Ibn Sīnā on understood time and aspect (Qiyās 1.3)

Wilfrid Hodges
Herons Brook, Sticklepath,
Okehampton, Devon EX20 2PY, England
wilfrid.hodges@btinternet.com

1 March 2010

Section 1.3 of *Qiyās* from the *Šifā'* contains some of Ibn Sīnā's most original contributions to logic. I make this commented translation available because I want to be able to refer to it elsewhere. But be warned that the translation has not yet been checked by a native Arabic speaker. Also the connections to other parts of Ibn Sīnā's logic are so rich that there are bound to be some adjustments as other parts of his logic are brought on board. These comments apply *a fortiori* to the attached translation of a few pages of Ibn Sīnā's work *Easterners*, where Ibn Sīnā sets out his views without the constraint of having to follow the framework of Aristotle's *Organon*. There is not yet a critical edition of the Arabic text of *Easterners*.

The comments and these introductory notes are very preliminary, with a lot of references missing. I will repair this as and when I can.

1 Text and intention

One of Ibn Sīnā's most characteristic views in logic is that there is a radical difference between what we say and what we mean. In the first place, our speech and writing are full of ambiguities of various kinds; to understand what I am saying to you, you need to resolve the ambiguities. Ibn Sīnā credits this observation to Aristotle, particularly the *Sophistical Refutations*. Ibn Sīnā's own researches revolve around a different kind of gap between speech and meaning. The gap is that we mentally add various 'conditions' (*šarṭ*) which are not explicit in the written or spoken sentences.

Ibn Sīnā is not complaining that there is anything wrong with our use of language. We generally understand each other well enough, because we can use our knowledge of the context of utterance and the usage (*āda*) of language to fill in the gaps. Many of the added conditions serve the purpose of tying 'indeterminate' (*ġair mu^{c}ayyan*) expressions to specific things, times or places in the world. Though Ibn Sīnā himself doesn't explicitly say so, it's clear that it would be completely impractical to use only sentences that don't contain indeterminate expressions. For example it would prevent us from using personal pronouns; we would have to name the individual each time we referred to him or her. We wouldn't even be able to use the Arabic imperfect tense, since Ibn Sīnā took the view — which seems to be widely accepted today — that the personal prefixes of the imperfect tense are in fact embedded personal pronouns.

Nor is Ibn Sīnā talking about 'everyday language' as opposed to formal speech. As far as I'm aware, Ibn Sīnā never makes any such distinction. (In the few places where I've seen it claimed that he does, he is in fact contrasting non-specialist language with specialist terms of art, as his predecessor Al-Fārābī used to do.) But he has a particular interest in rational discourse, especially here where he is writing about logic. The examples that he uses in this section to illustrate added conditions come from religion, metaphysical physics, biological taxonomy and geography. In *Qiyās* 1.4 he gives a further example that bears an uncanny resemblance to Wideroe's 1943 description of a cyclotron.

The overt form of all the example sentences in this section is 'Every B is an A'. Using the Scholastic name 'A' for sentences of this form, let us refer to them as 'A-sentences'. An A^+-sentence is an A-sentence together with zero or more explicit added conditions. Ibn Sīnā agrees with Aristotle that A^+-sentences form the basic sentence type for all scientific discourse.

2 Classification of A-sentences

The *Qiyās* is a loose commentary on Aristotle's *Prior Analytics*. In the *Prior Analytics* Aristotle presents a proof theory for syllogisms. Within this proof theory he recognises three types of A^+-sentence, which can be translated as

(1) Every B is an A.
Every B is necessarily an A.
Every B is possibly an A.

The second and third sentences are modal; they contain the modal expressions 'necessarily' and 'possibly'. The first is not modal. Ibn Sīnā speaks as if Aristotle called it 'absolute' (*muṭlaq* in Arabic), though I believe this word and its Greek equivalent *haplos* only became common after Aristotle. Syllogisms containing only non-modal sentences are known as 'categorical'.

Ibn Sīnā found some other examples of A^+-sentences in the aristotelian commentators who preceded him. Most of these writings are lost to us. The main relevant Greek sources that survive (though not all in their Greek original) are some work of Galen, a commentary and a paper by Alexander of Aphrodisias and a commentary by Philoponus. A Latin text of Boethius will not have been known to Ibn Sīnā, but it relies on Greek sources that he may have known. Of earlier Arabic writings on syllogism, we have some shorter works of Al-Fārābī, but his main Commentary is almost entirely missing. Ibn Sīnā often cites commentators, but he very rarely says who they are. Since there is solid evidence that Ibn Sīnā is not always a reliable reporter of other people's views, we can really only record what he thought he found in his predecessors.

Ibn Sīnā believed that the commentators before him had isolated three further forms of A^+-sentence, namely

(2)
(a) Every B is an A for all the time while it exists.
(b) Every B is an A for all the time while it's a B.
(c) Every B is an A for all the time while it's an A.

He mentions a few other forms from the literature, for example

(3) Every B is an A insofar as it is a B.

But he may have regarded this as an attempt at (b). He certainly regarded (a) as a way of reading 'Every B is necessarily an A'. This causes some confusion, because one definition of the two modal forms is that they contain modal expressions, and (a) contains no modal expressions. He complains that earlier commentators confused (a) with (b).

There is no suggestion, either in Ibn Sīnā or in the surviving commentator literature so far as I know it, that new rules could be devised for syllogisms containing forms such as (b) and (c) above. Fourteenth-century western scholastics described rules for syllogisms that contained sentences along the lines of (3), but there is no hint of this in Ibn Sīnā. It seems likely that before Ibn Sīnā, the forms (b) and (c) were mainly used in explanations of Aristotle's modal syllogisms.

Ibn Sīnā believed that the forms (1) and (2) were hopelessly inadequate for the logical treatment of scientific discourse. We will see examples of his

sentences with added conditions in a moment. But he also believed that there was a structural ambiguity in the modal sentences of (1) which nobody before him had noticed. Namely, the modal operator could be read as containing the quantifier 'Every B' within its scope. This makes a perceptible difference to the logical properties of modal sentences.

So Ibn Sīnā had good reason to distance himself from the tradition of syllogisms. In fact his attitude to it was fairly complex. He probably believed that all the rules of logic, including those needed for modal syllogisms, are already contained in the categorical syllogisms. Certainly he demanded that his students have the categorical syllogisms by heart. Probably he thought that the main further thing they needed for logic was not extra rules but skill in the art of 'analysis' (*taḥlīl*). Analysis is the art of extracting the inference steps from a piece of discourse, and paraphrasing each of them into a form where it can be validated by a categorical syllogism. If this was his view, it tallies with a view that we find already in the later sections of Aristotle's *Prior Analytics* Book One.

In *Easterners* Ibn Sīnā gives no proof theory at all. This suggests that he didn't believe his main contributions lay in that direction. The proof theory that he gives us in *Qiyās* is probably an honest attempt to make useful comments on material that he found in the tradition. He does say at *Qiyās* 30.6 that the tradition contains a number of 'evasions' (*maḥālāt*) which he will explain as he comes to them. One can find a number of passages that seem to fulfill this promise.

Later Arabic logicians, probably under pressure of the need to produce textbooks, took the view that new inference rules were needed for Ibn Sīnā's new sentence forms. Some of this material is still taught to Islamic students in the madrasas. The development of these more complicated inference systems has parallels in work of Buridan, Burley and Ockham in the early fourteenth century. (The case of Ockham's treatment of relational syllogisms is a telling example. In fact he goes hardly at all beyond what is already in Aristotle; but unlike Aristotle he presents it as a new style of rule rather than as a style of analysis.) There might also be a parallel to the development of specialist 'logics' in modern philosophy and computer science, as opposed to the tendency in some of the founders of mathematical logic (Frege, Peano, Hilbert, Gentzen) to look for basic principles that apply across the board. I see Ibn Sīnā alongside the universalists as opposed to the developers of specialist systems. This is worth saying in light of the fact that modern views of Ibn Sīnā's logic have been dominated for several decades by the perspective of Nicholas Rescher, who clearly belongs to the tradition of building specialist logics.

3 The time variable

Ibn Sīnā notices that sentence forms like those in (2) involve 'two times' (*waqtāni*), namely the time when B holds and the time when A holds. Aristotle had already said that every verb involves a reference to a time. When we translate into A-sentences, a time on the verb would generally show up as a time on the predicate A. Thus

(4) Every classical Greek poet quoted Homer.

goes over into

(5) Every (classical Greek poet) is a (thing that at some past time quoted Homer).

Ibn Sīnā's point is not this. In the first place the verb distinguishes only three time periods: past, present and future. And in the second place there is also a time on the subject term B.

Ibn Sīnā's point is that objects exist in time, and many of their properties change through time. A flower that is yellow in March could turn blue in June; a person who is walking at sunrise may no longer be walking at midday; and so on. So quite generally when an individual is said to have a property, it makes sense to ask 'when?'. We might wonder if this applies to numbers too; does it make sense to ask *when* two plus three equals five. I haven't found any place where Ibn Sīnā discusses this point. But in the light of his other examples I would bet that he would argue: if 'Two plus three equals five' is true timelessly, then it follows that it's true at sunset today. So there is no loss in assuming that every expression ascribing a property to an object carries a time variable, though usually it will be unspoken.

It follows that *prima facie* an A-sentence always has the implicit form

(6) Everything that is a B at time t is an A at time s.

This sentence is what we would get if we took the crude meanings of B and A and put them into an A-sentence. All other A^+-sentences are got from (6) by adding further stipulations, for example ones that quantify or identify the two times.

Ibn Sīnā tries to explain the relation between his notions and those of his predecessors by explaining that they count different sentences as 'absolute'. He gives several versions of the difference; they seem to me remarkably confused. But one point that emerges is the difference between two different notions of what it is for an A^+-sentence to be 'absolute'. One

is that it's not a modal sentence; we can say 'non-modal absolute' for this. The other is that it's the bare form from which the other forms are got by adding conditions; Ibn Sīnā does have a precise term for this (though he rarely uses it), namely *mursal*. These two notions of absolute would presumably coincide for Aristotle, but not for most of his successors.

So we can explain Ibn Sīnā's view that (6) is the basic form of A^+-sentence from which all others are derived, by describing (6) as the mursal form of A^+-sentence. As the form stands in (6) it is neither true nor false, because it contains four indeterminates: B, t, A and s. Ibn Sīnā normally assumes that 'B' and 'A' are placeholders for particular descriptions, but he doesn't make this assumption for 't' and 's'. So a typical mursal sentence might be

(7) Everything that breathes in at time t breathes out at time s.

Can we count (7) as true or false, without making the times t and s determinate (*mu^{c}ayyan*)? Ibn Sīnā believes we can. I think his main reason for believing this is that he can see valid forms of argument that use premises like (7). An example which makes the point but is otherwise uninteresting is:

(8) Everything that breathes in at time t breathes out at time s.
Everything that breathes out at time s is an animal.
Therefore: Everything that breathes in at time t is an animal.

For Ibn Sīnā an inference is always between meaningful sentences; so we have to take (7) as meaning something. His solution is essentially to count it as true when 'time t' and 'time s' are both read as existentially quantified: 'some time'. There are further details which I skip here.

Two questions need closer investigation. The first is how far Ibn Sīnā is conscious of the distinction between the form (6) and the existentially quantified form

(9) Everything that is a B at some time is an A at some time.

For example he says that the two sentences

(10) Everything that is a B at time t is an A at time s.
Everything that is a B at time t is-not an A at time u.

are not contradictory unless s equals u. This seems to mean that he is prepared to consider a form of argument which uses these sentences without

quantifying out the s and the t. There are also some places where he seems to be saying that the time is not 'concealed' (i.e. by a quantifier), though these translations are uncertain as yet.

The second question is whether the 'time' variable always has to be literally time, or whether he allows it to be any family of indices. For example the sun may be red at sunset today when seen from London but not when seen from Lisbon. Would Ibn Sīnā allow that the concept we are using in this case is 'x is red at time t when seen from z'? There are indications both ways. In *Easterners* and elsewhere he calls attention to the wide range of unspoken parameters that can affect the meaning of a statement. In two places in the texts translated below (*Qiyās* 26.5, *Easterners* 65.4) he refers to '*waqt* and/or *ḥāl*', where *waqt* means time and *ḥāl* could mean situation. On the other hand Ibn Sīnā does certainly give time a privileged place. Note that in (iv) of the next section, the natural reading is that the time is an interval rather than a point of time.

4 Ibn Sīnā's sentence forms

Now we turn to Ibn Sīnā's examples of A-sentences. His claim is that we in fact understand them as A^+-sentences with a variety of different unspoken conditions. Here are some examples.

(i) 'God is a living being.' This is not of the form 'Every B is an A'. For present purposes we should probably rephrase it as 'Every God is a living being'; but Ibn Sīnā as a devout Muslim avoids a sentence that might suggest there is more than one God. In any event, with X = God, Ibn Sīnā takes it that nobody who said this would expect to be understood as saying that God is a living being just at the time when the statement is made. The correct reading is

(11) Everything that is a God at some time is a living being at every time.

(ii) 'Every human is a living being.' Ibn Sīnā points out that this can't be understood as the previous example, because no human being exists throughout eternity, and a human being is not a living being before or after he exists. Instead he claims that the condition for this to be true is

(12) Everything that is a human at some time is a living being at every time while it exists.

For reasons that are irrelevant to these particular examples, Ibn Sīnā rephrases 'while it exists' as 'while its essence is satisfied'.

Note that in both (i) and (ii) the time in the subject term is quantified out. Ibn Sīnā believes that this quantifying away of the subject time is a characteristic of Aristotle's syllogistic forms. He believes that both (i) and (ii) are sentences that Aristotle would have counted as 'necessary'.

(iii) 'Every white thing is coloured.' This is different from (ii), because — as Ibn Sīnā notes — a thing that is white can cease to be white but still exist. In fact it can cease to be coloured too. (For example someone might scrape the white paint off a glass object — my example, not Ibn Sīnā's.) So we need another reading, and Ibn Sīnā chooses

(13) Everything that is white at a time t is coloured at that time t.

This goes beyond Aristotle, because it involves a tie-up between the time variables of subject and predicate. But Ibn Sīnā notes that it is at least implicit in the formula (2)(b) mentioned by earlier commentators. The distance from Aristotle is actually not that far, if (as Ibn Sīnā does in several places) we allow the subject term to pick out a class of ordered pairs. Namely, let it pick out those pairs (a, b) where a is an individual that is white at time b. Then analysis allows us to translate into a straight A-sentence

(14) Every white-at-the-time pair is a coloured-at-the-time pair.

But the next example frustrates this kind of analysis.

(iv) 'Everyone who travels from Ray to Baghdad reaches Kermanshah.' Nobody would understand this sentence as implying that a person who travels from Ray to Baghdad reaches Kermanshah at every moment of his existence, or even at every moment of the journey. On the other hand nobody would count it as verifying this sentence if a person who travelled from Ray to Baghdad happened to visit Kermanshah a year later. So the sense is

(15) Every person who travels from Ray to Baghdad over an interval of time I reaches Kermanshah at some time during I.

Examples like this seem to be the ones that in *Easterners* Ibn Sīnā labels as 'intervenient', where the predicate holds at some time during the time in which the subject holds — presumably the time of the predicate holding 'intervenes' in the period in which the subject holds.

(v) 'Everything that is born gestates.' (Here 'gestates' means 'is in the womb'.) This is a variant of 'Everything that breathes in breathes out'. The

required completion can't be as in (iv), because if you are already born then you aren't in the womb. A possible completion is:

(16) Everything that is born at a time t gestates at some time before t.

Note that in both (iv) and (v) the quantifier form of the whole sentence is $\forall\exists$. Note also that both (14) and (15) are donkey sentences, where the consequent contains an anaphora to a variable that seems to be quantified within the antecedent. In the days before Hans Kamp and Irene Heim, logicians used to deal with these sentences by moving the inside quantifier to prenex position. This is not a good solution, because it prevents anaphora from a later sentence. Ibn Sīnā's device with ordered pairs would have the same effect as this prenex quantification. It's not clear how far Ibn Sīnā was aware of these issues.

5 Translation of Qiyās 1.3

/19/ 1.3 On premises and their parts, and on universal quantification in affirmative and negative propositions

[1.3.1] We must explain what a premise is, what is meant by 'term of 19.4
a premise', what an affirmative or negative universally quantified proposition is, what an existentially quantified proposition is, what a syllogism 19.5
is, and what a perfect or imperfect syllogism is. After that we begin the classification of syllogisms, and we familiarise ourselves with the kinds of interpretation that they can be given.

[1.3.2] In the book Peri Hermeneias there was a thing called a declar- 19.8
ative sentence, or a proposition. In fact when this is counted as part of a syllogism it becomes a premise. So a premise is a declarative sentence that is counted as part of a syllogism. And this is not a differentia attached to [PREMISE]; rather it is an interpretation consisting of an accident, so 19.10
that if we think of a premise in itself, it ceases to be a part of a syllogism but its essence is not necessarily cancelled, nor its being a declarative sentence, in the way in which [COLOUR], which is found in the definition of [WHITE], is cancelled when one thinks of [WHITE] as not any longer being dispersed by vision. And in fact even though the differentiae of substances can be thought of as meanings which attach to their genera, and these differentiae can leave [the substances] without the nature of the genera of the

substances being cancelled, this is not thought of in terms of differentiae of the accidents. [This remark is] on the basis that what one thinks about substances is a topic that needs to be investigated. This topic will be exposited 19.15
in the appropriate place.

[1.3.3] Just as propositions are quantified or unquantified or singular, so are premises. We must check /20/ how the various kinds of quantified proposition behave. First we should check quantified sentences which are affirmative universally quantified, such as

(17) Every B is an A.

We say: we must understand that the meaning of the sentence

(18) Every X is a Y.

is that each individual X [is a Y], not that the set of all Xs or the universal [X] [is a Y]. The meaning of the phrase 'Every human' is not the set consisting of the whole of mankind, nor the universal [HUMAN], but 'Each individual human one by one, so that none stands out in particular' . What 20.5
is said about the set is not said about the individuals. Sometimes things are said about the set that would not be said about the individuals. What is said about the universal [HUMAN] can't be said about the particular cases, as you know from above. Rather, what is said here is about the particular cases one by one, where the particular cases are either the individuals, or the species together with the individuals if the meaning is generic.

[1.3.4] Then we must understand that the meaning of the phrase 'Each 20.9
single one of the things that are X' is not 'Every one of the things that are 20.10
X insofar as they are X', just as the expression 'Every white thing' means not 'Everything that is white insofar as it is white', but 'Everything that fits the description [WHITE]', or 'Everything that "white" is [properly] applied to', whether that thing is the idea [WHITE] or it is a thing that fits the description [WHITE] but gets its identity from a different criterion like [HUMAN] or [PIECE OF WOOD] (and satisfies the description [WHITE] in either case).

[1.3.5] Also we must understand that when we say 'every white thing', 20.14
it doesn't mean 'everything that fits the description [WHITE] permanently'. 20.15
In fact the phrase 'everything white' is broader than the phrase 'everything that is permanently white'. [WHITE] includes both [WHITE AT A CERTAIN TIME] and [PERMANENTLY WHITE]. The phrase 'every white

thing' means 'each single thing /21/ that fits the description [WHITE] permanently or not permanently, and regardless of whether it is a subject for [WHITE] and it fits the description [WHITE], or it is [WHITE] itself'.

[1.3.6] This description is not the same as describing [the subject] as 21.2
'possibly such-and-such', or 'what could legitimately be such-and-such'. When we say 'Every white thing', its sense is definitely not 'everything that could legitimately be white'. Rather it means 'everything that in actuality fits the description [WHITE], where besides being actual, it can be so for some time which is indeterminate or determinate or permanent'. This 21.5
actuality is not just the kind of actual existence that material things have. In some cases the reference to the subject doesn't place it as something satisfied in material things. For example 'Every spherical object whose surface consists of twenty triangular faces': this description is not one that a thing satisfies on the basis of existing [in the material world]. Rather, [a thing satisfies it] by being thought of as actually fitting the description, on the basis that the intellect describes it as actually satisfying [the defining condition], regardless of whether the thing exists [in the material world] or not. And 21.10
the phrase "Every white thing" means every single thing that is described in the intellect as actually satisfying the condition that it is white, either permanently or at some time, regardless of which time that is. This takes care of the subject.

[1.3.7] And as concerns the predicate: [Aristotle] says that there are 21.13
affirmative propositions [of three kinds, namely] absolute, necessary and possible. So we should say something about the affirmative universally quantified absolute proposition, and pin down the difference between the absolute and the necessary. We say: There are sentences that are all affir- 21.15
mative but behave in different ways. Thus we say:

(19) God is alive.

and mean that he permanently [alive]; he never stopped being alive and he never will. But we say:

(20) Every whiteness is a colour.

and

(21) Every human is alive.

meaning not that every single thing which is white is a colour which always was and will be [a colour], or that every human is alive and always was

and always will be [alive]. Rather, we are just saying /22/ that everything that fits the description [WHITENESS], and that is [properly] said to be a whiteness, is a colour so long as its essence continues to be satisfied. And likewise everything (properly) said to be human (is not alive in the sense) that it always was and always will be an animal; but rather so long as its essence and substance continue to be satisfied. And when we say:

(22) Everything that moves is a body.

we don't mean that everything that moves is a body just so long as it continues to move, but rather we just mean that even if it hadn't been moving, it would be a body for so long as its essence continued to be satisfied. There is a difference between this and the previous case: in the previous case the phrase 'so long as its essence is satisfied' and the phrase 'so long as it remains white' don't describe different situations, whereas in the present case the situations described by the phrase '(everything that fits the description "moves") so long as its essence continues to be satisfied' and the phrase 'so long as it is moving'. And when we say

(23) Every white thing has a colour which is dispersed (?) for sight.

and we don't mean that everything (properly) called white has colour dispersed for sight as long as its essence is satisfied, , but rather, as long as it fits the description 'white'. When a thing fits the description 'white' and then ceases to be white, its essence doesn't lapse, even though this description no longer fits it.

[1.3.8] When we say:

(24) Everyone who travels from Ray to Baghdad reaches Kermanshah.

(for example), we don't mean that [he reaches Kermanshah] while [his essence] continues to be satisfied or throughout the time while he is moving to Baghdad. Rather [we mean] that there must be some specific time at which he is described as reaching Kermanshah. And when we say:

(25) Every stone is motionless.

this this can be true of [any one of the stones] permanently and so long as it exists, but it could hold /23/ [just] at some time. [For (25) to be true] it has to hold at some time [for each stone], but besides this it can hold permanently in some cases, so long as their essence continues to be satisfied,

though this would be a matter of fact and not of necessity. [The sentence (25) doesn't require that] it holds [of an individual stone] at every time, it just [requires that it] holds at some time. Also we say

(26) Everything that watches sleeps.

with the meaning that everything that fits the description of watching is asleep at some specific time. [When we say]

(27) Everything that breathes in breathes out.

we mean that everything that fits the description 'breathing in' breathes 23.5
out, not so long as its essence continues to be satisfied, or so long as it is breathing out; rather [we mean that] there is a time at which it fits the description 'breathing out'.

[1.3.9] Likewise 23.7

(28) Everything born is gestated.

i.e. everything which fits the description 'has been born' fits the description 'gestated in the womb' at some time, [though] not while it continues to have been born. [[And you know that the sentence:

(29) Everything born is gestated.

and that everything that fits the description 'has been born' fits the descrip- 23.10
tion 'gestated in the womb' at some time.]] This is not to say that it fits the description 'in the womb' at the same time as when it has been born. The sentence (28), meaning 'everything that fits the description 'has been born' [etc.], is broader than the sentence [got by adding to it] 'under the condition that he has been born', and broader than [if we added] 'whenever he has been born' or any other condition 'when . . . '.

[1.3.10] Some sentences have a determinate time in them, like the sen- 23.13
tence

(30) The moon is eclipsed.

while [in some sentences] the time can be indeterminate, like the sentence 23.15

(31) The human breathes in.

/24/ A common feature of all these cases is that the predicate is affirmed 24.1
of the subject.

[1.3.11] Suppose someone were to say: 24.1

"That's not right. The sentence

(32) Everyone who watches sleeps.

is false, unless we say

(33) Everyone who watches sleeps at the times when he isn't watching.

And likewise we should say

(34) Everyone who travels to Baghdad reaches Kermanshah halfway through the distance.

and

(35) Everyone who is born fits the description 'is in the womb before his birth'.

So these premises are true only under an added condition." 24.5

There are two ways of answering this.

[1.3.12] The first is that everything that sleeps at such-and-such a time 24.7
is sleeping at some time, and everything that fits the description 'is in the womb before his birth' fits the description 'is in the womb at some time', and everyone who reaches Kermanshah halfway through the distance does undoubtedly reach Kermanshah at some time. The proposition that a thing has held in the past, the proposition that it will hold in the 24.10
future, and the proposition that it holds now are different propositions, but they have something in common. They differ in the times, but they agree in asserting that something is true of something and in the form of this relationship. In particular the meaning in the mind of the proposition that says a thing reaches or sleeps is broader than [those of the propositions saying] that this held in the past, that it will hold in the future and that it holds at present. The affirmative predication doesn't have to specify any of these [three times]. What makes it an affirmative predication is the relation it asserts [between predicate and subject]. The special cases — affirmation about the past, affirmation about the future and affirmation 24.15
about the present — come afterwards. Therefore it's clear that the premises that we have distinguished from temporal premises are legitimate. When we add to them minor premises, for example when we say

(36) Everyone who watches sleeps at the time etc.

/25/ and

(37) Everything that sleeps at such-and-such a time sleeps.

(which is an absolute proposition, in the sense that it has no added condition), it entails that

(38) Everyone who watches sleeps.

So the propositions are legitimate, and they have it in common [with temporal propositions] that they contain an affirmative predication.

[1.3.13] And the second answer is as follows. To help you we will grant 25.4
that the predicate is what you took it to be. It will give another confirmation
of our approach. So: 25.5

(39) Everyone travelling to Baghdad [from Ray] fits the description 'reaches Kermanshah halfway through the distance'.

It doesn't [mean that he fits the description] 'so long as he continues travelling to Baghdad'. For that to hold they would have to have said that the condition must be put on the side of the subject, thus:

(40) Everybody who is travelling to Baghdad and is halfway through the distance is reaching Kermanshah.

and

(41) Every person who is born but has not yet reached his birth is in the womb.

[1.3.14] But suppose they said: 25.9

> In that case our view is that we say nothing about the legitimacy
> or otherwise of [these formulations], and we don't grant that if 25.10
> they are correct then there is anything wrong with the previous
> versions. We just say that these additions [have to be] attached
> to the predicate.

Then let us take the subject of our enquiry to be

(42) Zayd who is moving to Baghdad.

and let us consider whether or not it is [truthfully] predicated of him that he is reaching Kermanshah halfway through the distance. If it is not [truthfully] predicated of him, then it is [truthfully] denied of him, so we will have the proposition

(43) Zayd, who is travelling to Baghdad, has it [truthfully] denied of him that he reaches Kermanshah halfway through the distance.

Then this denial holds of him either permanently, or for so long as he is travelling to Baghdad. But [in fact] the denial doesn't hold of him either permanently or for so long as he is travelling to Baghdad. Rather, [it holds] for a part of the time while he is travelling to Baghdad. So its falseness at some time while he is travelling is not incompatible with the absolute form of the negative proposition. Likewise its truth /26/ at some of [that] time is not incompatible with the absolute form of the affirmative proposition. The negative proposition and the affirmative proposition don't differ from each other in respect of the connection in them — they have [the same] predicate and subject. But rather the two differ in that one of them is affirmative and the other is negative. So the truth of the matter is that both the negation and the assertion of this [absolute proposition] can be [both] true, and that the absolute negative and affirmative are not themselves contradictories so long as they don't refer to the same time and situation. 25.15 26.5

[1.3.15] Now that this is settled we say: There has been a difference between our predecessors about the meaning of 'absolute proposition'. It's not a real difference of opinion; rather it's a difference in the use of terminology. (1) The approach of one group is that 'absolute' refers to the form taken by the content of the proposition, independent of whether it is negative or affirmative; 'absolute' embraces all the kinds of special case that were mentioned [above], and makes no reference to any one of those cases in particular, beyond the fact that it excludes [propositions which] carry a condition of necessity or of non-necessity. (2) The approach of [another] group is that 'absolute' refers to the form taken by the content of the proposition, independent of whether it is negative or affirmative; the condition under which [the predicate] holds in an 'absolute' proposition is not 'so long as the essence of the thing described by the subject continues to be satisfied', but something different from this. So 'absolute' in this meaning is narrower than 'absolute' in the first meaning. 26.6 26.10

[1.3.16] The examples that appear in the First Teaching quash the thought that [Aristotle's] aim is as in the approach of the first group. Even though 26.15

in some places he gave examples of propositions whose denial and affirmation can be simultaneously true, that is by way of explaining what is claimed by an existentially quantified proposition, by taking one of those absolute propositions in which no universally quantified content persists. And it is now clear from this that the sentence

(44) Every B is an A.

means that each one of the things described and assumed to be actually a B, permanently or not permanently, in fact also fits the description of being an A without referring to when, and to which of the three segments of time it is in.

[1.3.17] Some people reckon that to be absolute is to be as in the latter description, but they don't recognise all these cases [that we have mentioned]. They recognise just three cases: one is that [the individual satisfying] B is an A permanently, the second is that it is [an A] while it continues to fit the description B, and the third is [that it is an A] while it continues to fit the description A. The sentence 'Every B is an A' embraces these three cases, and it's broader than each of them. So the universally quantified propositions can be classified either (1) as in this third classification, or (2) into the cases we mentioned [before], where the division is into just two cases, [one of which is] 'absolute' in the narrow meaning that the predication in it is not permanent. Later you will receive a clear explanation of the different ways in which a thing can be necessary. 27.2 27.5

6 Notes on *Qiyās* 1.3

Title

19.3 'and negative' : In fact Ibn Sīnā never reaches the negative propositions in this section.

[1.3.1]

19.5 'affirmative or negative universally quantified proposition': Literally 'thing said of the all, affirmatively and negatively'.

19.7 'the kinds of interpretation they can be given' (*mā yalḥaquhā min al-i ᶜtibārāt*: A constant theme of Ibn Sīnā's logic is that the same

piece of speech or text can be meant or read in a variety of ways. A way of reading is called (among other things) an *iʿtibār*, literally 'consideration'. So even a single syllogistic mood can contain various forms of argument, possibly some valid and some invalid, depending on how the premises and conclusion are read.

In later sections of the *Qiyās* Ibn Sīnā will divide up the arguments in a particular mood according to whether each premise is — or is read as — non-modal (or 'absolute'), necessary or possible. This classification is in deference to Aristotle's *Prior Analytics* and the tradition of commentaries on it. But in his own mind Ibn Sīnā regards this as only a first step towards logical classification, and in several cases he distinguishes the logical properties of different readings on a finer classification. His finer classification rests on his semantic analyses, for example those later in this section, and it will become clear that these analyses are not a fully worked-out system. So in his classification of syllogisms he can only hope to pick out some key examples, with hints to his readers on other available devices or further points to bear in mind. Later Arabic logicians tidied up the classification, either as a research exercise or for purposes of teaching (or indeed both). But one should be wary of assuming that Ibn Sīnā himself intended to produce a well-defined logical system of syllogisms — particularly since the classification and justification of types of syllogism is completely missing from the Logic section of *Easterners*, where Ibn Sīnā set down his own vision of the subject. (ADD the remark of the disciple from Ray.)

[1.3.2]

This paragraph on its own could support a book of commentary.

19.8 'Peri Hermeneias': Aristotle's book; Ibn Sīnā's commentary is called *ʿIbāra*. Ibn Sīnā's definition of 'declarative' is on page 32.2 of the commentary; his definition of 'proposition' is on page 33.6.

19.9 'counted as part of a syllogism': Note first that in Ibn Sīnā's usage a syllogism consists of two premises that entail a conclusion. Sometimes he states the conclusion and sometimes he doesn't, but strictly it's not part of the syllogism. The syllogism proper just consists of two premises.

Next note that there are some things we can say about a propo-

sition A and a syllogism Σ, which can be true only if the proposition is a premise of the syllogism. For example
(45)
A is the minor premise of Σ.

(46)
The common term between A and the other premise of Σ is the predicate term in A.

19.13f Presumably this is one of the places where Ibn Sīnā sees a link between logic and metaphysics. REF. DOCUMENT THE FUTURE PLACE THAT HE'S REFERRING TO — IN THE METAPHYSICS PRESUMABLY.

1.3.3

20.2ff Since the phrase 'Every X' is not a term, we can't indicate its meaning by giving another term with the same extension. So presumably the equivalent that he offers is equivalent in the sense that it can be put for the original in the sentence 'Every X is a Y' without change of truth value. (So 'Every X is a Y' is the ursprungliche Anwendungsweise, and this is why he supplies it, even though he leaves off the 'is a Y' after its first appearance.). It's unclear whether 'so that none stands out in particular' in 20.5 is part of the equivalent or an external comment. Also 'the whole of mankind' is a term, so it can't have the same meaning; though he doesn't explain that here.

20.5 Things that are said about the collection but not about the individuals: *ʿIbāra* i.7, p. 45ff, explains quantifiers. Also some remarks in i.8.

20.7 'the universal [HUMAN]': Literally 'the universal human insofar as it is a universal'. This is a standard locution in Ibn Sīnā for naming meanings. REF.

20.8 What is this 'generic meanings' about?

[1.3.4]

The translation of this paragraph should be taken with caution. I can't confirm it without knowing more about how Ibn Sīnā thought about colours than I do. It seems that Ibn Sīnā includes among the things that are white the meaning [WHITE], which he may well regard as

a sort of standard white. He surely doesn't believe that the meaning [HUMAN] is human.

20.10 By 'white insofar as it is white' Ibn Sīnā often means the meaning [WHITE]. But that makes little sense here. He would hardly say 'everything that is [WHITE]' when we all know that only one thing is [WHITE]. The passage 101.13ff clarifies what is going on here. We say 'Every human is rational insofar as he is human', meaning that anything human is by definition rational. Ibn Sīnā wants to warn us against reading this as 'Everything (human insofar as it is human) is rational'. See [2.3.13] and the notes on it for further explanation.

[1.3.5]

20.17 'WHITE AT A CERTAIN TIME': The Arabic doesn't make clear whether the quantifier is inside the idea (so the idea is [WHITE AT LEAST ONCE]) or outside (so for some specific time t the idea is [WHITE AT TIME t]). In fact it will emerge later that Ibn Sīnā thinks we need an idea with two arguments: [x IS WHITE AT TIME y]. In any case note the corollary: when we quantify over [WHITE], we don't limit ourselves to things that are white *now*. In common usage we use the present tense to talk about how things are now; for Ibn Sīnā this is one of many examples of how we add unspoken but intended 'conditions' to the sentences that we speak. He has no notion of ampliation.

21.1 'a subject for [WHITE]': This can be read either logically or metaphysically. Logically it means: subject term of a proposition where the predicate is [WHITE]. Metaphysically it means: substratum for the quality of whiteness. He must have the metaphysical meaning in mind here, since with the logical meaning there would be no contrast with the case 'or it is [WHITE] itself'.

[1.3.6]

21.16 It looks as if (20) should read 'Every white thing is coloured'; but the manuscripts apparently agree with the text as given.

[1.3.7]

22.1 'is a colour so long as': The example is unhelpful, because whitenesses (*bayāḍ*), as Ibn Sīnā intends them, are clearly a theoretical construct and we are not told the criterion for identity of whitenesses. The small amount that I was able to extract from Ibn Sīnā's text is as follows:

(a) By *Madḵal* 28.7f and 85.13, a person who is white can be said to 'have a whiteness', but not to 'be a whiteness'. (See also *Maqūlāt* 40.2.)

(b) By *Madḫal* 45.6, [COLOUR] is part of the essence of [WHITENESS]. This confirms what Ibn Sīnā says in the present passage, but without a criterion of identity for colours it doesn't move us forwards.

(c) At *Maqūlāt* 10.18 there is a remark about the synonymy of whiteness in snow and whiteness in ivory, but I haven't digested this.

(d) *Maqūlāt* 46.4 tells us that [WHITENESS] is a component of (the adjective) [WHITE]. Likewise at 159.13, the meaning of [WHITE] is [HAVING WHITENESS] (as if the construct was prior to what it is a construct from),

(e) At *Maqūlāt* 147.5 Ibn Sīnā seems to be saying that whitenesses only exist in concrete things, but that the definition of [WHITENESS] doesn't refer to any particular concrete thing. (Seems a fatuous point. The interesting question is whether the whiteness of Zayd now, for example, has a definition which makes no reference to Zayd.)

(f) At *Maqūlāt* 148.15, a whiteness is white.

(c) At *ʿIbāra* 16.3f there is a discussion of 'abstracting from whiteness'. I haven't digested this, but it seems to be about manipulation of concepts and not directly relevant to the question of criteria of identity.

(d) At *ʿIbāra* 26.3 Ibn Sīnā introduces another word *ibyiḍāḍ* for whiteness; he says that *bayāḍ* means the essence (of what?) whereas *ibyiḍāḍ* means the presence of this essence in a subject. But he adds that a word meaning [*BAYĀḌ*] can also mean [*IBYIḌĀḌ*].

e At *ʿIbāra* 72.2 he talks about 'the present whiteness of Zayd'. Again we are not told whether the present whiteness of Zayd could also be the present whiteness of ʿUmar, or whether it

could be the same whiteness as the whiteness of Zayd tomorrow.

22.1 'so long as its essence continues to be satisfied' (*mā dāma ḏātuhu mawjūdatan*): It means the same to say (1) that an object exists and to say (2) that its individual essence is satisfied. The latter expression is not Ibn Sīnā's invention. It is not even aristotelian; Abd ul-Qāhir al-Baghdādī [1], an early 11th century textbook on Kalām, has on p. 90 line 5 the phrase 'while the essence of the surviving thing is found' (*ᶜalā wujūdi ḏāti l-bāqin*) meaning 'while the thing continues to exist'. Ibn Sīnā overwhelmingly chooses (2) rather than (1). This is of a piece with his reluctance to mention real-world objects and considerations; he regards them as irrelevant to logic.

22.3 'moves' (*mutaḥarrik*): The word is a participle, so it could be used to mean either 'now moving' or 'thing that moves'. We learn below that Ibn Sīnā thinks a thing can be *mutaḥarrik* at one time and not *mutaḥarrik* at another time during its life. This is confirmed by the discussion at *Qiyās* 39.11ff. This is an indication that he is using the word to mean 'now moving'. BUT DOES THIS FIT ALL PASSAGES?

22.3 'alive in the sense that': Apparently Ibn Sīnā uses 'alive' (*ḥayy*) in 21.18 to mean the same as 'an animal' (*ḥayawān*).

22.3 'and substance': Mention of the substance seems out of place here. Substances are not meanings. One manuscript has 'and its existence' (*wa-wujūduh*), which seems to me better, but for safety I leave the text unchanged.

[1.3.8]

22.12 Ray was a flourishing town in northern Persia, though later it was eclipsed by the nearby city of Tehran. Kermanshah is a town on the road from Ray to Baghdad; it lies within the present borders of Iran, though its origins may have been Kurdish. People born in Ray were called Razi, for example the tenth century doctor and scholar Abu Bakr al-Zakhariah al-Razi who first distinguished clinically between measles and smallpox. Kermanshah was the birthplace of Doris Lessing.

22.14 'some specific time' (*waqtun lā maḥāla*): In several places Ibn Sīnā uses the phrase *lā maḥāla* in connection with an existential quan-

tifier expression. (Besides the present line, see *Qiyās* 23.4, 24.9, 29.5, 29.11f, 33.13, 35.3.) The phrase normally means 'certainly' or 'no doubt', but this meaning is clumsy and pointless in these passages. The dictionaries are no help. It seems that in these contexts he means the quantifier phrase to stand for something specific that can be referred back to, like German *jemand* or Russian *kto-to*, and unlike German *irgendein* or Russian *kto-nībud'*. Here the subject term is to hold of an individual at a specific time that is available to control when the predicate term holds of the same individual. Ibn Sīnā will explore the implications of this point in his next section.

23.3 'watches': See on 28.10 in the next section.

[1.3.9]

23.8–10 'And you know ... at some time' (*wa-anta ... fī r-raḥim*): Delete this sentence. Apart from being ungrammatical, it's almost a word-for-word repetition of the one immediately before it.

23.12 With two mss, delete *aw lā bi-šarṭ kawnih mawjūd*.

[1.3.10]

Ibn Sīnā's normal usage is that an 'indeterminate' (*ġair mu^{c}ayyan*) component in a proposition is a place-holding idea which indicates where the name of a specific individual is needed in order to complete the meaning. REF Today linguists use 'argument' and logicians use 'indeterminate' or 'variable' in more or less this sense. A 'determinate' (*mu^{c}ayyan*) component is an idea which names a specific individual. So (30) certainly doesn't have a determinate time in it as it stands. Probably Ibn Sīnā gives it as an example of a sentence which is commonly used with a specific time in mind; for him it's of no great interest whether the time is explicitly mentioned as long as it is part of the speaker's intention. Likewise the reason why (31) is given as a sentence with indeterminate time is that it's not common practice to refer to exact times at which people breathe. (Recall that clocks at the time were accurate only to COMPLETE.) The point is not that different people breathe in at different times; see Ibn Sīnā's discussion of this point at SKOLEM PASSAGE. Nor is it the point that breathing in is a voluntary activity and hence unpredictable; that may be true, but Ibn Sīnā is the last person one would expect to confuse this with any issue of logic.

24.1 'affirmed of': In other words, the sentences are all affirmative.

[1.3.11]

24.1 'someone were to say': The wording implies that Ibn Sīnā made this objection himself. There is no record of any discussion of sentences of these types in the literature before Ibn Sīnā. CHECK THIS.

[1.3.12]

Ibn Sīnā's first answer makes two points. The first is that if the proposition with the time identified is true, then so is the proposition without the time identified. We have to understand here that the sentences he writes are faithful representations of the propositions; the speaker intends nothing beyond what is stated. The point has to be made because through most of this section Ibn Sīnā has made quite a different assumption.

The second point is that propositions with no time identified are legitimate for use in syllogistic arguments. There is a question whether these 'absolute' propositions with no time identified have unquantified temporal variables, or whether the times in them are existentially quantified. This affects the structure of Ibn Sīnā's semantic theory, though it doesn't affect the conditions for the proposition to be true. As Ibn Sīnā says elsewhere REF, the condition for an unquantified (*muhmal*) proposition to be true is that there are assignments to the variables which make the resulting proposition true. For what it's worth, Ibn Sīnā does say at *Qiyās* 263.6 that sentences with no quantification over time are *muhmal*.

24.17 'legitimate' (*ṣaḥīḥ*; and at 25.2 below): Legitimate in the sense that they can be used as premises in reasoning, as Ibn Sīnā is about to illustrate. Today the word *ṣaḥīḥ* means 'true', and this meaning was available in Ibn Sīnā's time too; but 'legitimate' seems to work better here.

[1.3.14]

25.11 'Zayd who is travelling to Baghdad': This is Ibn Sīnā's preferred form of the subject, as opposed to the more elaborate form (40) which he says is required by his opponents' position. In the

spirit of REF, the subject can be read as an ordered pair whose terms are Zayd and the time during which he travels. The predicate needs to refer back to this time.

25.17 Something is wrong here, though it's not clear whether Ibn Sīnā himself or his text has got into a twist. Fortunately the point is clear: if a proposition p is true at some times and false at others, then the proposition 'p at t' and the proposition 'Not-p at t' can both be true if one evaluates the t at different times in the two cases.

26.5 'time and situation' (*al-waqt wal-ḥāl*): This may remind some readers of Boole's 'times and conjunctures of circumstances' REF. Certainly it would increase the power of Ibn Sīnā's logic if he allowed the time variable to range more generally over reference points. But it would be dangerous to read too much into a single phrase. In the Kalām the word *ḥāl* sometimes just means 'point of time'. The new point that Ibn Sīnā establishes with this example is that even a time reference in the subject doesn't block this argument, provided that the link between the subject time and the predicate time is not such as to pin down the predicate time uniquely.

[1.3.15]

26.10 'makes no reference': Ibn Sīnā's definitions of kinds of discourse can be hard to disentangle. When he says that 'it makes no reference to X', does he mean that the definition of 'absolute' makes no reference to X, or that the definition of 'absolute' says that absolute propositions make no reference to X? Here I read him as saying that the definition of 'absolute' makes no reference to the aforementioned cases, apart from the fact that it explicitly excludes propositions which say whether they are necessary or not necessary.

26.11 'condition of necessity or of non-necessity': Presumably 'condition of necessity' includes conditions of the form 'It's impossible that', and 'condition of non-necessity' includes conditions of the form 'it's possible that'. So Ibn Sīnā is saying that the proposition contains no modal content. But this formulation leaves it open whether a condition like 'for so long as the subject individ-

ual exists', which doesn't contain any modal vocabulary, counts as a condition of necessity.

26.12 'the condition': Ibn Sīnā's text reads as if he was saying that an absolute$_2$ proposition has to contain a condition on when the predicate applies. But since everybody agrees that a proposition of the form 'Every A is a B' (where A and B are atomic) is absolute, the 'condition' referred to here must be the condition which in fact must hold for the predicate to apply, whether or not it is stated as a condition in the proposition.

26.14 'narrower than': As it stands, this comment is clearly false. For example a sentence that says 'Every A is a B throughout eternity', or 'Every A is possibly a B', are both absolute$_2$. But the first is not absolute$_1$ since it carries a condition of necessity, and the second is not absolute$_1$ since it carries a condition of non-necessity. We can only clarify this discrepancy by seeing what Ibn Sīnā says about it elsewhere. CHECK THIS OUT.

[1.3.17]

27.4 'three cases': The first case is a subcase of Ibn Sīnā's 'necessary'. The second is one of the cases that Ibn Sīnā calls 'two-sorted' (*wujūdī*); it seems to be the only case of 'two-sorted' that Ibn Sīnā has found in the literature that precedes him. The third case is bizarre but is presumably what these people count as 'absolute'; FURTHER COMMENTS.

27.8 'you will receive': I wish I knew what passage he was referring to. The discussion of modality in *ᶜIbāra* is conspicuously lacking in distinctions between different kinds of necessity. Does he mean something forthcoming in the *Ilāhiyya*?

7 Translation from *Easterners*

[Subject.0] Getting the subject right in the predicative proposition

[Subject.1] When you say

(47) [Every] B is a C.

it means that any [idea] that fits the description B and is determinately a B, whether or not it is satisfied, and whether its satisfaction is possible or impossible, after it is counted as actually fitting the description B, without adding that it is a B permanently, or [is a B but] not permanently — this idea fits the description C. And analogously with negation. 64.3 64.5

[Subject.2] Know that the subject can be atomic as in 'human', and can be compound as in 'rational mortal animal'; this expression counts as a compound subject because it behaves exactly like the atomic expression ['human']. Some compounds have a part that is a particle, for example the expressions 'without seeing' or 'not seeing'. You can replace them by an atomic expression like 'blind', and this allows you to count them as having something said of them either affirmatively or negatively. /114/ 64.7 64.10

[Predicate.0] Getting the predicate right in the predicative proposition

[Predicate.1] When you say '[Every] B [is a] C', its meaning is that everything fitting the description B does actually fit the description C. The meaning doesn't include an addition to the effect that the thing fits the description [C] permanently, or that it doesn't fit it permanently, or that it fits [the description C] while it fits the description B, or at some other time, whether or not one of the two times [in the subject and in the predicate] is determinate (as with eclipses of the moon), or indeterminate (like when a human breathes). A thing that obeys any of these [conditions] is covered by the phrase 'fits the description C', because this phrase includes the case of the thing fitting the description [C] permanently, or not permanently, and the case of its fitting the description [C] when it fits the description B [[first according to that only]]. Everything added to this phrase narrows its application. If an expression in some language implies [a condition of that sort] or implies that the thing has the property at the present time, then in this language there is no predication expressing what the meaning itself requires, but rather [the sentence in this language] expresses something narrower than that. The same holds for negative phrases. 64.14 64.15 64.20

[Predicate.2] As a matter of usage, languages can virtually determine that the sentence 65.1

(48) [Every] B is a C.

expresses that a thing is a C whenever it fits the description B.

(i) What the meaning itself determines is called an 'absolute' proposition.

(ii) If a condition is added to it mentally — and this doesn't include the condition of genuine necessity that we mentioned, but it does include those cases where the content holds, not so long as the essence continues to be satisfied, but rather at some time or under some condition and some case, [it is called] 'two-sorted'. Today people don't distinguish between the absolute proposition and the two-sorted.

(iii) When the meaning is that [every] B is a C while its essence continues to be satisfied, [the proposition is said to be] 'necessary'.

(iv) When /115/ the meaning is [that it is a C] so long as it fits the description B, [the proposition is said to be] 'adherent'.

(v) If it had as condition something from which 'for so long as the essence continues to be satisfied' doesn't follow, then it is not the same as a necessary proposition, so let us give it the special name 'adherent-conditioned' proposition.

The two [kinds of proposition] are different. Thus there is a difference between the sentence

(49) A thing that moves changes so long as its essence continues to be satisfied.

(which means that the thing that fits the description 'moving' is changing so long as its essence is satisfied), and the sentence

(50) A thing which fits the description 'moving' changes as long as it continues to move.

Of course there is a difference — the first [sentence] is false and the second is true.

(vi) When the meaning is [that the thing fits the description C] during the time in which it fits the description B but not [necessarily] throughout that time, let us call it an 'intervenient' [proposition].

(vii) If there is a determinate time when it is the case, let us call it a 'determined' [proposition].

(viii) If the time is indeterminate, let us call it a 'diffuse' [proposition].

(ix) When the meaning is that it holds at the present time, let us call it 'temporary'.

(x) Let all the cases which are different from the necessary be lumped together as 'two-sorted'.

Understand that all this holds for negative sentences too. The predicate also can be atomic or composite, just as we said about the subject. 65.15

8 Notes on *Easterners*

[Subject.1]

64.3 'means': Note that what follows is an external description of the meaning, not a truth condition. Ibn Sīnā is consistent elsewhere that no affirmative statement with an unsatisfied subject term is true.

64.3 'any [idea]': 'Idea' (*šay*) is from (47). From elsewhere we can infer that the ideas here are individual essences. The idea $[X]$ is satisfied if and only if X exists. It's not for the logician to know whether a particular individual essence is satisfied. But Ibn Sīnā is presumably giving an account of meaning which will cover the cases where we state a premise without believing it to be true. In such cases we still attach a meaning, and the meaning includes that the essence is of something that in actuality satisfies B.

[Subject.2]

64.10 'count them as': Ibn Sīnā doesn't allow negative terms or oblique terms to serve as subjects. REF.

[Predicate.1]

64.17 'the phrase': Literally *qawlih* 'his phrase'. In the *Šifā'* this expression is usually a cue that Aristotle is being quoted. That's unlikely here.

[Predicate.2]

65.4 'two-sorted' (*wujūdī*): See (x) below and REF.

65.8 Read *innahu* for *annahu*.

References

[1] Abd ul-Qāhir al-Baġdādī, *Kitāb uṣūlu d-dīn*, Maṭba^{c}at ad-Dawla, Istanbul 1928.