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On Lexical Obsolescence in Tacawit: The Case of Six Berber Fauna Terms

Chaira Farid
University of Constantine 1 Frères Mentouri – Algeria
Laboratoire National de Didactique du Français LANADIF
f.chaira.84@gmail.com
0000- 0001-9948-0486
Pr. Hamada Hacène
Ecole Normale Supérieure Constantine – Algeria
Laboratoire National de Didactique du Français LANADIF
hacene.hamada@gmail.com
0000- 0001-6911-1882

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Abstract: *The present paper gives an account of a cross-regional study of lexical obsolescence in Tacawit. It aims to compare the rates of lexical erosion across three regions: the Aurès Massif, Occidental Aurès and Oriental Aurès. The data of the study were collected as part of a doctoral research project on contact-induced lexical erosion in Tacawit. For purposes of brevity, however, this paper is confined to the analysis of the data obtained from one semantic domain, namely animal lexicon. Six basic concepts denoting six species were examined. The study revealed significant differences in the rates of lexical erosion between the three regions. The Massif retained most of the Berber variants, and, to a lesser degree, Occidental Aurès. In Oriental Aurès, however, there was a general tendency towards lexical replacement. This regional variation in lexical maintenance reflects different social tendencies within Aurès towards the effects of contact between Berber and Arabic.*
Keywords: *language contact - lexical borrowing - lexical erosion - Tacawit.*
Résumé : *Cet article présente une étude interrégionale de l'obsolescence lexicale dans le chaoui. Il vise à comparer les taux des pertes lexicaux entre trois régions : le massif de l'Aurès, l'Aurès occidental et l'Aurès oriental. Les données de l'étude ont été collectées dans le cadre d'une recherche de doctorat sur l'érosion lexicale induite par le contact des langues. Par souci de concision, cet article se limite à l'analyse des données obtenues dans un seul domaine sémantique, à savoir le lexique animal. Six concepts de base indiquant six espèces ont été examinés. L'étude a révélé des différences significatives dans les taux d'érosion lexicale entre les trois régions. Le Massif a conservé la plupart des variantes berbères et, dans une moindre mesure, l'Aurès occidental. Cependant, dans l'Aurès oriental, il y avait une tendance générale au remplacement lexical. Cette variation régionale de la maintenance lexicale reflète les tendances sociales*

Corresponding author : Chaira Farid

au sein de l'Aurès en ce qui concerne l'intensité du contact entre le berbère et l'Arabe.
Mots clés : *Contact des langues, érosion lexicale, emprunt lexical, le Chaoui.*

1. Introduction

Words are the least stable elements in the language system and, for this reason, the first to transfer when two cultures come into contact (Thomason and Kaufman, 1988; Winford, 2010). In contact situations, both minority and dominant languages borrow words from one another. Nevertheless, evidence from hundreds, if not thousands, of studies revealed that minority languages borrow more. The more intense the contact, the more a minority language imports to its lexical storehouse, and the deeper. By definition, borrowing entails importing items that one does not possess, but as will be seen later, lexical borrowing in minority languages often goes beyond the transfer of words denoting new referents. In intense contact situations, speakers of minority languages engage in borrowing words that denote basic notions, such as body parts, natural phenomena, basic human actions, and the like (Haugen, 1953; Brahimi, 2000; Kossmann, 2009, 2013). In this regard, it is interesting to consider the fate of the words duplicated. Linguists refer to this phenomenon using different terminology, such as lexical obsolescence, lexical erosion, lexical attrition, lexical replacement, and the like. Large-scale lexical replacement, which is subsequent to massive lexical borrowing, is viewed by linguists, and even lay native speakers, as a sign of a language losing ground to a more prestigious dominant one, or, to phrase it more accurately, a symptom of language death.

2. Lexical Borrowing and Lexical Replacement

Contact linguistics is mainly concerned with the understanding of the different linguistic phenomena that take place when languages engage in what is referred to as language contact, i.e. the condition where two or more languages are used in the same setting. One of the most studied phenomenon within the area of language contact is borrowing. Linguistic borrowing is defined by Thomason and Kaufman (1988) as "the incorporation of foreign features in a group's native language by the speakers of that language" (p. 21). Those features can be lexical, phonological, morphological or syntactic. Lexical borrowing, hence, can be defined, following Thomason and Kaufman (1988), as the incorporation of foreign lexical items in a language by its speakers.

Linguists distinguish, in terms of the motives that may drive a speaker to copy words from another language or dialect, between two types of borrowing phenomena, cultural and core borrowing (Myers-Scotton, 1993a, 2002; Haspelmath, 2009; Kossmann, 2013). The former was first coined by Bloomfield (1933) to refer to the process of importing foreign items to designate meanings that do not have equivalents in the language of the recipient culture. Although, in theory, any language can generate native words for new referents by resorting to some other linguistic innovating processes, there is ample evidence in the literature that suggests that, in contact situations, borrowing is the norm. Weinreich (1953) states that "using ready-made designations is more economical than describing things afresh" (p. 57). Following Hockett (1958), linguists tend to agree that the most apparent motive for cultural lexical borrowing is of a need-filling nature (Hock, 1991; McMahon, 1994). Cultural borrowing is a bi-directional process in that both the minority and the dominant language borrow from one another (Bloomfield, 1933). The

difference is that the rate of borrowing varies depending on the direction of lexical transfer (Bloomfield, 1933). In most, if not all, contact situations, minority languages borrow from the dominant languages they are in contact with more than the other way round.

Interestingly, lexical borrowing is not always motivated by necessity. Speakers of minority languages do actually borrow words for meanings that already denoted in their language. Haugen (1953) states that "borrowing always goes beyond the actual needs of language" (p. 373). Bloomfield (1933) distinguishes between cultural borrowing and intimate borrowing that occurs between two languages that co-exist in one single community and which targets "speech forms that are not connected with cultural novelties" (p. 461). This process is known as core, or substitutive, borrowing (Haspelmath, 2009; Kossmaan, 2013). Myers-Scotton (1993a) states that core borrowings are "taken into a language even though the recipient language already has lexemes of its own to encode the concepts or objects in question" (p. 5). Myers-Scotton & Okeju (1973) argues that this type of lexical borrowing takes place in intense contact situations and presupposes a widespread bilingualism (broadly defined as the condition where individuals are able to communicate in more than one language). Myers-Scotton (1993b) contends that core borrowings are distinguished by the fact that there is "no urgent consensus" mandating their use on the same scale compared to cultural borrowings (p. 175). Core borrowing, contrary to cultural borrowing, is, most often, one-sided, from the dominant to the minority language (Bloomfield, 1933; Hockett, 1958). The question of why speakers of a given language borrow words for meanings that already exist in their native language has attracted the attention of many linguists. Most scholars seem to agree that the main motive for core borrowing is prestige (Hockett, 1958; Myers-Scotton, 2002; Haspelmath, 2009). McMahon (1994) argues that "the second major motivation for borrowing is essentially social, and depends on perceptions of prestige" (p. 202). Hockett (1958) distinguishes, in this regard, between three types of prestige: people 'emulate those whom they admire', wish to be 'identified with' a group of people, and seek 'conformity with the majority' (p. 404).

Core lexical borrowing, counter to cultural borrowing which is additive in nature, leads usually in due time to a displacement of the native lexical equivalents duplicated by the loanwords, hence the appellation substitutive borrowing. Weinreich (1953: 54) points out that core borrowings affect the existing equivalents in 'one of three ways': (1) confusion between the content of the new and old word; (2) disappearance of the old word; (3) survival of both the new and old word, with a specialization in content". Hock (1991) contends that while need borrowings may well enrich the lexicon of a given language, prestige borrowings may lead to a "competition between an inherited and an innovated form" and may also end in a marginalization of the inherited form. Replacement of basic vocabulary, thus, can be explained by loss of prestige, for inherited forms grow less prestigious following the collective adoption of foreign words that grow more and more prestigious.

3. Lexical Borrowing in Berber

It is probably not an exaggeration to claim that Berber is a contact language par excellence. From its most distant recorded history to this date Berber has experienced cross-linguistic influence with many languages of the Mediterranean basin. Foreign influence of such

languages was exerted on the phonology, morphology, and syntax of Berber, but is more obviously noticed in the area of lexicon.

Although the most ancient loans can be traced to more than one single language, there are two major languages that exerted more effect in that particular period, Punic and Latin. From the former, Berber borrowed *aẓalim* (onion); *aṛmun* (pomegranate); *aḍeffu* (apple); *ɣanim* (reed); *aẓarif* (alum); *afḍis* (hammer); *agelzim* (hoe), *jadir* (wall); and others (see Blažek, 2014 and Kossmann, 2013). The influence of Punic is noticed more in the domain of cultivated plants, cultural objects and mineral resources (Kossmann, 2013). Influence of Latin, however, seems to be more far-reaching. Borrowings attributed to this Indo-European language include *aqeṭṭus* (cat); *falku* (falcon); *fullis* (chick); *tafirast* (pear-tree); *kaṛdus* (thistle); *tkilsa* (mulberry/ mulberry tree); *fleyya* (pennyroyal); *tayda* (pine); *urti* (garden); *iger* (field); *lfurnu* (stove); *atmun* (plough-beam); *tɣawsa* (thing); *sakku* (bag); *ṭyuga* (pair); *tilmi* (file), and many more (Laoust, 1920; Kossmann, 2013). An example of more familiar Latin loans in Berber is observed in the names of months in the solar calendar (see Kossmann, 2013 for a detailed treatment).

The influence of Latin on Berber is not exclusive to ancient times. Its effect was revived through Latin languages (mainly French and Spanish) during the 19th and 20th centuries due to European colonization of North Africa. Of these two languages, French seems to have had bigger influence being the dominant language of administration, law and education, as well as other domains in Algeria, Tunisia and most of Morocco. Loans from French are more noticeable in the administrative and technical domains (Chaker, 1991). Spanish influence is mainly recorded in Tarifit spoken in the Rif region north of Morocco (Kossmann, 2009).

Despite the significance of the influence from these languages, the most important influence on Berber lexicon came from Arabic. Following Islamic conquests of North Africa and Berbers' conversion to Islam, a long period of intense language contact and cultural assimilation began to take place. Pride of place was given to Arabic, being the language of Quran and religious practices. Thousands of Arabic words were imported to Berber to cope with the social and cultural changes that were taking place. Of the early loans imported from Arabic to Berber, Boogert and Kossmann (1997) highlight three attested key terms: *ẓẓall* (to pray), *ẓum* (to fast), and *tamezgida* (mosque). Importing these three Arabic terms, we believe, presupposes the introduction of other notions, such as *lquṛan* (Quran) and *ɣemḍan* (Ramadan), and the like. Many Berber dialects also used Arabic loans to denote daily prayers: *lefjer*, *ddhuṛ*, *lɛaṣeṛ*, *lmeɣreb*, & *leɛca*. The borrowings presented above are far from being exhaustive in the domain of religion and beliefs, nor is it the only area affected by Arabic loans. Rather, such loans exist, though with different rates, in all semantic domains (see Kossmann, 2013).

The influence of Arabic has certainly become more important in the post-independence period as Maghribian states adopted Arabization policy in all sectors, of which the educational, administrative and media sectors seem to have exerted the most direct effect. In many Berber dialects, Arabic loans displaced not only Berber original forms but also many of the previous loans borrowed from Egyptian, Punic and Latin, for example *iḥebba* vs. *teyni*, *lebṣel* vs. *aẓalim*, *tajnant* vs. *urti*, etc.

A point worth noting regarding the nature of loans imported from Arabic is that they originate from Classical Arabic and Dialectal Arabic as well. Some studies revealed that

Arabic vernaculars, rather than Classical or Standard Arabic, were the major sources of loans. For instance, in a study conducted on 62 Kabyle native speakers living in Tizi Ouzou and Oran, Brahimi (2000) found 22.7% of the words in the corpus she built to be loanwords: 19.2% were from Algerian Arabic, 1.1% from Standard Arabic, and 2.4% from French. Kossmann's (2009) examination of Tarifit revealed 51.7% of loans in a 1526-item word list: 41.7% from dialectal Arabic, 3.2% from Classical or Standard Arabic, and 6.3% from French and Spanish.

Another important point to stress is the diversity that exists across Berber varieties regarding both the rates and nature of foreignisms. Although loans exist in all Berber dialects, some varieties are more affected than others. Chaker (1984) compared Kabyle, Tashelhiyt and Tuareg on a 200-item list and found that Tuareg has less loanwords (5%) compared to Tashelhiyt (25%) and Kabyle (38%). Kossmann (2013) used a text analysis method to compare the rates of Arabic loans in traditional fictional oral narratives in four Berber dialects. He found the proportions of Arabic loans as follows: Ghadames (18%), Tashelhiyt (36%), Iznasen (42%) and Figuig (44%). Using dictionaries and other published texts, Kossmann (2013) also made a comparison between some Berber varieties on Leipzig-Jakarta 100 list. He grouped the results into three sets in terms of borrowing rates: low percentage (0-5%) in Ghadames and Awjila; medium percentage (6-15%) in Tashelhiyt, Tarifit, and Kabyle; and high percentage (over 15%) in Senhadja de Srair, Siwa, Ghomara, Nefousa, and El-Fogaha. It is important to note, however, that the number of studies that address the issue of loanwords in Berber, in particular from quantitative or lexicostatistic perspective, are still lacking. Nonetheless, some dialects have received more attention than others. One of the least studied varieties in this regard is Tacawit.

4. Tacawit: The Language and the Community

Tacawit /θʃæwiθ/, or Chaouia, to use the Arabic appellation, is the name of the Berber dialect spoken in Aurès and its adjacent areas in the east of Algeria, administratively ranging mainly over the provinces of Batna, Khenchela, Oum el Bouaghi and Tebessa, in addition to few territories in the neighboring provinces like Biskra, Setif, Souk Ahras and Guelma. The Chaouia speaking population is one of the largest Berber speaking groups in Algeria, second only to Kabyle. The current number of its speakers, however, is not available due to a lack of updated official censuses. In Ethnologue's 19th edition, Lewis et al. (2016) estimated a population of 2.13 million as for 2016.

Tacawit is a spoken language; it is only used in domains of language use where spoken communication is possible. In domains where written communication is the norm, Arabic, or sometimes French, is used. Rivalry over domains of language use in Aurès today grows between three languages that constitute the agents of the language contact situation: Tacawit, Arabic (Dialectal and Standard), and French. In Aurès, Arabic is the second language as well as the language of education for most people. The use of Tacawit also differs from one region to another. In rural communities, Tacawit is dominant, and is the first language for most of the members of society, who learn Arabic later in their adolescence or adulthood. This is mostly true in the Aurès Massif and, though to a less degree, in Occidental Aurès. In the peripheral rural communities of Oriental Aurès, Tacawit is less used, especially among the descendant generation. There is a sweeping language shift in such communities that it is rare to find teenagers who know the language.

In provinces' capital cities and bigger urban centers, the acquisition and use of Arabic is the norm. It is not frequent to observe fluent Tacawit speakers who were born in these capital cities. Most often, the people who know and use Tacawit are those who acquired it because they lived their early life in rural regions.

The breach of natural intergenerational language transmission and the subsequent language shift reflects sheer negativity in people's attitudes towards this language (Guedjiba, 2013; Hadjarab, 2016). The spread of such negative attitudes is in part due to the relatively inferior status that Tamazight has compared to Arabic and French. Although, Tamazight was declared an official language in the last revision of the constitution in 2016, and despite the promises made to develop the language and to do what is necessary to maintain it and preserve it as a national heritage, there are few measures taken to bring to fruition such promises. For example, teaching Tamazight, even in the regions where it is spoken, is, with the exception of the Kabyle region, still facing obstacles. In Aurès, Tamazight is taught in the Massif, whereas the majority of schools elsewhere did not yet introduce it as a school subject (see Guedjiba, 2012). The teaching of this language was made optional. The decision to include in the school is made by principals or pupils' parents who in most cases do not see any benefit from learning Tamazight.

Tacawit is one of the less documented Berber varieties. Most of the existing literature on this particular Berber variety, on top of its scarcity, is of a sociocultural nature. Works exclusively targeting the grammar of Tacawit are very limited and fragmentary. Studies on language contact in Tacawit speaking region and its effects on the language are few and far between.

An important study to mention in this regard is Menaa (2004). This is a corpus-based study of the effects of contact with Arabic and French on the lexicon and syntax of the variety of Tacawit spoken in Ngaous city. The issue of lexical borrowing was given central importance in the work. In the corpus he compiled, Menaa (2004) found the proportion of Berber words compared to Arabic and French loans as follows: 41.25% vs. 45.08% vs. 13.66% respectively. Menaa (2004) also addressed the rate of loans in different word classes (nouns, verbs, adjectives, adverbs and conjunctions), in addition to a comparison of the rate of such loans depending on the number of consonant in words' free morphemes, (see Menaa, 2004 for more details).

5. The Study

This section is concerned with the methodology followed in the present study. The first subsection gives an account of the geographical setting of the study, i.e. the different localities from which the data were collected. It also gives some details about the participants in terms of age distribution, gender distribution, and the size of the sample. The second subsection is concerned with the method used to gather data for the present investigation. It describes briefly the tool and procedure used in data collection, and presents the lexical variables targeted in this study.

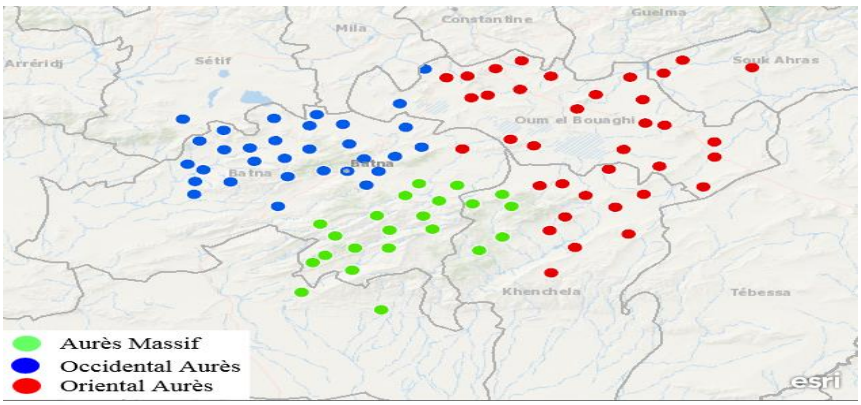
5.1. Participants and spatial scope

This study aims to compare the rates of lexical erosion across Tacawit speaking regions. The localities included in the present study belong administratively to the provinces of Batna, Khenchela, Oum el Bouaghi, Biskra, Setif and Souk Ahras (see Map

1 below). The data used were collected from 1723 informants who spread over a wide geographical area. Map 1 Below displays the 90 localities represented in this research. Most of the participants were recruited through friend-of-a-friend sampling technique. The speakers we managed to get into contact with were asked to complete the questionnaire, and then distribute it to some other speakers of Tacawit that they know (relatives, friends, etc.). Moreover, some of the data were gathered through online surveys. Informants include both males and females (F: 61% vs. M: 39%) ranging in age from 18 to 100 years old.

5.2. Method

As mentioned earlier, this study is part of a doctoral research project that investigates contact induced lexical erosion across the Aurès. To attain such aim a 60-item lexicostatistic list covering a variety of semantic domains was devised. The participants were asked to provide the Berber equivalent for every notion in the list which was presented in Arabic. For this research paper, the focus will be laid on one single semantic domain from the original list, namely animal lexicon. Six basic lexical items of this domain were emphasized: *bird*, *fish*, *cat*, *bee*, *pigeon* and *female goat*. The procedure of asking the participants to write down the Berber word for each item seems more reliable than providing them with the variants of the lexical variable and ask them to choose the Berber word. It would be easier for a speaker to recognize the Berber variant among a number of loanwords than to retrieve that variant on his or her own, in particular those words that have become less widely used by the speech community.



Map 1. Research Locations

It is important to notice at this stage that the value of lexical erosion for each lexical variable is measured by subtracting the percentage of respondents who provided the Berber variant(s) from the total number of informants who completed the questionnaire. Conversely, lexical maintenance is measured in terms of the percentage of "valid Berber variants", i.e. those responses which accurately denote the *signified* in question using Berber words. The rate of lexical erosion (R) for each variable can then be calculated using the following formula:

R = 100 – % valid Berber variants

6. Results

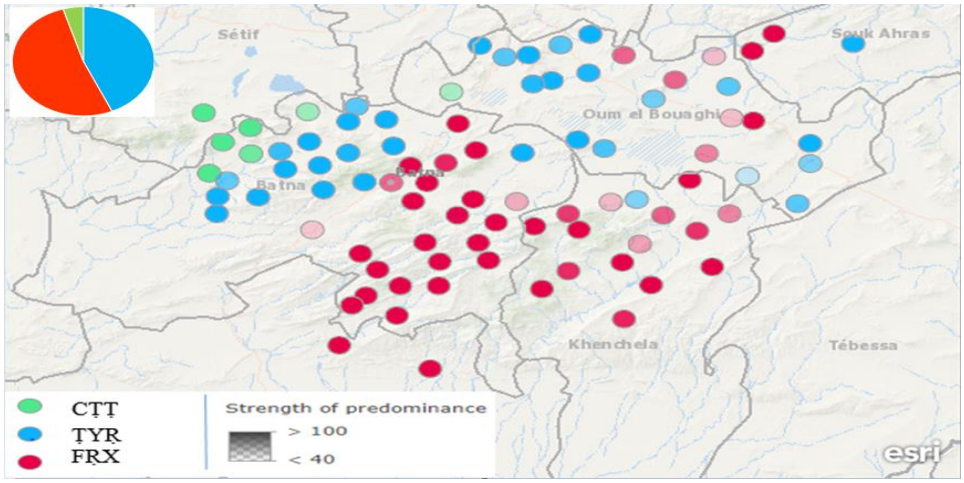
Data analysis revealed a high degree of lexical variation regarding the maintenance and loss of the Berber variants of the variables studied. We will deal in details with each of the six lexical variables in the following sections. It is important to note that the data collected for the doctoral project were intended to be analyzed with reference to a number of extralinguistic factors: age, gender, tribe, region and residential history. The analysis in the present paper, however, is restricted, for reasons of brevity and space, to one single factor, namely region.

6.1. Bird

The analysis of data showed that among the six lexical variable investigated in this paper, the Berber variant for this lexical variable is the least preserved. The variant, *acṭiṭ* [æʃtˤɪtˤ], accounted for only 04.38% of the total number of tokens. By contrast, the vast majority of informants opted for Arabic loans as a response. Three Arabic loans were given, two of which dominated informants' responses: *afṛux* [æfrˤux], occasionally *l-ferx* [ˀlfərx], (49.58%), and *aṭeyyaṛ* [ætˤəjjarˤ] (41.36%). The third Arabic loan, *a-ɛeṣfuṛ* [æʕəsˤfurˤ], was provided by an insignificant proportion of speakers, representing only 0.54% of all tokens. Other responses were provided by tiny proportions of informants, but they either designated specific subspecies, such as *ẓẓawec* [zˤæwəʃ], Berber for passer, (03.66%), or other bird species. The proportions shown above indicates that Arabic loans are dominant compared to the Berber variant ($\chi^2 = 1318.35$, $p < 0.001$). The data also revealed that besides being provided by a larger number of speakers ($\chi^2 = 12.39$, $p < 0.001$), the variant *afṛux* spreads over a larger area compared to the variant *aṭeyyaṛ*.

Lexical variation is, to a great extent, regionally determined for this variable. The Berber variant was recorded in a limited number of locations in the northwest of Occidental Aurès, namely Ain Azal, Guigba, Ras el Aioun, Gosbat, Rahbat, Souk Naamane, and Ouled Sellam. It was also provided, though by small minorities, in few other locations, mainly Batna city, Ain Mlila and Oum el Bouaghi city. It should be noted that most of the speakers who produced the Berber variant in these latter locations were originally from one of the localities mentioned earlier, namely Souk Naamane (for those in Ain Mlila and Oum el Bouaghi city), Ras el Aioun and Ouled Sellam (for those in Batna city).

The two main Arabic loans mentioned earlier were also distributed differently across the different regions. The variant *afṛux* dominates over a large area that stretches from the southeast of Occidental Aurès through all of the Aurès Massif to cover most of the southern part of Oriental Aurès. It is also dominant in a number of locations in the north-central locations of Oriental Aurès (Bir Bouhouche, Sedrata, Zorg, Fkirina, and Ain Diss). The variant *aṭeyyaṛ*, on the other hand, is prevalent in the territory that extends from the southwest through the northeast of occidental Aurès to the northwestern part of Oriental Aurès, in addition to extreme northeastern localities of the same region (Mdaourouch, Berriche, Rahia, Meskiana, and Dhalaa). The two loans seem to be in rivalry, however, in the adjacent localities (Oued Nini, Ain Beida, and Ksar Sbahi) (see Map 2 below).

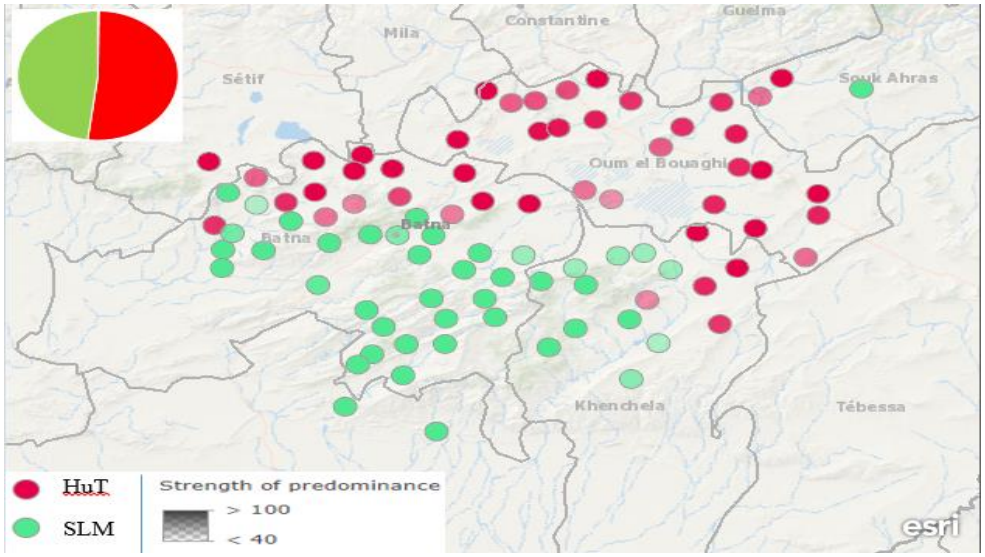


Map 2. Regional Distribution of Berber and Loan variants for "bird"

6.2. Fish

As to the second lexical variable, the results revealed two major variants in informants' responses, the first is Berber and the second is an Arabic loan. The Berber variant, *t-aslem-t* [*θ*æsləm*t*] accounted for 47.66% of the total tokens, whereas the Arabic loan accounted for 51.44%. The latter variant was expressed in a variety of forms that all stem from one common root, ḥūt [ħut] (e.g. *lḥūt*, *taḥūtit*, *tiḥūtet*, *taḥwit*, etc.). In addition to these two variants, there are a number of other variants which were provided by a small minority of informants. For example, four participants (0.26%) provided an alternative Arabic loan, *samaka* [samaka]. As can been noticed, the former Arabic loan is dominant ($\chi^2 = 791.08$, $p < 0.001$). It seems apparent, then, that the second alternative loan is not yet an established loanword in Tacawit, especially considering that it is not at all adapted to the Berber phonological and morphological system. It is also worth to note that a very insignificant proportion of the participants (0.58%) provided a number of responses which could only be seen as deviations of the Berber form (viz. *imselmen*, *izermen*, *asnem*, *asman*, and *aslu*). In such forms, it is easy to notice that the speakers have exerted a certain modification of the original form, SLM (addition, omission, substitution, or reordering).

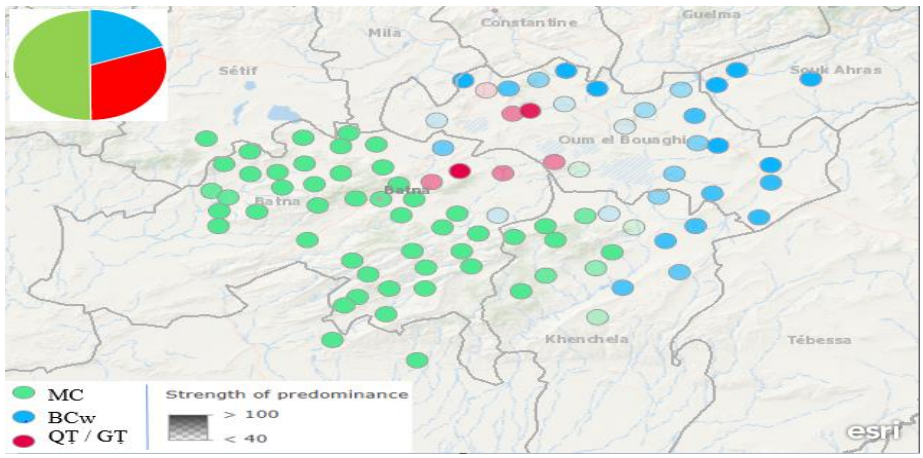
Overall, the difference between the proportions of Berber and Arabic loans is not statistically significant ($\chi^2 = 2.56$, $p = 0.11$). This value suggests the existence of an apparent balance between the two forms. Yet, close analysis showed that this apparent stability does not hold in all regions. Similarly, to our previous concept, region was found to be a significant factor for determining lexical variation for this lexical item (see Map 3 below). The Berber variant is dominantly used in the territory that extends from the west through the south of Occidental Aurès (namely in Ain Touta, Boumagueur, Sefiane, Ouled Si Slimane, Taxlent and Ngaous) to include all of the Aurès Massif, where it is completely dominant ($\chi^2 = 327.19$, $p < 0.0001$), in addition to some other locations in the southwest of Oriental Aurès (Chechar, Babar, Tamza, Khenchela city, El Hamma and Kais), though it is not as dominant as in the Massif. The loan variant, on the other hand, dominates over a territory that extends from the north through the east of Occidental Aurès (Gosbat, Rahbat, Talkhamt, Ouled Sellam, Merouana, Oued el Ma, Souk Naamane, etc.) and almost all over Oriental Aurès, more accurately the north and the southeast.



Map 3. Regional Distribution of Berber and Loan variants for "fish"

6.2. Cat

Speakers' responses to the third lexical item, *cat*, cluster into three main variants. The Berber variant represented half of all the tokens (50.12%), and was realized through a number of derivations of the Berber root MCW, of which the form *mucc* [muʃʃˤ] was overwhelmingly dominant (49.47%) compared to other forms, *amcic* [æmʃɪʃ]: 0.47%; *amecciw* [æməʃʃɪw]: 0.12%). The second dominant variant in speakers' responses is a loan attributed to the root QṬ / GṬ (31.35%). This variant was expressed in a number of related forms: *l-qeṭṭ*, *l-geṭṭ*, *aqeṭṭiw*, *ageṭṭiw*, *aqeṭṭus*, etc. The third dominant variant can be ascribed to the root BCW. The exact etymology of this form is problematic. To the best of our knowledge, apart from Tacawit, it is only used in Nefousa (Nait-Zerrad, 1998: 13). Its absence in the dictionaries of all the other Berber dialects, including Tacawit, poses serious questions concerning its Berber origin. This form accounted for 19.41% of all tokens, and was realized through two main derivations: *abecciw* [æbəʃʃɪw] (18.19%) and *lbecc* [ˀlbəʃʃ] (1.23%).

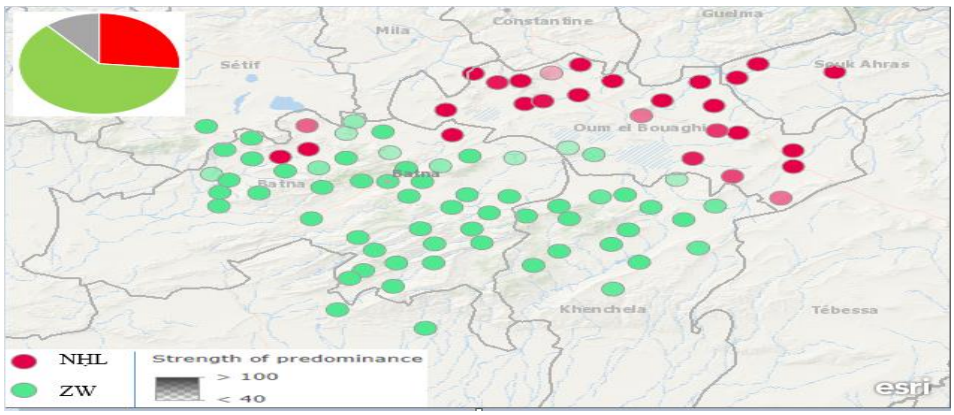


Map 4. Regional Distribution of Berber and Loan variants for "cat

The Berber variant is dominant in the Massif (98%) and most of Occidental Aurès (92.7%). It was also recorded in some places in the southwest of Oriental Aurès with different degrees of predominance (Kais, El Hamma, Khenchela city, Ensigha, Tamza and Chechar). Through the rest of Oriental Aurès, this Berber form varied from small proportions to total absence. The first loan variant dominates in Oriental Aurès, in particular the eastern part of the region. In the northwestern part, this loan undergoes a rivalry with the third variant. This latter is used predominantly in a narrow territory between the extreme southeast of Occidental Aurès (El Madher, Boumia, and Souk Naamane) and the northwest of Oriental Aurès (Chemora, El Fedjoudj, Ain Kercha, Hanchir Toumghani, and Ain Mlila) (see Map 4 above).

6.4. Bee

There are two dominant variants for this lexical item. The majority of speakers opted for the common Berber word used to designate the species in question, expressed in a number of related derivations that stem from the root ZW (e.g., *tizizwet*, *tzizwet*, *tzizwa*, etc.). This accounted for 62.29% of the total tokens. The Arabic loan, NḤL /nħl/, on the other hand, was provided by a minority of informants, accounting for 26.53% of all tokens. The difference between the proportion of the Berber form and the Arabic loan is significant ($\chi^2 = 168.65$, $p < 0.001$). Other informants provided Berber and Arabic loans that denote wasp rather than bee: RẒY (2.81%), expressed as *ireẓẓi*, *irẓeẓẓi*, *iwerẓeẓẓi*, or *aberzezzu*; *tusna* [θusna] (0.5%); *buzenzel* [buzənzəl] (1.87%). The rest of responses denoted other insects: *tbaɛuṭṭ* [θbæʕutˁ] (3.84%) (mosquito); *tagemt*/*tagent* [θægəmt, θægənt] (0.43%) (Berber for horsefly), etc.



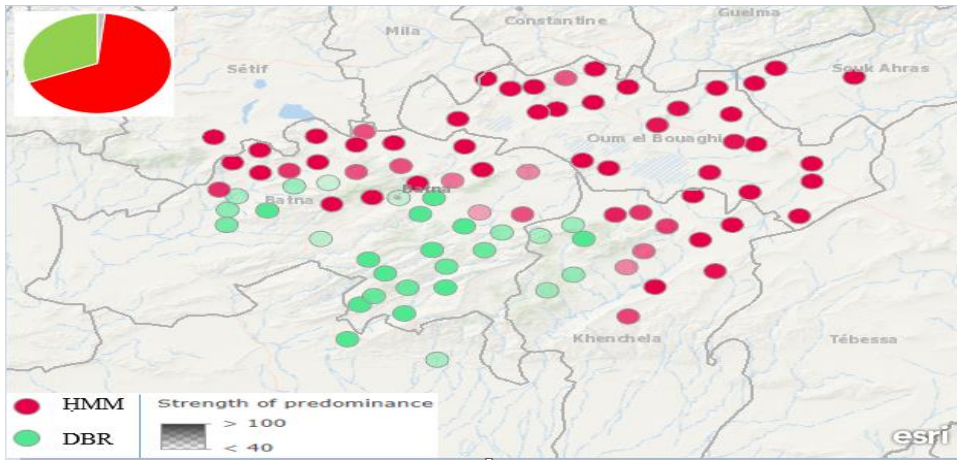
Map 5. Regional Distribution of Berber and Loan variants for "bee"

Map 5 above shows an almost perfect clustering of the Berber and loan forms for this lexical variable. The Berber form dominantly spread all over the southern part including hence most of Occidental Aurès, all of the Massif and the southern part of Oriental Aurès. The loan form, on the other hand, is dominant in the northern part of Oriental Aurès, in addition to a narrow territory in the extreme northeast of Occidental Aurès (Souk Naamane and Ain Yagout). The loan form is also used in a very narrow territory in the central north of Occidental Aurès (Talkhamt, Ksar Bellezma, and Ouled Sellam).

6.5. Pigeon

The Arabic loan ḤMM, realized most as *t-aḥmamt* [*θ*æħmæmt], dominated informants' responses for this item (67.02%). The Berber variant *t-adbir-t* [*θ*æðbır*θ*], on the other hand, accounted for 31.28% of informants' responses. The analysis revealed a significant difference between the proportions of the two variants ($\chi^2 = 207.21$, $p < 0.001$). Other speakers opted for some Berber words and Arabic loans that denote other bird species, such as *tmilli* [*θ*mıllı] (Berber for oriental turtle dove: 0.3%); *tasekkurt* [*θ*æsəkkur*θ*] (Berber for partridge: 0.38%); *afṛux* (0.44%), etc.

The Berber word for *pigeon* is maintained less than four other lexical items, *fish*, *cat*, *bee* and *female goat*. The only item that is less maintained than it is *bird*. The region where the Berber form is maintained is the Aurès Massif where it is overwhelmingly dominant ($\chi^2 = 224.36$, $p < 0.0001$). In this region, the Arabic loan is almost not used at all. We assume that the very few speakers who provided it to be aware of the existence of the Berber word, and probably know it at least receptively, but somehow they failed to deliver it. It is also the variant used most in the south and southwest of Occidental Aurès (Ouled Si Slimane, Sefiane, Boumagueur, Ngaous, and Taxlant). Conversely, the loan variant dominates over the rest locations in Occidental Aurès and all over Oriental Aurès (see Map 6 below). In these latter territories, the Berber form is used by a tiny minority, and was provided most by the elderly or speakers who lived a period of their lives in other regions where the Berber variant is used by most, or all, of the population.



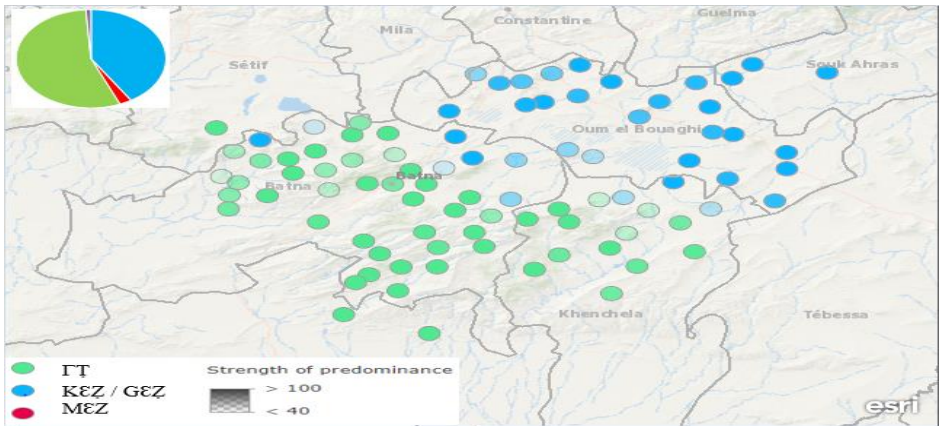
Map 6. Regional Distribution of Berber and Loan variants for "pigeon"

6.5. Female goat

Concerning our last item, *female goat*, data analysis revealed the following results. The majority of speakers opted for the Berber word tɣaṭṭ [*θ*ʁæt^{ʕ}], representing 55.17% of all tokens. The Arabic loan for this variable, MƐẒ, was provided by a tiny minority of informants, which accounted for 2.66% of all the tokens. It was realized as *tamɛazt* [*θ*æmʕæzt], *timeɛzet* [θıməʕzət], *lmeɛzet* [^{ə}lməʕzət], etc. However, the second dominant variant for this item is represented by a group of words that can be attributed to one common root: KƐẒ. It was expressed in a number of forms that differed basically in the phonological realization of the first consonant: *takɛuẓt* [*θ*ækʕuz^{ʕ}*t*], *tagɛuẓt* [*θ*ægʕuz^{ʕ}*t*], or *taqɛuẓt* [*θ*æqʕuz^{ʕ}*t*]. Although, this word is used in Tacawit to refer to the animal in

question, its exact meaning is not clear. Some of the informants we asked said it simply means female goat, others said it denotes an old female goat, and still others said it means a bad female goat. Its etymology is also not clear either.

We did not find it in the Berber nor the Arabic dictionaries we consulted. Its resemblance to the Arabic loan is conspicuous: KƐẒ vs MƐZ. Whether it is a result of a phonological change of the first consonant (m → k) is something that needs more inquiry. This form accounted for 41.06% of all informants' responses. Statistical analysis revealed a significant difference between the proportions of the three variants (χ^2 = 576.59, p < 0.0001). Similarly, to previous items, some informants provided responses that denoted species close to goat, mainly *tixsi* [*θ*ɪxsɪ] (Berber for ewe: 0.32%).



Map 7. Regional Distribution of Berber and Loan variants for "female goat"

The analysis of data revealed that lexical variation for the present item is also regionally determined. The Berber form, *tayaṭ*, is dominantly used in most of Occidental Aurès except for some places in the extreme eastern part of the region (χ^2 = 302.51, p < 0.0001), all of the Massif (χ^2 = 528.23, p < 0.0001) and the southern part of Oriental Aurès (χ^2 = 128.45, p < 0.0001). The third variant, on the other hand, prevails in the northern part of Oriental Aurès (χ^2 = 698.48, p < 0.0001), in addition to a narrow territory in the extreme east of Occidental Aurès (see Map 7 above).

7. Discussion

Based on the results showed above, lexical erosion of the Berber variants differed from one variable to another, but more importantly, it differed cross-regionally. If we apply the formula presented in section 5.1 above, we obtain rates of lexical erosion that go in the following decreasing order (with the first item being the least maintained and the last being the most maintained): *bird* (95.62%); *pigeon* (68.72%); *fish* (52.34%); *cat* (49.88%); *female goat* (44.83%) and *bee* (37.71%) (see Fig. 1 below). These rates match perfectly the distribution of the Berber variant across the regions investigated. The less maintained an item is, the narrower will be the area it is used in. The first lexical variable *bird*, for instance, is used across a territory that is the narrowest compared to all other items. The lexical variable *bee*, on the other hand, occupies a territory of use that is wider than those of the other five lexical items (check Maps 2 - 7 above).

Lexical erosion in this study was manifested in a number of ways. For some informants, lexical erosion or loss was inferred from their reluctance to provide any response whatsoever for one or more of the six items investigated. This avoidance strategy can be interpreted simply as a results of not knowing the Berber variant of the item in question. It may also be a result of uncertainty.

In some cases, where we managed to ask informants for the reason behind not responding to some items, we understood that those participants seemed hesitant to provide a response that they know is not a Berber but rather a loan. This purist attitude could be a result of a lack of understanding of the instructions of the questionnaire. It is likely that such informants assumed that the researchers considered as valid responses only those providing Berber variants.

More importantly, avoidance could be a result of a lexical retrieving difficulty that informants underwent due to absence of regular use of Tacawit. Some of the informants that we managed to get into contact with were able to recognize the Berber variants once they were mentioned to them. It seems more convincing to consider, therefore, that such Berber variants that those informants were not able to retrieve, but able to recognize later, belong to their receptive lexical knowledge. Proportions of such avoidances differed from one variable to another, as they differed across regions, but were only manifested by a small portion of participants.

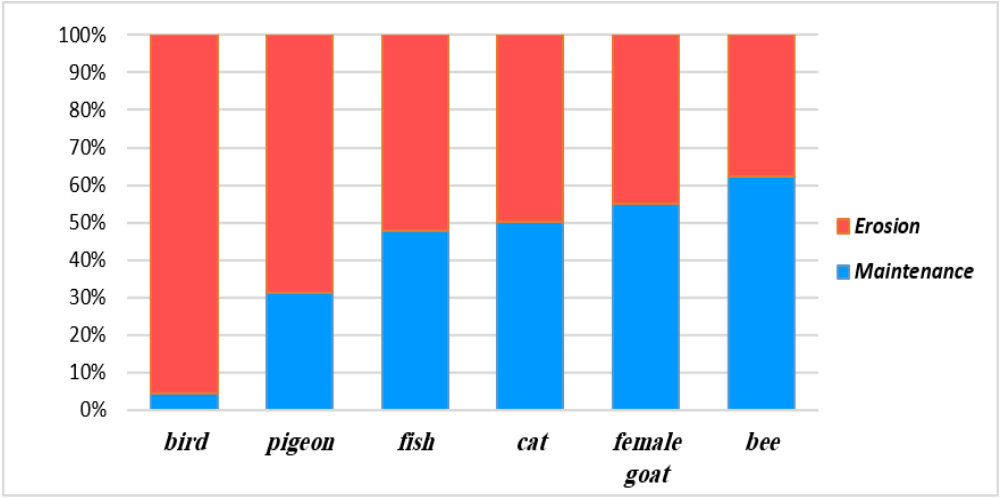


Figure 1. Rates of lexical maintenance and erosion for the six lexical variables

The strategy that informants resorted to most to compensate for not knowing the Berber form is, nevertheless, the use of loans. Proportions of loans in the data collected go in the following increasing order: *bee* (26.53%); *female goat* (43.73%); *cat* (49.88%); *fish* (51.7%); *pigeon* (67.06%) and *bird* (91.48%). The source language of the loans for five of the six variables (*bird*, *pigeon*, *fish*, *female goat* and *bee*) is Arabic, whereas the origin of the loan for *cat* is Latin *catus* (Kossmann, 2013).

The results showed that the Latin loan is still preserved by some speakers in Oriental Aurès in a form so similar to its root: *aqeṭṭus* (see section 6.3 above). The etymology of this word indicates how long-established the loan is. The presence of the forms *l-qeṭ* / *l-*

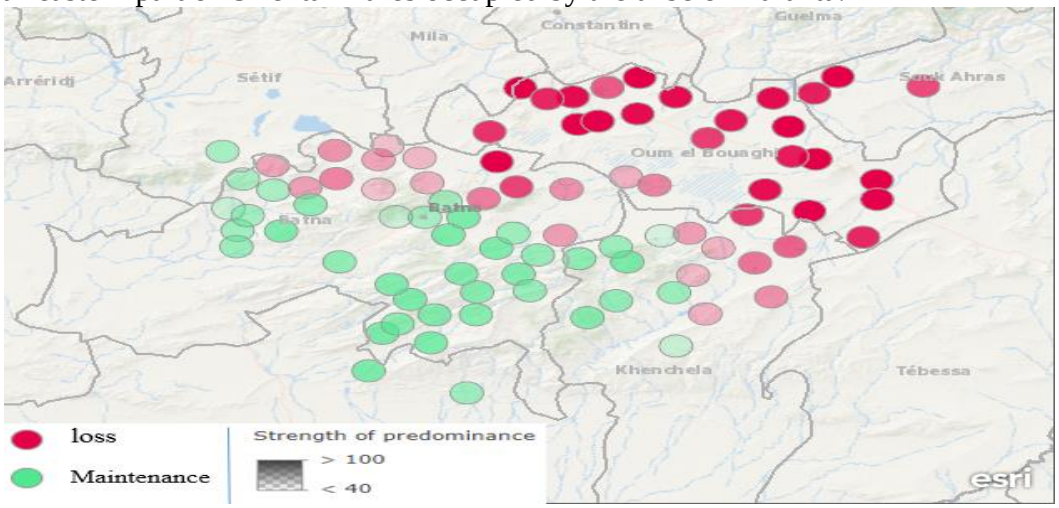
geṭ indicates that the Latin loan was either adapted to the structural features of Arabic or the concept was re-borrowed from Arabic anew. The rates of loans also indicate that the other five loans are also established borrowings. In other words, they are recognized and used by a fairly large number of speakers at least in certain regions, and seem to have been in use for a considerable period of time rather than being completely novel. These loans are also considered established borrowings because they were most often produced in forms that exhibit Berber morphological features, such as the presence of feminine morpheme ***t-*** (as in *taḥmamt, tineḥlet, tamɛazt*, etc.), the presence of initial vowel ***a-*** (as in *afṛux*, aṭeyyaṛ, ...), etc. More importantly, the variation we see in the morphology and pronunciation of these loans across the different regions also suggests strongly that they were borrowed for a time long enough to allow for such changes and variations to take place.

For each of the six variable studied, the number of Arabic loans that validly denote the animal in question is limited, usually one or two, whereas the other non-Berber responses provided were either non-established loans or inappropriate responses. It is worth noting, however, that for each of the variables, there was a number of informants, though very few, who provided the loan as well as the Berber form. This could be interpreted as a result of informants' awareness of the existence of both forms in use. It could also be because some informants usually use the loan, but learned the Berber form from other speakers in their community, such as their elders, speakers of other communities, through dialect contact, or through any other learning medium.

Lexical erosion in this study was also manifested in the failure of some informants to provide the correct name for the species intended in the question. Some respondents, for instance, used Berber words that denoted close, but different, species to name some of the animals in the list: for example, *ẓẓawec* (passer) for 'bird'; *tmilli* (oriental dove) or *tasekkurt* (partridge) for 'pigeon'; *tbaɛuṭṭ* (mosquito), *ireẓẓi*/ *irẓeẓẓi*/ *aberzezzu* (wasp) or *tagemt*/ *tagent* (horsefly) for 'bee', and *tixsi* (ewe) for 'female goat'. Instead of assuming that our respondents do not distinguish between these species, we believe that their desire to provide a Berber form rather than a loan led them to provide such responses. This tendency was recorded more frequently in Oriental Aurès, but less in Occidental Aurès and, very seldom, in the Massif.

The Berber variants were maintained most in the Aurès Massif. Five out of the six variables addressed in this paper were maintained by all or the overwhelming majority of speakers from this region (*cat*, *fish*, *bee*, *pigeon* and *female goat*), whereas the Berber variant for *bird* was completely lost and substituted by an Arabic loan. The Massif, then, showed a high degree of homogeneity and a very low degree of lexical variation for both the Berber and the loan Forms used. Lexical variation was observed more in the other regions of Aurès. In Occidental Aurès, we note variation between the western part of the region, which tends to maintain the Berber forms, and the eastern part where the loan forms are more frequent. Oriental Aurès shows more homogeneity than Occidental Aurès in the sense that the loan variants used are the same for most variables. Lexical erosion is apparent all over the region, though the southern and, in particular, the south western locations show less lexical erosion than the rest of the region. Based on Basset (1891, 1894), we can say that the Berber words for at least four lexical items (*cat*, *pigeon*, *bee*,

female goat) were not frequently used around the end of the nineteenth century in the north-eastern part of Oriental Aurès occupied by the tribe of Harakta.



Map 8. Regional distribution of maintenance and loss of Berber variants

Based on the results obtained in this study, we can distinguish between three principal maintenance/ erosion distribution zones (see Map 8 above). The first zone, in green, represents a territory which exhibits high rates of lexical maintenance and lower rates of lexical erosion. Geographically speaking, this zone covers the western, the south-central and southwestern territories of Occidental Aurès, all of the Massif, with the exception of Touffana, and a limited number of territories on the edge of southwestern part of Oriental Aurès adjacent to the Massif. The second zone, in dark red, represents a territory with the highest rates of lexical loss and lowest rates of lexical maintenance. It covers most of the northern part of Oriental Aurès and a very narrow territory in the extreme east of Occidental Aurès. Between the two zones extends a narrow belt from the northeast of Occidental Aurès, through a number of locations in the northwest of Oriental Aurès, adjacent to the Massif, to the south of Oriental Aurès.

8. Conclusion

The results of the present study revealed a cross-regional variation in the rates of lexical erosion of six lexical variables selected from the semantic domain of animals. The Berber variants are dominantly used in the Aurès Massif and the western and southern part of Occidental Aurès. In the north-central and eastern part of Occidental Aurès, as well as in Oriental Aurès, in particular the north and southeast, loanwords are dominantly used. Obviously, a short list of words, as the one used in this paper, is not sufficient to draw final conclusions regarding regional variation in lexical loss within the semantic domain investigated. It serves just as a hint to apparent patterns in the spatial diffusion of lexical borrowing and loss upon which further wider assumptions could be drawn and further research could be built. A longer well designed list, with even more locations, would reach more valid and reliable conclusions. It is also recommended to use a lexicostatistic list that covers more semantic domains (e.g. nature, body parts, plants, basic actions, food, clothing, etc.) in order to achieve more accurate results. Attention also needs to be given

to social and other extralinguistic factors so as to understand how such factors interact with one another and with space to affect the phenomenon under study.

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