

# *The Typology of Number Borrowing in Berber*

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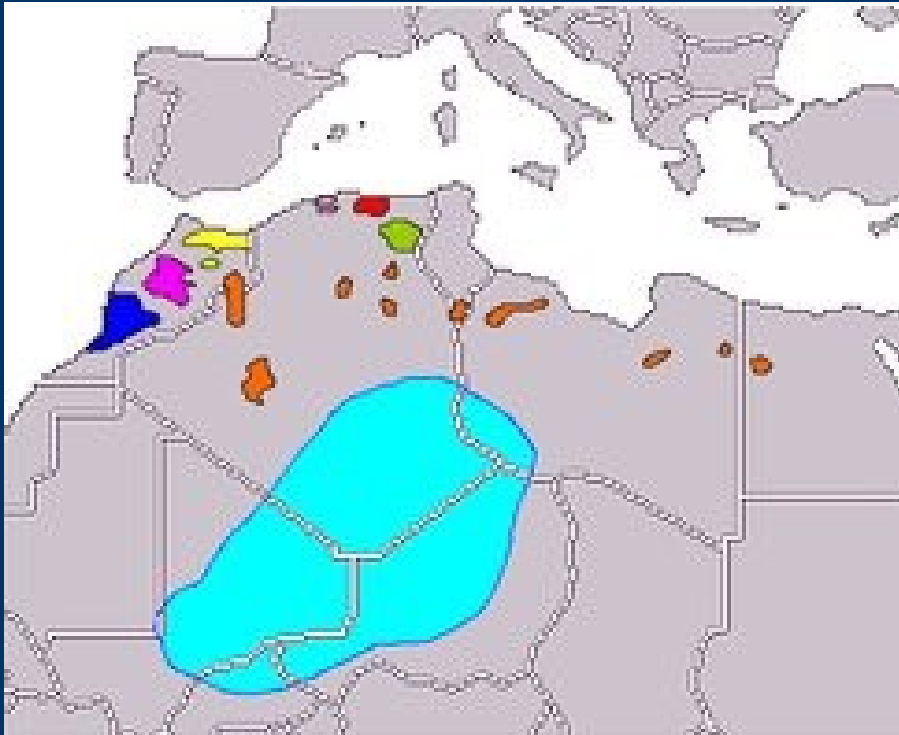
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# *When a language meets a language, what happens?*

- Biggest question in language contact: what factors affect the borrowing of a given feature?
  - The more the situations compared differ, the harder it is to isolate the relevant factors.
  - Berber offers a promising opportunity:
    - spoken in numerous relatively isolated enclaves
    - most in fairly similar sociolinguistic situations
    - most in contact with the same languages
  - Numbers: widely borrowed, well-documented
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# *Introduction*



- Berber (or Tamazight) is a family of closely related languages indigenous to North Africa.
- Largest number of speakers:
  - Tashelhiyt (south Morocco)
  - Tamazight (central Morocco)
  - Tarifit (north Morocco)
  - Taqbaylit (northeast Algeria)
- All but Tuareg (Sahara) surrounded by Arabic.

# *History*

- Berber is a subgroup of Afro-Asiatic
    - distantly related to Arabic, Egyptian, Somali, Hausa...
  - Already in North Africa before Roman conquest.
  - In the 7th century:
    - Brief Arab conquest
    - Berbers convert to Islam
    - Arabic becomes major city language, widely used in government and trade.
  - In the 11th century:
    - Arab tribes immigrated en masse from Egypt
    - result: large rural Arabic-speaking groups
  - Over time many Berber groups shifted to Arabic
    - some within living memory (Beni Mesra, Sened...)
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## *Borrowing illustrated*

- This long-standing influence is reflected in most Berber languages' tendency to use Arabic numbers, illustrated below:

	Tamashek	Taqbaylit	Algerian Arabic	Classical Arabic
1	iyæn	yiwæn	wahəd	wa:ħid
2	æssin	sin	zudʒ	iθna:n
3	kæraḍ	θlaθa	θlaθa	θala:θah
4	ækkoʒ	ɾəβʃa	ɾəbʃa	ʔarbaʃah
5	sæmmos	χəmsa	χəmsa	χamsah

## *Data available*

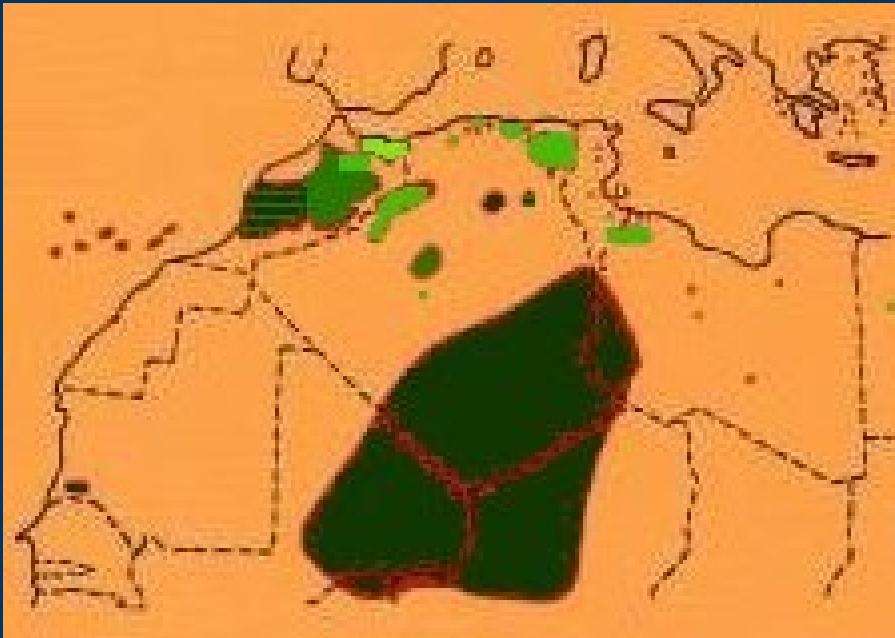
- First question: who borrows what?
  - A total of 52 sources were examined
    - dates vary from 1883 to 2007
    - some by native speakers, some by linguists, some by colonial administrators
    - Even amateur non-speakers can usually be trusted to get cardinal numbers right
  - How many languages reflected?
    - 19 out of 26 according to Ethnologue (2005)
    - 25 geographically separated enclaves, and central/south Morocco enclave has several patterns
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# Results

- In all but three records (excluding “million”):
  - all cardinal numbers above some point are Arabic
  - all below some point are Berber
- In “transitional” cases, some numbers can be expressed in either.

Type	Berber	Arabic	Sources	Langs	Enclaves
<b>R*</b>	all attested	none	11	8	4 S Sahara
<b>Transitional</b>	1 to $\geq 10,000$	$\geq 1000$	1	1	1 Tumzabt (1898)
<b>Transitional</b>	1 to 29	$\geq 3$	1	1	1 Tashelhiyt (Tazerwalt)
<b>Transitional</b>	1 to $\geq 50$	$\geq 21$	1	1	1 Tumzabt (1969)
<b>Transitional</b>	1 to 99	$\geq 20$	1	1	1 Ghadames (1904)
<b>Transitional</b>	1 to $\geq 30$	$\geq 11$	1	1	1 Ghadames (1973)
<b>Transitional</b>	1 to 10	$\geq 2$	1	1	1 Teggargarent
<b>R3</b>	1 to 3	$\geq 4$	7	3	3 CNW Africa
<b>Transitional</b>	1 to 3	$\geq 3$	1	1	1 Teggargarent (Maliki)
<b>R2</b>	1 to 2	$\geq 3$	23	10	16 Most of N Africa
<b>R1</b>	1 only	$\geq 2$	3	2	2 N Morocco
<b>Mixed</b>	1-6, 8-10	7 ( $>10?$ )	1	1	1 Jerbi (1883)
<b>Mixed trans.</b>	1 to 19, partly 21-99 $\geq 10^*$		1	1	1 Tashelhiyt (Ighchan)
<b>Mixed trans.</b>	1 to 19, partly 21-99 $\geq 20^*$		1	1	1 Tashelhiyt (Achtouken)

# *Distribution*



- This map illustrates the types' distribution:
  - R\* in the south
  - R2 in the north
  - R3 in C Morocco and SW Algeria
  - R1 in N Morocco
  - Transitional/mixed in S Morocco and small Saharan oases



## *What's going on?*

- In the South, where Arabic influence is least, the original Berber numbers are retained
  - In the North, where Arabic influence is greatest, the Arabic system almost entirely replaces Berber
  - Data consistent with three (local) typological claims:
    - 1 is always retained
      - universal absolute? cf. Greenberg 1978:290 - but Japanese
    - 2, and then 3, are far more often retained than others
    - If  $n$  is retained, so are all numbers  $< n$ 
      - cf. Greenberg 1978:289's near-universal 54: “If an atomic numeral expression is borrowed from one language into another, all higher atomic expressions are borrowed.”
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# Why?

- 1 also functions as a determiner:
    - *hærcæt iycæn*  
thing one  
a (certain) thing (Tamashek - Heath 2005:250)
  - 2 and 3 are special:
    - dual, trial numbers well-attested; higher always vague. (Corbett 2000)
    - highest number in non-productive number systems  $\leq 5$  (Greenberg 1978:256)
    - perceived without counting (subitised - Hurford 1987)
    - learned earlier - newborns distinguish 2 from 3, but not 4 from 6 (Antell & Keating 1983)
    - Mean short-term memory limit is 3-5 (Cowan 2001)
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# *Diachronic development*

- In much of the middle, in a zone stretching from southern Morocco to northern Libya, we can witness the shift still underway
  - Direct evidence for Tumzabt (central Algerian Sahara), Ghadames and Nafusi (NW Libya)
    - 1898/1904/1898 sources show more Berber numbers than 1969/1973/1942 sources
  - Indirect evidence for Tashelhiyt (south Morocco), Teggargarent (central Algerian Sahara)...

# Sex differentiation

- Tashelhiyt (Tazerwalt):
    - “Also, for the numbers 3-29 one frequently chooses the Arabic terms (ie. those in §171.) The women and small children of the Taẓerwalt-Shlûḥ by preference count (as far as possible) with the Berber numbers, the men by preference (from 10 up) with the Arabic ones. Therefore the Shlûḥ call the Berber numbers laḥsâb ntimgârin, and the Arabic ones laḥsâb niirgâzeṇ - ie women's counting vs. men's counting.” (Stumme 1899:102)
  - Teggargarent (Maliki):
    - “This latter term [*chared*, Berber for '3'] is scarcely used except by women, men usually using *tlata* (Arabic for '3'.)” (Biarnay 1925:188)
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# *Sects differentiation*

- In Teggargarent religious affiliation is also a factor:
  - Some speakers are Maliki Muslims
    - along with most Algerians
    - including their Arabic-speaking neighbours
  - Others are Ibadi Muslims
    - most Algerian Ibadis speak Tumzabt
    - the Mzab, where they live, is fairly close
    - Tumzabt has retained Berber numbers up to at least 20
  - Forms above 3 are used mainly by Ibadis (Delheure 1987)

# *Semantic differentiation*

- In many R2/R3 languages, Arabic numbers have replaced even the lowest numbers in specific contexts...
  - time-telling:
    - *rwaḥda* “one o'clock” vs. *iʒən* “one” (Tarifit, Ouhalla p.c.)  
cf. Maghreb Arabic *əl-waḥd-a* (DEF-one-F) “one o'clock”
  - counting days/months/years:
    - Special Maghreb Arabic forms: dual *-ayn*, shortened *θəlθ-*, *rəbʕ-*, *xəms-*... eg *yumayn* “two days”, *θəlθ iyyam* “three days”
    - widely borrowed whole:  
*iyumain* “two days”, *təlt iyam* “three days” (Siwi, Laoust 1932)  
vs. *sən* “two”, *tlata* (<Ar.) “three”
  - counting:
    - “The Arabic numbers 1- 3 are used only for counting in order without naming things... The Berber numerals are used elsewhere.”  
(Ayt Ayache Tamazight, Abdel-Massih 1971:22)

# *Conclusions*

- Number borrowing is affected by:
    - Social factors
      - degree of contact (hence area and gender differences)
      - domain of contact (eg time-telling)
    - Psychological factors
      - subitisation (hence wide retention of 2 and 3)
      - processes involved (sequential counting vs. reference)
    - Linguistic factors
      - Function (determiner “one” reinforcing number “one” )
      - Transparency (“three days” not divisible into standalone words)
  - Synonymy in number systems:
    - is attested
    - is unstable
    - is a transitional stage to a new system's adoption
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