Research Paper

Exploring Modality in Classical Arabic: Some Lexemes that Convey Logical, Epistemic and Deontic Necessity and Possibility

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ABSTRACT
This paper explores the extent to which modality manifests itself in mind. It quantifies as well as qualifies the lexemes that help model meaning in Standard Arabic (SA). For its conciseness, the paper exclusively quotes from the Noble Quran. Methodologically, the study exploits corpus linguistics, discourse analysis and to some extent socio-pragmatic trends. It concordances certain words in context (KWIK) that help shape probable or certain 'ability', 'lack of ability', 'prohibition', 'permissibility', 'willingness', and 'expectation'. The paper advances to classify modality -according to the world in which modality negotiates meaning- into logical, epistemic and deontic ones. In the real world, i.e. what resides in our heads, modality is sub-classified into a logical necessity or logical possibility. In any possible world extending in the universe, modality tends to be epistemic, i.e. knowledgeable. Epistemic modality is sub-categorized into an epistemic necessity or an epistemic possibility. In the perfect world, modality is divided into a deontic necessity or a deontic probability. For any ideal obedience, people are expected to obey certain rules. Meanwhile, meaning relations, postulates of meaning, properties of predicates and truth values are examined, suggested, drawn and calculated, respectively. The syntactic analysis of some contextualized words has revealed that SA tends to employ certain words to express possibly and necessarily logical, epistemic and deontic modality.
KEY WORDS: *Semantics, First Order Logic, Modality, Epistemology, Deontic Morality, Standard Arabic*

I. INTRODUCTION

In recent denotational theories, linguists identified 'three types of modality'. They include namely 'logical, epistemic and deontic' (Kearns, 2000)[1]. Logical modality addresses reality which resides in our heads. It attempts to meet the requirements of logic. Logical modality is always guaranteed by logic. In turn, epistemic modality extends beyond our logic to explore as well as to exploit other possible worlds existing or rather extending in the universe. This kind of modality attempts to provide experimentally some knowledge that meets the requirements of logic. Unlike logical modality, the epistemic one is not guaranteed by our logic. However, deontic modality is exceptionally used to create a perfect world where certain rules should or have to be followed for any ideal obedience.

In general, modality expresses either 'necessity or possibility' (Garson, 2001). Therefore, logical modality can reflect logical necessity or logical possibility. The verb 'cannot' used in the English clause 'Parallel lines cannot meet', for instance, models necessity. This necessity is always true from a logical perspective. The clause can be interpreted as "Necessarily ($\Box$), the sentence is true for every value of any possible world ($\forall w$) in which parallel lines do not meet in that world" (see formula A1). However, the modal verb 'might', as in "There might be someone who is older than his own uncle", models a logical possibility. From a logical perspective, the clause is not necessarily false; it is probably true. Here, modality can be interpreted as "Possibly ($\Diamond$), the sentence is true if and only if (iff) there is at least one possible world ($\exists w$) in which there might be someone who is older than his own uncle is true in that world" (see formula A2).

Formula A1: $\Box S$=true $\forall w$ [s] is true in W.

Formula A2: $\Diamond S$=true iff $\exists w$ [s] is true in W.

Modality can also express 'epistemic necessity or epistemic possibility' (Fintel, 2003). The term 'epistemology' refers to the branch of knowledge that 'concerns the study of knowledge' itself (www.dictionary.com). Modality

that shows epistemic necessity models knowledge that is necessarily true. Truthfulness is conveyed by good evidence. For example, archaeologists examining dinosaurs' fossils may conclude that "Dinosaurs must have died suddenly". The clause can be interpreted as "Necessarily, the sentence is true for every value of any epistemic, i.e. well-known, possible world ($\forall w_E$) in which the dinosaur has died suddenly is true in that epistemic world" (see formula A3). Similarly, epistemic possibility expresses a piece of knowledge that is not necessarily false. It can be true. For example, a group of scientist may conclude that "There might intelligent life in outer space". This conclusion can be interpreted logically as "Possibly, the sentence is true if and only if there is at least one possible but well-known world ($\exists w_E$) where dinosaurs died suddenly is true in that epistemic world" (see formula A4).

Formula A3: $\Box S$=true $\forall w_E$ [s] is true in W_E.

Formula A4: $\Diamond S$=true iff $\exists w_E$ [s] is true in W_E.

Modality may also express a deontic necessity or possibility. Deontic necessity explores any human behaviour vital for obeying some rules. The ultimate goal of such obedience is to create 'a perfect world' (Ninan, 2005). For example, a guest may warn that "You must not smoke in doors". Such a guest expects that I have to follow a rule attempting to create a smoke-free environment. Logically, the clause can be interpreted as "Necessarily, the sentence is true for every value of any possible obedience ($\forall w_{PO}$) in which I must not smoke in doors is true in this perfect world" (see formula A5). At an airport, a sign may read "You can smoke in here". Such a sign furthers a completely different rule that excludes smoking in such an area. It attempts to create a good -if any- world for smokers. However, the clause can be interpreted as "Possibly, the sentence is true if and only if there is at least on possible world($\exists w_{PO}$) which someone can smoke in is true in that perfect world (of smokers)" (see formula A6).

Formula A5: $\Box S$=true $\forall w_{PO}$ [s] is true in W_{PO}.

Formula A6: $\Diamond S$=true iff $\exists_{PO}$ [s] is true in W_{PO}.

Traditionally, English is best referred to as a high-modality language. This claim sounds true as English utilizes a considerable number of deficient verbs to shape meaning. These include 'must not', 'can't', 'be prohibited' and 'be not allowed to' to echo 'prohibition' or 'banning'. English also benefits from 'can', 'could' and 'be able to' to mirror 'ability'. It also uses 'might' and 'may' to show probability. It also furthers both 'should' and 'ought to' for 'advisability'. It also promotes 'will' for 'willingness', 'be supposed to' for 'expectation' and 'must' and 'have to' for 'obligation'. According to Azar (2006), English utilizes this big list to advance certainty on a gradable scale extending from less than 50 up to more than 95 percent. Besides, English makes use of a significant number of adverbs, such as probably, possibly, necessarily, perhaps, and certainly to model meaning.

Classically, Arabic is not classified as a modality language. This notion relatively stems from the fact that Arabic 'sentence' does not use explicit, deficient words to 'model meaning' as English 'evidentially' does in clear 'situations' (Saeed, 2003). For this reason, modality is probably neglected in Arabic language textbooks. Language teachers do not also draw the learners' attention to the words that model the meaning. This small-scale study explores the extent to which Standard Arabic (SA) taught formally at the various schooling levels, is a modality language. The paper aims at quantifying as well as qualifying the potential words that function as modals. It also advances to examine the kind of modality such potential words help develop. For its precision and concision as well, the paper quotes from the Noble Quran (Available at www.alislam.org). The paper addresses the following questions:

1.   What are the lexemes utilized to express modality in Standard Arabic?
2.   How does the lexeme applied help create logical modality? Why?
3.   What kind of logical modality does each lexeme operated express?

Methodologically, the study benefits from both 'corpus linguistics' (CL) and discourse analysis (DA). Corpora (plural of corpus) are 'large bodies of texts' (Schmitt, 2010)[1].The paper initially concordances the holy Script of Islam for 'key words in context' (KWIK). These will include certain quotes collected as data for more analyses. Then the paper makes use of 'DA' to unearth the linguistic features of the texts under investigation. As the paper underlies pure linguistics as an approach, 'systemic functional language' (SFL) is expected to unearth the 'meaning assigned', the 'world interpreted' as well as the 'illocutionary certain or probable force interpreted' by the modal verbs, (Schmitt, 2010)[2]. As the paper applies an integrative approach to logical modality, 'postulates' and kinds of meaning, 'truth values and semantic properties' are supposed to be suggested, calculated and acknowledged (Hurford, 2007].

The paper highlights to a great extent pure linguistics as an approach to study language phenomena, though it stresses the importance of the 'social factors in language choice and change' (Holmes, 2013)[1]. From a sociolinguistic as well as a pragmalinguistic perspective, language has to be examined within a social context. The 'participants', i.e. the speaker and listener or listeners, their age, their roles, status, and relation will certainly affect people's use of language. These factors also affect the style used. Language styles vary a lot; they can be casual, formal, intimate or even frozen. The 'message content', that is how beneficial the message to both the speaker and the hearer, has a big impact on language selection. The 'communicative activity', a job interview or

a complaint, for instance, has a considerable impact on the language choice, as it develops certain norms, such as the right to talk and ask questions, to structure discourse, and to determine the mood of the talk.

II. MODALITY IN STANDARD ARABIC (SA)

2.1 Introduction

In sections 2, 3 and 4, kinds of modality and affiliations to the use of certain words as modal words will be referred to, interpreted and explained. It is important to note here that the article is totally cognitive. That is to say, it manipulates the knowledge that the potential modal verb expresses from a logical, epistemological and deontic perspective. A logical perspective only considers what resides in our heads as absolute, i.e. essential, or less absolute, i.e. verifiable facts. An epistemological view investigates the nature and limits of human knowledge the modal word tends to express. Finally, a deontic point of view tries to reflect what is good or not good to do.

2.2 Logical Necessity

In Standard Arabic, certain verb phrases (VPs) are used logically. They manipulate some knowledge that meets the requirements of our logic. Among these verbs is [yanbaghi:] roughly glossed as (be expected or be supposed to) in modern English. Such a VP is used several times in The Noble Quran. It is always marked for present tense. Needless to say that the nasal phoneme /n/ is assimilated into /m/ as it is followed by the labial /b/. In quote 1A below, the VP [ya(m)baghi:] expresses a logical necessity that meets everyone's schemata, i.e. what is stored in our heads, about the 'Sun' and the 'Moon'. From a logical point of view, quote 1A can be interpreted as "Necessarily, the Quranic verse is true for any possible world where the sun is not supposed to overtake the moon is true in that world". Indeed, our logic secures that the sun is not expected to overtake the moon (see also formula B1 below).

Quote 1A [la: ash-ashamsu ya(m)baghi: laha: 'an tudrika al-qamara…] *YaSi:n 36:4*

[It is not for the sun to overtake the moon…]

Formula B1: $\Box qv = true \, \forall w$ [~BE SUPPOSED TO OVERTAKE (s, m)] is true in W.

In formula B1, the predicate (~BE SUPPOSED TO OVERTAKE) is a two-place one. The predicate's arguments (s, m) should be interpreted as "That (s) is not expected to overtake that (m). Negation is carried out by [la:] meaning 'not'. The symbol (~) stands for 'not'.

Quote 1B exemplifies for a logical connection. The first part of the connective advances [wa-ma: ya(m)baghi: lahum] meaning (and the evils are not supposed to). As referred to in quote 1A, the VP mirrors 'expectation'. The second adds [wa-ma yastati:'u:na] meaning (and they cannot). The VP reflects 'ability'. Checking the truth values for both the proposition [p] and consequent [v] in the quote, it sounds that the connective is a conjunct as it inclusively entails one true value in line 1 (see table 1 below). Therefore, both VPs used in quote 1B express a logical necessity. They can be interpreted as "Necessarily, the Quranic conjunct is true for every value of any possible world in which the evil ones are not supposed to bring The Noble Quran down, nor can they do so in any possible world (see formula B2).

Quote 1B [wa-ma: tanazzalat bihi ash-shaya:ti:nu⌘ wa-ma: ya(m)baghi: lahum wa-ma: yastati:'u:na ⌘] *Ash-shu'ara:' 26:211-212*

[And the evil ones have not brought it down. They are not fit for it, nor have they the power to do so.]

Formula B2: $\Box qc = true \, \exists w$ [~BE SUPPOSED TO BRING DOWN & ~CAN BRING DOW (eo, nq)] is true in W.

Meaning Values of the Quranic Conjunct	p	q	p&q
L1: The evil ones are not supposed to bring the Quran down, and they can't do so.	T	T	T
L2: The evil ones are not supposed to bring the Quran down, but they can do so.	T	F	F
L3: The evil ones are supposed to bring the Quran down, but they can't do so.	F	T	F
L4: The evil ones are supposed to bring the Quran down, and they can do so.	F	F	F

Table 1: Perception of Ability and Expectation in Classical Arabic

Quote 1C also presents a logical conjunct. In the quote, the VP [fa-ma: istat:'a] meaning (they could not) is used twice but slightly differently. In the first part, i.e. the proposition, the VP is clipped into [ista:'u:]. The phoneme /ta/ is deleted. In the second part (the consequent), the phoneme /ta/ is maintained. In the first part of the Quranic logical connective, the clipped VP negotiates Gog and Magog's inability to scale the wall that Dul-Qarnnyen just built. In the second, the VP negotiates their inability to dig through the wall. Logically, digging through a wall sounds tougher than climbing over it as digging through requires much more physical effort. To mirror the unequal effort paid in both tasks, the phoneme /ta/ is reduced on the syntactic, i.e. structural, level.

In quote 1C, the VP [is(ta)ta:'u:] expresses a necessity on both the logical and structural levels. It can be also referred to as a conjunct because meaning values are only true at line 1. Elsewhere, meaning values are false (see table 2). Quote 1C can be interpreted as "Necessarily, the Quranic conjunct is true for every value of any possible world in which Gog and Magog couldn't scale the wall and they were not able to dig through it is true in that world" (see formula B3).

Quote 1C [fa-ma: ista:'u: 'an yathharuhu: wa-ma: istata:'u: lahu naqban] Al-Kahf 18:98

[So they (Gog and Magog) were not able to scale it, nor were they able to dig through it.]

Meaning Values of the Quranic Conjunct	p	q	p&q
L1: Gog and Magog couldn't scale the wall, and they were not able to pierce it.	T	T	T
L2: Gog and Magog couldn't scale the wall, but they were able to pierce it.	T	F	F
L3: Gog and Magog could scale the wall, but they were not able to pierce it.	F	T	F
L4: Gog and Magog could scale the wall, and they were able to pierce it.	F	F	F

Table 2: Relexicalization of the Arabic for 'Could' to Convey Different Meanings

Formula B3: $\Box qc = true \ \forall w$ [~COULD SCALE& ~BE ABLE TO PIERCE (g&m, w)] is true in W.

2.3 Logical Possibility

Logical possibility does not express any necessity. The values of the propositions where such modality is used can be true but not necessarily false at the logical level. For example, one may argue that 'Napoleon might have won Waterloo'. Though Napoleon did not win the fight, he might, however, win the war if certain circumstances changed at that time. Under certain conditions, our logic would accept some other possible choices. In Standard Arabic, the VP [ihtamala] derived from [hamala] meaning (carry or bear on), for instance, mirrors a probability. If so, the VP [ihtamala], which is also used three times in The Noble Quran, can be roughly glossed as 'might / could bear' in modern English.

In quote 2A below, the VP [ihtamala], i.e. MIGHT BEAR is a two-place predicate. It argues for both (the flood) and (swelling foam). For more information about this predicate and its arguments, see formula C1. The selection of this VP suggests that the argument (swelling foam) is not certain but probable. That is to say, one might find water flowing without such swelling foam. Regardless of the Quranic interpretations provided in this paper as well as the various other available in modern languages, the behavioral VP [hamala] meaning (he carried) is unlikely as it entails certainty. This entailment highlights a bi-conditional interpreted as 'Once there is a flood, there must be swelling foam'. Dissimilarly, [ihtamala] furthers a material conditional negotiated as 'If there is a flood, perhaps there will be swelling foam.

From a logical perspective, quote 4 where the predicate IHTAMALA is used, can be interpreted as "Possibly, the Quranic verse (QV) is true if and only if there is at least one possible world in which the flood carries swelling foam is true in that possible world" (see formula C2). The adverbial [ra:biyan] meaning (on its surface) functions as a location phrase (Loc-P). It is an optional element as it is probably less pivotal to meaning. The whole clause can stand without such a specification.

Quote 2A [anzala mina as-sama:'i ma:'an fasalat awdi:yatu(m) bi-qadariha: fa-ihtamala as-saylu zabadan ra:byanan..] Al-Ra'id 13:18

[He sends down water from the sky, so that valleys flow according to their measure, and the flood bears on its surface swelling foam..]

Formula C1: MIGHT BEAR (f, (s)f)

Formula C2: $\Diamond qv = true$ iff $\exists w$ [(BEAR (f, (s)f)] is true in W.

Quotes 2B and 2C present an identical consequent. It reads [fa-qad ihtamala buhta:nan wwa-ithman mubi:nan] meaning (bear the burden of a calumny and a manifest sin). In quote 2B, the predicate IHTAMALA argues for the unstated reference [hu:wa] meaning (he) which refers to 'who commits a fault or a sin then imputes to an innocent person' and 'the burden of a calumny and a manifest sin'. In quote 2C, the predicate argues for [-u:] meaning (they) which refers to 'those who malign believing men and believing women for what they have not earned' and 'the guilt of a calumny and a manifest sin'. The consequent begins with [fa-qad]. The bound morpheme [fa-] expresses immediate addition. The morpheme [qad] is an endorsing element expressing necessity (see formula C3). However, the whole consequent sounds a disjunction. Checking the values, the verse logically sustains three true values, namely at lines 1, 2 and 3 (see table 3). Surprisingly, the disjunction is coordinated by the stressed [wwa-] meaning (AND). This phonological tactic probably aims at endorsing the exclusive meaning depicted in the verse.

Quote 2B [wa-man yyaksib khati:'atan aw 'ithman thumma yarmi: bi-hi bari:'an fa-qad ihtamala buhta:nan wwa-ithman mubi:nan] An-Nisa:' 4:118

[And who commits a fault or a sin, then imputes it to an innocent person, certainly bear the burden of a calumny and a manifest sin.]

Quote 2C [wa-alathi:na yu'thu:na al-mu'mini:na wa-almu'mina:ti bi-ghayiri ma: iktasabu: fa-qad ihtamalu: buhta:nan wwa-ithman mubi:nan] Al-Ahzab 33:59

[And those who malign believing men and believing women for what they have not earned shall bear the guilt of a calumny and a manifest sin.]

Formula C3: ☐MIGHT BEAR (he/they, the burden of a calumny or the burden of a manifest sin).

He, who commits a fault or a sin, then imputes an innocent person,	p	v	pvq
L1: bears the burden of both a calumny and a manifest sin.	T	T	T
L2: bears the burden of a calumny but not that of a manifest sin	T	F	T
L3: doesn't bear the burden of a calumny but that of a manifest sin.	F	T	T
L4: doesn't bear the burden of a calumny or that of a manifest sin.	F	F	F

Table 3: Manifestation of Probability in Classical Arabic

2.4 When Logical Modality Swaps

The VP [yasha:'u] can be roughly glossed as 'He wants or pleases' in English. It expresses 'willingness'. In modern English, the deficient VP 'will' is largely used to express 'willingness'. The VP always expresses a logical possibility. This interpretation helps explain why an Arab speaker always adds [inn sha:'a Allahu] to further God's willingness over his or hers. In turn, the VP [yaqdiru] shows (ability). Like [yastati:'u], it can be glossed as (He can) or (He is able to).

In quote 2D as well as 2E, both VPs [yasha:'u] and [yaqdiru] are used to express both 'willingness' and 'ability'. However, the technique used to express both sounds very rhetoric. Analytically, the verse reads 'Perhaps, Allah will enlarge his provision for whomsoever and He can enlarge it for whomsoever'. Structurally, it reads 'Perhaps Allah will enlarge his provision for whomsoever and He can. There is a full ellipsis for the proposition after [yaqdiru]. The Quranic verse can be interpreted as "He actually might and certainly can enlarge provision for whomsoever". In this sense, the QV in quotes 2D, 2E and a few identical others in The Holy Scripts of Islam entail a quasi- coordination where two VPs shift from logical probability to logical necessity.

Quote 2E also exemplifies for a logical connective. Checking the values, the QV sounds a conjunct. Logically, it entails one true value at line 1. Elsewhere the other values are not true (see table 4). Postulates of meaning suggest the QV can be simplified as "Possibly, there is at least one possible world in which Allah enlarges provision for His servants, and necessarily for any value for that possible world, Almighty God can enlarge that provision" (see formula C4).

Quote 2D [Allahu yabsutu ar-rizqa li-man yasha:'u wa-yaqdiru ..] Ar-Ra'id 13:27

[Allah enlarges His provision for whomsoever He pleases and straitens it for whomsoever He pleases..]

Quote 2E [Allahu yabsutu ar-rizqa li-man yasha:'u min 'ibadihi wa-yaqdiru lah..] Al-'Ankabu:t 29:63

[Allah enlarges the means of sustenance for such of His servants as He pleases, and straitens them for whom He pleases…]

Almighty God […] for whomsoever of His servants.	p	q	p&q
L1: [might as well as can enlarge provision]	T	T	T
L2: [might but cannot enlarge provision]	T	F	F
L3: [might not but can enlarge provision]	F	T	F
L4: [might not and cannot enlarge provision]	F	F	F

Table 4: Realization of Willingness in Classical Arabic

Formula C4: qv=true iff ∃w [◊ENLARG-For (Allah, provision, anyone)] & ∀w [□ENLARGE-for (Allah, provision, anyone)] is true in that W.

3.1 Epistemic Necessity

Like logical modality, epistemic modality can express either necessity or possibility. In general, epistemic modality relies so heavily on the knowledge provided. The word 'episteme' comes from Greek (www.merriam.com). Epistemology refers to the branch of philosophy that investigates the origin, nature, methods and limits of human knowledge (www.dictionary.com). According to Aristotle, 'tools of persuasion' can be classified into three types: 'Ethos, pathos and logos' (Leighton, 2009). Pathos refers to using facts to persuade others. Ethos is geared towards tapping other's emotions so that they are convinced of what you are arguing for or against. Logos highlights using images and visuals in general. A combination of two or more of such tools is thought to be much better for persuading others than just using a single tool.

Epistemic modality can be explained in terms of logic. However, our logic does not guarantee the quality, i.e. the truthfulness, of the knowledge obtained. Experimentally, the findings of the research carried out by academics and scientists are possibly true and not necessarily false. Our logic would accept such findings as epistemic necessities or probabilities. Once replicated, the findings of the identical studies, carried out by different research methods, are likely to be either identical or not identical. If symmetrical, then the truth value of such data is necessarily true. If asymmetrical, then the truth values -though sometimes contradictory, are likely or possibly true, but not necessarily false under any circumstances. The methods used for collecting as well as analyzing the data collected are supposed to meet the requirements of logic.

Reality resides in our heads. At earlier stages, a mathematics teacher may ask her students to add an apple, for example, to another. The pupils will use their logic to process the teacher's question. Their logic will certainly enable them to provide the number 'two' as an only answer. A bit later, the same learners will have a different conclusion when they see the science teacher add one drop of certain chemicals to another at the lab. They may also notice that two partners are getting married but having a third baby after a while. Indeed, those poor learners are shifting away from what resides in their heads, i.e. the real world, to other possible ones such of chemical or social engineers'. People need to extend from the real world that lies in their heads to other possible ones in the surroundings and finally the whole universe.

In some possible worlds, knowledge (whether linguistic or non-linguistic) may overlap. For example, an English teacher reported that one student insisted that the teacher's example be wrong because the student's younger sister 'had a tailless kangaroo and it did not topple over'. The 'carrier content' of the teacher's example (If kangaroos were tailless, they would topple over), is intended for teaching conditional sentences in English. The 'real content' of the teacher's example is true as it negotiates one possible world of the kangaroos living in Australia (Dudley-Evans, 2011). In turn, the content of the learner's less intensive possible world in which the brother has a kangaroo but a toy. Learners of advanced linguistic will easily grasp that 'Sam is reading', for instance, must negotiate one possible world where 'Sam' is a human being. Such a semantic feature is included with the VP 'be reading'. However, they might be confused when interpreting 'Sam is singing'. This 'Sam' might be 'avian' or 'human'.

In Arabic, certain verbs are used to explore some possible worlds. In this sense, they should show epistemic modality. For example, the VP [harama] means (he deprived). However, the geminated, stressed form [harrama] roughly glossed as (He totally forbade or banned something), is used to suggest prohibition. In quote

3A, the VP [harrama] lists, i.e. provides some knowledge about, the types of meat that Sons of Israel 'were not allowed to eat' under any circumstances. The list includes what is known about 'all animals having claws, the fats coming from the oxen and sheep, etc. Here, the predicate HARRAMA does not attempt to ban but to narrate what is banned some time earlier. Therefore, the predicate expresses an epistemic necessity that took place at a specific period of time for a specific group of people living in a specific world.

In quote 3A, the predicate HARRAMA argues for [Na] means 'We', [ha:du:] means (Jews), and (X). The logical quantifier [kulla] meaning (every) is non-existential or 'universal' as it refers to anything (Kearns, 2000)[2]. The Quranic verse (QV) can be interpreted as "For every value of X if X is an animal having claws or some fat coming from cows or sheep save.. then Allah had forbidden sons of Israel to have that X on their tables" (see formula D1). As, the whole QV explores an epistemic necessity that only belongs to one possible world belonging to a member of family believers, namely the Jews, it can be interpreted as follows: "Necessarily, the QV is true for every value of any epistemic, possible world at which for every value of X if X is some flesh of a feline or fat of an ovine, then a Jew can't have such an X" (see formula D2). Finally, the commentary nominal sentence closing the verse clearly shows the knowledge provided previously is true (see quote 3A).

Quote 3A [wa-'la: al-lathi:na ha:du: harramNa: kulla thi: thufurin wa-mina al-baqari wa-al-ghanimi harramNa 'aliyhim shuhu:mahuma illa::.. wa-iNa: lasadiqu:na] Al-An'am 6:147

[And to those who are Jews We forbade all animals having claws, and of the oxen and the sheep and goats did We forbid them their fats save... And most surely We are truthful.]

Formula D1: $\forall(x)$ BE(animal having claws and fats of oxen & sheep save..)$x \rightarrow$ FORBIDE (We, j, x)

Formula D2: $\Box qv=$ true $\forall_{WE}$ [if BE (FELINE'S FLESH & OVINE'S FAT ..)x] $\rightarrow$ FORBIDE (We, j, x) is true in W_E.

Quote 3B, however, explores the possible world of Muslims. It discloses what Almighty God has forbidden Muslims to eat. The verse includes namely the dead body (of an animal), blood, the flesh of swine, and that on which the name of any other than Allah has been invoked. A Muslim may also add (but not here) to the list any animals that has been strangled and that beaten to death, for instance. The quote does any attempt to provide for what is banned, but to exemplify for it. The function of the VP is not a directive one. It is rather referential, i.e. informative. It informs to some extent for anyone who is driven by necessity to eat those without feeling sinful. The quote can be interpreted as "Necessarily, for every value of any well-know world, Allah made what dies of itself, blood and porcine, and that on which the name of any other than Allah has been invoked unlawful, but.., is true in that epistemic world" (see formula D3).

Quote 3B [inna-ma: harrama 'laykumu al-mi:tata wa-ad-dama wa-lahma al-khinzi:ɾِj wa-ma: 'uhilla bihi li-ghaiyri Allahi, fa..] An-Nahl 16:116

[He has made unlawful for you only that which dies of itself and blood and the flesh of swine and that on which the name of any other than Allah has been invoked. But..]

Formula D3: $\Box qv=$ true $\forall_{WE}$ [HARRAMA (Allah, you, dead body, blood, porcine, any animal killed without the name of God)] is true in W_E.

3.2 Epistemic Possibility

Like prohibition, permission is likely. In Standard Arabic, the VP ['ahalla] meaning [He allowed someone to] can be glossed as an antonym for [harrama] meaning (He forbade). From a semantic perspective, the VP expresses a probability. Quote 4A redirects Muslims for what is permitted to eat. It includes every potential good food that God made lawful and the hunts of beasts and birds of prey. It is clear that the verse informs what is possibly edible for Muslims. As the quote explores what should be known for Muslims, it looks

epistemic. Because the quote also exploits a possibility, the VP ['uhilla] marked for the passive voice and past tense, attempts to exclude for 'hunt' as a probable food.

Quote 4A exemplifies for a disjunction where all the truth values are true, except that in line 4 (see table 5). In relevance, the knowledge provided highlights that a Muslim may have a good thing or a hunt of the animals he trained to catch other games, or both. Elsewhere, he must not (see line 4 in table 5). The quote also builds on the non-existential quantifier [al-] assimilated to [at-] in [at-tayiba:tu]. It can be roughly glossed as (every) in modern English. However, it should be treated differently as it refers to any or every good thing, i.e. X (see formula E1). Postulates of meaning suggest that quote 4A reads as: "Necessarily, the QV is true for every value of X if X is a good thing or a hunt of a beast or a bird of prey you trained to do so, then there is at least one epistemic possible world in which (Muslims may eat that X) is true in that well-known world" (see formula E1). The symbol 'X' is used to include any good but non-existential thing including the hunt excluded in the verse.

Quote 4A [yas'alu:naka ma:tha: 'uhilla lahum qul: 'uhilla lakumu at-tayiba:tu wa-ma: 'alamtum mina al-jawa:rihi mukallibi:na tu'allimunahunaa..] Al-Ma'idah 5:5

[They ask thee what is made lawful for them. Say, 'All good things have been made lawful for you; and what you have taught the beasts and birds of prey to catch for you, training them for hunting and teaching them of..]

Formula E1: $\Box qv = \text{true } \forall x$ iff [GOOD THING & HUNT OF TRAINED ANIMAL or BIRD of PREY(x)] $\rightarrow \exists W_E$ [$\Diamond$EAT (you, x)] is true in that W_E.

Muslims may eat:	p	v	Pvq
L1: every good thing and the hunts of the beasts and birds of prey they train.	T	T	T
L2: every good thing but not the hunts of the beasts and birds of prey they train.	T	F	T
L3: not every good thing but the hunts of the beasts and birds of prey they train.	F	T	T
L4: not every good thing and not the hunts of the beast birds of prey they train.	F	F	F

Table 5: Using 'Uhila' for Permission in Standard Arabic

Quote 4B also presents the verbs exemplified for both epistemic necessity and epistemic probability. It is clear that the proposition of the verse explores one possible world where a group of people of money-lenders, think that both trade and interest are the same. The consequent exploits another well-known world where 'trade' is allowed whereas 'interest' is not. In the second possible world of a good Muslim, it is well-known that lending money with some interest is unlikely as it is essentially good for the lender but not for the borrower. In turn, exchanging goods will be potentially good for both the seller and the buyer. The VPs used in the quote implicitly argue for a potential probability to capitalize on and a necessity to avoid utilizing from (see quote 4B).

Quote 4B [..tha:lika bi-'annahum qa:lu: inna-ma: al-baiy'u mithlu ar-riba: wa-ahalla Allahu al-baiy'a wa-harrama ar-riba:.] Al-Baqarah 2:276

[..That is because they (those wgo devour interest) say: 'Trade also is like interest; 'whereas Allah has made trade lawful and made interest unlawful..]

3.3 When Modality Switches

In natural language, a model verb sometimes extends beyond the world it explores. Therefore, modality switches from one kind to another. However, it sustains what it expresses. As we have already seen in the previous sections, one kind of modality turns to be logical once it addresses reality, i.e. what meets our logic. However, the same modality shifts to an epistemic one if it handles some knowledge known at one possible world at least. The 'situation as well as the context' where such modal verbs are used plays an important role in determining when modality stretches its 'functions' (Holmes, 2013)[1].

In a previous section, we discussed both [yasha:'u] and [yaqdiru] meaning (He will) and (He can) when they swap as a logical modality. There is some evidence from The Noble Quran that both VPs expand to epistemic modality. What modality expresses does not change. Only can the type of modality change as it

navigates another world. In quote 4C as well as quote 4D, both [yasha:'u] and [yaqdiru] take place in a rebuking interrogative. In quote 4C, the proposition advances the predicate ['a-wa-lam YARAW] meaning (And have they not seen..?!). The VP is perceptive. In quote 4D, the predicate ['a-wa-lam YA'LAMU:] meaning (And have they not known..?!). Here, the VP looks very cognitive. Our 'schema', i.e. background knowledge, is always perceived as senses or meanings in either a 'cognitive or a behaviorist' context (Beatty, 2010).

Central to modality is the world it explores. In quotes 4Cand 4D, the consequence is symmetrical as the propositions incline to probe a world of disbelievers. In such a possible world, there is a group of people who have not known yet that perhaps Allah will and definitely can enlarge provision to whomsoever He wants. This well-known knowledge is not part of their schemata (plural of schema). Indeed, such knowledge does not exist in their reality, i.e. their heads. This stimulates modality to fluctuate dramatically from possible and certain realities to possible and certain epistemologies (see also quotes 2D and 2E). This interpretation may also shed some light on the remarkable structural style used in the whole QV.

From a semantic view, a sentence should be 'declarative', i.e. informative or referential. It should also be 'analytic' (Kearns, 2000)[3]. This entails that it does not synthesize knowledge. A sentence has to call for contradiction. Elsewhere, it is dismissed from any logical interpretation. As the propositions in quotes 4C and 4D are interrogative, their functions tend to be not referential. The content of the proposition is rather pseudo, i.e. not real. On the structural level, they explicitly read as (have not seen) and (have not known). On the semantic, they implicitly mean that (they have seen) and (they have known), too.

In quotes 4C and 4D, the consequence looks informative, analytic and may trigger contradiction on the logical level. Contradiction is a logical term that entails the consequent (q) and not the consequent (~q). Checking the values, it sounds that the consequent is a conjunct. It endorses by [inna] meaning (indeed) one true value at line 1 (see table 6). This value can also be referred to as the episteme, i.e. piece of knowledge that both modal verbs attempt to shape. The VP [yasha:'u] mirrors 'willingness'. Thus it expresses an epistemic, i.e. a well-known, possibility. The VP [yaqdiru] reflects 'ability'. Accordingly, it conveys an epistemic necessity. Logically, quote 4D can be interpreted as "Possibly, the Quranic verse is true if there is at least one epistemic, possible world in which Allah will enlarge provision to whomsoever He wants is true in that well-known world. And necessarily the Quranic verse is true for every value of any epistemic, possible world in which Allah is able to enlarge provision for anyone He wants, is true in that knowledgeable world' (see formula E2).

Quote 4C ['a-wa-lam yaraw anna Allaha yabsutu ar-rizqa li-man yasha:'u wa-yaqdir...] Ar-Ru:m 30:38

[Have they not seen that Allah enlarges the provision to whomsoever He pleases, and straitens it to whomsoever He pleases?..]

Quote 4D ['a-wa-lam ya'lamu: anna Allaha yabsutu ar-rizqa li-man yasha:'u wa-yaqdir...] Az-Zumar 39:53

[Know they not that Allah enlarges the provision for whomsoever He pleases, and straitens it for whomsoever He pleases?..]

Have they not seen or known the fact that [..]?	P	V	p&q
L1: [Allah might and can enlarge provision]	T	T	T
L2: [Allah might but cannot enlarge provision]	T	F	F
L3: [Allah might not but can enlarge provision]	F	T	F
L4: [Allah might not and cannot enlarge provision]	F	F	F

Table 6: Integrating Willingness and Ability for Almighty God in the Noble Qur'an

Formula E2: $\lozenge qv$=true iff $\exists_{WE}$ [WILL ENLARGE (Allah, provision, anyone)] is true in W_E

&$\square qv$=true $\forall_{WE}$ CAN ENLARGE (Allah, provision, anyone)] is true in W_E.

To sum up, epistemic modality is very similar to logical modality except that our logic does not assure the certainty of the epistemic one. The only difference, however, dwells in the knowledge such modal verbs carry. Generally speaking, knowledge can be absolute and schematic or incomplete and non-schematic. For a

believer, God's willingness and ability to make provision large is totally outright. For another, it might be limited or unknown.

4.1 Deontic Necessity

Deontic modality designates the branch of modal logic that deals with the formalization of 'ethical concepts' such as obligation, permissibility and ability. Deontic Modality explores a perfect world where 'certain rules must be followed' (www.meariam.com). Sometimes, it is essential to follow one rule. Sometimes, it is not. For example, if someone draws your attention to a sign reads "No smoking!", they are actually directing you to a written rule which can be interpreted as 'You must not smoke in here'. Such a rule aims at creating a necessarily smoke-free, perfect area. In this sense, the modal verb perceived as 'I must not' expresses a necessity. Some rules are, however, flexible. A teacher may draw one student's attention that 'she has to be on time', and that she 'needn't to put on a neck-tie'. The modal verbs the teacher uses express necessity, lack of necessity and permissibility, respectively. Such modals negotiate a schooling world where a student must be on time in class, and she does not have to wear a neck-tie, but she can if she likes.

In Arabic, the VP ['alzama] meaning (made by force someone cleave to something) mirrors obligation. The VP can be perceived as 'obliged to'. In this sense, it expresses a deontic necessity. In quote 5A, the VP ['alzama] is a three-place predicate. It argues for the unstated [Hu:wa] which refers to (Allah), the bound morpheme [-hum] which refers to (Muhammad and the believers), and [kalimata at-taqwa:] which means (the principle of righteousness). Functionally, the inflectional bound morpheme ['a-] aims at altering the VP from an intransitive into a bi-transitive one (see formula F1). As the predicate 'ALZAMA attempts to 'oblige' a group of people, namely Muhammad and his companions, it is expected that they either certainly or possibly 'obey'. The commentary verse that follows clearly evaluates such 'obedience'. It was perfect as these people were 'better entitled to and more worthy of it' (see quote 5A).

In quote 5A, the VP ['alzama] can be glossed as (had to) in modern English. It expresses a deontic necessity where a certain rule should have been followed in the past. Quote 5A can be logically interpreted as: "Necessarily, the Quranic verse is true for every value of very perfect obedience (in which Muhammad and his companions had to follow the principle of righteousness determined by Allah) is true in that perfect world (see formula F2). In formula F2 as well as any other formula, the predicate is capitalized and set up in the basic form. Unlike English, Arabic culturally highlights the past tense as a template verb form for any real situation. From a semantic perspective, meaning is a nonlinguistic element that only resides in our heads. Tense (whether present or past) is an inflectional or derivational linguistic element that manifests itself in certain words that show when an event or an action took place.

Quote 5A [..wa-'alzamahum kalimata at-taqwa: wa-ka:nu: ahaqa bi-ha: wa-'ahlaha:.] Al-Fatih 48:27

[..and made them cleave to the principle of righteousness, and they were better entitled to it and more worthy of it..]

Formula F1: 'ALZAMA (Allah, Muhammad & His Companions, Righteousness)

Formula F2: $\Box qv=true \ \forall wpo$ [HAVE TO CLEAVE (Muhammad & His companions, Principle of righteousness)] is true in W_P.

In Arabic, the VP [tastati:'u] meaning (you can) may also switch to mirror someone's ability to keep balance in his own perfect world. From an Islamic view, a parent should not treat the other members of his own family differently. He has to sustain a fair, clear balance among the other members. He can maintain a reasonable balance between siblings, i.e. brothers and sisters. But the question may arise here is related to whether he can keep such a balance between wives if he is polygamist. Quote 5B clearly shows that polygamists cannot keep balance between their wives though they care to do so. Therefore, total justice between wives and their potential co-wives is unlikely. Necessarily, the quote excludes for this probable case. Here, it is important to certify that Islam stresses justice. It, however, allows for polygamy. Indeed, monogamy as well as the alternative (but undesirable divorce) significantly rules.

In quote 5B, the VP [tastati:'u:] meaning (you can) is preceded by [-lan]. This bound morpheme expresses a 'fully eternal passivity'. So the potential 'ability' mirrored by the VP is unlikely at all in a polygamous world. In relevance to justice between wives, the world itself sounds exclusively imperfect, though it is likely. Therefore, the quote can be interpreted as: "Necessarily, for every value of any (imperfect) possible world, polygamists cannot treat their wives in a fairly enough manner (see formula F3). The word 'imperfect' is bracketed to show that the whole modality can be logical or even epistemic. Such an interpretation sounds

factual and may reside in our heads. It is sustained here, as it is quoted from a Quranic episode entitled AN-NISA:' that is WOMEN. This Quranic chapter highlights so many directives related to the 'woman' to follow.

Quote 5B [wa-lan tastati:'u: 'an ta'dilu: baynna an-nisa:'i wa-laww harastum..] An-Nisa:' 4:130

[And you cannot keep perfect balance between wives, however much you may desire it..]

Formula F3: □qv=true ∀wₚₒ [~BE NOT ABLE TO MAKE BALANCE BETWEEN (you, wives)] is true in Wₚₒ.

Quote 5C also introduces [tastati:'a] meaning (you can) as a deontic necessity. The VP is used to reflect Moses' ability to keep company with the Good Man in patience. Such a company requires Moses to show a great deal of patience. Right from the beginning, the Good Man warns Moses that he will not tolerate the cruise with him (see quote 5 below). The reported quote can be interpreted as "Necessarily, for any value of perfect obedience, Moses will not be able to keep company with the Good Man" (see formula F4). Indeed, Moses breaks the promise with the Good Man three times as he was not able to obey the Good Man's perfect world of total patience. The travel itself probably aims to broaden Moses' mind in relevance to demonstrating good qualifications by skillfully obeying certain rules.

Quote 5C [qa:la innaka lan tastati:'a mai'ya sabran] Al-Kahf 18:73

[He replied, 'Thou cannot keep company with me in patience.]

Formula F4: □qv=true ∀wₚₒ [~BE NOT ABLE TO KEEP COMPANY IN PATIENCE (you, me)] is true in Wₚₒ.

4.2 Deontic Probability
Like its counterparts, the epistemic and logical ones, deontic modality may also express a probability where certain rules are not necessarily met, but are expected to meet. This modality allows for a potential behaviour (or more) to manifest itself on the structural level. Sometimes the permissible act advances to introduce the prohibited one. Quotes 6A, 6B and 6C exemplify for deontic probability.

In quote 6A, the noun phrase (NP), [juna:ha] is roughly glossed as 'blame' in modern English. The NP is probably derived from [janaha] meaning (bounced to). On the consonantal tier, it is similar to [jana:h] meaning (wing of the bird) and [junha] meaning (tort). In Arabic, meaning is loaded at the 'consonantal tier and changed at the melodic one' (Katamba, 2006)[1]. These words are best referred to as polysemous expressions, i.e. words that carry different values of meaning but have a similar shape. The NP [juna:ha] is preceded by the negative marker [la:]. This free morpheme always negates 'the kind' once followed by a NP marked for the accusative case on the syntactic level.

Syntactically, the NP [juna:ha] cannot be a predicate as it functions as an argument for the negative marker [la:]. The prepositional phrase ['alayyikum] meaning (on you) functions as a predicator for the negative marker. This interpretation suggests that the NP [juna:h] should be deficient (see formula G1 below). This means that the NP does not carry full meaning by itself but mirrors a potential, permissible act or more to come. The acts include 'announcing proposals' and 'keeping the desire of marriage in minds' (see also formula G1). The arguments assigned for the predicate NOT BE ON YOU REGARDING are namely (blame), (announcing proposals) and (keeping the desire of marriage in mind). Checking the truth values of the last two arguments, it sounds the Quranic verse tends to be a disjunction (see table 7). Values incline to include both arguments. If so, then the other argument [juna:ha] must express a possibility of either one or both.

Quote 6A can be interpreted as "Possibly, the Quranic verse is true if there is at least one possible world (for every perfect obedience) in which there might be no blame to put one those who announce proposals and keep desires of marriage in their minds (see Formula G2).

Quote 6A [la: juna:ha 'alayyikum fi:-ma 'ar-radtum bi-hi min khitbsti anonisa:'l aww 'aknantum fi: 'anfusikum..] Al-Baqarah 2:236

[And there shall be no blame on you in throwing out a hint regarding a proposal of marriage to these women or in keeping the desire hidden in your minds..]

Formula G1: ~BE ON YOU-REGARD(IN)G (blame, proposal or hidden desire)

Formula G2: $\Box$qv=true iff $\exists$w$_{PO}$ [$\Diamond$~BE ON YOU-REGARD(IN)G (blame, proposal or hidden desire)] is true in W$_{PO}$.

There will be NO BLAME ON YOU REGARDING:	p	q	p∨q
L1: announcing proposals or keeping desires in mind.	T	T	T
L2: announcing proposals but not keeping desires in mind.	T	F	T
L3: not announcing proposals but keeping desires in mind.	F	T	T
L4: not announcing proposals and not keeping desires in mind	F	F	F

Table 7: Using the Arabic for 'There's No blame' for Permission in Arabic

The VP [janaha] meaning (he inclined to) behaves in a way similar to the NP [juna:ha]. In quote 6B, the VP takes place twice in the if-clause and the main clause. Checking the truth values for both proposition and sequence, the conditional has two values (see table 8). A conditional that has two true and two false values are called bi-conditional. A bi-conditional can be interpreted as 'Only if.., then..' (iff↔then). In the bi-conditional quote, only can L1 and L4 mirror a probable or improbable inclination towards peace (see L1 and L4 in table 8). The truth values calculated in L2 and L3 clearly show the dichotomy between obeying and disobeying the rules felt by the meaning values identified in the Quranic verse.

The selection of the VP [janaha] sounds 'anomalous' or strange (Kearns, 2000)[4]. The VP has the semantic properties of 'birds or objects that can fly', such as airplanes. Perhaps, it benefits from the meaning values of the word [jana:hu] which refers to 'one of usually two parts of a bird used for flying or gliding' (www.dictionary.com). In the mother-nature, wings come in pairs, so do war and peace in politics. Quote 6B can be interpreted as: Necessarily, the Quranic bi-conditional is true if and only if there is at least one perfect, peaceful world in which the enemy inclined to peace, then Muhammad did so for every perfect obedience to his Almighty Commander" (see formula G3).

Quote 6B [wa-'in janahu: li-as-silmi fa-ajnah laha: ..] Al-Anfa:l 8:62

[And if they incline towards peace, incline thou also towards it,..]

Formula G3: qb-c=true iff $\exists$w$_{PO}$ [$\Diamond$ INCLINE-TO (they, peace)]↔ $\Box\forall$ W$_{PO}$ [INCLINE-TO (Muhammad, peace].

Truth Values of the Proposition and Consequent	p	q	p↔q
L1: They inclined to peace, and Muhammad inclined, too	T	T	T
L2: They inclined to peace, but Muhammad didn't.	T	F	F
L3: They didn't incline to peace, but Muhammad did.	F	T	F
L4: They didn't incline to peace and Muhammad didn't, too	F	F	T

Table 8: Using the Arabic for 'Incline to' to Express Probability and Permission in Arabic

In Semitic Arabic, the VP [yu:'akhithu] probably means (he calls someone to account for something). It is descended from [ya'khuthu] meaning [he calls or takes something]. The only difference between these agnates or cognates lies in 'accountability' or 'reliability'. In quote 6C, the VP [yu:'a:khithukum] is used twice to contrast what Almighty God might account people regarding their oaths. The Quranic verse tends to be a conjunct as it advances one true value in L3 (see table 9). This truth value reflects a probable blame-worthlessness for only the counterfeit vows. The predicates and their arguments are shown in formula G4 below.

In quote 6C, modality overlaps. It shifts from deontic possibility to deontic necessity. Switching in modality is likely. The VP attempts cognitively to evaluate a sub-conscious, automatic act and a conscious,

deliberate one. The situation the VP develops in mind is similar to that of the VP 'mind' or 'don't mind' in English. The quote can be interpreted as: "Possibly, there is at least one possible world, in which for perfect obedience God might not call you to account for false oaths, but He will certainly blame you for your earnest oaths (see formula G5).

Quote 6C [la: yu:'a:khithukumu Allahu bi-alghwi fi: 'ayma:nikum wa-la:kin yu:'akhithukum bi-ma: 'aqqddatum al-ayma:na ..] Al-Ma'idah 5:90

[Allah will not call you to account for such of your oaths as are vain, but He will call you to account for the oaths which you take in earnest...]

Perhaps, Almighty God..	p	q	p&q
L1: will call you to account for both fake and sincere pledges.	F	T	F
L2: will call you to account for fake but not sincere pledges.	F	T	F
L3: will not call you to account for fake but for sincere pledges.	T	T	T
L4: will not call you to account for both fake and sincere pledges.	F	F	F

Table 9: Using the Arabic for 'To Account' for Permission and Obligation in Arabic

Formula G4: ◊~CALL-TO ACCOUNT- FOR (Allah, you, fake promises) & □CALL-TO ACCOUNT- FOR (Allah, you, sincere promises)

Formula G5: qv=true if ∃wₚₒ [~◊CALL-TO ACCOUNT- FOR (Allah, you, fake promises) & □CALL- TO ACCOUNT- FOR (Allah, you, sincere promises) is true Wₚₒ.

III. CONCLUSIONS AND IMPLICATIONS

To conclude as well as to imply for pedagogy and research, modality represents itself in three main patterns: Logical, epistemic or deontic. Like any modern language, the Semitic logical modality tends to explore reality, i.e. what dwells in the head. Epistemic modality navigates to exploit other possible worlds. Here, it seeks some knowledge to present. This modality is very similar to the logical one, but our logic does not assure the absoluteness of the knowledge such modality attempts to show. Deontic modality, however, investigates the perfect world where certain rules or lists of orders have to be met. Therefore, such modality directs people to follow some general guidelines. In short, it minds sending the standardized principles of human behaviours. In relevance, Arabic language teachers need to draw their learners' attention to such kinds of modality.

In natural languages, modality signifies either a necessity or a possibility. Logical necessity mirrors a factual event that is always necessarily true. Logical possibility reflects a habitual event that is probably true, but not necessarily false. Epistemic necessity echoes a piece of knowledge supported by strong evidence. This evidential knowledge is necessarily true. In turn, epistemic possibility depicts a piece of knowledge that is not supported by enough clues or proofs. This knowledge is probably true but necessarily false. Deontic necessity delves into the perfect world to maintain obeying some rules for every necessity. Similarly, deontic possibility keeps obeying some rules for any probable act of obedience. Arab linguists should examine the Arabic morphemes that help clarify modality realizations in mind.

In Standard Arabic, certain morphemes, such as [ya(nᵐ)baghi:] and [istata:'a] can be used as model verbs. The VP [yanbaghi:] is glossed as (be supposed to) in modern English. It models 'expectation. The past tense VP [is(ₜₐ)ta:'a] meaning (He could) shapes 'ability' or rather 'lack of ability'. On the graphemic level, the phoneme /n/ is assimilated into /m/ in [yanbaghi:], and the phoneme /ta/ is 'clipped' in [istata:'u] meaning 'they could'. Semantically, phoneme deletion probably highlights a logical concern to balance two unequal abilities, such as piercing or climbing a wall. It has been found that both VPs express a logical necessity. Researchers of Arabic should examine other VPs.

The past tense verb form [ihtamala] and the present tense form [yasha:u] are probably used to shape logical modality. The VP [ihtamala] is probably derived from [hamala] meaning (he carried, bore). On the graphemic level, the allomorph [-ta-] is probably 'infixed' or rather 'circum-fixed at the morphological level' to express logical probability (Katamba, 2006)[2]. The present tense VP [yasha:u] models only God's willingness. One the structural level of The Noble Quran, it has been observed that the VP [yasha'u] frequently swaps with [yaqdiru] meaning (He is able to) in a number of considerable verses. The former expresses a probable willingness whereas the latter expresses a logical necessity. Interestingly, the holy Script of Islam sustains the order of both fixed. Almighty God' willingness always comes first. And the argumentation under streaming is assigned for His willingness, but elliptically omitted for His ability. Arab researchers need to check such a

linguistic phenomenon from a pragmalinguistic or a socio-pragmatic perspective. They should study the 'meaning assigned' by these VPs. They should also examine the 'illocutionary force interpreted' by these verbs (Schmitt, 2010)[3].

The geminated past tense [harrama] is used to form prohibition. In a considerable number of verses, the VP is used to express epistemic necessity. It is used to narrate what is necessarily well-known in other possible worlds, such as that of the Jews and Muslims. Sometimes, the VP is advanced to introduce what is banned in order to exclude for what is not in some exceptional situations. The opposite lexeme marked for passive voice ['uhilla] is used to shape permissibility. Fairly frequently, the VP is used to tell what is possibly known in other possible worlds.

In some cases, modality switches from epistemic possibility to epistemic necessity. For example, it changes from a probable willingness to an absolute ability. Where there is a change, a cognitive verb, such as 'knew' or a perceptive one, as 'saw', is surprisingly advanced. Arab linguists should exploit corpora, i.e. large bodies of texts, to check this linguistic phenomenon. They can examine key words in context (KWIK). Checking may include [ra'a:], ['alima], [sha:'a] and [yaqdiru] meaning (he saw), (he knew), (He will), (He can), respectively. Any frequency may reveal that the modality tends to be an overlapping, epistemic one.

The Semitic VP ['alzama] meaning (he obliged someone to) or (he had to) is probably used to express deontic necessity. The negative VP marked for present tense [lan tastati:'a] meaning (you can't) is used to express 'lack of ability'. It also mirrors deontic necessity. Unlike [yaqdiru] which also means (He can), the negative VP [lan tastati:'a] is probably used stylistically to argue for humans. The other alternative VP is exclusively used to argue for God's absolute ability. Both VPs model 'obligation' and 'lack of ability' for every value of any perfect obedience.

The NP (la: juna:ha) roughly glossed as (there might be no blame on someone if he inclined to) expresses a deontic possibility. The VP [janaha] meaning (he might incline to) is also used to reflect a deontic possibility. The negative VP [la: Yu'a:khithu] glossed as (He might not put blame on you) forms a dontic probability. Stylistically, this VP argues exclusively for a perfect, but divine willingness. The others are restricted to argue for a secular, perfect world. They all highlight what is probably permissible for any ideal behaviour. Arab researchers should also check the impact of negative markers, such as [la:], [lam], and [lan] as well as the rebuking interrogative marker ['a-wa] meaning (And didn't!) on modality in Arabic.

In the Arab World, educational policy-makers as well as Arabic language textbook publishers should include these words in schooling syllabi. First language teachers may draw their learners' attention to the meaning these modal words express. EFL teachers should also consider these expressions in the translation courses offered in the various academic institutions in the Arabic speaking countries. In the countries that use the language of Islam as lingua franca, cross language translators, interpreters and public speakers should also use these Semitic lexemes to model meaning, such as probability, ability, probability, willingness and prohibition.

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