Writing Northern Tamaziɣt and Tuareg

(in Tifinaɣ and Latin script)

Paul Anderson

A Yablĭt Gardens Project

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Introduction

The Tamazight variants of Algeria and Morocco (referred to here as Northern Berber) have recently begun to bloom as literary languages. The orthography in Latin has been fairly well standardised in recent years, especially Kabyle in Algeria, and Morocco has standardised the Tifinagh sufficiently for Moroccan use.

For Tuareg, the situation is less clear. In Latin script, because of standardisation efforts for the orthography of national languages by West African governments, the orthographies in use differ from each other and from Northern convention, though there is substantial overlap.
In Tifinagh there have been regional initiatives, for example the efforts of SIL and of the APT project in Niger. These have tended to develop local practice rather than building on developments in Northern Berber, as their focus is literacy acquisition.

If Northern Berber and Tuareg writing systems can escape this fragmentation and converge, both within their two groups of variants and between them, then they would share developments, and cross-fertilisation between cultural traditions would become easier. Already speakers share some common identity.

My proposal is both to create a style of writing Tuareg to harmonise the repertoire of Latin and Tifinagh letters between Northern Berber and Tuareg, and to standardise the encoding of all Tifinagh texts - allowing for regional, temporal and calligraphic variations in letter forms.

Several benefits would result.
- Both Latin and Tifinagh would be viable and unified writing systems for almost all variants of modern and traditional Tuareg
- There would not be conflicting standardisation efforts for Northern Berber and Tuareg. The improved consistency for both Latin script and Tifinagh would allow IT tools such as fonts and keyboards to be used across language varieties.
- Northern Berber and Tuareg writing could already become consistent in Algeria, in both Latin script and Tifinagh, since there is as yet no formal or informal standard for writing Tamahaq.
- Tuareg variants could be written consistently across borders in both Latin script and Tifinagh using the converged orthography. This is true also for any converged Tuareg literary language in future, increasing the potential size and viability of the literary community. Officialised regional variants could be written in parallel with converged Tuareg, using their existing national standards.

- Tifinagh would be practical for Northern Algerian, not just Moroccan, use, just as Latin script is already
- Extending the conventions of Tifinagh writing would give a clear direction for the script's encoding in Unicode, and give clear guidance for font designers.

Addressing the writing system is only a start. The question of any standardisation of the literary and colloquial languages is a separate but related one that I do not address here, noting only that written English took centuries to standardise, both by evolution and decree, and that variations still exist.

This document is not intended as a comprehensive academic text, but as a proposal for discussion and practical projects.

Method

I wanted the repertoire of letters and diacritics in both Latin script and Tifinagh to be consistent and common to all variants, even though different variants would make use of different subsets of the repertoire, so that both Latin and Tifinagh writing systems were viable for both Northern Berber (Moroccan / Algerian) and Tuareg variants. Specifically, I wanted both writing systems to be suitable for writing the converged literary forms that might emerge in future from Northern Berber variants and Tuareg variants respectively.

In accordance with existing standards in Latin and Tifinagh script, I aimed for one letter per phoneme.

I also wanted the same orthographies to be able to represent features occurring in unusual forms such as Siwi if possible. Being able to write more phonetically was another optional target since this could be needed for explaining local pronunciation or for writing dialogue. For these lower priority purposes, digraphs could be used instead of single letters.

I began by compiling a list of phonemes (including those from common borrowings), and any features such as stress contrasts, identified by researchers across Berber languages.

To do this I looked at research on phonology of Berber languages, the UNESCO reports of Bamako and Niamey for standardisation of writing systems for West African languages, and the national alphabets of Mali and Niger.

To find a solution, I then mapped existing standards and literary practice to those pooled phonemes and features, and resolved conflicts and gaps using various existing proposals where possible, and my own innovations.

One standard I used as a base was the 'notation usuelle' for Latin script, introduced by At Mɛemmer and developed by Chaker et al. [2]. It has significant literary output, showing its consistency, practicality, stability and broad support.

The second standard was the official Tifinagh alphabet for Moroccan Berber and its Unicode representation. I exploited the fact that although different Tifinagh letter repertoires exist for different eras and regions, they can all be tabulated side by side according to letter sound, so they can be represented using different fonts for the same Unicode alphabet positions. Variations can be accommodated with different fonts. Enough commonalities even emerge for consensus to be possible when writing any future converged Northern Berber or converged Tuareg.

To extend these standards I looked at phonology research, unofficial practice in academic and non-academic texts in different forms of Northern Berber and Tuareg, and compared other Tifinagh vowel proposals such as those from SIL and Hawad. I took into account historical linguistics, script legibility, the practicality for technical tools for writing, and the need to mix foreign words such as names with Berber text.

Analysis

For Latin script, here is a summary of material I studied:

- Tuareg (and Siwi, and probably Ghadamsi) has two more long vowels than Northern Berber, e and o. Tuareg has an additional short vowel ǎ.

- In Mali at least, Tuareg also has the consonants 'ng' and ñ, both apparently used for borrowed words and 'ng' possibly also for some original Tuareg words, according to [1]. Some words might be pronounced containing 'ng' or ñ depending on speaker or region. Ñ written as ɲ was mentioned in the early UNESCO summary for Malian Tuareg but not later ones or descriptions of the official Malian alphabet for Tuareg.

- To mark a verb as being in a particular form, long vowels at particular positions within the verb can be pronounced even longer. This is usually taken to mean that there are additional extralong vowels and these are written with a circumflex. But I also found research claiming that these vowels are stressed/accented - they occur in stressed syllables – and that even short vowels can be stressed in these verb forms, which is not envisioned by conventional Latin orthography. An example accentual minimal pair, from Jeffrey Heath's "Grammar of Tamashek (Tuareg of Mali)", Mouton de Gruyter 2005:

ùjəj 'he went far away' - Perfective Positive, with default accent

ujə́j 'he has gone (=he is) far away' - Resultative, with accent formation on a short vowel

In Siwi, accent shows whether a word is a verb or a noun, like in English 'a record' and 'to record', and the accent can again be on short vowels [5]. It is not necessary to mark the accent here however because context is a strong clue to the sense. Siwi also has e and o [4]

- In Tuareg, emphatic l is more common and would need to be marked, unlike the convention of simply writing 'l' in Northern Berber. (Understood from the APT project's publications). Other emphatic letters are needed for e.g. Siwi (b,f,m) [17], Tumzabt (b), and Tachelhit (j).

- I discounted consonant palatalisation in Tuareg because I found no evidence that it needed to be marked in writing (except for explicit dialect writing – see later), and followed the Northern convention of marking 'ts' and 'dz' as tt/zz and not marking spirants, treating them as local pronunciation variants. I did however allow 'v' to be written if it was lexical, e.g. in a borrowed word, and not a spirant local pronunciation pronounced elsewhere as 'b' - writing 'v' as 'ḇ' would be another option.

- Various consonants were written differently in the national orthographies of Mali, Niger, and in the de facto standard of Northern Berber, and were mostly equivalent except for the 'ǧ' and 'j' of Niger.

- 'p' occurs in Northern Berber placenames and import words.

I then compiled the phoneme repertoires of North and South into one list. All are indicated here with their proposed standard written form except for schwa (ə) and Tuareg e (e) :-
Vowels:
'ă', 'ə' (short); 'a', 'i', 'u', 'o', 'e' (long); And either vowels can be stressed, áéíóú, or there are extralong vowels âêîôû.
Consonants:
bcčdḍfgg^{w}ǧhḥjkk^{w}lḷmnŋñpqrṛsṣtṭvwxyzẓɛɣ and maybe other labiovelarised consonants with ^{w} (ɣ^w , q^w , ...).

There are atypical variants such as Zenaga. Zenaga does not fall phonologically into the North/South groups, needing additional letters for the phonemes tḏdḍ (like in Darja Arabic these are not simply local spirantised variants). This was initially outside the scope of my investigation but later I wanted to be able to write them in a consistent way too, along with Zenaga's explicit palatalisation t^y,d^y and the glottal stop (useful also for writing the hamza in words quoted from Classical Arabic). [18]

Of the phonemes in this pooled repertoire, Tuareg uses the vowels e and o and the consonants ŋñ, and has extralong/accented vowels, whereas Northern Berber does not. Northern Berber has labialisation (C^w) and greater use of ḥ and ɛ.

Resulting suggestions

For punctuation, I suggest using Unicode non-breaking hyphen to link parts of words together for both Latin script and Tifinagh, e.g. 'iman-is', instead of a hyphen minus, so that

parts of a word will never be split between lines when using a word processor. Spacing standards for punctuation and the use of guillements versus quote marks would be flexible, accommodating local practice and perhaps later converging.

Glottal stop/hamza could be written as Unicode u + a78c/u + a78b (saltillo) for Zenaga and words quoted from classical Arabic.

For Latin script

For consistency between Northern Berber and Tuareg, and across borders for Tuareg, to ensure cross-fertilisation, and so that efforts are not duplicated, I suggest using Northern Berber's 'notation usuelle' for the Latin script, including 'e' for schwa and consonants such as c, č, j, ǧ and ɛ, extended with the Malian/Niger practice of writing ă and ŋ. There are more long vowels than short across all Berber languages, so it makes sense not to use a diacritic for those. For ñ, I have seen Algerian Tamahaq texts in academic Latin transcription containing 'ñ', and I adopt this n with tilde as it is readily understood and does not require a new letter with a small and capital form.

In approximated foreign words mixed with Northern Berber, Ñ and ŋ could be written as ng and ny, as readers would probably not be familiar with the extra Tuareg letters except perhaps from Spanish.

Since 'e' marks schwa in Northern convention, some way of marking Tuareg 'e' is needed. I suggest using the macron diacritic to mark a 'different e', rather than the acute accent used for Algerian Tuareg. The macron has no vowel quality associations for the reader from French, so it is clearly a simple orthographic differentiator and easily added in handwriting. Regarding the extra effort of adding a diacritic, Tuareg 'e' is less common than schwa, and e/ē are easier to distinguish from each other than e/ə.

This would mean, for example ēyes (horse) instead of eyəs (Mali, Niger) or éyes (Algerian Tamahaq-style).

If extralong vowels are the result of stress and not a special category of vowels, I suggest writing an acute accent over a stressed vowel when it is not stressed by default. This method can be used also for short vowels and looks more like a stress mark than the circumflex does. It is possible to add an acute accent on top of 'ē' (ḗ), just as for 'ă' (ắ).

This would mean, to use the Heath's Malian example:

ujej 'he went far away' - Perfective Positive, pronounced 'újəj'

ujéj 'he has gone (= he is) far away' - Resultative, pronounced 'ujə́j'

However, if there really are separate extralong vowels, the circumflex makes sense.

More examples written in my proposed style:

ēyes yaggóragăn, ēcēn, ējwal, aŋʷa/aŋwa (words from the APT project's publications from Niger); ñămăku (from Heath's Malian data)

These words would be written as follows according to existing practice:

eyəs yaggôragăn, ešen, ežwal, aŋwa (Mali)

eyəs yaggôragăn, ešen, ejwal, aŋwa (Niger)

éyes yaggôragăn, écén/éšén, éjwal/éžwal (Algeria)

ē,é̄,ă,ắ,ǧ,ḍ etc. are encoded as precomposed forms in Unicode so do not pose a problem for font display, even in the short term while fonts have poor support for advanced Unicode features.

For writing Zenaga where t̠d̠ḍ are phonological, not spirant pronunciation variants, I suggest the common transcription t̠d̠ḍ already sometimes found in Tarifit-language literature (or, for explicit writing of local speech in other language variants and Darja, 'bh'/'b̠'/'v' and the digraphs th, dh, ḍh, kh, gh if no confusion results, to avoid introducing new unfamiliar letters) - for example ghʷma, amekh, abhridh/avridh, thufiḍ. ʸ (u + 02b8) could indicate palatalisation both where it is phonological and in explicit Tuareg dialogue writing (where simply 'y' could also be used).

Dots below b and m are possible as Unicode precomposed forms. Emphatic 'f' requires a combining dot below (u + 0323).

One area I have not not fully addressed is the writing of French borrowings. I suggest writing v where it is lexical and not a regional spirant variant. So instead of 'labyu', avion could be written lavyu. Also, it would be possible to write Tuareg-style extra vowels, with tilde to show nasals, resulting in lavyõ if the nasal vowel is commonly pronounced. But I think introducing a new convention might not be worthwhile, and it would be difficult to cover the phonetic complexity of French completely. So a borrowed word could be written in French orthography if pronounced like French, and like 'lavyu' if the pronunciation had been assimilated. In cases where the vowel sound of a French borrowing would usually indicate a nearby emphatic consonant in a Berber word, a circumflex could be written on the vowel.

Implications regionally:

- For Morocco, no change is implied. However, convention there is to write č as tc and ǧ as dj, and this could be re-examined for converged language. Also, local tools like keyboards could be extended for writing Berber more broadly than just Moroccan variants.

- In Algeria, the convention is not to write ḷ, ṛ and ʷ, and this could be re-examined for converged language. For example, in some words ʷ may be present in all variants, and could be marked to aid reading and learning. Tamahaq could be written in Latin script according to this proposal that extends and does not conflict with existing Northern practice – especially since there is no existing alphabet standardisation for national languages in Latin script as there is in Mali and Niger.
- For Mali and Niger, a converged literary language could be written according to this proposal. Adopting the proposal for local Tuareg forms too would allow a language variant spoken on both sides of a border to be written the same way everywhere, to share language materials and tools.

For Tifinagh

In general I suggest modern practice to be analogous to Latin script usage, so that the viability of the Tifinagh system is not neglected. For example, if vowels are written, consonant and vowel digraphs can be used for approximating foreign words; and if geminated consonants are written the language's structure is more apparent.

I looked for a solution that still allowed classical Tifinagh, without vowels, to be written, and allow even older or regional letter forms to be typed - with the same tools.

I wanted the choice of linking the strokes of each Tifinagh L or 'leaning' the second L of a geminated consonant to depend on the font, for example. While one solution might be more modern, others would have their niche for calligraphy or archaic texts. Note that if a second L leans, a second N needs to lean too, to avoid ambiguity. Linking the strokes of each 'L' is the sensible approach taken by IRCAM in their fonts, because there is no broad support yet in word processors for the context-dependent letter forms of OpenType fonts, only in advanced desktop publishing packages, and this situation will not change until the end of 2009/early 2010 when new versions of OpenOffice and Word are released.

I take the IRCAM letters 'Tifinagh letter X' as a base (not Tuareg or Berber Academy letters), and the modifier letter ⊔, plus the letters ⵞ and ⵟ. Short a is written as YA with combining breve ̆ (u + 0306) as with the APT system, and schwa is written using YEY ⵔ̊. My proposal is that instead of trying to encode every attested Tifinagh letter form, Unicode should treat the alphabet as a repertoire of letters for sounds (already implied by Tifinagh letter names). Just as Unicode does not list variants like Gothic script separately but leaves them to the font, Tifinagh should leave its regional and historical variations to the font. Examples:
- Because of sound variations between Tuareg variants, the same letter shape ⵥ denotes j or emphatic z in different regions, and so using one regional font, typing a j (the YAZH position, having ⵉ as the default letter form) would output ⵥ, and using another regional

font, typing an emphatic z (the YAZZ position, having ⵣ as the default letter form) would output ⵥ.

- An Algerian font would show TIFINAGH LETTER DJ, normally ⵚ in the reference charts, with the same appearance as the letter BERBER ACADEMY DJ (ⵝ)
- A Niger font might show YEY, normally ⵉ, with the APT visual form for schwa (Ɔ), and show YATT, normally ⴹ, with the visual form of Tifinagh YAT with dot below (ⴺ).

Note: If emphatic T is typed in Niger to be encoded as YATT, changing the font to a non-Niger one can show the letter graphically as YATT. But if it is typed (and encoded) as YAT plus dot below, it will always look like that when displayed in any font, unless that font defines the sequence to look like YATT by substitution.

This means that all Tifinagh would be encoded as the existing neutral 'Tifinagh letter X' letters, not as 'Berber Academy X', for example.

The effort to encode different forms could still continue, including duplicating the IRCAM forms explicitly as such if needed. For academic purposes all letter forms, even archaic ones, could then be unambiguously presented in a document in any font – but this would not be needed for non-academic texts.

Standardising Tifinagh encoding onto the IRCAM Unicode points would mean the end of arguments about which letter form to use, as different fonts could be used in different areas according to precedent and taste, and to the Berber variant being written.

Font designers would have a clear basis for creating fonts in many different regional, historical and calligraphic styles, covering Northern Berber and Tuareg. Fonts could be joined-up script fonts; they could make mandatory or optional ligatures for calligraphic effect subject to manual adjustment; or they could be used to write classical Tifinagh without vowels and with mandatory ligatures, perhaps using the 'TIFINAGH JOINER' if it becomes part of Unicode.

A neutral font could show the Unicode reference forms for the letters. So existing Unicode Tifinagh fonts, e.g. those from IRCAM in Morocco, would still be useful, even for non-Moroccan Berber variants.
Tifinagh fonts could show the Unicode reference forms for punctuation, or optionally change the common punctuation like comma, semicolon, non-breaking hyphen to look for example like in the publications of the APT project in Niger.
Users could view a Tifinagh document using their favourite font, so that the Tifinagh repertoire was familiar to them.

There is a catch. Two Tifinagh letters are missing from Unicode that would be needed for writing Tuareg vowels e and o. I propose the APT letter forms < and --.
As a workaround until these are in the Unicode standard, the letters can be encoded as YI with dot below and YU with dot below. These sequences can either be displayed by the font as such (ⵉ̣,ⵓ̣), or the font can display the APT visual forms for e and o (<,--) by substitution of YI/YU + dot below or of YI/YU then middle dot · (u + 00b7).

This solution adds only those vowels that do not already exist in Northern practice – it does not adopt a complete new solution for vowels such as Hawad's or SIL's. However, it does have similarities with those systems; the base shapes used are YI and YU, either modifying the letter form, or adding a diacritic in the case of the temporary workaround. (Those systems can still be implemented in a font for calligraphic or back compatibility purposes by implementing letter substitution in the font).
The dot below suggests itself also because e and o may be 'frozen' lexicalised context-dependent pronunciation variants of original 'i' and 'u' phonemes.

I propose writing an acute accent over stressed vowels, as for the Latin script. As current fonts do not position diacritics well, I suggest a standardised alternative (as in German where ae can be written for ä) – to write a standalone acute accent (u + 00b4) after the Tifinagh vowel letter. I think this looks good – for example ⵉ′.

Fonts for regional variants will have regional Tifinagh forms such as harpoon YAZ, forms that conflict with the standard ones (e.g. a YAD that looks like YADD or YADH), or legacy letter forms. Such conflicting, outdated and obscure regional forms should not be acceptable variations for writing converged literary languages. Other offending letters causing ambiguity with the IRCAM letters – Tuareg YAB, Berber Academy YAH; letters that needed a diacritic before but no longer – Algerian YAA (a with circumflex); and old spirant forms, should also be avoided.
Instead, the IRCAM letters (including spirants for phonetic dialogue and e.g. Zenaga), the common Tuareg letters, and the Berber Academy/Algerian forms for YAY and YADJ should all be acceptable as alternatives – for both converged Northern Berber and Tuareg. Writers would be aware of all forms, probably preferring their local ones in fonts they use for general text even for publication elsewhere; or being biased towards Northern or Tuareg forms (and therefore the corresponding fonts) depending on the literary language of the text; and using other acceptable forms creatively e.g. for calligraphy.

Of course, fonts that give 'classic', regional, or artistic appearances would still use other forms. For example, the Niger APT form for U lends a Tuareg-style appearance that is still understandable elsewhere, and looks good also with diacritics above and below.

For writing dialogue phonetically, either a YAY can be written after a letter to show palatalisation, or a small raised YAY-like zigzag. Until this might appear in Unicode, it can be approximated with a mediaeval manuscript mark above a narrow non-breaking space. Different fonts give a different width.

There is one Tifinagh-specific punctuation character proposed for Unicode - the TIFINAGH SEPARATOR. I imagine, if it appears in Unicode, it would be for occasional use in formal inscriptions (like the Latin interpunct historically, and classical Tifinagh).

When writing French borrowings, either the word could be written in Latin script using French orthography if the French pronunciation has been retained, or the word with its Berber approximated pronunciation could be written with Tifinagh letters. Otherwise the use of diacritics or digraph conventions for writing French sounds such as nasal vowels becomes necessary.

Implications

Tifinagh fonts need to be able to combine acute, circumflex, breve (and perhaps macron, grave and tilde accents for foreign words such as from French) with Tifinagh letters correctly, even when the letters are already combined with dot below. YAT,YAD,YAS,YAZ,YAR need to take a dot below correctly, YI and YU for Tuareg, YAL too for Tuareg (emphatic l is used in more words than in Northern Berber), as well as YAM and YAB for phonetic writing.

Fonts that are not intended for classical Tuareg Tifinagh where ligatures are significant (controlled in future by typing the TIFINAGH JOINER) are free to join letters together for special calligraphic effects. Joining of the letters can be optional, specified by typing a ZERO WIDTH JOIN (ZWJ). Or the font can attempt to join all letters like a cursive font, or make some mandatory ligatures for graphical effect, with a break specified by typing a ZERO WIDTH NON-JOIN (ZWNJ).

Conclusion

Having a consistent way of writing Northern Berber and Tuareg would encourage the literary forms of Northern Berber variants, and of Tuareg variants, to converge separately, leading to two larger, more diverse and more viable literary communities. At the same time,

it would be easier for each community to be familiar with the literary language and conventions of the other, and to share developments, with the two literary languages expressing different ways of life and different histories.

The Tifinagh writing system has a strong symbolic role in both communities, and it is theirs to direct since it is used almost exclusively for Berber, so a Tifinagh system improved in range and viability would be a great cultural asset. I have proposed an interim solution for vowelled Tifinagh and accented vowels so that existing Tifinagh fonts are suitable for writing documents. For the Internet, only the lack of a good Tifinagh font installed on Windows by default is a hindrance.

A standardised Latin writing system is also important, perhaps as the standard, leaving Tifinagh for iconic use, perhaps for informal use with Tifinagh as the standard, or perhaps even for mixed use with titles in Tifinagh and body text in Latin script.

This proposal addresses both systems, in a way that combines and extends the best of existing ideas, standards and tools, and still allows a choice of equivalent Tifinagh letter forms. Existing fonts can be reused, and current keyboard drivers would still be useful.

Even before the emergence of common literary languages, in the absence of a de jure standard for writing Tamahaq in Algeria, this proposal could provide a solution there.

Some action needs to be taken. Tifinagh e and o need to be proposed for Unicode. A palatalisation modifier letter for writing phonetic Tuareg could be proposed too, though a digraph with YAY can be used instead. Font designers need to prepare a good range of fonts for different regions and purposes, and these fonts need to be better able to compose letters with diacritics. When broad OpenType support arrives in word processors, some fonts can even provide context-dependent letter forms such as leaning YAL's and YAN's, or substitutions to obtain e and o even before they are accepted into Unicode.

To make my proposal more concrete, I have created keyboard drivers for Windows, switchable between Latin and Tifinagh script output, that include support for typing Tuareg in my proposed style. To demonstrate the use of fonts to control the repertoire of Tifinagh letter forms shown for a text, I have also adapted existing Tifinagh fonts for Algerian use. These resources are available at http://www.akufi.org/ for free download. Tuareg fonts will follow.

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CENTRE DE RECHERCHE BERBERE – INALCO (PARIS)

PROPOSITIONS POUR LA NOTATION USUELLE A BASE LATINE DU BERBERE

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[17] Christfried Naumann, personal correspondence.

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There are also examples of Biblical texts on the Internet in Latin script.