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The grammaticalisation of modal auxiliaries in Maltese and Arabic vernaculars of the Mediterranean area

Martine Vanhove, Catherine Miller, and Dominique Caubet

1. Introduction

The grammaticalisation processes of modal auxiliaries in Arabic vernaculars have rarely been a key issue of studies among specialists of these languages. Moreover, different theoretical frameworks and terminologies have been used, and the descriptions and analyses are far from being developed to the same extent. Such a situation does not ease the comparison between the different systems, but, as will be shown below, does not jeopardize it altogether.

In order to fit in the general pattern of this book, this chapter will focus exclusively on the expression of epistemic and intersubjective (also called agent-oriented) modalities in a sample of four varieties of Arabic spoken along the Mediterranean coast, belonging to the two main branches, (i) Western (Maghribi) Arabic: Maltese, the official and national language of Malta, a Western Arabic vernacular in origin, and Moroccan Arabic; (ii) Eastern Arabic: Egyptian and Levantine (i.e. Jordanian, Syrian, Palestinian) Arabic.¹ For the first two languages we relied on our own fieldwork data (Vanhove 1993, Caubet 1993), and we made use of Mitchell and al-Hasan (1994), Lentin (1997), Woidich (2006), and Salame and Lentin (forthcoming), for the latter two. We will first describe the systems of the vernaculars (section 2, 3, and 4),² then compare the grammaticalisation patterns and grammaticalisation chains of the different modal values (section 5).

For the description of Maltese and Moroccan Arabic, we used the framework of enunciative theory, which can be translated, albeit somewhat roughly, into Bybee and Fleishman's (1995) approach of modality.³ Epistemic modality is defined from an enunciative viewpoint as "establishing a *relation* between the *enunciator* and the *propositional content* represented by the predicative relation",⁴ a definition in line with

the traditional approach of logicians: epistemic elements are considered “clausal-scope indicators of a speaker’s commitment to the truth of a proposition” (Bybee and Fleischman 1995: 6). In terms of the framework of enunciative theory, this means that the enunciator is not certain that the predicative relation is valid, that he does not choose between its validity (‘truth’ in the traditional approach) or non-validity, but simply gives a quantitative estimation of the chances of the predicative relation to be validated, hence these elements denote values of probability, and contingency.

The second type of modality is called ‘intersubjective modality’, and concerns the *relations* between the *subject* and the *predicate* within the predicative relation. The truth of the propositional content is not at stake, but the validation of the predicative relation depends on the will of the subject of the utterance, or on the will, the pressure or the demand that the enunciator is exerting over the subject of the utterance. This includes the so-called deontic or ‘root’ modalities. In general, this corresponds to the ‘agent-oriented’ modality defined by Bybee and Fleischman (1995: 6) as follows: “all modal meanings that predicate conditions on an agent with regard to the completion of an action referred to by the main predicate, e.g. obligation, desire, ability, permission and root possibility.”

Regarding Egyptian and Levantine Arabic, we transposed the existing descriptions into the above described framework in order to ease the comparisons between the various systems.

It should be borne in mind that enunciative theory distinguishes two other types of modality (assertive and appreciative), and explicitly claims that they may overlap. One must also be aware that the following study only represents a part of the modal systems of the Arabic vernaculars under study, and that other devices are used (e.g., intonation, moods, tenses, verbs, adverbs, and adverbial constructions). Furthermore, the boundaries between aspectual and modal values, like in many other languages, are not clear-cut, and subtle modal and semantic values are also conveyed by tenses and the type of assertive modality. We do not deal with these questions in this paper.

Following are the criteria we used to characterize the verbal auxiliary category. These criteria are valid for Arabic vernaculars, but also apply cross-linguistically:⁵

- A verbal periphrastic construction made of an auxiliary verb and a main verb is a morphological, syntactic and semantic unit.
- Within the utterance, the syntactic scope of the auxiliary is the predicative kernel, and not the utterance itself.
- No coordinating or subordinating elements can occur between the two verbs.

- Both verbs have the same subject.
- The complement, if any, is that of the main verb.
- Most often, a semantic abstractification (rather than bleaching) of the auxiliary occurs, in the sense that the meaning of the auxiliary verb is more “general” (its original meaning as a main verb does not need to be general) than that of the main verb, because it needs to combine with all (or at least most) semantic classes of verbs.
- Paradigmatic substitution is only possible for the auxiliary.

Verbal particles, whether of verbal origin or not, only differ from auxiliaries in their degree of grammaticalisation, in the sense that they are more grammaticalised than verbal auxiliaries.

For readers unfamiliar with the verbal system of Arabic vernaculars, it is necessary to remind that, unlike what is the case in many European languages, the morphology of periphrastic constructions with an auxiliary is usually characterized by the juxtaposition of two *finite* verbal forms, i.e. both forms are fully inflected for TAM, gender, and number. The rare exceptions mostly concern the modal auxiliary forms themselves: they may be participial forms inflected only for gender and number, and if they are non-verbal in origin, they may have acquired a different type of inflection, based on suffix pronouns, or have no inflection at all. In the latter case they are more accurately analyzed as particles.

2. Maltese

The verbal system of Maltese is particularly rich in auxiliaries and verbal particles which express almost as many aspectual, temporal and modal values as the forty-five forms that have been analyzed in Vanhove (1993). Most of them are the result of internal grammaticalisation processes, but in a few instances (see Vanhove 1994, 2000, and 2001) the Maltese auxiliary can clearly be traced back as a calque from the contact languages (Sicilian and Italian for a millennium, English for two centuries).⁶

Six auxiliaries, which are also used as full verbs, are relevant for the study of modality as defined for the purpose of this book: *seta* ‘can’, *jaf* ‘know’, *ried* ‘want’, *għandu* (and its ‘irregular’ forms *kellu* and *ikollu*) ‘have’, *mess* ‘touch’, and *ikun* ‘be’. When used as modal auxiliaries, they may acquire new meanings as will be seen below.

2.1. *Seta* ‘can’

The Maltese modal verb *seta* ‘can’ is a cognate of the Arabic root $\text{T}^{\text{W}}^{\text{S}}$ whose tenth derived form *istata^a* also means ‘can’.⁷ Like most modal auxiliaries and particles, *seta* is polysemous for both epistemic and intersubjective modal values. Still the latter are far more frequent than the former. The precise modal values depend on the TAM inflection of both verbal forms of the periphrasis, the semantics of the main verb, as well as on contextual factors.

The degree of grammaticalisation of *seta* can be considered as minimal, as the auxiliary retains all its verbal and semantic characteristics, and can even be separated from the main verb by a subject, an object or an adverb.

2.1.1. Intersubjective modality

The modalities of capacity (1), possibility (2), and permission (3) and their negative counterparts are the most frequent values of *seta* ‘can’:

- (1) *il-mara⁸ tiegħ=i ma tista=x issajjar*
 ART-wife of-1SG NEG can.IPFV3F.SG-NEG cook.IPFV3F.SG
għax marid=a
 because ill-F
 ‘My wife cannot cook because she is sick.’
- (2) *kullhadd jista’ jikkultiva l-għelieqi*
 every_one can.IPFV3M.SG cultivate.IPFV3M.SG ART-fields
tiegħ=u
 of-3M.SG
 ‘Every one will be able to cultivate his own lands.’
- (3) *il-ħobż biex seta’ jinbieħ...*
 ART-bread PURP can.PFV3M.SG be.sold.IPFV3M.SG
 ‘The bread, so that it could be sold.’ [had to be stamped by an official stamp]

When both verbs of the periphrasis are in the perfective, the value is that of an unfulfilled possibility:

- (4) *dawn kważi setgħu kienu sunetti*
 DEM.PL almost can.PFV3PL be.PFV.3PL sonnets
 ‘These could almost have been sonnets.’

The construction can also take, in this case, a value of a posteriori advice, often with a connotation of reproach:

- (5) *stajt* *gdimt* *ilsien = ek* *int ukoll*
 can.IPFV2SG bite.IPFV2SG tongue-2SG 2.SG also
 ‘You could have hold your tongue!’

2.1.2. Epistemic modality

Seta’ can also be used to express epistemic values, although rarely. It should be noted that this is only possible with the imperfective form for both the auxiliary and the main verb. This is regularly the case when the main verb is *kien* ‘be’, in the 3rd person masculine singular of the imperfective. The periphrasis means ‘it is probable that’, and is equivalent to Arabic forms such as *yumkin/yəmkən* or *mumkin* ‘possible’ (this is lost in Maltese; see below section 3.5. and 4.5.):

- (6) *jista*’ *jkun* *ma niftakar = x*
 can.IPFV3M.SG be.IPFV3M.SG NEG remember.IPFV1SG-NEG
 ‘I might forget.’

With other verbs it may also be used to express an eventuality, a probability, the feasibility of an action:

- (7) *taħt il-maskra tista*’ *tinheba* *r-rejalta*
 under ART-mask can.IPFV3F.SG be.hidden.IPFV3F.SG ART-reality
 ‘Under the mask, it happens that the reality is hidden.’

- (8) *wara l-iskrivanja tiegħ = i wieħed jista*’
 behind ART-desk of-1SG one can.IPFV3M.SG
jidħol jistrieħ sew mhux hekk?
 enter.IPFV3M.SG rest.IPFV3M.SG precisely NEG thus
 ‘Behind my desk, someone could come and rest, precisely, don’t you think?’

2.2. *Jaf* ‘know’

Jaf is a defective verb in Maltese limited to the imperfective inflection. It is cognate with Arabic *ʿarafa* ‘I know’.⁹ Aquilina (1987: 8), in his dictionary, mentions what he calls an ‘adverbial’ use of the verb *jaf*

‘know’ when used before another verb. The examples given are translated by ‘maybe, it is possible that’, showing that *jaf* loses its original meaning as a full verb in this particular construction. The examples provided by Aquilina all have epistemic values:

- (9) *jaf jagħmel ix-xita llum*
 know.IPFV3M.SG do.IPFV3M.SG ART-rain today
 ‘It is quite possible that it may rain today.’

As a matter of fact, the use of *jaf* as a modal auxiliary is very rare¹⁰ in spontaneous speech and writing, and all occurred with the verb *qal-igħid* ‘say’. Still, both epistemic (possibility) and intersubjective (capacity) values are possible:

- (10) *Ma taf=x tgħidi=l=na forsi xi*
 NEG know.IPFV2SG-NEG say.IPFV2SG-to-1PL maybe some
ħaġa...
 thing
 ‘Could you not tell us maybe something...’

- (11) *għandu żewġ skopijiet sa fejn naf*
 have.PRS1SG two objectives till where know.IPFV1SG
ngħid
 say.IPFV1SG
 ‘He has two objectives as far as I can judge.’

The scarcity of the modal use of *jaf* combined with the native speakers’ judgement about Aquilina’s examples as ‘archaic’ is probably an indication that the auxiliary use of *jaf* is dying out.

2.3. *Ried* ‘want’

The modality of volition is usually expressed by the verb *ried* ‘want’, a cognate of Arabic *ʾaraada* ‘want’.¹¹ It can either be used in a completive structure with the complementizer *li* ‘that’, introducing another predicative relation (the subjects are not co-referential), or in an asyndetic construction. In the latter, if the subjects of the two verbs are not co-referential, the subject of the second verb is the pronominal suffix object of the first one (see (13)), which rules out an interpretation of *ried* as an auxiliary in this case (see section 1 for the criteria of auxiliarihood):

- (12) *iridu li int tiekol*
 want.IPFV3PL that 2SG eat.IPFV2SG
 ‘They want you to eat.’
- (13) *ma rrid=ek=x tgħid li jien dittur*
 NEG want.IPFV1SG-2SG-NEG say.IPFV2SG that 1SG vain
 ‘I don’t want you to say that I am vain.’
- (14) *ma ried=x jinnegozja magħ=hom*
 NEG want.PFV3M.SG-NEG bargain.IPFV3M.SG with-3PL
 ‘He didn’t want to bargain with them.’

More important for the purpose of this study, the verb *ried* ‘want’ is also used as a modal auxiliary in a periphrastic construction (formally similar to that in 14 above) for the expression of the intersubjective modalities of necessity, obligation, ineluctability, advice, and interdiction. If the subject is animate, only contextual factors can help decide if the original meaning of volition is retained or not (compare 14 and 18). But with inanimate subjects, no such a polysemy is possible, and only the intersubjective interpretations are possible. No epistemic use has been noted for the modal auxiliary *ried*.

- (15) *il-garaxx ridna noborxu-h koll=u*
 ART-garage want.PFV1PL brush.IPFV1PL-3M.SG all-3M.SG
mil=l-qieħ
 from-ART-foot
 ‘The garage, we had to brush it all from bottom up.’
- (16) *biex tikber trid tiekol.*
 PURP grow up.IPFV2SG want.IPFV2SG eat.IPFV2SG
 ‘In order to grow up, you must eat.’
- (17) *trid tmur lejn ix-Xagħra jew iż-Żebbuġ*
 want.IPFV2SG go.IPFV2SG towards ART-Xagħra or ART-Żebbuġ
 [there are things like that for sale at Xagħra and Żebbuġ] ‘you should go to Xagħra or Żebbuġ.’
- (18) *ma rrid=x ninnegozja qalt=l=i*
 NEG want.IPFV1SG-NEG bargain.IPFV1SG say.PFV3F.SG-to-1SG
omm=i
 mother-1SG
 ‘I must not bargain, my mother told me.’

2.4. *Għandu* / *kellu* / *ikollu* ‘have’

The Maltese language has grammaticalised two different lexical sources and grammatical constructions into so-called pseudo-verbs meaning ‘have’.

Għandu, as in many Arabic vernaculars, is the result of the agglutination of the preposition **ʿand* ‘at’ cognate with Classical Arabic *ʿinda* with the suffix object pronouns, which have become subject indices and the regular inflection of this pseudo-verb. It has the temporal value of present tense.

Kellu and *ikollu* are both cognate with the verb *kien* ‘be’ in the perfective and imperfective forms respectively, to which the preposition *lil* ‘towards, to’, shortened to *l*, has been suffixed, and to which the suffix object pronouns are added as inflectional morphemes, also functioning as subject indices. They are past and future tense, respectively.

2.4.1. Intersubjective modality

When used as a modal auxiliary, the three forms of this pseudo-verb mainly have intersubjective values of necessity, obligation, ineluctability, a posteriori advice, and interdiction. The difference with the auxiliary verb *ried* (see section 2.3. above) is mainly that of register, the use of *għandu* / *kellu* / *ikollu* being regarded as higher than that of *ried*. This feeling of Maltese native speakers might be linked to the long-standing contact with Italian and English:¹² the contact situation may be the reason behind the Maltese auxiliation construction, unknown or very marginal in other Arabic vernaculars (see section 4.8.).

- (19) *tmur fejn għandek tmur*
 go.IPFV2SG where have.PRS2SG go.IPFV2SG
 ‘You go where you have to go.’

- (20) *kellek taħseb qabel*
 have.PST2SG think.IPFV2SG before
 ‘You should have thought about it before.’

- (21) *biex tħit=ha ikollna nxarrbu=ha*
 PURP sew.IPFV2SG-3F.SG have.FUT1PL wet.IPFV1PL-3F.SG
 ‘In order to sew it, we’ll have to wet it.’

2.4.2. Epistemic modality

These pseudo-verbs can have epistemic values, more frequently than *seta* ‘can’. These are values of logical probability (or inference), near-certainty, and calculation. They are more likely to occur with *għandu* than with the two other forms.

- (22) *tgħarraf=ni għandek tifhem x’*
 know.IPFV2SG-1SG have.PRS2SG understand.IPFV2SG what
irried ngħid bi=ha
 Want.IPVF1SG say.IPFV1SG with-3F.SG
 ‘You know me, you should understand what I mean by that.’

- (23) *għandhom ikunu hawn għal s-sebgha*
 have.PRS3PL be.IPFV3PL here for ART-seven
 ‘They should be here around seven’

- (24) *k ikollok ir-riħ fuq sa erbghat ijiem ħamsa*
 if have.FUT2SG ART-wind on till four days five
ikollha tinxef
 have.FUT3F.SG dry.IPFV3F.SG
 ‘If you have a North wind, it should dry within four or five days.’

2.5. *Mess* ‘touch’

The verb *mess* ‘touch’ (cognate of Arabic *massa* ‘touch’), a full verb regularly inflected for perfective and imperfective, can also be used as a modal auxiliary. When it functions as an auxiliary, the morphology is different from what it is as a full verb: to the 3rd person of either the perfective or the imperfective are added the object suffix pronouns which co-refer to the subject of the periphrasis. These bound pronouns constitute the inflection of the auxiliary.

Although the verb itself is of Arabic origin, the auxiliary construction is obviously a calque of vernacular Italian.¹³ The semantics and the grammaticalisation process can thus be considered as the result of language contact.

The periphrastic construction with *mess* only has intersubjective interpretations.

When both or either of the two verbs are in the perfective form, the modal value is that of an a posteriori advice or suggestion, always with a connotation of reproach or regret:

- (25) *messek tkellimt qabel*
touch.PFV2SG talk.PFV2SG before
'You should have talked before!'

When both verbs are in the imperfective, unachieved necessity is expressed, again with a connotation of reproach or regret:

- (26) *imissek tisthi*
touch.IPFV2SG be.ashamed.IPFV2SG
'You should be ashamed of yourself!'

2.6. *Ikun* 'be'

When used as an auxiliary preceding a main verb in the imperfective, the imperfective form *ikun* of *kien* 'be' expresses modal values which are limited to the epistemic domain. The precise value is linked to the syntactic context.

In an adverbial, completive or relative clause, *ikun* conveys a value of eventuality, probability:

- (27) *taḥseb li l-iswed ikun*
think.IPFV2SG REL ART-black be.IPFV3M.SG
jixraq=l=i
suit.IPFV3M.SG-to-1SG
'Do you think black would suit me?'

In independent or coordinated clauses, the epistemic value is that of a logical consequence, a logical probability (inference):

- (28) *sib ḥmar ċkejken u saqaj=k ikunu*
find.IMP.SG donkey small and feet-2SG be.IPFV3PL
imissu ma' l-art
touch.IPFV3PL with ART-ground
'Find a small donkey and your feet will touch the ground!'

2.7. Summary

From the above study of Maltese modal auxiliaries, it can be concluded that intersubjective modalities are more commonly expressed with modal auxiliaries than epistemic ones. The different values of the periphrastic constructions and the forms of the auxiliaries are summarized in the following table (note that, apart from the forms of ‘have’, it does not provide information on the tenses of the two verbs of the periphrasis. The negative values are not listed either):

Table 1. Values of Maltese modal auxiliaries

	Modal value	Auxiliary
INTERSUBJECTIVE	Possibility	<i>seta'</i>
	Capacity	<i>seta'</i> , <i>jaf</i> (rare)
	Permission	<i>seta'</i>
	Obligation	<i>ried</i> , <i>għandu</i> , <i>kellu</i> , <i>ikollu</i>
	Necessity	<i>ried</i> , <i>għandu</i> , <i>kellu</i> , <i>ikollu</i>
	Ineluctability	<i>ried</i> , <i>għandu</i> , <i>ikollu</i> (rare)
	Advice	<i>ried</i>
	a posteriori advice	<i>mess</i> , <i>kellu</i> (rare)
	unachieved necessity	<i>mess</i>
	EPISTEMIC	Eventuality
Feasibility		<i>seta'</i>
Probability		<i>seta'</i> , <i>ikun</i>
logical probability (inference)		<i>għandu</i> , <i>ikollu</i> , <i>ikun</i>
Calculation		<i>kellu</i>

Although polysemy is the rule for most modal auxiliaries, it should be noted that one of them is limited to epistemic values (*ikun* ‘be’). Conversely, two others are limited to intersubjective values (*ried* ‘want’ and *mess* ‘touch’).

Several auxiliaries have modal values that are similar, but their semantic functions do not always fully overlap. They may be specialized in a restricted number of modal values within each type of modality. Within the intersubjective modality, *għandu*, *kellu* and *ikollu* are not used with an advice¹⁴ value, only *ried* and *mess* can be. The latter, although sharing the value of advice and necessity with its four synonyms, is actually specialized for the expression of a posteriori advice, and for unachieved necessity. On the other hand, in the domain of necessity, only

As for modals, innovation and grammaticalisation are also one of the characteristics of Moroccan Arabic. There are various degrees of grammaticalisation, from conjugated auxiliaries to frozen particles or adverbial forms.

Four verbs will be analyzed here. They are currently still used as verbs with their full semantic values: *qdər* ‘can, may’, *qədd* ‘can’, *kaan* ‘be’, *xəss* ‘must’. We’ll also consider the case of *yəmkən* ‘may, maybe’, a verb in origin, but which is mostly used in its frozen form as an adverbial.

3.1. *qdər* ‘can, may’

The original meaning of the verb *qdər* is ‘to have the capacity, the strength, the power, the faculty, the possibility to’; the nominal *qodra* (derived from the same root QDR) is linked semantically to divine power, predestination, fate or chance.¹⁵ It is used in Moroccan Arabic to express both intersubjective and epistemic modalities. The differentiation between the two main types of modality is reflected in the morphology of the auxiliary verb.

3.1.1. Intersubjective modality

When expressing intersubjective values, *qdər* is inflected as a regular verb in all its forms, perfective, imperfective or active participle. It either marks a general capacity or a permission:

(32) *ka-nəqdər nhəzz ət-ṭəbla*
TAM-can.IPFV1SG lift.IPFV1SG ART-table
‘I can lift the table.’

(33) - *waš təqdər tži?*
Q can.IPFV2SG come.IPFV2SG
- *nəqdər!*
can.IPFV1SG
‘- Will you be able to come?’
‘- Yes, I will!’

(34) *təqdər tži m^ʕ-ya?*
can.IPFV2SG come.IPFV2SG with-1SG
‘Can/could you come with me?’

- (35) *təqdər təmši daba*
 can.IPFV2SG go.IPFV2SG now
 ‘You can go now!’

3.1.2. Epistemic modality

As an epistemic auxiliary, *qdər* is invariable and frozen in the imperfective 3rd person singular form, *yəqdər*. It expresses values of possibility, probability or plausibility:

- (36) *yəqdər yži ħməd*
 can.IPFV3M.SG come.IPFV3.MSG Ahmed
 ‘Ahmed may come.’
- (37) *yəqdər ykuun naaʿəs*
 can.IPFV3M.SG be.IPFV3M.SG sleep.ACT.PTCP.M.SG
 ‘He may be asleep.’

3.2. *qədd* ‘can’

The verb *qədd* has very similar intersubjective values as *qdər*. Etymologically, it means ‘to be enough or to suffice, to be of sufficient size, to be able (physically or morally)’:

- (38) *ka-nqədd nhəzz haad ət-ṭəbla*
 TAM-can.IPFV1SG lift.IPFV1SG this ART-table
 ‘I can lift this table.’
- (39) - *nəʿwən-ək?*
 help.IPFV1SG-2SG
 - *la, nqədd nhəzz-ha*
 NEG can.IPFV2SG lift.IPFV1SG-3F.SG
 ‘- Shall I help you?’
 ‘- No, I can lift it!’ (I’ll manage)
- (40) *qəddiiti tži γədda?*
 can.PFV2F.SG come.IPFV2F.SG tomorrow
 ‘Can/could you come tomorrow?’

3.3. *ykuun* ‘be’

As a modal auxiliary, *kaan* ‘to be’ is only used in the imperfective form *ykuun*, and marks logical probability, i.e. inference, an epistemic modality derived from the basic ‘vague future’ value the bare form of the imperfective conveys (see above, section 3):

- (41) *ykuun mša l-əl-ʿarubiya*
 be.IPFV3M.SG go.PFV3M.SG to-ART-country
 ‘He’ll be gone to the country!’
- (42) *ykuunu ʿaad ka-yṯəyybu əl-γda*
 be.IPFV3M.PL still TAM-cook.IPFV3M.PL ART-lunch
 ‘They must still be preparing lunch!’

3.4. *xəṣṣ* ‘must’

The original meaning of the verb *xəṣṣ* is ‘to be missing or lacking, to be insufficient, to be absent, nonexistent’. When used as a modal auxiliary, it can express both epistemic and intersubjective modalities.

3.4.1. Intersubjective modality

The morphology of *xəṣṣ* as a modal auxiliary is different from its full verb morphology. Two forms are used, and intersubjective values vary according to aspect.

xəṣṣ can be used as an impersonal frozen form in the 3rd person masculine singular of the *ka*-imperfective, and suffixed with personal pronouns co-referential with the subject. It then conveys the idea of an obligation imposed from the outside, by the circumstances or by somebody, i.e. not self-imposed (*cp.* English ‘you have to’, as opposed to ‘you must’¹⁶):

- (43) *ka-yxəṣṣ-ha taakul əl-fromaaž*
 TAM-lack.IPFV3M.SG-3F.SG eat.IPFV3F.SG ART-cheese
 ‘She has to eat cheese!’ (it is good for her health)
- (44) *ka-yxəṣṣ-ək tšuuṯi daak-əš-šī*
 TAM-lack.IPFV3M.SG-PR2SG see.IPFV2F.SG that-ART-thing
dyaal əl-Məžduub

For the expression of permission with second person subjects, the invariable verbal particle *yəmkən* is used in a periphrastic construction before the main verb, which is in a relation of syntactic dependency (concatenation) with the particle, and thus occurs in the bare form of the imperfective (see Caubet 1994):

- (48) *yəmkən* *tʒi*
 can.IPFV3.M.SG come.IPFV2SG
 ‘You may come.’

But to mark capacity, the set form of the frozen verb *yəmkən* is constructed with suffix pronouns referring to the subject, and introduced by a preposition *l* ‘to’: *yəmkən-l-ek*, *yəmkən-l-u*, etc. (litt. ‘it is possible to you/him’, ‘you can, he can’...):

- (49) *yəmkən-l-ek* *tʒi?*
 can.IPFV3.M.SG-to-2SG come.IPFV2SG
 ‘Can you come?’

3.5.2. Epistemic modality

The syntactic status of the form *yəmkən* as an epistemic modal is hybrid: still verbal, but mostly adverbial. Within the utterance, its syntactic position can be that of an adverb, i.e. after the main verb or at the end of the utterance (see (50) and (51)), or that of an auxiliary verb, i.e. before the main verb (see (52) and (53)), in which case it can be analyzed as a verbal particle, a degree higher on the scale of grammaticalisation than auxiliaries. When placed in this position, it always requires syntactic dependency:

- (50) *yaadi yʒi,* *yəmkən*
 FUT come.IPFV3M.SG maybe
 ‘He’ll come, maybe.’

or:

- (51) *yʒi* *yəmkən*
 come.IPFV3M.SG maybe
 ‘He’ll come, maybe.’

- (52) *yəmkən* *nʒi*
 can.IPFV3M.SG come.IPFV1SG

‘I may come.’

- (53) *yəmkən* *ykuun* *naaʿəs*
 can.IPFV3M.SG be.IPFV3M.SG sleep.ACT.PTCP.M.SG
 ‘He may be asleep.’

3.6. Summary

In Moroccan Arabic, even though there are more adverbs implicated in the expression of modality, some modal auxiliaries are also used. The use of the verb *xəšš* ‘to be missing or lacking’ to express obligation is very characteristic of this vernacular. Most auxiliaries, be they verbal or pseudo-verbal, and particles, are used for both types of modality, epistemic and intersubjective. The sole exception is *ykuun* ‘be’ which can only express epistemic modality. There are some morphosyntactic constraints for most of them (they may be used with only one type of inflection, or in an invariable form). One case of grammaticalisation to an adverb has been recorded, that of *yəmkən* ‘maybe’.

The different values of the periphrastic constructions and the forms of the auxiliaries are summed up in the following table:

Table 2. Values of Moroccan modal auxiliaries

	Modal value	Auxiliary
INTERSUBJECTIVE	Possibility	<i>qdər, qədd, yəmkən-l-ek</i>
	Capacity	<i>qdər, qədd, yəmkən-l-ek</i>
	Permission	<i>qdər</i>
	Obligation	<i>xəšš</i>
	Necessity	<i>xəšš</i>
	Ineluctability	<i>xəšš</i>
	Advice	<i>xəšš</i>
	a posteriori advice unachieved necessity	<i>xəšš</i>
EPISTEMIC	Eventuality	<i>yəmkən</i>
	Feasibility	<i>qdər</i>
	Probability	<i>qdər</i>
	logical probability	<i>xəšš-u, ykuun</i>
	Calculation	<i>xəšš-u, ykuun</i>

4. Egyptian and Levantine Arabic

Very similar to Moroccan Arabic, the verbal systems of both Egyptian Arabic (EA) and Levantine Arabic (LA, i.e. Syrian, Jordanian and Palestinian) have split the imperfective aspect into two forms. One is the continuation of the old form, the so-called bare-form (*yiktib*), and the other is an innovative one, namely a *b*- preverb (*b-yiktib*), with values similar to those mentioned for Moroccan. The verb class contains numerous verbs expressing epistemic and intersubjective modal values, a few functioning also as auxiliaries. It may be noted that the most frequent ones are either pseudo-verb forms (i.e. based on a nominal construction but functioning as verbs), participials, and frozen forms in the 3rd SG.M imperfective. The auxiliary class cuts across word boundaries, and auxiliaries occur in the form of participials, nouns, adjectives, finite verbs and prepositional phrases. EA and LA share a number of modal auxiliaries but not all, as will be seen, and differ with regards to the TAM markers of the main verb. The selected forms for this paper are *ʔidir* ‘can’, *ʔirif* ‘know’, *bədd-* (*bidd-*) ‘wish’, *ʔawiz* (*ʔayiz*) ‘want’, *laazim* ‘must’, *yimkin/mumkin* ‘possible’, and *ykuun* ‘be’. It ends with a mention of the grammaticalisation of a noun (*ħa*^{??} ‘truth’) and a prepositional phrase (*ʔale* ‘on’) as modal auxiliaries.

4.1. *ʔidir-yiʔdar* (~*yiʔdər*), *ʔaadir* ‘can’

EA and LA modal verb *ʔidir* is a cognate of the Arabic root QDR ‘be able to’. *ʔidir* carries intersubjective modal values. The precise modal values depend on the TAM inflection of both verbal forms of the periphrasis, as well as on the semantics of the main verb. *ʔidir* is always inflected for gender and number. Although it can be used in the perfective, imperfective, and active participial forms when expressing capacity and possibility, it is only used in the imperfective for permission.

4.1.1. Intersubjective

ʔidir expresses the deontic notions of (i) capacity, ability (ii) possibility, potentiality, and (iii) permission, and their negative counterparts. It is frequently associated with physical and intellectual ability:

- (54) *miš ʔadr-a tʔuum mi-s-siriir*
 NEG can.ACT.PTCP-F stand.IPFV3F.SG from-ART-bed

‘She cannot stand up from the bed.’ (WOI:319)¹⁷

- (55) *ma-haddi-š* *ʔidir* *yiʔul-l-u* *hkaaya*
 NEG-person-NEG can.PFV3M.SG say.IPFV3M.SG-to-3M.SG story
 ‘Nobody could tell him a story.’ (WOI:319)

- (56) *niʔdar* *nitʔabil* *ʔa-l-ɣada* *bukra*
 can.IPFV1PL meet.IPFV1PL over-ART-lunch tomorrow
 ‘Could we meet over lunch tomorrow?’ (M&H:48)

- (57) *iza ma get-š* *is-saaʔa sabʔa tiʔdar*
 if NEG come-PFV1SG-NEG ART-time seven can.IPFV2M.SG
tirawwah
 go.IPFV2M.SG
 ‘If I don’t arrive at 7 o’clock you can leave.’ (WOI:317)

Already in Levantine Arabic texts of the 16th-18th century (Middle LA), *qadar*¹⁸ was the most frequent ‘can’ auxiliary and was used in both the perfective and imperfective (bare and *b-* imperfective) forms to express capacity and ability. Note however that in (58) and (59) the imperfective form of *qadar* (i.e. *naqdir*) appears in combination with either another modal (*yumkin* in (59)) or (as in (58)) with the perfective form of *qadar*. This could be an indication that its modal value still needed to be emphasised through repetition:

- (58) *maa qadarnaa naqdir* *narqud* *tilka al-layla*
 NEG can.PFV1PL can.IPFV1PL sleep.IPFV1PL that ART-night
 ‘We could not sleep that night.’ (LEN:629)

- (59) *wa laa yumkin* *naqdir*
 COORD NEG be.possible.IPFV3M.SG can.IPFV1SG
našif-hu *ʔal haqiqat-uh*
 describe.IPFV1SG-3M.SG over fact-3M.SG
 ‘I can’t describe (in details) all these events.’ (LEN:629)

- (60) *maa b-aqdar* *b-atkallam*
 NEG TAM-can.IPFV1SG TAM-speak.IPFV1SG
 ‘I can’t speak (Arabic).’ (LEN:629)

4.1.2. Epistemic

yi[?]dar alone does not express epistemic values. It needs to be combined with either the future particle *ħa-* or the adverb *mumkin* ‘maybe’, thus expressing eventuality:

- (61) *ħa-[?]dár* *ašuuġ-ak* *taani* *márra*
 FUT-can.IPFV1SG see.IPFV1SG-2MSG second time
 ‘Shall I be able to see you again?’ (M&H:49)

4.2. *‘irif, yi[?]raf, ‘aarif* ‘know, can’

The verb *‘irif* can function as a full-fledged verb keeping its original meaning of ‘know’. It can also function as an auxiliary and convey the intersubjective values of ability and capacity. It overlaps with *‘idir* to express physical and intellectual ability. Like *‘idir*, it can be used in the perfective, bare imperfective and *b-* imperfective forms as well as in the active participial form:

- (62) *ma* *‘irifti-š* *tittsarraf*
 NEG know.PFV2F.SG-NEG behave.IPFV2F.SG
 ‘You were not able to behave (properly).’ (WOI:320)

- (63) *b-a[?]raf* *a[?]ra* *w* *aktib*
 TAM-know.IPFV1SG read.IPFV1SG COORD write.IPFV1SG
 ‘I can read and write.’ (WOI:320)

The same modal value is recorded in Middle LA, mainly in negative sentences:

- (64) *maktuub* *maa* *‘arafuu*
 write.PAS.PTCT.M.SG NEG know.PFV3M.PL
idabbiruu-h
 prepare.IPFV3M.PL-3M.SG
 ‘They were unable to write an answer.’ (LEN:631)

4.3. *bədd-* (*bidd-*) ‘want’

bədd- (*bidd-*) is a frequent Levantine form, but it is rarer in EA. It is based on the prepositional phrase *b-wudd*, lit. ‘with-love’ and is attested in Middle LA since the 18th c. The suffix object pronouns added to this nominal base co-refer to the subject of the periphrasis and have become the regular inflection of this pseudo-verb. Syntactically, *bədd-* can function as a full-fledged verb:

(65) *wa bədd-u min-hu X ʔalf kiis*
 COORD want-3M.SG from.3M.SG X thousand bag
 ‘X wants from him 500 000 piasters.’ (LEN:624)

(66) *bidd-hum is-sayyaara tiṣallah*
 want-3PL ART-car repair.IPFV3F.SG
 ‘They want the car to be repaired.’ (M&H:39)

4.3.1. Intersubjective

Preceding a bare imperfective form, *bədd-* functions as a modal intersubjective auxiliary expressing (i) volition, (ii) ineluctability, necessity, and obligation imposed from the outside:¹⁹

(67) *bədd-i ʔħki maʔ-ak kələmt-een*
 want-1SG say.IPFV1SG with-2SG word-DU
 ‘I want to tell you a few words.’ (LEN:624)

(68) *maa kunt bədd-i ʔənzəl*
 NEG be.PFV1SG want-1SG go.IPFV1SG
 ‘I did not have the intention to go there.’ (S&L)

(69) *al-yoom bədd-ak tsaifer*
 ART-day want-2M.SG travel.IPFV.2M.SG
 ‘You have to travel today.’ [because the Pacha is coming tomorrow]
 (LEN:626)

(70) *bidd-u(h) yikuun yiʔraf ingliizi*
 want-3M.SG be.IPFV3M.SG know.IPFV3M.SG English
 ‘He has to know English.’ (i.e. as a condition of his employment)
 (M&L:40)

Note that in the above example, the value of necessity is reinforced by the combination of two auxiliaries (*bidd-* and *yikuun*).

bidd often functions with an inanimate agent or impersonal subject:

- (71) *banġaloon-i bidd-u(h) kawy*
trouser-1SG want-3M.SG pressing
'My trouser needs pressing.' (M&H:40)

4.3.2. Epistemic

The periphrastic construction *bədd-* + *yikun* + *b-*imperfective form expresses a hypothesis given as a logical probability or inference (*cp.* the intersubjective value in (71) above):

- (72) *ha-l-ħajar bədd-o ykuun zmərrəd*
DEM-ART-stone want-3M.SG be.IPFV3M.SG emerald
'This precious stone might be an emerald.' (S&L)

- (73) *bidd-uh ykuun b-işəlli*
want-3M.SG be.IPFV3M.SG TAM-pray.IPFV3M.SG
'He must be praying.' (inferential) (M&H:40)

The above sentence is to be distinguished from *bidd-uh yşəlli* 'he wants to pray' or 'he has to pray' which has an intersubjective value of volition or necessity, according to the context.

- (74) *bidd-uh ykuun b-yi'raf ingliizi*
want-3M.SG be.IPFV3M.SG TAM-know.IPFV3M.SG English
'He must know English.' (since he lived in England; as opposed to 70 above) (M&H:40)

4.4. ^ʔ*aawiz*~^ʔ*aayiz* 'want'

The EA participial form ^ʔ*aawiz*~^ʔ*aayiz* of the verb ^ʔ*aaz*~^ʔ*yi'uu*z 'want, need' functions as a full lexical verb as well as an auxiliary expressing the intersubjective values of (i) volition, intention, and (ii) need, obligation:

- (75) *fi waħda sitti ʔayz-a tʔaabil siyadt-ak*
there.is one woman want-F.SG meet.IPFV3F.SG Sir-2SG
'There is a woman who wants to meet you.' (WOI:317)

- (76) *il-ʿarabiyya ʿawz-a tityisil*
ART-car want-F.SG wash.IPFV3F.SG
‘The car needs to be washed.’ (WOI:316)

This use is similar to that of *bidd-* in section 4.3. Note that in both cases, the subject is an inanimate agent, and the predicate is either a verbal noun like *kawy* ‘pressing’ (71), or a verbal form with a passive meaning (*cp.* also Maltese *ried*, section 2.3.).²⁰

4.5. *laazim* ‘must’

laazim is originally the participial form of the Arabic root LZM, whose bare verbal form means ‘be necessary’. In both EA and LA it has become invariable, and can be considered as being grammaticalised as a modal particle, and, when occurring at the very beginning of an utterance, as an adverb.

4.5.1 Intersubjective

laazim is the most common deontic modal of necessity and obligation in both EA and LA:²¹

- (77) *laazim timši dilwaʿti*
must go.IPFV2SG now
‘You have to go now.’ (M&H: 51)

4.5.2 Epistemic

laazim can convey an epistemic value of (i) logical probability (inference), or (ii) near-certainty, when combined with a perfective verb or an imperfective verb prefixed with the TAM markers *ħa-* (in EA), *b-* (in LA), or with the auxiliary *ykuun* ‘be’:

- (78) *inta laazim širibta-ha*
2M.SG must drink.PFV2F.SG-3F.SG
‘You have certainly drunk it.’ (M&H: 43)

- (79) *laazim ħa-(/bi-)yiigi dilwa²ti*
 must TAM-(/TAM-)come.IPFV3M.SG now
 ‘He must come soon.’ (I feel sure, I judge that) (M&H:43)

The above utterance can be contrasted to *laazim yiigi dilwa²ti*, expressing the intersubjective value of ‘he must (he has to) come soon’ (i.e. ‘is under an obligation to’).

- (80) *laazim yikuun wiṣil maktab-uh*
 must be.IPFV3M.SG arrived.PFV3SG office-PR3SG
 ‘He must (probably) have reached his office.’ (M&H:51)

It may be noted that in LA *bi-ykuun* regularly occurs together with *laazim* (*bi-ykuun wiṣil*) in epistemic inferential sentences to reinforce this value:

- (81) *laazim ħa-(/bi-)ykuun bi-yuṭbux*
 must TAM-(/TAM-)be.IPFV3M.SG TAM-cook.IPFV3M.SG
 ‘He will certainly be cooking.’ (M&H:51)

4.6. *yimkin/mumkin* ‘be possible’

yimkin is originally the 3rd M.SG imperfective form of the base verbal form of the Arabic root MKN ‘be possible’. *mumkin* is the passive participial form. Similar to the Moroccan form *yəmkən*, both forms remain invariable. When used in a periphrastic construction they function as modal particles, but do not seem in these vernaculars to have become adverbs, as their position within the utterance does not vary.²²

Both are polysemous and express intersubjective values of possibility, capability, permission and an epistemic value of probability, the latter being more frequent than the former, the distinction between the two being a matter of context (see (84) and (85)):

- (82) *amma ykuun is-sawwaa² miš mawguud fa*
 if be.IPFV3M.SG ART-driver NEG find.PASS.PTCP and
²*ana mumkin aruuħ bidaal-u l-mugamma^f*
 1SG possible go.IPFV1SG instead-3M.SG ART-Mugamma^f
 ‘If the driver is not present, then I can go instead of him in the Mugamma.’ (ability, potentiality) (WOI:319)

- (83) *mumkin* ^ʕ*ali* *izuur-ni* *bukra* *baʕd* *iḍ-duhr*
 possible Ali visit.IPFV3M.SG-1SG tomorrow after ART-noon
 ‘Ali may well visit me tomorrow afternoon’ (probability) *or*
 ‘Ali is allowed to visit me tomorrow afternoon.’ (permission)
 (M&H:48)

According to Mitchell and al-Hassan (1994:47), *mumkin* ‘very likely’ rates higher than *yimkin* ‘might be possible’ on the likelihood-scale:

- (84) *mumkin* *tišuuf-hum* *hinaak*
 possible see.IPFV2M.SG-3PL there
 ‘You can see them there.’
- (85) *yimkin* *tišuuf-hum* *hinaak*
 possible see.IPFV2M.SG-3PL there
 ‘You may (perhaps) see them there.’

4.7. *yikuun* ‘be’

yikuun is the imperfective form of the TAM auxiliary *kaan~yikuun* ‘be’. It has already been mentioned (section 4.3.2.) that *yikuun* added to another modal marker reinforces the epistemic value of probability, eventuality, doubt, etc.

It can also precede a perfective, an imperfective (bare or *b*-form) and a participial form with a value of logical probability (inference):

- (86) *walla* *akun-ši* *ɣlitti* *fī* *š-šaariʕ*
 or be.IPFV1SG-Q mistake.PFV1SG in ART-street
 ‘Or did I mistake the street?’ (WOI:306)
- (87) *in ša* *aḷlaah* *il-ʔahwaal* *tikuun* *mašy-a*
 if wish God ART-state be.IPFV3F.SG go.ACT.PTCP-F
kwayyis *maʕa-ak*
 good with-2M.SG
 ‘I hope that everything will be OK for you.’ (WOI:308)

Numerous examples with subtle semantic modal values can be found in Woidich (2006).

4.8. Grammaticalisation of nominal and prepositional constructions

In order to express the intersubjective values of necessity and obligation, in addition to *laazim* (described in section 4.5.) EA has grammaticalised certain nominal and prepositional constructions.

4.8.1. *ħa*^{??} ‘truth’

One of them is based on the noun *ħa*^{??} ‘truth’, to which suffix pronouns are added. In the domain of modality, when preceding a finite verb, it functions as a modal auxiliary with an intersubjective value of advice:

- (88) *ħa*^{??}-*ik* *tiruuħi* *tayayyari* *hduum-ik*
 truth-2F.SG go.IPfV2F.SG change.IPfV2F.SG clothe-2F.SG
 ‘You should go and change your clothes.’ (WOI:316)

4.8.2. *ʿale* ‘on; have’

The preposition *ʿale* ‘on, over’ when inflected with suffix pronouns functions as a pseudo-verb ‘have’, albeit marginally in EA.²³

- (89) *ma-ʿale-huu-š* *zamb*
 NEG-on-3M.SG-NEG responsible
 ‘He has no responsibility / he is not responsible.’ (WOI:139)

Similar to what has occurred in Maltese (see section 2.4.), but apparently to a much lesser extent, this construction can also be used as an intersubjective auxiliary when preceding a verb in the imperfective. Its modal value is that of advice:

- (90) *ʿale-ek* *tiruuħ*
 on-2M.SG go.IPfV2M.SG
 ‘You should go.’ (M&H:52)

4.9. Summary

From this brief survey, it can be concluded that, like in Maltese, intersubjective modalities are more commonly expressed by modal auxiliaries than epistemic ones. A number of modals are polysemous and express both intersubjective and epistemic values (*laazim*, *mumkin*). It should be noted that epistemic modalities are more often expressed by adverbial or

nominal constructions, or by TAM particles like *b-* and *ħa-* than by auxiliary verbs. In fact the only productive epistemic auxiliary is *ykuun* ‘be’. Apart from *ʔidir* ‘be able’, it is noteworthy that most modals are either pseudo-verbs of nominal origin such as *bədd-*, *ħaʔʔ-*, or participial forms, or verbal forms frozen in the 3rd M.SG imperfective. The grammaticalisation of a nominal base + a suffix pronoun co-referential with the subject of the periphrasis is particularly developed in EA, but not all such constructions have been grammaticalised as auxiliaries.

Table 3. Values of Egyptian and Levantine modal auxiliaries

	Modal value	Auxiliary
INTERSUBJECTIVE	possibility	<i>ʔidir, mumkin</i>
	capacity	<i>ʔidir, ʔirif, mumkin</i>
	permission	<i>ʔidir, mumkin</i>
	obligation	<i>laazim</i>
	necessity	<i>laazim, bədd-, ʔaawiz</i>
	ineluctability	<i>bədd-, laazim</i>
	advice	<i>ħaʔʔ-, ʔale</i>
	a posteriori advice	
	unachieved necessity	
	EPISTEMIC	eventuality
feasibility		<i>mumkin, /yimkin</i>
probability		<i>yimkin, bədd- + yikuun, laazim + ħa-/bi-</i>
logical probability		<i>bədd- + yikuun, laazim + yikuun</i>
calculation		

5. Conclusion: Grammaticalisation chains of modal auxiliaries

Morphologically, four different source types for the grammaticalisation into modal auxiliaries have been identified for Maltese and the Arabic vernaculars in this survey: finite verbs, active participles, nouns, and prepositional phrases.

Semantically, they belong to the following categories: modal verbs, be they finite or non finite (capacity, possibility, necessity, volition), verbs of cognition (‘know’), perception verbs (‘touch’), quantitative verbs (‘lack, be insufficient’, ‘suffice’), existentials (‘be’ > ‘have’), locative prepositions (‘at’, ‘on’ > ‘have’), and nouns (‘truth’, ‘love’).

The languages discussed here have all grammaticalised two semantic domains as modal auxiliaries (or particles): a modal verb meaning ‘can’, and the existential verb meaning ‘be’. Three categories are shared by two or three languages, but not all four: ‘know’, ‘want’, and locative prepositions. This does not mean that the lexical items involved are all cognate forms. The other sources are language specific. One of them, the Maltese perception verb, can be directly attributed to language contact. It should be noted that the grammaticalisation of prepositions into modal auxiliaries involves an intermediary stage, that of a predicative function as the verb of possession ‘have’.

Several morphological and functional changes have also been noted: (i) reduction of the verbal or participial paradigms up to invariability; (ii) whatever the morphological category of the source item, the use of suffix pronouns which are both possessive and object pronouns and have become, in the course of the grammaticalisation process, co-referential with the subject of the main verb; (iii) agglutination of prepositions to nouns or verbs.

Below is a table summing up the sources and goals involved in the grammaticalisation of modal auxiliaries and particles in Maltese and the Arabic vernaculars.

Table 4. Grammaticalisation chains of modal auxiliaries and particles

<i>Source</i>	<i>Intermediate stage (if known)</i>	<i>Modal value as auxiliary or particle</i>	<i>Language</i>	<i>Forms</i>
capacity verb		<i>I.S.</i> capacity	Maltese	<i>seta</i> ’
		possibility	Moroccan	<i>qdər</i> (inflected)
		permission	EA, LA	<i>’idir</i>
		<i>E.</i> eventual	Maltese	<i>seta</i> ’
		probable	Moroccan	<i>qdər</i> (frozen)
		feasible	EA, LA	TAM+ <i>’idir</i>
possibility verb		<i>I.S.</i> capacity	Moroccan	<i>yəmkən</i> (frozen)/
		permission	EA, LA	<i>yəmkən</i> + PREP + PR <i>yimkin, mumkin</i> (frozen), <i>yəmkən</i>
		<i>E.</i> possible	Moroccan	<i>yimkin, mumkin</i>
	probable	EA, LA		

cognitive verb ('know')		<i>I.S.</i> capacity	Maltese EA, LA	<i>jaf</i> ^ʔ <i>irif</i>
		<i>E.</i> potential Possible	Maltese	<i>jaf</i>
volition - verb - ACT.PART	volition auxiliary	<i>I.S.</i> necessity obligation	Maltese EA, LA	<i>ried</i> ^ʔ <i>aawiz</i>
necessity (ACT.PART)		<i>I.S.</i> necessity obligation	EA, LA	<i>laazim</i> (frozen)
		<i>E.</i> inference near-certain	EA, LA	<i>laazim</i> (frozen)
verb 'suffice'		<i>I.S.</i> capacity possibility permission	Moroccan	<i>qədd</i>
verb 'lack'		<i>I.S.</i> obligation	Moroccan	<i>xəʃʃ-PR</i>
		<i>E.</i> near- certain	Moroccan	<i>xəʃʃ-PR</i>
verb 'touch'	calque	<i>I.S.</i> advice	Maltese	<i>mess-PR</i>
verb 'be'		<i>E.</i> inference eventual probable inference	Maltese Moroccan EA, LA	<i>ikun</i> <i>ykuun</i> <i>ikuun</i>
'be' + prep + PR	'have'	<i>I.S.</i> necessity obligation	Maltese	<i>kellu, ikollu</i>
		<i>E.</i> inference	Maltese	<i>kellu, ikollu</i>
locative prep. 'at'	'have'	<i>I.S.</i> necessity obligation	Maltese	<i>għand-PR</i>

		<i>E.</i> inference	Maltese	<i>għand</i> -PR
	‘have’	near-certain		
‘on’		<i>I.S.</i> advice	EA, LA	<i>ʕale</i> -PR
nouns		<i>I.S.</i> advice	EA	<i>ħa</i> ^{ʔ2} -PR
‘truth’	volition	<i>I.S.</i> necessity	EA, LA	<i>bədd</i> -PR
prep + ‘love’	verb + aux.	obligation		
		<i>E.</i> inference		

I.S. = Intersubjective modality; *E.* = Epistemic modality

If we look at the whole system of intersubjective and epistemic modalities, whatever their grammatical category in the Arabic vernaculars and Maltese, it seems that there might exist some kind of correlation between the grammaticalisation strategies and the extension of the system of modal auxiliaries as a whole. The languages that tend to grammaticalise the TAM morphemes in general as verbal auxiliaries, as is the case for Maltese, have developed this strategy extensively for modals as well. Those which have already fully morphologized part of their TAM system (with preverbs which are either reduced forms of former verbs, participials, or prepositions), as are found in Moroccan, Egyptian and Levantine Arabic, tend to use other devices than auxiliaries more frequently and/or to grammaticalise them further towards adverbs, even though modal auxiliaries do exist.

It should also be mentioned that the imbalance between intersubjective and epistemic values in favour of the former at a quantitative and frequency level, could be the result of the fact that epistemic values are frequently taken in charge by the imperfective forms (bare or preverbed forms depending on the language) in all the languages concerned.

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Notes

1. Within these national boundaries, there also exists a great variety of sub-divisions, but for the purpose of this study we use the geographical terms as convenient cover terms.
2. We aimed at being exhaustive for each variety, which means that not all varieties described have the same modal auxiliaries. They vary in their semantic origin and in number.
3. Or the refined version of van der Auwera and Plungian (1998).
4. Our translation of Bouscaren and Chuquet's definition (1987: 37) of epistemic modality: "la modalité épistémique établit une relation entre l'énonciateur et le contenu propositionnel représenté par la relation prédicative".
5. The criteria are taken from David Cohen's approach (still unpublished, but see Simeone-Senelle and Vanhove (1997, and 2003) for a sketch of the criteria). It differs from Heine's approach (1993), but not fundamentally.
6. Today, tri-lingualism (Maltese, English, Italian) is the rule for most Maltese speakers, as well as code-switching with English (see Camilleri 1995). A millennium of linguistic contact with Sicilian and Italian led to a radical change in the language, as compared with Arabic vernaculars, at all linguistic levels: phonetic, phonological, morphological, syntactic, and lexical (see Brincat 2004).
7. This root has been reinterpreted in Maltese as *ST^s, and the verb *seta* 'is' is morphologically a base form.
8. The Maltese examples are given in the official orthography, which does not note vowel length, nor, apart from the article, the morphological boundaries, materialized by a dash in the glosses. In order to facilitate the reading of examples and glosses an = sign has been added to the Maltese orthography to materialized suffix and clitic boundaries.
9. The root consonants ^s and R have been lost. They surface again at the derived forms.
10. In the 50 hour-recording, the dozen novels, and the newspapers surveyed in Vanhove (1993), only three occurrences of *jaf* as a modal auxiliary were found.
11. There is also another volition verb: *xtieq* 'desire, want'.
12. See footnote 5.
13. Colloquial Italian (Venetian, Lombardian, Sicilian, Corsican...) as well as literary Italian (see e.g. Boch's Italian-French, French-Italian dictionary under *toccare*) have grammaticalised *toccare* 'touch' and its cognates as modal auxiliaries expressing necessity, obligation. No such modal use of a verb meaning 'touch' is recorded in Arabic vernaculars.
14. In table 1, *kellu* is listed as rare in the line concerning a posteriori advice. As a matter of fact, there are only two written examples in the data, both taken from

- the same novel. They were considered to belong to a very high register by native speakers and were said not to occur in spoken discourse.
15. See Iraqi-Sinaceur (1993: 1539).
 16. For a detailed analysis see Bouscaren and Chuquet (1987: 48 and 68).
 17. WOI = Woidich, M&H = Mitchell & El-Hassan, LEN = Lentin, S&L= Salame and Lentin.
 18. *ʔidiidir* of the contemporary vernaculars is the reflex of Middle Levantine Arabic *qadar*.
 19. It may be noted, however, that the most frequent value of the auxiliary *bədd-/bidd-* is that of imminent future (see Lentin 1997, Salame and Lentin forthcoming, as well as Mitchell and El-Hassan 1994).
 20. It should be noted that the grammaticalisation of nominal phrases into modal auxiliaries meaning ‘want’ or ‘intend’ is also recorded in other constructions in EA. All are agglutinations of a nominal base + a suffix object pronoun: *ʔaşd-* ‘intention’, *ʔaraḍ-* ‘desire’ and *nifs-* ‘self, mind’ (see Woidich 2006: 318).
 21. Many other constructions express the deontic values of necessity and obligation such as the nominals *ḍaruuri* ‘necessary’, *il-mafruud* ‘the duty’, or the negative compound form *laa-budd* ‘no way out’, etc. None of them has been grammaticalised as an auxiliary.
 22. The subject of the periphrasis can be inserted between the particle and the main verb, but this is not a categorical criteria for adverbs, and the same can occur with auxiliaries.
 23. More commonly used are the constructions with the prepositions *maʕ* ‘with’, *ʕand* ‘at’, *li* ‘at’, *wayya* ‘with’, all inflected with suffix pronouns.

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