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The grammaticalization of directional clitics in Berber

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In many languages, as shown cross-linguistically in Heine and Kuteva (2002), or for Chadic languages by Frajzyngier (1987), ventive verbs often are the source of ventive markers in grammaticalization processes. Berber languages are, like Chadic ones, characterized by the extensive use of proximal verbal extensions, and to a lesser extent, distal ones. In this perspective, the aim of this paper is to examine the possibility for motion verb *ddu* to be the source of the ventive/proximal verbal extension encountered in all Berber languages.

In order to do that, the functions of directional clitics have to be precisely defined, and their grammaticalization investigated. Both studies are linked, since Berber languages have virtually no written tradition, and it is therefore necessary to resort to cross-linguistic comparison within the family to establish grammaticalization paths.

The first part of the paper describes the system of directional extensions in Western Kabyle, where it is extensively used. It demonstrates that movement towards the speaker is not the core meaning of the 'ventive' clitic, whose function is rather to mark the viewpoint of the speaker or a protagonist; similarly, movement away from the speaker is not the function of the 'andative' marker, which actually indicates that the situation is construed according to the addressee's viewpoint. The second part confronts this system to that of other Berber languages spatially and typologically different from Western Kabyle: Ghadamsi, Tamashek, and Siwi, thus establishing the general distribution of proximal and distal clitics in the whole Berber-speaking area. The third part provides grammaticalization hypotheses for the system of directionals.

1. The directional system in Western Kabyle

1.0. Syntax of the directional clitics in Western Kabyle

The directional clitics in Western Kabyle have the form =*dd* or =*n* if preceded by a vowel, and the form =*idd* or =*in* if preceded by a consonant.

If the clause contains a mood (negative or potential) particle, or a relative marker, or a temporal conjunction, the directional clitic, together with all the personal clitics (dative and absolutive), are cliticized to that particle/marker:

(1) *ur = as = t = idd j-fki ara*
 NEG = DAT3SG = ABSV3SG.M = PROX SBJ3SG.M-give\NEGPFV POSTNEG
 ‘He didn’t give it to her/him’ (Western Kabyle)

If the clause does not contain any of those markers, then the directional clitic, together with all the personal clitics (dative and absolutive), are cliticized to the verb:

(2) *j-fka = jas = t = idd*
 SBJ3SG.M-give\PFV = DAT3SG = ABSV3SG.M = PROX
 ‘He gave it to her/him’ (Western Kabyle)

This situation holds for the majority of Berber languages¹, except those where the system of directionals is disappearing such as Siwi: in that case the clitic tends to remain attached to the verb and no longer climbs to the head of the clause:

(3) *ga t-us-əd*
 POT SBJ3F.SG-arrive\AOR-PROX
 ‘She will come’ (Siwi, Laoust 1931 :136) (interlinear glosses mine)

1.1. Traditional presentation

The usual presentation of the system is the following: Berber has two morphemes that attach to verbs (or to mood-negation-relativization particles): one that indicates movement towards the speaker (= *dd*), and one that indicates movement away from the speaker (= *n*)

Thus, examples such as (4) and (4’) are given:

(4) *i-ruħ = dd*
 SBJ3SG.M-leave\PFV = PROX
 ‘He came’ (Western Kabyle)

¹ Sometimes as in some dialects of Tamashek the directional clitic is doubled with mood-negation-relativization particles : it appears both on the particle and on the verb itself.

(4') i-ruħ = n

SBJ3SG.M-leave\PFV = DIST

'He went' (Western Kabyle)

The first problem with that presentation is that the opposition is not binary but ternary: verbs often appear without an extension (= *dd* / = *n* / \emptyset). Moreover, the distal clitic is by far less frequent (0,1% of the clauses, as opposed to 23% (in narratives) and 36% (in conversation) for the proximal clitic in my Western Kabyle spoken corpus). Furthermore, many verbs bearing those extensions are not motion verbs. Several authors have pointed at those facts in various publications: Marcy (1939), Galand (1959), Bentolila (1969), Aït Ahmed (1992), Mettouchi (1998), El Mountassir (2000), Aoumer (2008 and 2011).

Therefore, one has to study the situation in much more detail, in order to account for such examples as the following:

(5) ur = dd	zwiğ-γ	alamma	t-kks = dd
NEG = PROX	marry\NEGPFV-SBJ1SG	until	SBJ3SG.F-take\PFV = PROX
Fatima	ayrum	g	udəkkan
Fatima	bread:ABS	LOC	shelf:ANN

'I won't marry until Fatima manages to take the bread from the shelf' (Western Kabyle)

1.2. The distal verbal clitic = (i)n

This clitic, which appears in 0,1% of the clauses in my corpus, is always used in interactive contexts involving situations where an action is viewed from the perspective of the addressee.

(6) i-nna = jas	lli = ṭ = in
SBJ3SG.M-say\PFV = DAT3SG	open\AOR(IMP2SG) = ABSV3SG.F = DIST

'He said open it (the door),

d	inəbgi	n	ṛbbi /
COP	guest\ABS.SG.M	GEN	god /

'I'm (lit. it is) a beggar'. (Western Kabyle)

(7) ad = n	t-ruħ	ar	ḡḡix-iw /
POT = DIST	SBJ3SG.F-go\AOR	to	teacher\ANN.SG.M-POSS1SG

'She would go to my teacher' (to ask him to let me go with her watch the cattle) (Western Kabyle)

(8) a aɣmar sars = iji = n /
 VOC aɣmar be_placed\CAUS.AOR.IMP2SG = ABSV1SG = DIST /
 ‘Amar please put me down!’ (The ogress was put on a donkey by Aɣmar) (Western Kabyle)

We propose that its function is to indicate that the process is construed relative to the deictic center of the addressee (direct or reported, as in example 4 where the speaker’s grandmother is about to address the teacher to ask him to let the speaker (then a little girl) come with her to graze the sheep). Distance is not at play, since in (8), Aɣmar is holding the donkey, and in (6) the door is in front of the speaker. Viewpoint is more important: the speaker could have used a proximal clitic in examples (6) and (8), thus making the command more peremptory. The use of the distal clitic subordinates the speaker’s viewpoint to the addressee’s. The same holds for (7), where the verb could have been used without a directional clitic. Movement towards the addressee is a possible interpretation, but it cannot be considered as a core function since most examples involve no movement, and no distance towards the addressee.

1.2. The proximal verbal clitic = (i)dd

As opposed to the distal clitic, 23% of the clauses in narratives, and up to 36% in conversation, have the proximal marker cliticized to the verb or to the clause-initial mood-relative-temporal marker.

What are its functions?

1.2.1. Motion verbs

In Western Kabyle, motion verbs are generally underspecified for directionality. We present below the most frequent motion verbs in our corpus.

1.2.1.1. RUH

This verb is rather frequent in narratives, with 36 occurrences in our longest narrative (13:29 mn), among them 12 (33%) are associated with = *dd*.

Examples with a proximal clitic on the verb display the following values:

a) Motion towards a starting point (‘come back’, ‘go back’, ‘return’). In that case the verb has no locative complement:

(9) i-γəz tasraft // asmi = t i-fukk /
 SBJ3SG.M-dig\PFV pit\ABS // when = ABS3SG.F SBJ3SG.M-finish\PFV /
 i- ruh = **dd** /
 SBJ3SG.M-go\PFV = PROX /

‘He dug a pit. When he had finished, he returned home.’ (Western Kabyle)

b) Motion towards a place ('come', 'go')

The place is indicated by a complement introduced by preposition *ar*, 'to, towards'; = *dd* indicates that the process is viewed with that location as vantage point.

(10) t-ṛuħ = *dd* ar jəssi-s /
SBJ3SG.F go\IPFV = PROX to daughter\PL-KIN3SG /

'She regularly visited the man's daughters.' (Western Kabyle)

Examples without any clitic show the following features:

a) Motion towards a place, when there is a locative complement:

(11) i- ruħ ar wədrar //
SBJ3SG.M-go\PFV to mountain\ANN.SG.M //

'He left for the mountain' (Western Kabyle)

b) Disappearance, when there is no complement:

(12) t-wala axxam / i-ttffəy = *dd*
SBJ3SG.F-see\PFV house\ABS.SG.M / SBJ3SG.M-exit\IPFV = PROX
dg-s dduxan // t-ruħ //
ASSOC.LOC-PREP3SG smoke\ANN // SBJ3SG.F-go\PFV //

'She saw a house, from which smoke was coming out. She left. (Western Kabyle)

c) A tendency to act as a more or less auxiliarized V1:

(13) i-ruħ ad i-gən /
SBJ3SG.M-go\PFV POT SBJ3SG.M-sleep\AOR /

'He went to bed.' (Western Kabyle)

(14) t- ruħ t-əkks = it = *dd* /
SBJ3SG.F-go\PFV SBJ3SG.F-take \PFV = ABS3SG.M = PROX /

'The woman went and grabbed it.' (Western Kabyle)

Regarding motion towards a place, what is the difference between presence and absence of = *dd*?

With = *dd*, the process is considered as having a goal, the endpoint is underlined, the process is viewed from that endpoint.

Without = *dd*, the process is described without viewpoint, the endpoint is simply locative.

1.2.1.2. AS, AWD

With verbs of motion having an inherent endpoint, = *dd* is extremely frequent (*awəd*, 'arrive'; 65%) or even used systematically (*as*, 'reach'; 99%)

(15) *usa-n = dd* *ar* *lxir* //
reach\PFV-SBJ3PL.M = PROX *to* *good*\ANN //
 ‘They died (lit. they reached the good life)’ (Western Kabyle)

(16) *i-wwəḍ* *ar* *lyaba* /
SBJ3SG.M-arrive\PFV *to* *forest*\ANN.SG /
 ‘He arrived at the forest.’ (Western Kabyle)

(17) *i-wwəḍ = dd* *ar* *baba-s* /
SBJ3SG.M-arrive\PFV = PROX *to* *father-KIN3SG* /
 ‘He returned to his father’ (Western Kabyle)

Example (16) is viewed neutrally, with a narrative viewpoint, the locative complement expresses the endpoint of the process. In example (17), the process is viewed through a deictic center identified with the locative complement, which is interpreted by default as a starting point.

1.2.2. Change of state verbs

Other verbs having an inherent endpoint or implying a change of state are used with =*dd* more often than average : (*əkks*, ‘take off, away’, 66%; *af*, ‘find’ 63%; etc.)

For *əkks* compare example (5) with example (18), the attainment of the endpoint was underlined in (5) with =*dd*, whereas in (18) there is no zooming effect on the attainment, just a narrative description of the action:

(18) *ad = as* *j-əkks* *lqəʃ* *məskint* /
POT = DAT3SG *SBJ3SG.M-take*\AOR *clothes*\ABS.COLL *poor*\SG.F /
 ‘He would take off her clothes, poor girl.’ (Kabyle)

For *af*, the most frequent difference in meaning is: a description of the object/situation found, when the verb is used without =*dd*, ex.19) vs. indication that the object/situation found is unexpected (with =*dd*, ex.20)

(19) *imi* *t-wwəḍ* *a* *Amina* *ar* *dinna* /
when *SBJ3SG.F-arrive*\PFV *VOC* *amina* *to* *there* /
t-ufa *d* *amʃiʃ* *n* *wədrar* //
SBJ3SG.F-find\PFV *COP* *cat*\ABS.SG.M *GEN* *mountain*\ANN.SG.M //
i = t *i-zdəy-n* /
REL.REAL = ABS3SG.M *RELSBJ.POS-dwell*\PFV-*RELSBJ.POS* /
wəxxam-nni //
house\ANN.SG-CNS //

‘When she arrived there, Amina, she found it was the Mountain Cat who inhabited it, the house.
(Western Kabyle)

(20) i-nna = jas lli = ṭ = in
 SBJ3SG.M-say\PFV = DAT3SG open\AOR(IMP2SG) = ABS3SG.F = DIST
 d inəbgi n ṛbbi / imi = ṭ = idd t-lli
 COP guest\ABS.SG.M GEN god / when-ABS3SG.F = PROX SBJ3SG.F-open\PFV
 Amina / t-ufa = dd d baba-s //
 amina/ SBJ3SG.F-find\PFV = PROX COP father-KIN3SG //

‘He said open the door, I’m a beggar. When she opened the door, Amina, she realized it was her father.’ (Western Kabyle)

1.2.3. Position verb *qqim*

Position verbs and not only motion verbs can be used with = *dd*.

Without = *dd*, the verb *qqim*, ‘stay’ refers to static position of the subject in some place:

(21) jə-čča / jə-swa /
 SBJ3SG.M-eat\PFV / SBJ3SG.M-drink\PFV /
 jə-qqim ajən jə-qqim /
 SBJ3SG.M-stay\PFV what SBJ3SG.M-stay\PFV /

‘He ate, he drank, he stayed for a while.’ (Western Kabyle)

With = *dd*, the effect is to underline the fact that motion was assumed, and that contrary to expectations, the subject remained in its original place,

(22) tə-qqim = dd faṭima tuḥriṭ-nni //
 SBJ3SG.F-stay\PFV = PROX faṭima clever-CNS //

‘There remained Clever Fatima.’ (Western Kabyle)

Or that there was movement and that position denoted by *qqim* is the endpoint of that movement:

(23) t-fiəḍr = as = idd /
 SBJ3SG.F talk\PFV = DAT3SG = PROX /
 t-ssəblaṭ = it lqaṭa /
 SBJ3SG.F-be_swallowed\CAUS.IPFV = ABS3SG.m ground\ANN /
 aramma i = dd jə-qqim akka //
 until REL.REAL = PROX SBJ3SG.M-stay\PFV thus //

‘She talked to him, the ground was swallowing him, until he remained thus.’ (Western Kabyle)

1.2.4. Verb of saying *ini*

Some verbs have no inherent endpoint, are not motion or position verbs and are nevertheless associated with =*dd* (ex. *ini*, 23% of occurrences in conversation, 15% in narratives bear the proximal clitic)

Without =*dd* the process refers to the fact of uttering something:

(24) *ssən-y = tnt // nni-y = am*
know\PFV-SBJ1SG = ABS3PL.F // say\PFV-SBJ1SG = DAT2SG.F
juj sət̪ti //
SBJ3SG.M-take\PFV grandmother\SG //

'I know them (my grandfather's wives), I told you he married my grandmother, ...' (Western Kabyle)

Or being named X or Y:

(25) *qqar-n = as jamina //*
say\IPFV-SBJ3PL.M = DAT3SG amina //
 'Her name is Amina.' (Western Kabyle)

With =*dd* the process refers to:

a) Answering

(26) *azəkka ad = dd t-qq°əl təm̪t̪tut-nni /*
tomorrow POT = PROX SBJ3SG.F-come_aneu\AOR woman\ANN-CNS /
ad = as t-ini ma t-nna-mt = as
POT = DAT3SG SBJ3SG.F-say\AOR if SBJ2-say\PFV-SBJ2PL.F = DAT3SG
i baba-tk°nt // ad = as ini-nt /
DAT father-KIN2PL.F // POT = DAT3SG say\AOR-SBJ3PL.F /
n-nna = jas / jə-nna = jaɣ = dd akka //
SBJ1PL-say\PFV = DAT3SG / SBJ3SG.M-say\PFV = DAT1PL = PROX thus //

'On the following day the woman would return, she would ask them if they had asked their father (about his marrying her). The girls would tell her "we asked him, and he answered this and that". (Western Kabyle)

b) Saying something relevant to the speaker:

(27) *tə-nna = jas / nni-y = ak = idd /*
SBJ3SG.F-say\PFV = DAT3SG / say\PFV-SBJ1SG = DAT2SG.M = PROX /
ħaʃa tuččin ara t̪w-əčč-nt //
only eating REL.IRR PASS-eat\AOR-SBJ3PL.F //
ad ffy-ənt g wəxxam /
POT exit\AOR-SBJ3PL.F LOC house\ANN.SG.M /

nəy ad = dd ffy-əy //
 or POT = PROX exit\AOR-SBJ1SG //

‘The woman told her husband: “I told you, I won't accept anything else than their being eaten, either they quit the house, or I will go!”’ (Western Kabyle)

1.2.5. Interpretation factors

The semantics and aktionsart of the verb are important, since motion verbs and processes involving an inherent endpoint (or one represented by a locative complement or an object) are very often associated with the proximal clitic. Dative pronouns as recipients are often associated with the proximal or distal clitic. The conjunction heading the clause also plays a role: *mi* ‘when’ is strongly associated with =*dd*: 60% of temporal clauses beginning with *mi* contain the proximal clitic, regardless of verb type (the same thing holds with *aramma* ‘until’); in this case, =*dd* focusses on the completion of the process on which the main clause depends (the scope is larger than the verb itself):

(28) mi = dd t-ħədər tməddit /
 when = PROX SBJ3SG.F-be_present\PFV evening\ANN.SG.F /
 ad n-ʃʕəl timəs
 POT SBJ1PL-light\AOR fire\ABS.SG.F

‘When the evening came, we would light a fire’ (Western Kabyle)

Ma ‘if’ on the contrary, almost never appears with =*dd*, and if it does, the focus is on the verb’s interpretation (endpoint of a motion verb for instance):

(29) ma jə-byə ayrum /
 if SBJ3SG.M-want\PFV bread\ABS.SG.M /

‘If he wants bread,

ad i-ruh ad j-ay i thanuṭ //
 POT SBJ3SG.M-go\AOR POT SBJ3SG.M-take\AOR LOC shop\ANN.SG.F //

he will go and buy it at the shop’. (Western Kabyle)

With verbs of motion, the proximal clitic tends to focus on the endpoint of the movement, which is by default the speaker’s deictic center, or a previously mentioned deictic center. If there is a locative complement, it is construed as the endpoint of the movement, and the process is viewed from that endpoint. If the verb is not a motion verb, =*dd* underlines the present relevance of the process, or its result, or impact on the speaker or another deictic source. If the verb is a verb of saying in the first/second person and/or bears a dative

pronoun, =*dd* underlines the relevance of the process on the speech situation, and the viewpoint of the speaker or another deictic source. When cliticized to a particle or clause marker, =*dd* may underline the completion or relevance of the process in relation to the speech situation or to another clause.

In sum, the proximal clitic subsumes the following subfunctions: direction towards a deictic center (different from direction towards the addressee), standpoint of the speaker, or of a reported speaker, zooming effects, viewpoint shifts, current relevance, polemical, presuppositional, counter-expectative stance, goal, resultative (change-of-state), benefactive. We therefore propose the general function ‘Viewpoint of the (direct or reported) speaker (or protagonist)’ for the proximal clitic in Western Kabyle, the distal clitic expressing the addressee’s viewpoint.

This function allows the interpretation of examples such as (5), reproduced here as (30)

(30) ur = dd	zwiǧ-γ	alamma	t-kks = dd
NEG = PROX	marry\NEGPFV-SBJ1SG	until	SBJ3SG.F-take\PFV = PROX
Fatima	ayrum	g	udəkkan
Fatima	bread:ABS	LOC	shelf:ANN

'I won't marry until Fatima manages to take the bread from the shelf' (Western Kabyle)

The first proximal clitic is clearly speaker-oriented (polemical, a more modal perspective), whereas the second one represents the perspective of the speaker, but from the process-completion point of view (a more aspectual perspective).

2. OTHER BERBER SYSTEMS

Berber languages are varied and cover a large area, from the Mediterranean to Burkina Faso, and from the Atlantic to the oasis of Siwa in Egypt.

Not all Berber languages have a full system of directional clitics: some languages have lost the distal marker (Chaouia (Penchoen 1973 :57) ; Eastern Kabyle (Galand 1959, Aoumer 2008 and 2011)), although the proximal is extensively used. Others such as Siwi (Laoust 1931: 135-136) only have vestigial uses of those clitics, which now belong to the verb root, and do not undergo clitic climbing anymore. The verbs mentioned by Laoust are *aḥən* (take), *aǧəd* (take), and *usəd* (come):

(31) aḥ-n-uxət

take\IMP.AOR-DIST-SBJ2PL

“take!” (Siwi, Laoust 1931:136; interlinear glosses mine)

Those verbs are also frequently associated with directional clitics in Berber languages in which the system is still very pervasive, such as Ghadamsi, Western Kabyle, Tamashek...

In Ghadamsi, the respective frequencies of the proximal and the distal are similar (Lanfry 1973 : 227), which is exceptional in Berber, where the distal is generally much rarer than the proximal (Basset 1952 :36). The values proposed for the proximal by Lanfry (1973 : 47) are: proximity ; the fact that the situation concerns the speaker, or that the action is close to the speaker or the protagonist whose viewpoint is adopted.

The verbs most frequently used with the proximal clitic are: *ūtef* ('enter'), *arr* ('give back, turn into'), *kri* ('move back'), *ās* ('arrive'), among others (Lanfry 1973 :47).

The values proposed for the distal by Lanfry (1973: 225) are: distance; the fact that the situation concerns a place, a person, a situation that are spatially distant. It can also refer to a meeting, a causality that are going to manifest themselves regarding a third person, who can be absent or distant, or even present.

The verbs most frequently used with the proximal clitic are : *ig* ('put'), *wəd* ('arrive'), *ās* ('reach'), among others (Lanfry 1973 :225-227).

(32) i-tkel = t i-ger-t = in
SBJ3SG.M-take\PFV = OBJ3SG.M SBJ3SG.M-throw\PFV = OBJ3SG.M = DIST
'He took it and threw it' (Ghadamsi, Lanfry 1973:225; interlinear glosses mine)

In Tamashek, Heath (2005 :595) notes that both the 'centripetal' and 'centrifugal' clitics are used, but the latter is "less common than the centripetal in texts" (2005:301). According to Heath (2005:598), the centripetal "specifies direction of movement (whether completed or not) toward the deictic center, usually the speaker's 'here' but sometimes another deictic center within a narrative. [...] With non-motion verbs, the clitic suggests that the action was directed toward 'here' in some way, or that it was accompanied by motion toward here". The centrifugal clitic "indicates direction toward a nonproximate location with motion verbs ('run away'), fixed nonproximate location with statives ('sit way over there'), and motion away from the deictic center in combination with activity verbs ('go away chewing')" (Heath 2005:601).

(33) ha a-wén-dæv hæræt əkkəs-\t-\în
ah ! DEM-DIST-ANAPH thing take.away.IMPRT-\3MASGO-\CENTRIF
'Ah, that (is) a thing (= custom), get rid of it !' (Tamashek, Heath 2005:601)

(34) i-kša-\hín
sit.PERFP-1SG-\CENTRIF
'I stayed there (i.e. didn't come)' (Tamashek, Heath 2005:600)

(35) a-\tt-\ədd àwəy-æɾ
FUT-\3MASGO-\CENTRIP bring.SHIMPF-1SGS
'I'll bring it/him' (Tamashek, Heath 2005:597)

(36) iššɾæl-\ədd
3MASGS-work.PERFP-\CENTRIP
'He came working.' (= He was working as he came') (Tamashek, Heath 2005:599)

This survey of the various systems in some Berber languages calls for the following conclusions:

- a) the system of 'directionals' originally involved both a proximal and a distal clitics, since both appear in several Berber languages in various geographical areas;
- b) the systems where both clitics are still quite frequently used (Ghadamsi and Tamashek) involve spatiality more centrally than those in which only the proximal is retained (Eastern Kabyle, Chaouia), or in which the distal is much rarer than the proximal (Western Kabyle).
- c) in the latter languages, viewpoint of the speaker (or the addressee when there is a distal) is prevalent over movement towards the location of the speaker or away from him.
- d) in languages where both clitics are used (Ghadamsi and Tamashek), the system of nominal deictics is also very rich and complex, involving fine-grained spatial distinctions.
- e) in languages that have almost completely lost the system of directionals, such as Siwi, the clitics are retained on punctual verbs which semantically involve transition or endpoint ('take', 'arrive').

3. Grammaticalization hypotheses

The question is now whether the survey of the various systems of directionals throughout the Berber languages can help us decide how the system was grammaticalized.

In the whole Berber area, the directionals are variants of =*dd* and =*n*. They are all encliticized to the verb or the mood-aspect-negation-relativization head of the clause. A common origin for each clitic is therefore very probable.

The first hypothesis is that those directionals were grammaticalized from motion verbs. There are elements in favor and elements against this hypothesis. The second hypothesis is that those directionals were grammaticalized from demonstratives. Here again, this hypothesis is supported by some facts, and undermined by others.

3.1. Grammaticalization from verbs

The most likely candidate for the grammaticalization of =*dd* is verb *ddu*, meaning 'move', with a strong comitative component, and no marked directionality (although often

translated ‘go’ in glossaries/dictionaries). It appears synchronically as *ddu* in Western Kabyle (‘accompany’, ‘go with’), *ddu* in Eastern Kabyle (‘walk’), *idaw* in Tamashek (‘to accompany’, ‘be with’; ‘be married to’), *əddiw* in Wargli (‘to accompany’, ‘go with’, walk’). This verb does not appear however in the glossaries of Mzab Berber or Ghadamsi.

One argument in favor of *ddu* is phonological: in most Berber varieties where it appears, it has a geminated root consonant, just like the proximal marker. Moreover, it belongs to the semantic domain of motion, which is a frequent source for ventive extensions (Frajzyngier 1987, Heine & Kuteva 2002). It has been grammaticalized in Shilha as near-future clitic, which shows that it has potential for grammaticalization. In example (37) the verb still has its full meaning but is employed metaphorically:

(37) i-dda ad i-hmu
 SBJ3SG.M-move\PFV POT SBJ3SG.M-be_warm\AOR
 ‘It is about to warm up’ (Shilha)

In example (38) the verb has undergone morphological and phonetic reduction (loss of the personal affix, fusion of the verb and the following particle), it is fully grammaticalized:

(38) dda ihmu
 FUT.PROX SBJ3SG.M-be_warm\AOR
 ‘It is going to warm up’. (Shilha)

However, there are arguments against *ddu* as a candidate for grammaticalization into the proximal clitic: first, the proximal clitic is postverbal (or enclitic to heads), which makes it a V2 if we think in terms of V1-V2 sequences. The problem is that V1-V2 verb sequences in Berber have V1 typically more abstract and functional and V2 typically more ‘lexical’. V1 is more likely than V2 to grammaticalize, as is shown by all the cases of grammaticalization of V1 into auxiliaries or particles in various Berber languages. No instance of V2 grammaticalization has ever been noted so far.

A solution to this counterargument would be to postulate that grammaticalization started in the ‘clitic climbing’ position (i.e. in *irrealis*, negative and relative clause), and only then extended to postverbal position (other types of clauses and moods). Following this hypothesis, verb *ddu* might have appeared as a reinforcement of a second verb:

(39) ad j-ddu j-as
 POT SBJ3SG.M-move\AOR SBJ3SG.M-arrive\AOR
 ‘He will arrive here’ (lit. ‘he will move arrive’)

Then the full verb would have undergone phonetic reduction and cliticized to the potential particle:

(40) ad = dd j-as
POT = PROX SBJ3SG.M-arrive\AOR
'He will arrive here'

Then, since dative and absolutive pronouns in this position appear after the verb when there are no mood-negation-relative markers, it would be possible to postulate that from a sequence such as:

(41) ad = as = t = idd j-əfk
POT = DAT3SG = ABSV3SG.M = PROX SBJ3SG.M-give\AOR
'He will give it to her'

the proximal particle could move to postverbal position together with all the other clitics:

(42) j-əfka = jas = t = idd
SBJ3SG.M-give\PFV = DAT3SG = ABSV3SG.M = PROX
'He gave it to her'

thus making this position available for this marker, even when there are no pronominal clitics:

(43) j-usa = dd
SBJ3SG.M-arrive\PFV = PROX
'He arrived'

This scenario would have to be replicated for the other member of the directional system, clitic = *n*. In this case, the most likely candidate would be verb *ini* 'say' (attested in almost all Berber languages that have not replaced it with a borrowing of Arabic origin), which is not a movement verb. It has been grammaticalized as a conjunction meaning 'or' in Wargli for instance (Delheure 1987:208). However, the link with the distal/addressee-oriented meanings the clitic has in synchrony is rather difficult to establish. And Heine and Kuteva (2002) do not provide those meanings as usual grammaticalized meanings for verbs of saying. There is no external evidence for his hypothesis, and no attested grammaticalization of a verb 'say' in Berber other than for a conjunction.

3.2. Grammaticalization of demonstratives

The marker *n* is part of the demonstrative system of all Berber languages, with a distal meaning: *argaz-an* ('that man', Shilha), *argaz-ən* ('that man', Wargli), *wəggid-enn* ('that man', Ghadamsi), *əháləs-én* ('that man', Tamashek), etc.

Similarly, marker *d* is part of the demonstrative system of a lot of Berber languages, with a proximal meaning: *argaz-ad* ('this man', Shilha), *wəggid-ɔdet* ('this (very close) man', Ghadamsi), *əháləs-dí* ('this man' (near-distant), Tamashek), etc.

It is also the basis of series of locative demonstratives, proximal and distal (*da*, *dagi*, 'here' (Kabyle); *din*, *dinna*, 'there' (Kabyle); *dihá*, 'here' (Tamashek), *dihén*, 'there' (Tamashek) etc.). The potential particle *ad* (<-a+d), which indicates the process as potential but tending towards realization (future, conditional, tendencial etc.) is also based on locative *d* in most Berber languages. The origin of the equative-locative copula *d* is most probably deictic as well.

Therefore, another grammaticalization hypothesis would be that the system of nominal demonstratives has been grammaticalized on verbs by analogy. This hypothesis is supported by external evidence, since there are languages where demonstratives have grammaticalized as directional verbal extensions (Papago, Mojave and Inuktikut are cited by Diessel (1999: 142), Bourdin (2002: 186) also mentions this fact.

However, it is not the most frequently used proximal suffixes (vocalic *-a*, *-í*, or *-u* depending on Berber languages) that have been grammaticalized as a proximal extension on verbs, but the deictic locative *d*, whereas it is the distal demonstrative which has been grammaticalized as a distal extension on verbs. The nominal and the verbal systems are not completely parallel, except for some Berber languages such as Shilha (Galand :1959)

This man (prox)	argaz-a-d
That man (dist)	argaz-a-nn
He arrived (here)	juska-d
He arrived (there, where I no longer am)	juska-nn

One argument that could be presented against this grammaticalization is the fact that the proximal clitic is generally geminated, whereas the deictic locative *d* is a single consonantal root. However, the fact that directionals form a system where it is very hard to ignore the link between distal clitic on verbs and distal suffix on nouns tends to give weight to the demonstrative hypothesis.

3.2. A grammaticalization network ?

Given that both hypotheses have their strengths and weaknesses, it may be the case that the grammaticalization of the pair =*n*/=*dd* from demonstratives was reinforced by the presence of verb *ddu* in the lexicon: indeed if the grammaticalization had occurred purely by analogy with the system of nominal demonstratives, the pair would have been =*a* (or =*i* or =*u*) / =*n*. As was shown in part 1.3., *d* is not the mirror-image of *n* in the system of demonstratives.

A possibility is that the first reason *d* was promoted was because *d* is a locative basis in many Berber languages, and a deictic one in some; and the reason it was geminated was because it is reminiscent of *ddu*. This hypothesis implies that grammaticalization is not necessarily linear along a single path, but can also depend on a network of related markers, such as equative-existential copula *d*, grammaticalized from demonstrative *d*, and comitative preposition *d*, probably grammaticalized from verb *ddu*. A complex interplay of analogies links together all those markers, and the fact that Berber languages have a root and pattern morphology facilitates the mapping of those markers at the abstract level of the root. Thus, proximal clitic =*dd* would be the outcome of a complex grammaticalization process with a main source, the locative demonstrative *d*, and peripheral reinforcements: verb *ddu*, equative-locative copula *d*, comitative preposition *d*. The resulting semantics revolves around the notion of closeness to a deictic center or a (human) landmark.

Conclusion

Given the arguments developed in this paper, demonstratives are the most likely candidates as sources of the grammaticalization of the ‘directionals’ of Berber. If one considers that the semantics or original function of the source of grammaticalization motivates to a certain extent the target of grammaticalization, this would explain the fact that directionals are not limited to motion verbs in Berber, but are used for all sorts of verbs, and clauses (negative, *irrealis* etc.). It would also explain the variety of values they carry: spatial, aspectual, modal... Demonstratives, by integrating all dimensions of the speech situation, the *hic et nunc* as well as the speaker and the addressee, have a potentially broader scope than motion verbs, thus giving rise to more varied contextual interpretations.

Motion verbs themselves are seldom grammaticalized in Berber: the near-future auxiliary of Shilha (based on *ddu*, ‘move with’), and the tendency of *ṛuḥ* (‘leave’) to act as an abstract V1 in sequences, are the only documented cases. Position and change of position verbs such as *kkr* ‘stand, stand up’, and *qqim*, ‘stay’, tend to grammaticalize more easily.

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