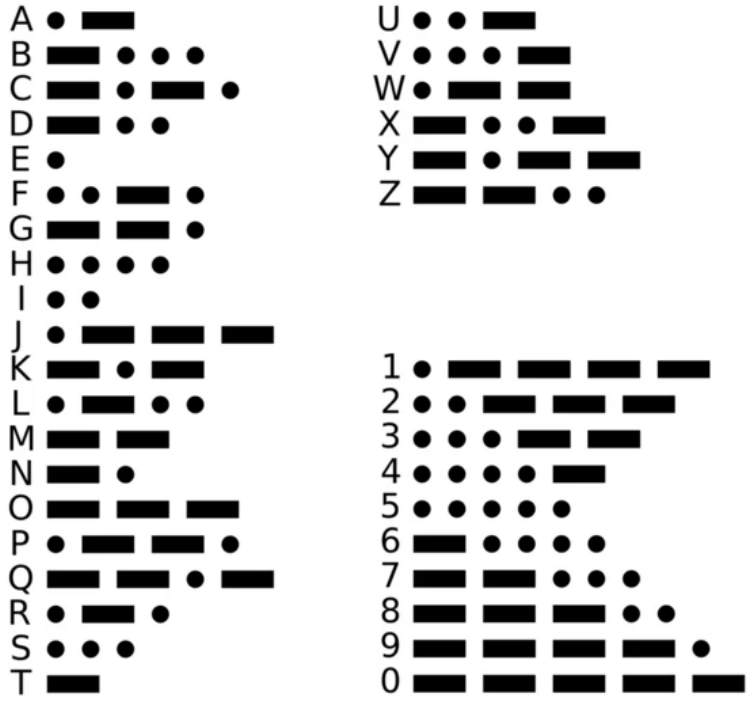
‘Jean arrived after Marie left

Basic signaling units

- Semaphore flags



- Morse Code dot and dash



Speech sounds
The basic signaling units of spoken language

Every spoken language has a set of basic sounds

They range in number from a dozen (Hawaiian) to forty (English)

Every word in every spoken language is a string of speech sounds

- The three sounds of English /t/, /æ/, and /k/ can be arranged in three ways
- *Tack* /tæk/
- *Cat* /kæt/
- *Act* /ækt/

Speech sounds can be broken down into basic components: *place, manner, voicing*

speech sound	components
English /p/	voiceless, bilabial, stop
English /b/	voiced, bilabial, stop
English /k/	voiceless, velar, stop
Hindi /p^h/	aspirated, bilabial, stop

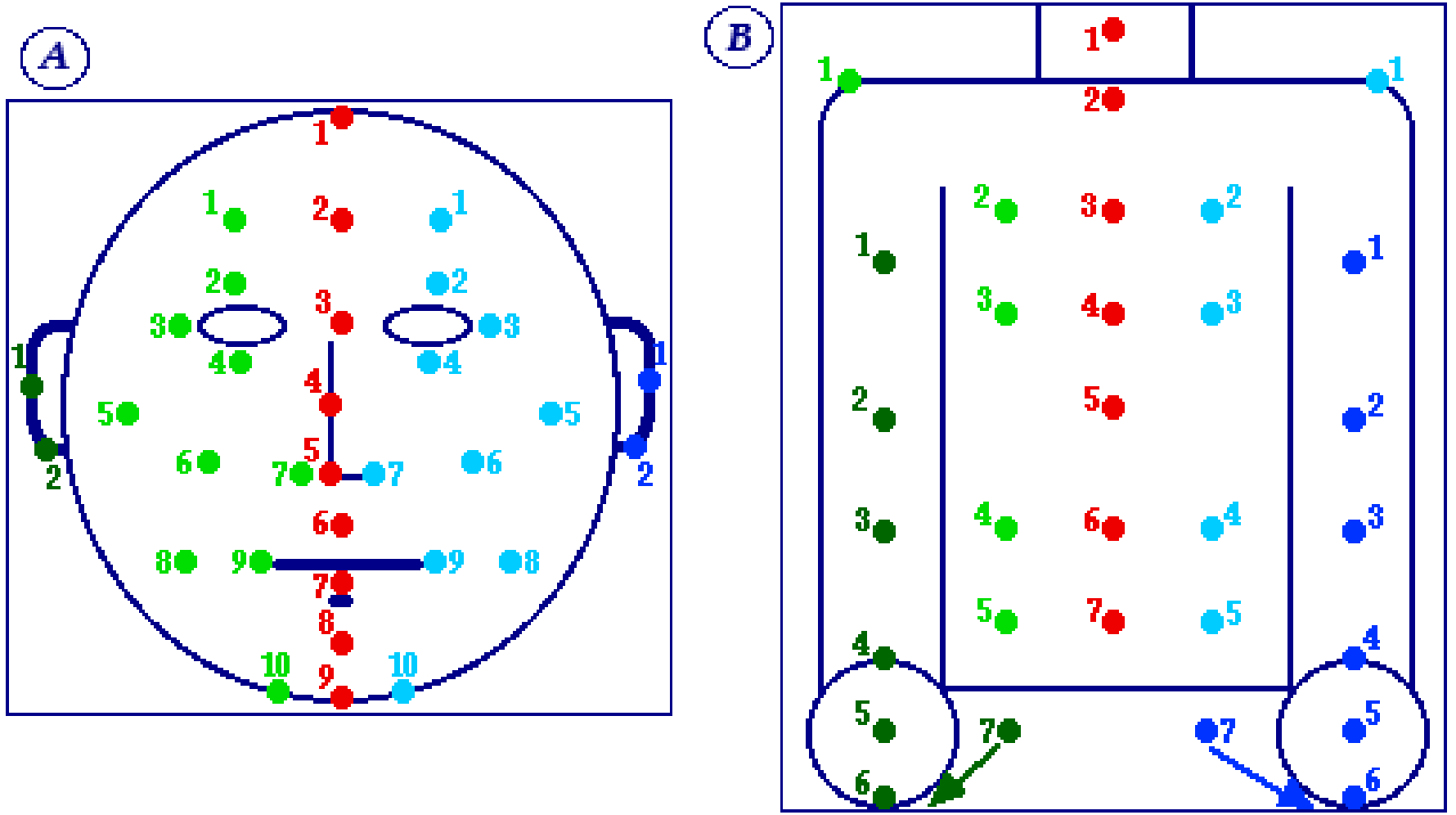
Sign languages have analogues to the basic component types of speech sounds

- Handshape
- Location
- Movement
- orientation

Every sign is made up of these components

Handshape

Location



Minimal pairs

In spoken language, we can find pairs that differ in only one component

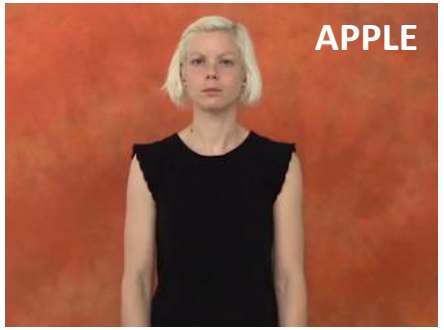
We call these *minimal pairs*

Here are some from English:

- place of articulation: /pæp/, /tæp/, /kæp/
- manner of articulation: /dɛd/, /nɛd/, /zɛd/
- voicing: /bɪg/, /pɪg/

We find minimal pairs in sign languages

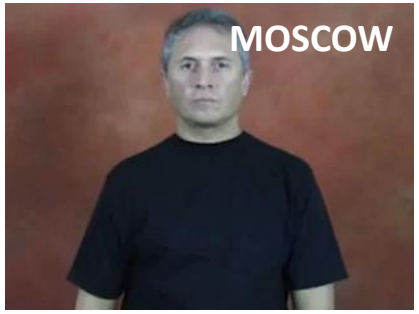
Handshape minimal pairs in ASL:

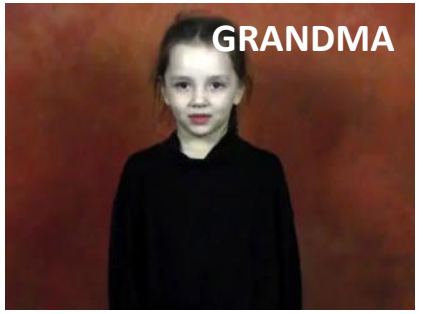


Location minimal pairs in ASL:

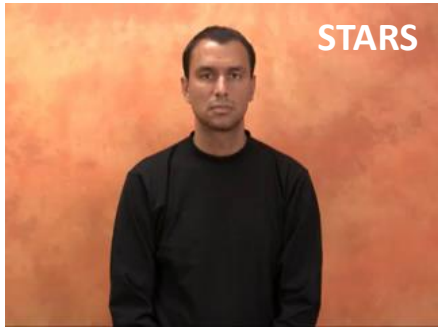
Movement minimal pairs in ASL:

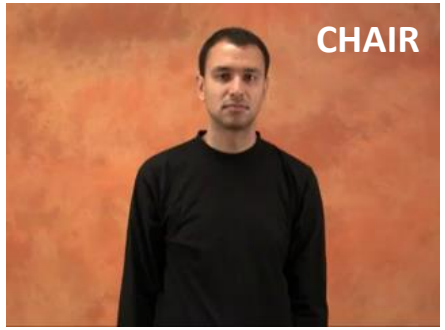
And RSL:





Orientation minimal pairs in ASL:





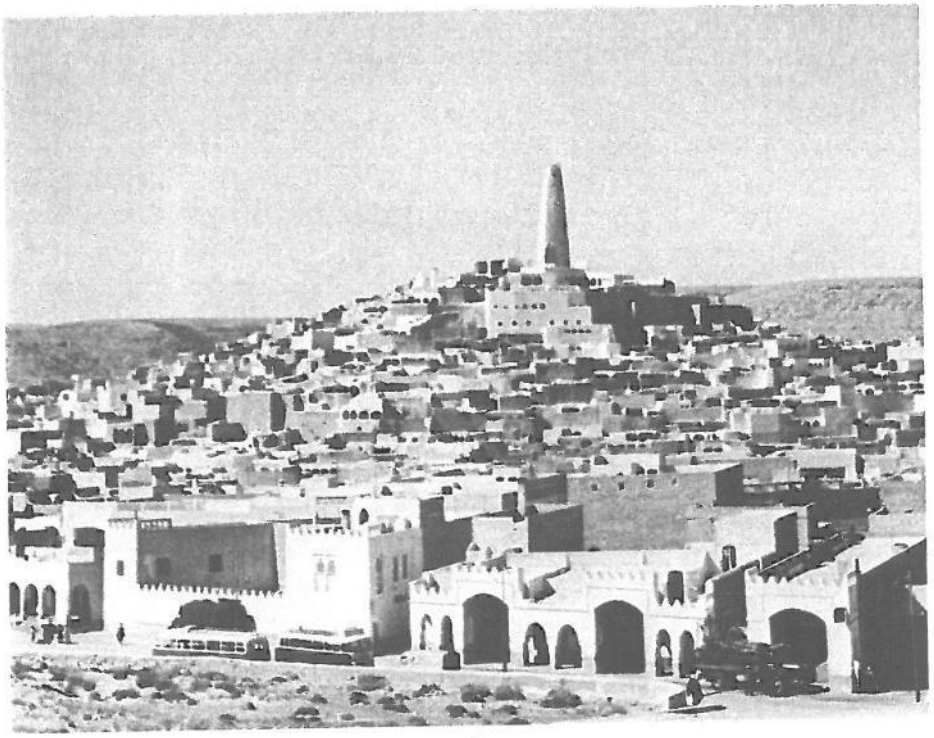
Deaf community sign languages

- All well-known modern sign languages originated in places where Deaf people came together or were brought together in urban centers
  - Informal Deaf communities
  - Deaf organizations
  - Deaf schools

School-based sign languages vs. shared-signing languages

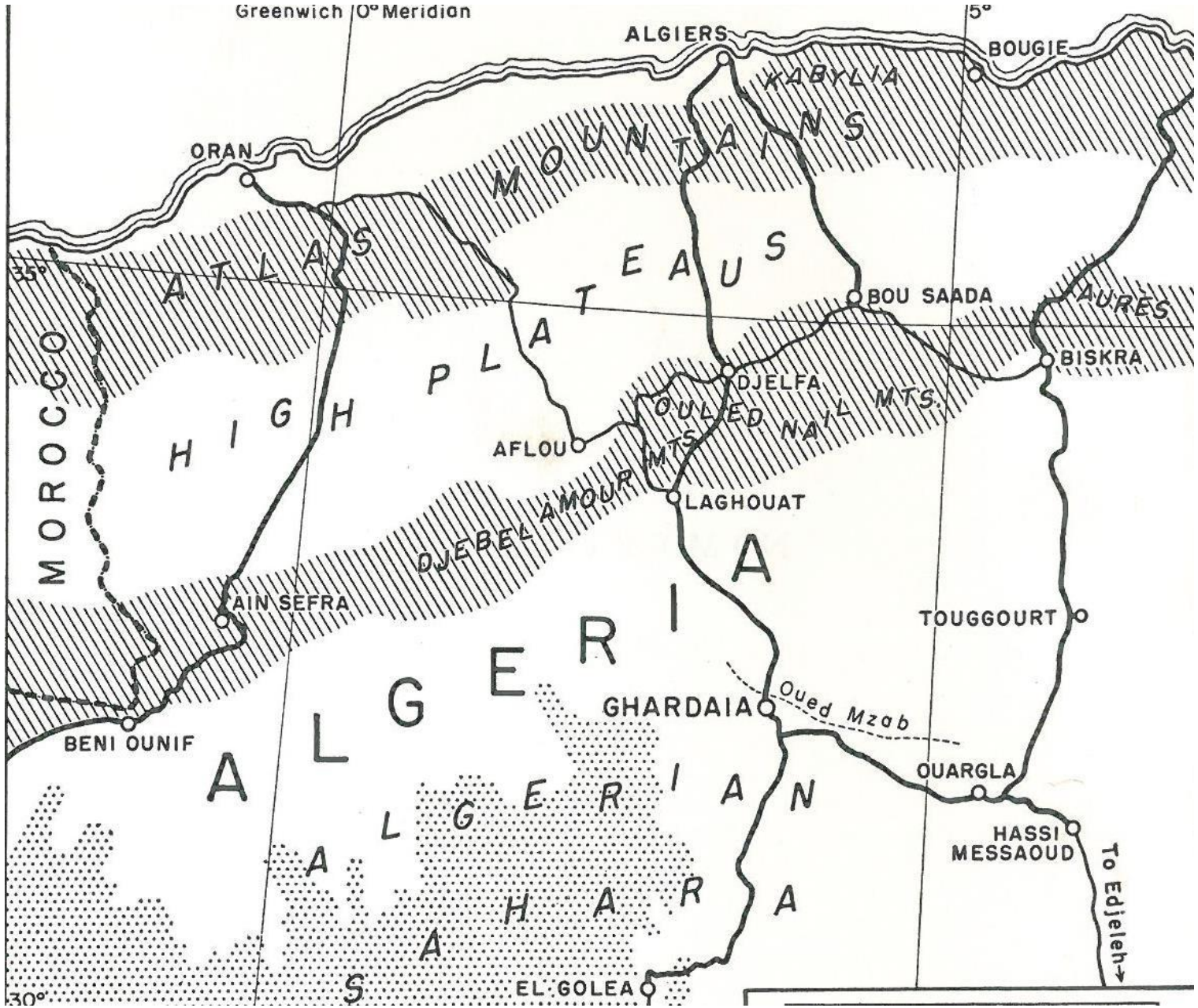
- Most of the 150 or so sign languages we know of today originated in schools for the deaf
- A much smaller number (ca. 20) emerged in smaller communities around the world with a high percentage of deaf people, usually due to genetic causes
- Our group has worked on one of these languages, Al-Sayyid Bedouin Sign Language

Ghardaia
An Ancient Town in the Sahara



A

Ghardaia:
An Ancient Town in the Sahara


Greenwich 0° Meridian
5°
ALGIERS
BOUGIE
KABYLIA
MOUNTAINS
ORAN
ATLAS
MOROCCO
HIGH PLATEAUS
35°
BOU SAADA
AURES
BISKRA
DJELFA
OULED NAIL MTS.
AFLOU
DJEBEL AMOUR MTS.
LAGHOUAT
ALGERIA
AIN SEFRA
TOUGGOURT
Oued Mzab
GHARDAIA
BENI OUNIF
OUARGLA
ALGERIAN SAHARA
HASSI MESSAOUD
To Edjeleh
30°
EL GOLEA

A brief history of Ghardaia

- Ghardaia was founded by Abadi Muslims in the 10th or 1th century. Abadism, a minority sect distinct from by Sunni and Shia, is still dominant in Ghardaia.
- From very early on, Ghardaia had a sizable Jewish population.
- In 1960, the Jewish population numbered about 6000.

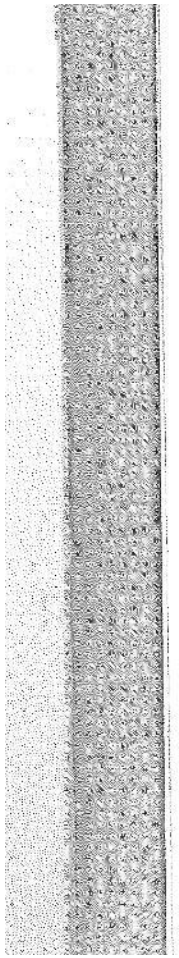
Ghardaia Sign Langauge

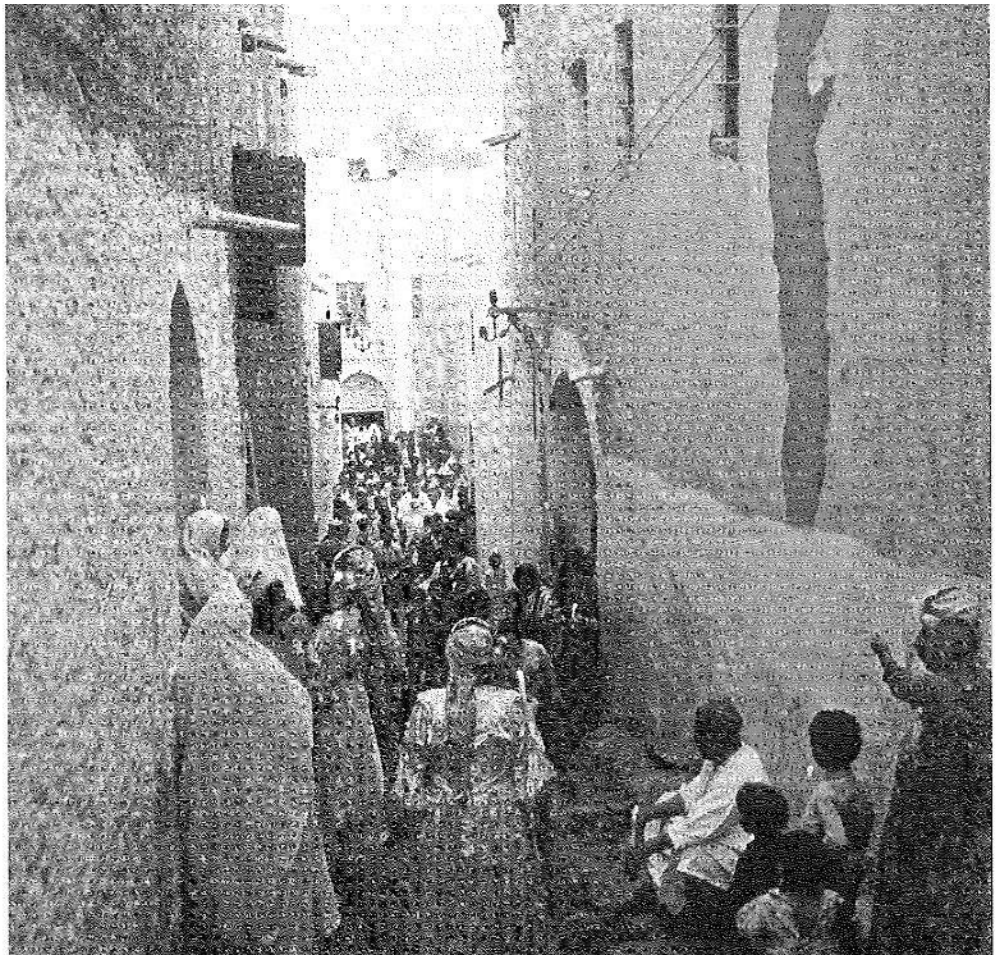
Inbreeding was doubtless responsible, however, for the relatively high proportion of deaf-mutes among the Jews of Ghardaia. . . Luckily for them they were at no great disadvantage in the community, however, for they were treated just like everyone else. Nearly everyone had at least one deaf-mute among his close relatives or as a neighbor, and so everybody was fluent in sign language. . . [The deaf] had about as rich a social life as anyone; they had little or no difficulty in finding normal wives or husbands, and, in general, seemed very well adjusted.

Lloyd Cabot Briggs and Norina Lami Guède,

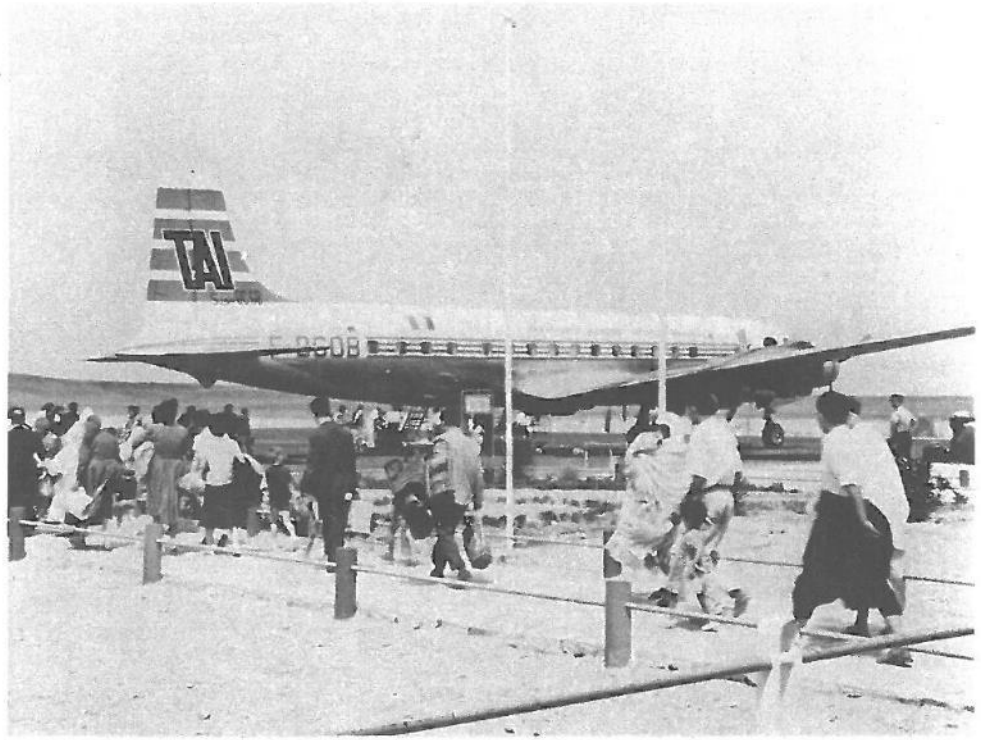
No More For Ever, Harvard, 1964.

The Jewish Community of Ghardaia





No more for ever

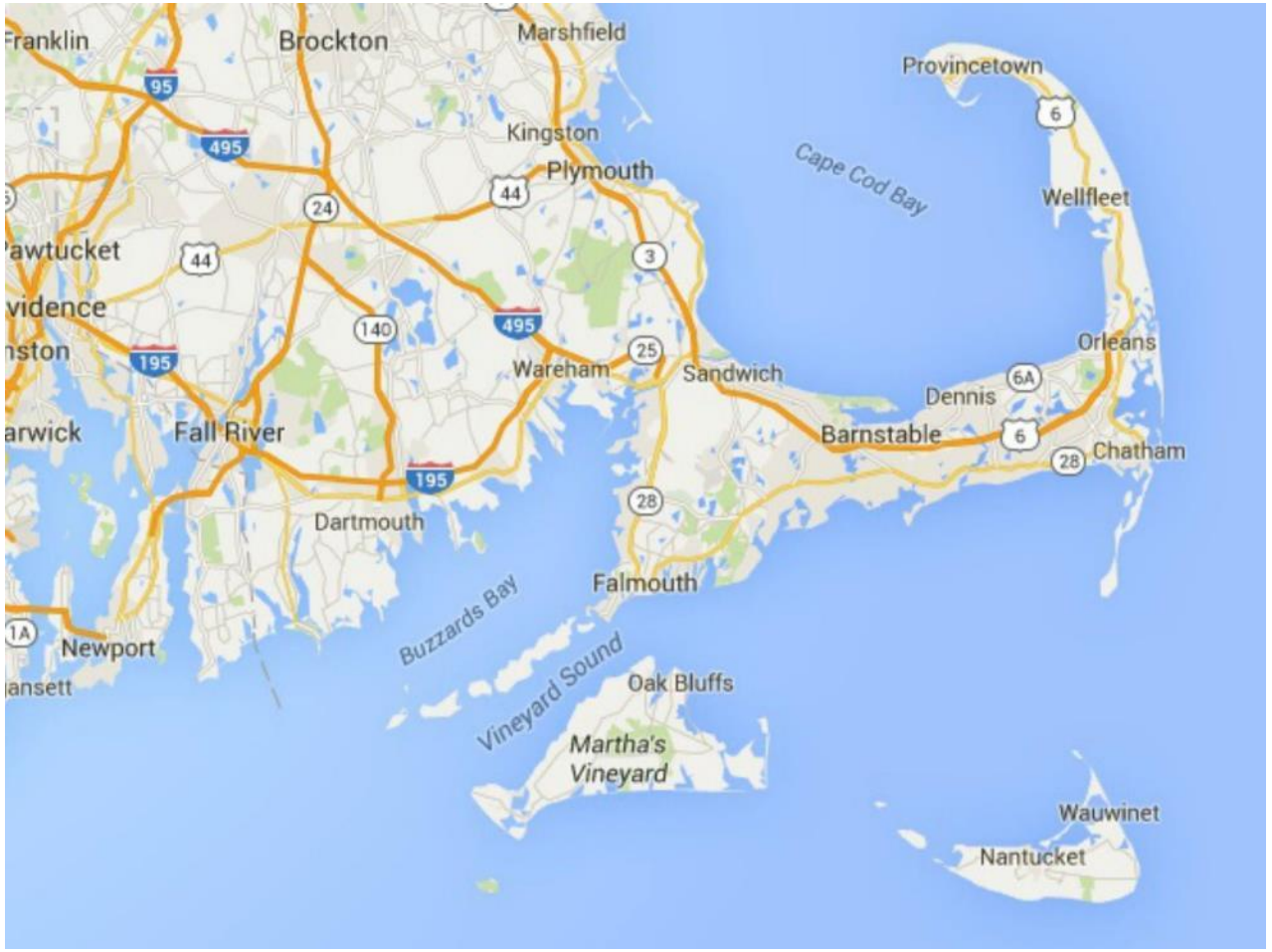


B

FIG. 14. *A*, Burying the books, May 22, 1962. *B*, Diaspora, 1962.

Martha’s Vineyard Sign Language

Martha’s Vineyard



Al-Sayyid Bedouin Sign Language

- Al-Sayyid community founded ca. 1820 near Beer-Sheva in Negev Desert (now Israel) by a man from Egypt and his local wife
- Deaf members of the community all descend from two of founder's five sons (Scott et al 1995)
- Deafness did not emerge until the fifth generation
- Four Deaf siblings born ca 80 years ago
- Now ~200 deaf people in the 4,000-member community

Al-Sayyid Bedouin Sign Language

- ABSL is currently in its fourth generation
- all members of first generation deceased
- ABSL widely used by deaf and hearing second language of community after Arabic
- arose with little or no outside influence

- https://mapcarta.com/29094090
- https://www.google.com/maps/place/AlSayid+Tribe,+Israel/@31.2817173,34.8987884,14z/data=!3m1!4b1!4m5!3m4!1s0x15025ebee46d22bb:0xa4b4699b86f312f3!8m2!3d31.281719!4d34.916298

Google maps

Get Google Maps on your phone
Text the word "GMAPS" to 466453

Who are the people of Al-Sayyid?

This is about the village patriarch, the first man of the Al-Sayyid family. His name was Al-Sayyid.

The village elders speak of a certain man, a grown man with a few children and a small family who came with him from Egypt about two hundred years ago. According to the stories we've heard he had to leave his homeland of Egypt because of fights with his family. There was a matter of one of the brothers being killed and then he had to flee his land and the land of his brothers and go to a different land.

He left Egypt with his small family-a wife and a few kids-and moved to the land of Israel.

Who are the people of Al-Sayyid?

It was as if he had landed among villages, tribes, populations which were alien to him. He didn't know them. He began to forge links with them, like a refugee who arrives at a new place.

Gradually he began raising his sons and marrying women from areas which were a bit further away. The local villages and tribes did not want their daughters to marry him because he was considered a refugee. He married a number of wives. The first one who came with him from Egypt, we don’t really know her name or what happened to her part of the family. Those he married here around Beer Sheva, they are the ones with whom he had the children who are the parents or parents’ parents of today’s generations. From the wives he had a number of boys and he taught his boys to love the land, buy land and so on so that they could be able to live among the tribes.

מכבי חיפה
מועדון כדורגל

The Deaf people of Al-Sayyid

The beginning

- In the 1930’s, four siblings were born deaf into a single nuclear family in Al-Sayyid
- The deafness results from a recessive genetic trait amplified by the prevalence of parallel-cousin marriage

Deafness in Al-Sayyid

- High percentage of deaf people in the community
- .025 compared with .00025 norm worldwide
- Deaf people are integrated in the community
- Deaf people freely interact with each other, as well as with many hearing members of the community (Kisch 2000).
- Deaf people are exposed to the sign communication system from birth.

Al-Sayyid Deaf Community

- Within the past three generations, approximately 80 individuals with congenital deafness have been born into the community.
- All deaf individuals show profound prelingual neurosensory hearing loss at all frequencies, have an otherwise normal phenotype, and are of normal intelligence.

Genetic cause of deafness in Al-Sayyid

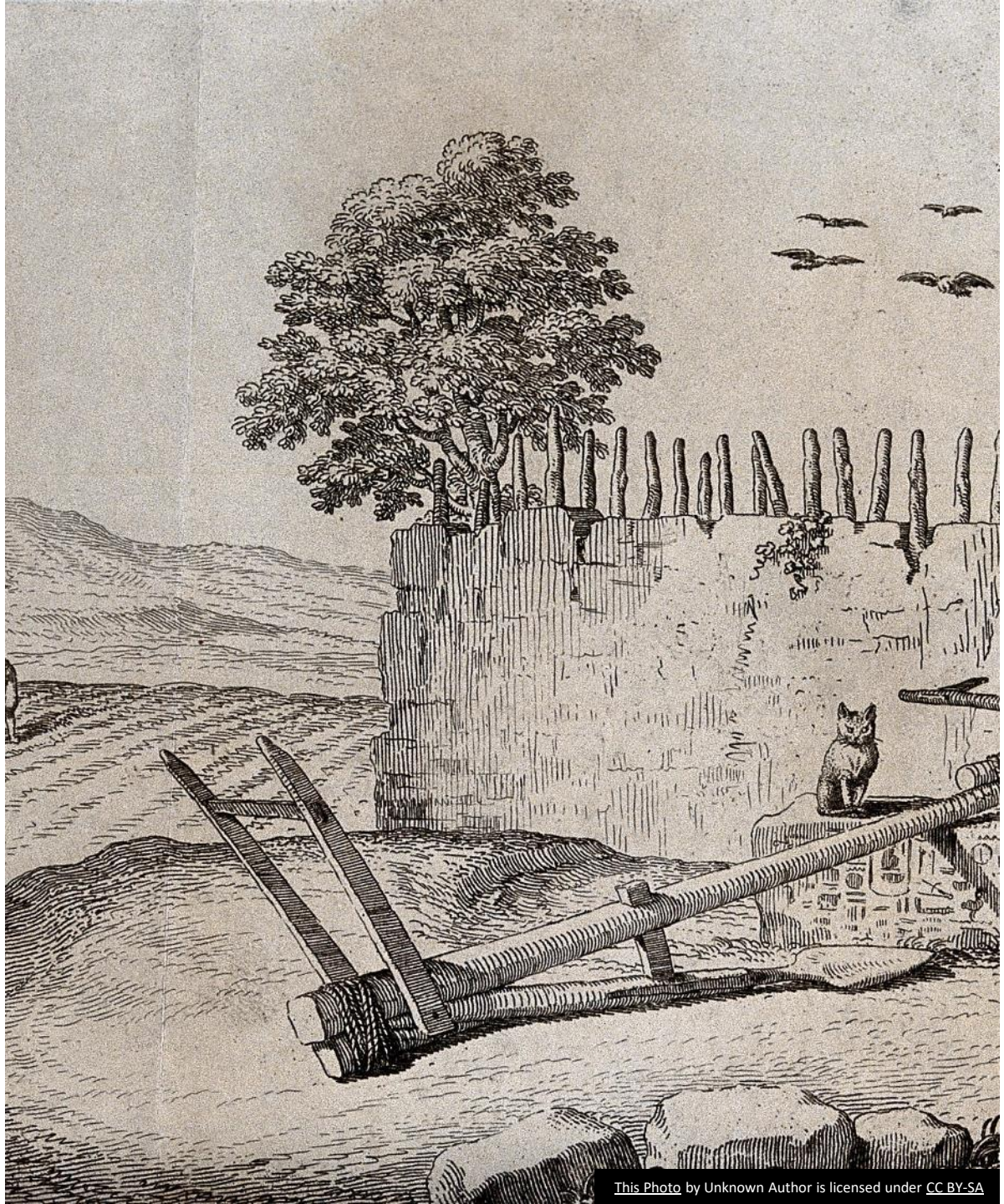
- Apparently the result of mutations of transmembrane channel-like gene 1 (TMC1) causing non-syndromic recessive deafness at the DFNB7/B11 locus on chromosome 9q13–q21
- D. A. Scott, R. Carmi, K. Elbedour, S. Yosefsberg, E. M. Stone, and V. C. Sheffield. 1995. An autosomal recessive nonsyndromic-hearing-loss locus identified by DNA pooling using two inbred Bedouin kindreds. *American Journal of Human Genetics* 57.965-8.
- Kitajiri S-i, McNamara R, Makishima T, Husnain T, Zafar AU, Kittles RA, Ahmed ZM, Friedman TB, Riazuddin S, Griffith AJ. Identities, frequencies and origins of TMC1 mutations causing DFNB7/B11 deafness in Pakistan.

Social causes of deafness in Al-Sayyid

1. The structure of Bedouin society in the Arabian Desert and the Negev
2. Parallel cousin marriage in the Middle East and in Islam
3. Social structures resulting from 1 and 2 result in increasing likelihood of recessive gene pairing in individuals

Settlement of the Negev

- Bedouins arrived in the Negev about 300 years ago
- About 200 years ago, the Ottoman rulers began to settle farmers (fellahin) from Egypt and Palestine in the Negev
- The two groups have lived together uneasily
- Outsiders regard both as Bedouin



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- Throughout the Middle East, the ideal marriage is between the children of brothers
- The practice is at least as old as the Bible and spread across the region with Islam
- Parallel cousin marriage amplifies the effects of recessive genetic alleles because cousins are more likely to each carry the same recessive gene

A sig

RUN-AWAY
RUN
RUN
SWORD
GUN
STRIKE
GUN BLOCK
HIT
SHOOT
SHOOT
HORSE FALL
EYE FALL-OUT
KAFFIYEH TWIRL

‘They (each) took off (on horseback) and galloped. The man (with the sword) hit the Al-Sayyid man. He blocked it with his gun. He shot back (at his attacker). The horse fell. His eye fell out. (The Al-Sayyid man) twirled his kaffiyeh (to summon

The next generation

The future of ABSL

Compound words in ABSL

Word order in sentences in ABSL

Compound words The first complex words

- In new languages, most words have no internal structure
- The first complex words to emerge are compounds
- Compound: $Word_1 + Word_2 = Word^3$
  - Bird + house = bird house
  - House + bird = house bird

ABSL Compound Constructions: A Self-Organizing System?

- Compound words are highly variable in ABSL
- There are hardly any cases where all or even most signers use precisely the same compound form
- When signers are presented with a concept or an object that they do not have a word for, they may produce a string of words that are semantically related to that concept
- Meir, Irit, Mark Aronoff, Wendy Sandler, and Carol Padden. 2010. Sign languages and compounding. In *Cross-Disciplinary Issues on Compounding* (ed. by Sergio Scalise and Irene Vogel). Amsterdam: John Benjamins. 301-322.

28	29	RA	2	3	4	5
29	30	31				
6	7	8				

27	28	29	30	RT	2	3
26	27	28	29			
4	5	6	7			

25	26	27	28	29	30	JO
25	26	27	28	29	30	31
2	3	4	5	6	7	8

JT	2	3	4	5	6	7
29	30					
8	9					

May
Jumada-II/Rajab

S	M	T	W	T	F	S
		1	2	3	4	5
		10	11	12	13	14
6	7	8	9	10	11	12
15	16	17	18	19	20	21
13	14	15	16	17	18	19
22	23	24	25	26	27	28
20	21	22	23	24	25	26
29	30	RJ	2	3	4	5
27	28	29	30	31		
6	7	8	9	10		

June
Rajab/Sha'ban

S	M	T	W	T	F	S
					1	2
					11	12
3	4	5	6	7	8	9
13	14	15	16	17	18	19
10	11	12	13	14	15	16
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17	18	19	20	21	22	23
27	28	29	30	SB	2	3
24	25	26	27	28	29	30
4	5	6	7	8	9	10

July
Sha'ban/Ramadan

S	M	T	W	T	F	S
1	2	3	4	5	6	7
11	12	13	14	15	16	17
8	9	10	11	12	13	14
18	19	20	21	22	23	24
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25	26	27	28	29	RM	2
22	23	24	25	26	27	28
3	4	5	6	7	8	9
29	30	31				
10	11	12				

August
Ramadan/Shawwal

S	M	T	W	T	F	S
			1	2	3	4
			13	14	15	16
5	6	7	8	9	10	11
17	18	19	20	21	22	23
12	13	14	15	15	17	18
24	25	26	27	28	29	30
19	20	21	22	23	24	25
SW	2	3	4	5	6	7
26	27	28	29	30	31	
8	9	10	11	12	13	

September
Shawwal/Dhul-Qi'dah

S	M	T	W	T	F	S
						1
						14
2	3	4	5	6	7	8
15	16	17	18	19	20	21
9	10	11	12	13	14	15
22	23	24	25	26	27	28
16	17	18	19	20	21	22

October
Dhul-Qi'dah/Dhul-H(j)aj

S	M	T	W	T	F	S
	1	2	3	4	5	6
	15	16	17	18	19	20
7	8	9	10	11	12	13
21	22	23	24	25	26	27
14	15	16	17	18	19	20
28	29	30	ZH	2	3	4

November
Dhul-Hijjah/Muharram 1434

S	M	T	W	T	F	S
				1	2	3
				16	17	18
4	5	6	7	8	9	10
19	20	21	22	23	24	25
11	12	13	14	15	16	17

December
Muharram 1434/Safar

S	M	T	W	T	F	S
						1
						17
2	3	4	5	6	7	8
18	19	20	21	22	23	24
9	10	11	12	13	14	15
25	26	27	28	29	SF	2

ABSL signers’ responses to a picture of a calendar

- TIME+SEE+COUNT-ROWS+WRITE+TIME+CONTINUE+FLIP+SEE +COUNT-ROWS
- WRITE+ROW+MONTH+ROW+WRITE
- NUMBERS+ROW+MONTH+FLAT-ON-WALL+FLIP
- FLIP+WRITE+FLIP

Signs for ‘gas cooker’

- Signers draw on a few lexical items: COOK, TURN, WIDE-OBJECT, INSERT, FIRE, BURNER
- TURN + COOK + WIDE-OBJECT
- TURN + FIRE + 2 + BURNER + FIRE
- TURN + WIDE-OBJECT
- COOK + INSERT
- COOK + WIDE-OBJECT

In our data we do not have any one compound that is signed uniformly by all signers in the study

But some signs are conventionalized within a family, like the sign KETTLE

ABSL conventionalized sign: KETTLE

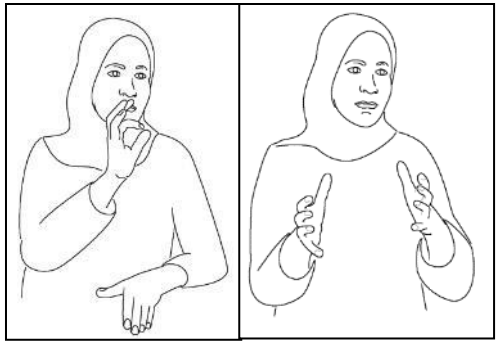
Family signs for KETTLE

a. CUP + POUR-FROM-HANDLE as signed uniformly by all three members taped from one family

b. CUP + ROUND-OBJECT as signed uniformly by all five members taped from a different family

a.

b.



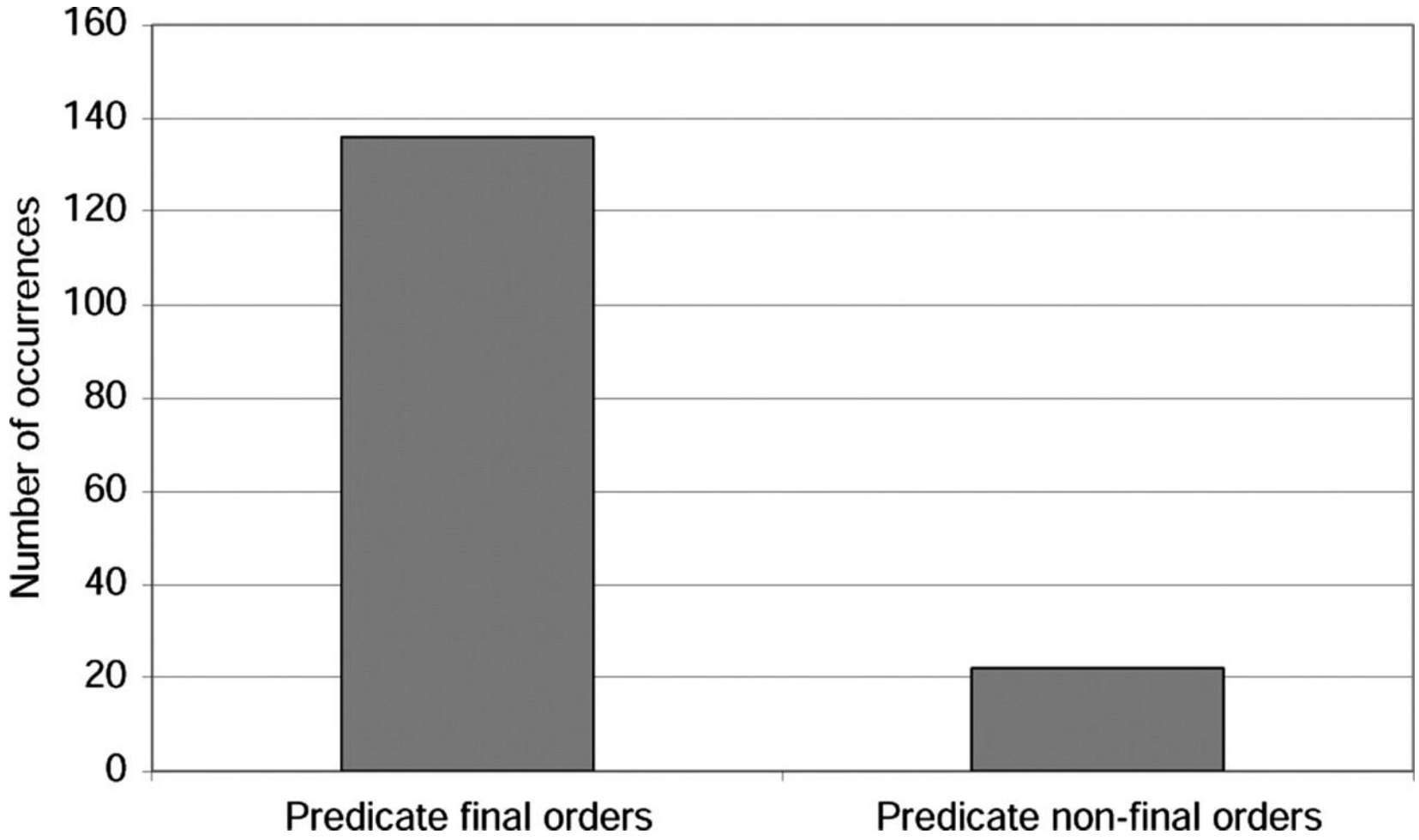
Nonlexical variation: BANANA

ABSL has SOV order

First results

- Sandler, Wendy, Irit Meir, Carol Padden, and Mark Aronoff. 2005. The emergence of grammar: systematic structure in a new language. *Proceedings of the National Academy of Sciences* 102:7.2661-2665.
- ABSL has reliable SOV order
- In this it differs from the surrounding spoken language of the village

Frequency of predicate-final orders compared with non-predicate-final orders



Sandler W. et.al. PNAS;2005;102:2661-2665

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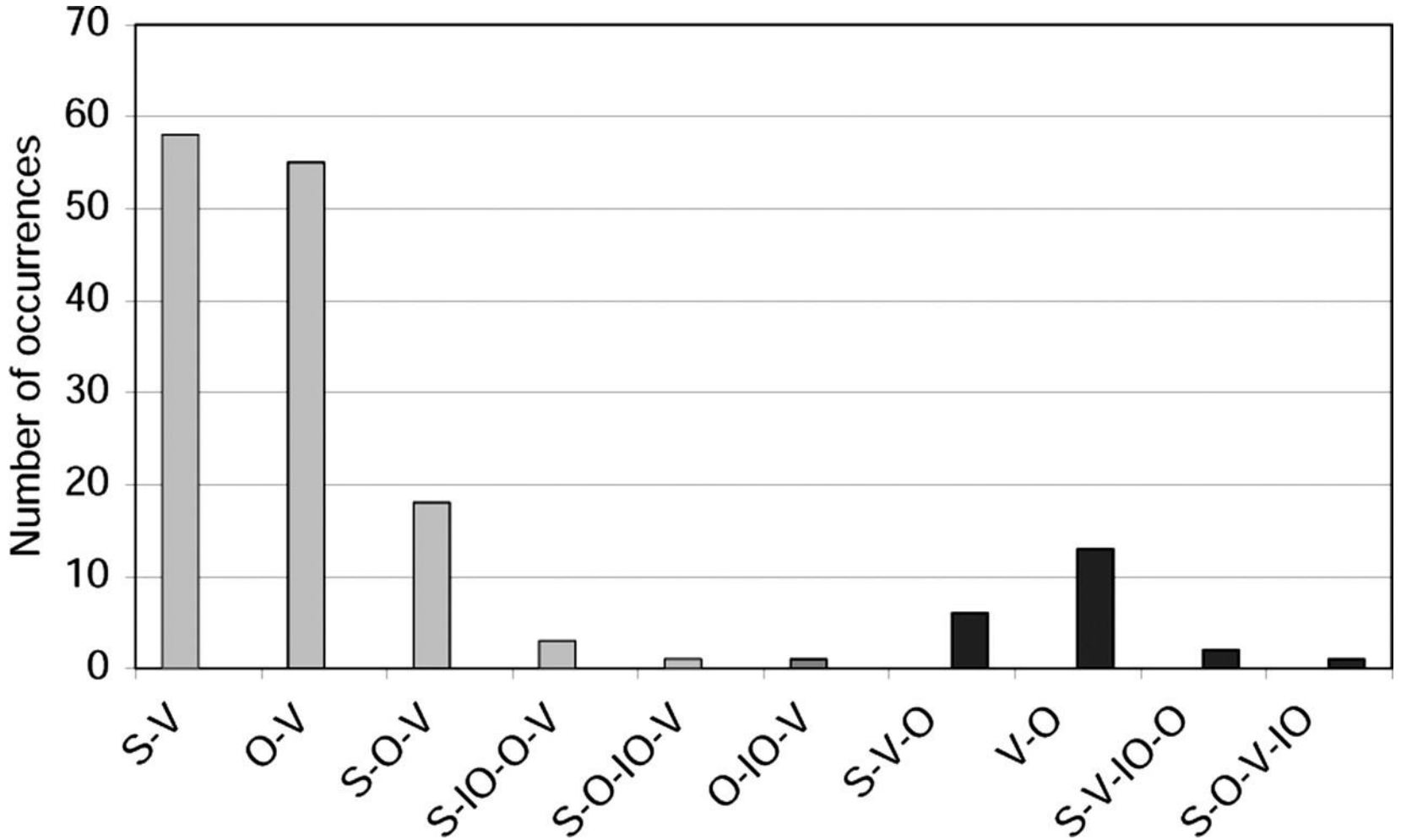
Frequency of order of all major constituents in the data set.



Wendy Sandler et al. PNAS 2005;102:2661-2665

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The Al-Sayyid Bedouin Sign Language Research Group

THANKS !

Thanks to MIC for the invitation

Thanks to the people of Al-Sayyid

Thanks to Jon Rawski for slides on sign language

Thanks to the members of the Sign Language Research Laboratory at the University of Haifa

Thanks to our funders: BSF, ISF, NIH