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## Suhrawardī’s Stance on Modalities and the Logic of Presence

Talk presented at the *Workshop on Arabic Logic in honour of Tony Street*  
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In honour of *Tony Street*

**Abstract.** The present study on al-Dīn Suhrawardī’s *Ḥikmat al-Ishrāq*, develops some preliminary explorations on his logic under the background of his remarkable *epistemology of pīs some witness of d resence*. The paper paves the way for responding to the challenges of Tony Street on the compatibility of Suhrawardī’s critique of Ibn Sīnā with the development of a temporal and modal syllogism that at first sight seems quite close to that of Ibn Sīnā. In fact, Suhrawardī’s modalities are to be understood as the different ways a predicate relates to its subject rather than as propositional operators. Accordingly, necessarily necessary modality relates actual instances (presences) of the Subject-Term with actual (presences) of the Predicate-Term; in contrast, necessarily contingent modality relates these terms conditionally, notably involving states of the Subject-Term within time intervals. Suhrawardī’s main innovation, so we claim, is the explicit dialectical role *presences* or actual instances have in his modal-temporal logic, and particularly so in shaping his notion of contingency that admits both a *generic* and an *individual* or *de re* form of plenitude.

### Introduction

Despite the fact that it has been over 40 years since Henry Corbin and Hossein Ziai pointed out that the work of Shihāb al-Dīn Suhrawardī, born in 549/1155 in Suhraward, and executed in 587/1191 in Aleppo, had not yet been systematically studied, a thorough research of his work is just at the start. This is surprising since Suhrawardī, father of the School of *Illumination* known as *al-ishrāq*, was, as pointed out by Griffel (2022, p. 240), together with Fakhr al-Dīn al-Rāzī, by a wide margin, one the most influential thinkers of the sixth/ twelfth century in Islam. Also, also since we now have reliable editions, translations and commentaries initiated by among others Corbin (1951, 1976, 1986, 2001), Ziai (1990, 2007), Walbridge & Ziai (1999), John Walbridge (2000, 2001, 2017), and continued by scholars such as Aminrazawi (1997), Street (2008), Rizvi (2008), Marcotte (2012), Mousavian (2014a,b), Zhang (2018), Kaukua (2013, 2015, 2020, 2022), Griffel (2022).<sup>1</sup>

One of the main difficulties for interpreting his work is that Suhrawardī’s writings, often develop deep and innovative thoughts that intertwine studies in logic, epistemology, metaphysics with a sharp criticism of the *Peripateticians* but also with Sufi mysticism.<sup>2</sup>

<sup>1</sup> See Griffel (2011, p. 46).

<sup>2</sup> It has often been pointed out that it is not clear who are the philosophers Suhrawardī calls *Peripateticians* – cf. Wisnovsky (2011).

This puzzled and still puzzles commentators that lead to quite disparate accounts of his thought. In the present paper we attempt to start to revisit these apparent tensions, however, we mainly focus on discussing the elements of his logic as initiated by Street (2008).<sup>3</sup> According to our view a study linking his epistemology of presence with his stance on logic of modalities can contribute to a more unifying reading of Suhrawardī's fascinating thought.

So far as we know, the logical analysis of Suhrawardī's modalities in the recent literature do not engage yet in three crucial points he explicitly makes – cf. *al-Ishrāq* (1999, pp. 16-17), namely.

- (1) modalities, are to be understood as the different ways a predicate *relates* to its subject.
- (2) *proving* that a necessarily contingent relation holds requires relating every instance of the subject with a capacity or potentiality (neither necessarily nor impossibly actualized at a moment occurring in a stretch of time), expressed by the predicate.
- (3) The *dependence* of presences (or more precisely of *abstract witnesses* of such presences) of the predicate-term upon those of the subject-term shape Suhrawardī's logic

About (1), temporality is part and parcel of the meaning underlying Suhrawardī's of the relation of contingency: the experience of time requires the experience of contingency, and the logic of contingency requires introducing a stretch of time during which a capacity is said to actualize. Moments in such stretches, formally speaking, should not be understood as binding individual variables occurring in propositional functions. Actually, we claim, it is the instances or presences rather than the propositions they verify, that are *timed*: this singular act of laughing, the experience of this particular laughing-presence, is in fact what is timed, not the type (i.e., not the proposition) *Humans laugh*.

Concerning (2) and (3), remarkable is the fact that Suhrawardī's proof-methods for modalities and the notion of existence as presence delineated in *al-Ishrāq*, are developed in his discourse on fallacies (*mughālaṭa*). These proof-methods are semantical or more accurately dialectical rather than syntactical. Indeed, they follow the so-called dialectical *no-counterexample* interpretation of the quantifiers, by the means of which the search for a counterexample is governed by rules of interaction.

This reminds us of Griffel's (2022, p. 263) insightful remark that the marriage of discursive (*baḥthī*) and taste/intuition (*dhawqī*) philosophy – explicitly mentioned in the introduction of *al-Ishrāq* (1999, section 5, p. 3) – yields a novel epistemology that grounds Suhrawardī's innovations.

Moreover, it also reminds us of the fact that Suhrawardī's work has been developed during the period when the *logical turn of dialectics* was taking place, during which the twelfth-century-CE eastern school of Raḍī al-Dīn al-Nisābūrī (d. 544/1149) students, especially Rukn al-Dīn al-'Amīdī (d. 615/1218), and others promoted the fusion of logic and dialectic theory – see Young (2021a,b,c) and Rahman&Young (2022, introduction). However, Suhrawardī seems to propose a radical stance on this fusion, since it suggests a dialectical grounding of the key semantic notions of his modal logic rooted in his epistemology of presence.

In short, Suhrawardī's main innovation in modal logic, so we claim, is the explicit role presences (including mental ones) have in his logic and how this is shaped by the intertwining of the *baḥthī* and the *dhawqī*.

## I Knowledge is about General Affirmative Laws

The central notion in Suhrawardī's Illuminationist Logic and epistemology is the one of definitely necessary [*al-ḍarūriyya al-batāta*] propositions:

<sup>3</sup> See too Movahed (2012) who follows the general lines of Street's (2008) interpretation – namely the embedding of *de re* modalities in a *de dicto* necessary modality, though, in contrast to Street, Movahed concludes that this shows the difference rather than the similarities between the modal logic of Suhrawardī and Ibn Sīnā.

Since the contingency of the contingent, the impossibility of the impossible, and the necessity of the necessary are all necessary, it is better to make the modes of necessity, contingency, and impossibility parts of the predicate so that the proposition will become necessary in all circumstances. You would thus say, "Necessarily all humans are contingently literate, necessarily animals, or impossibly stones." Such a proposition is called the "definitely necessary." [...]. We can make no definitive and final judgment except concerning that which we know necessarily. Even for the only true sometimes, we use the definitely necessary proposition. In the case of "breathing at some time," it would be correct to say, "All men necessarily breathe at some time." That men necessarily breathe at some time is always an attribute of man. That they necessarily do not breathe at some time is also a necessary attribute of a man at all times, even at the time when he is breathing. However, this is different from literacy. While literacy is necessarily contingent, it is not necessary that it be actualized at some time. *al-Ishrāq* (1999, p. 16, p. 18).

The qualifications *general definite* and *existential indefinite* that Suhrawardī' chooses for universal and existential quantification respectively, point out at his epistemic concerns – *al-Ishrāq* (1999, p. 14). Since the general aims of science is to achieve certainty, it is advisable, to always to prioritize:<sup>4</sup>

- affirmative over the negative quality of judgments – *al-Ishrāq* (1999, p. 15), and
- judgements with a universal quantity over an existential one – *al-Ishrāq* (1999, p. 14-15).

If things are done in accordance with what we are saying, then only universal propositions will remain, for the particular propositions are not investigated in the sciences. *al-Ishrāq* (1999, p. 14).

This leads Suhrawardī to:

articulate negatives as affirmative assertions with a negation on the predicate, and  
convert particulars and existentials into universals

Thus, metathetic (i.e. transposed) negations (*ma'dūla*) count as affirmations. Affirmations predicate about something, be it mental (like numbers) or extra mental (spatio-temporal entities), whereas *de dicto* negations (that cut the copula), do not.<sup>5</sup> Here Suhrawardī, different to al-Rāzī (1963, 1:158) – cf. Daşdemir (2019, p. 102) – follows Ibn Sīnā who seems to have assumed that existential import is part and parcel of the truth conditions for affirmative judgments, including metathetic ones – cf. *al-Ishrāq* (1999, p. 15).

Where Ibn Sīnā and Suhrawardī follow different paths is that the latter restricts the difference between these two forms of negations to the level of elementary propositions, at the level of quantified propositions the distinction collapses. So, according to Suhrawardī, the two negatives *No man is stone* and *All men are non-stone* express the same content.<sup>6</sup> However, *Zayd is non-stone*, asserts something about the existing Zayd, but *Zayd is not a stone* does not commit to the existence of Zayd. This stance might be problematic in cases such as *Not all man is literate*. This is clearly a *de dicto* negation and is certainly not equivalent to *No man is literate*. Suhrawardī's solution is extract from *Not all man is literate*, both the subset of those men that do satisfy the attribute and the subset that do not.

If you say, "Not all man is literate," then you may be able to say, "Some man is literate," since the negation only applies to the part. *al-Ishrāq* (1999, p. 16).

This reading comes quite close to some uses in natural languages such as when with the assertion *Not all man is literate*, the speaker would also like to convey that *some are not* but *some are*, and perhaps even *most of them are literate*– Grice would identify them as a kind of *implicatures*.

With regard to converting particular and existential propositions into universals, the point amounts to avoiding *indefinite* assertions – a proposition with a singular term – such a *Zayd is literate* is called a *particular proposition* – cf. *al-Ishrāq* (1999, p. 14). According to our author, particular propositions, existential propositions and universal

<sup>4</sup> Kaukuā (2022, pp. 35-45) provides a lucid discussion of these priorities, though with a slightly different focus than ours.

<sup>5</sup> Daşdemir's (2019, p. 84) paper offers a useful and thorough discussion on the subject.

<sup>6</sup> Cf. *al-Ishrāq* (1999, p. 21-22).

propositions, determine a scale of increasing epistemic value – at the top of the scale is Aristotle’s perfect syllogism in mood (modalized) *Barbara* of the first figure.<sup>7</sup> In the case of a particular the idea is that given two (compatible) propositions involving *the same singular term*, we can proceed as follows:

From

*Zayd is animal* and

*Zayd is man*,

----- Infer

*Something is an animal* and *Something is a man*

Now, we eliminate the indefinite component expressed by the “*Something*”. We look if one of the predicates have a “general meaning” in relation to the second – i.e., expresses an attribute that that can be predicated of every instance of the other, and construct a suitable universal. In Suhrawardī’s example *animal* satisfies this condition and this yields *All men are animal*. Then we proceed to find another predicate which can be predicated of the subject of the just obtained universal, and, if found, we produce a second universal. In our case, Suhrawardī uses *rational* as predicated of men. This yields *All men are rational* – *al-Ishrāq* (1999, p. 24).

Indefinite existentials should be converted into universals:

[...] for example, "Some animals are rational," and "All rational beings are capable of laughter." Let us give a name to the particular without considering the predication of rationality, though rationality accompanies the particular. Let this be D. Thus, it can be said, "All D are rational, and all rational beings are so-and-so," according to what we said before. Now we no longer need to say, "Some animals are D" as another premise, because D is the name of that animal, and how can a thing's name be predicated of it? . *al-Ishrāq* (1999, p. 22).

The idea brings to the light some interesting features of Suhrawardī’s understanding of quantifiers. Assume Suhrawardī’s own example of a syllogism of the first figure in mood *Darii*:

*Some animals are rational (beings)*

*All rational beings have the capacity of laughing*

The existential clearly entails that we can specify the set of animals in a such way that all of the elements of the specified set are rational,

{All those animals who are rational beings}

One possible way to create such a set is to introduce the predicate *human* “without considering the predication of rationality, though rationality accompanies”. For example, as answer to the question *Who are all those animals that are rational beings* ?. This answer yields

*Every instance of (all) those animals who are human, are rational (beings)*

Clearly, the capacity of laughing can be predicated of whatever arbitrary presence *d* of humans. This verifies the syllogism in *Barbara*

*All (those animals who are) humans are rational (beings)*

*All (those animals who are) rational beings have the capacity of laughing*

-----  
*All (those animals who are) humans have the capacity of laughing*

<sup>7</sup> Recall that Arabic logicians changed the order of premises and placed the subject before the predicate. This, of course, does not change the validity of the moods involved but it does not coincide with the Latin medieval denominations of the valid forms of each figure – cf/ Street (2008, pp. 176-177).

and it also verifies by sub-alternation the conclusion of the syllogism in *Darii*

*Some animals, namely (all) those who are humans, have the capacity of laughing*

The procedure indicates how to specify the Subject-Term in the conclusion of the original *Darii* in order to reduce the *uncertainty* expressed by the existential.

Notice that any specification of animals will do the job, provided that the middle term, i.e. *being rational*, can be predicated of every one of the elements of this specification, such as, say, the specifications animals *that read, or that are musicians, etc.* This, certainly reduces the “uncertainty” expressed in conclusion of the particular.<sup>8</sup>

As so often in the literature on this form of proof, there is in the texts of Suhrawardī the ambiguity between picking an arbitrary individual *d*, called *perceptual ecthesis*, which in our case is an instance witnessing the presence of a human, and *D* as a general term standing for a specification of the set underlying the original existential – in our example *D* would stand for the set of those animals that are human.<sup>9</sup> However, as pointed out by Kaukua (2013), the arbitrary individual *d*, is always experienced as instantiating a general form: experiencing this particular individual is always experiencing as being a human or a rational being and so on; even if it not first articulated as such. Thus, foremost there is the non-articulated experience of a *d*, whereby bearer and attribute are not distinguished, then it is articulated as *d: D, d being a D*. However, even at the articulated abstract level necessary for logic, it is not conceived as separated from the universal it instantiates.

## II Towards a Logic of Presence

### II.1 Existence and Modal Relations

(19) The relation of the predicate of a categorical proposition to its subject either must exist (in which case it is called "the necessary") or must not exist ("the impossible") or may either exist or not exist ("the possible" or "the contingent"). An example of the first is "Man is animal"; of the second, "Man is stone"; and of the third, "Man is literate." [...]. The contingent is necessary by virtue of that which necessitates it and is impossible on condition of the nonexistence of that which necessitates its existence. When one examines the thing itself in the two states of existence and nonexistence, it is contingent.

[...]

Further, when you say, "All things that move necessarily change," you should know that each and every thing described as moving is not necessarily changing because of its own essence, but because it is moving. Thus, its necessity depends on a condition, and *it* is contingent in itself. By "necessary," we mean only that which it has by virtue of its own essence. That which is necessary on condition of a time or state is contingent in itself. *al-Ishrāq* (1999, p. 16, p. 17).

(23) Conversion is making the entire subject of the proposition the predicate and the predicate the subject while keeping the quality and the truth or falsity of the proposition the same. You know that when you say, "All men are animals," you cannot say, "and all animals are men." The same is true in every proposition whose subject is more specific than its predicate [...]. Then we say, "Necessarily all men are contingently literate," its converse will be "Necessarily something that is contingently literate is a man." The other modes besides contingency also move with the predicate when it is converted." The converse of the necessary definite affirmative proposition is itself a necessary definite affirmative proposition, whatever the mode may be.

If the contingency is part of the predicate of the definite necessary proposition and the negation is with the predicate, the negation will also be moved in conversion, as in the statement "Necessarily all men are contingently nonliterate." Its converse will be the definite affirmative: "Necessarily something that is contingently nonliterate is a man." *al-Ishrāq* (1999, p. 19-20)

Thus,

- a *necessarily necessary relation* attributes *existence*, i.e., *actual instances/presences/ verifiers* of the predicate to every presence of the subject, and this relation either

<sup>8</sup> As indicated by Zoe McConaughy in a personal email to S. Rahman this is close to Aristotle's method of, *inventing a term which apply to all things of a certain kind*, in the *Topics*, VIII 2 157a23-26.

<sup>9</sup> Street (2002, pp. 139-142) provides a thorough description of the uses of ecthesis (*iftirad*) in Avicenna. For a discussion on this ambiguity see Crubellier (2014, pp. 277-280) and Crubellier, McConaughy, Marion & Rahman (2019).

admits **simple conversion**, if there is simple conversion between presences of the subject and presences of the predicate – such as when actual instances of *rational animal* are related to actual instances of *human*, this corresponds to the notion of *definition* of Peripatetics – whereby the predicate expresses the definition of the subject; or

does not admit **simple conversion** – such as when actual instances of *animal* are related to actual instances of *human*, this corresponds to the notion of *genus* of the Peripatetics – whereby the predicate expresses the genus of the subject.

Contingency is subtler. On one hand, universally quantified predications of contingency, admit both:

- **the conversion of the subalternate**, e.g. from *Necessarily all men are contingently literate* obtain the converse subalternate *Necessarily some contingently literate are men*, and
- and **the simple conversion of the universal**, provided *the subject is not more specific than the predicate* or more precisely when it is *co-extensive* with the predicate– e.g. *Necessarily all men are contingently literate* admits the simple conversion *Necessarily all contingently literate are men*, but *Necessarily all men contingently breath at some time* does not admit simple conversion.

Moreover, as mentioned above, since Suhrawardī gives epistemic priority to universal apodictic assertions, he calls them **definitely necessary propositions**; contingency assertions, should be embedded in propositions within a universal (i.e., necessary) modality.

Accordingly, a *necessarily contingent relation* attributes capacities or potentialities to every presence (existence) of the subject. Such potentialities, can be grouped as follows<sup>10</sup>

(i) Potentialities that for each actual instance of the subject require this potentiality to be both, sometimes actualized and sometimes not – such as *Zayd's laughing at 12hs* (which is co-extensive with *Human*), and *Zayd not laughing at 12,5hs*, and similarly for *Zayd's breathing* which is not co-extensive with *Human*). This form of contingency admits *individual plenitude*, that we might also call *de re plenitude*.

(ii) Potentialities that do not require this potentiality to be ever actualized for some particular actual instance of a subject, though the potentiality might be actualized for another instance of that subject, such a *literacy*, which might never be actualized for *Zayd* but is actualized for *Imru' al-Qays*. This form of contingency admits *generic plenitude*. However, one possible reading of Suhrawardī's take on plenitude is that either two actual different instances are found actualizing the incompatible attributes, or we focus on the same individual but accept a weak form of *de re* plenitude, which only requires *mental* presence – we come back to this below.

Whereas the first group can be seen as referring to “natural” or *not acquired* capacities (this distinction is not Suhrawardī's) the second group of potentialities concerns *acquired* capacities, which require some condition or learning (*education* e.g. in the case of literacy or being a musician). Notice that in the first group, sequences of time moments – known as *histories* in contemporary temporal logic – allow focusing on the contingency of one particular individual: this individual has the contingent capacity of laughing since sometimes it laughs and sometimes not.

Acquired capacities are in principle, necessarily contingent said of the humanity as a whole, not of each individual: literacy is a human capacity since there is at least one human who is literate and at least who is not. Interestingly, Suhrawardī indicates the rule for predicating (of what we call) acquired capacities as a sufficient general rule for proving necessary contingent propositions.

<sup>10</sup> Kaukua (2022, p. 53) endorses Walbridge's (2000, p. 153) view that contingency is more about ontological dependence than about realization of potentialities. We agree with the point that conditionality is the main feature of attributions of contingency, nevertheless, on our view this has to be intertwined with what we call in the next section the *dialectical explanation of modalities*, that require, for justifying an attribution of contingency, the introduction of plenitude, which is about realizations after all.

Suhrawardī's modalities do not require a modal logic in the style of contemporary possible-world framework. Indeed, syntactically seen, Suhrawardī's modalities, are relations between the terms occurring in a syllogism, rather than propositional monadic connectives; and semantically they require either presences in the actual course of events of the terms they relate or perhaps even *mental* ones (i.e. such as presences in a *possible* course of events), rather than possible worlds. Moreover, note that since no contingent property can be ever an essential one, the possibility involved is one-sided possibility.

Clearly, Suhrawardī's classification of the ways a predicate relates to its subject echoes the Aristotelian theory of four Predicables developed in the *Topics* (Top. A 4 101b15-19)), namely *genus definition*, *proprium* or *accident*. Suhrawardī repeats this point in several parts of *al-Ishrāq*, particularly so when he has to elucidate his view on syllogisms.<sup>11</sup> However, a word of caution is due: we are not claiming that there is evidence that Suhrawardī ever read or had direct access to the *Topics*. Nevertheless, whatever were the ways he came to know the theory of predicables, it definitely influenced his own perspective on modalities.

## II.2. On Iteration and Simple Conversion:

Usually, those who, under the background of the theory of predicables, understand modalities as affecting the copula rather than as monadic propositional operators, usually reject iteration – see for example Malink (2006, p. 96), and the other way-around.

Awkwardly, Ziai (1990, p. 70) claims that Suhrawardī's modal logic is essentially a propositional S5 logic without iteration – or with an iteration that only occurs at the level of the surface grammar. This is corrected in Walbridge and Ziai (1999, p 17, footnote 20). Street (2008, p. 169), contests Ziai's (1990) claim and rightly so. Indeed, Suhrawardī explicitly writes

(21) Since the contingency of the contingent, the impossibility of the impossible, and the necessity of the necessary are all necessary, it is better to make the modes of necessity, contingency, and impossibility parts of the predicate so that the proposition will become necessary in all circumstances. You would thus say, "Necessarily all humans are contingently literate, necessarily animals, or impossibly stones." Such a proposition is called the "definitely necessary". *al-Ishrāq* (1999, p. 16, p. 18).

If we distinguish the relations *Necessity by definition*, *Necessity by genus*, *Necessity by proprium*, and *Necessary accident*, as autonomous primitive relations — see Malink (2006, 2013) — the following table results:

Not iterated Aristotelian Modalities as Predicables	Suhrawardī's Iterated Modalities
<b>L<sub>δ</sub></b> (δ, definition)	<b>LL</b> (necessarily necessary relation admitting simple conversion)
<b>L<sub>γ</sub></b> (γ, genus)	<b>LL</b> (necessarily necessary relation NOT admitting simple conversion)
<b>M<sub>π</sub></b> (π, proprium)	<b>LM</b> (necessarily contingent relation admitting simple conversion)
<b>M<sub>α</sub></b> (α, accident)	<b>LM</b> (necessarily contingent relation NOT admitting simple conversion)

<sup>11</sup> Cf. Malink (2006, p. 97).



The second occurrence of **L** in **LL** stands for non-contingent predication – i.e. **LL** stands for actual presences of the predicate for each actual presence of the subject. No other kind of iterations seem to be suitable in such a framework.

## II.3 Dialectical Meaning Explanations

### II.3.1 Suhrawardī's meaning explanations

The meaning explanations of Suhrawardī's modal relations are contained in the following short but quite insightful text occurring in the third discourse consecrated to the study of fallacies:<sup>12</sup>.

(48) Know that the universality of a rule stating that something is predicated of something else is disproved by a single instance where that second thing is absent. The universality of a law stating the impossibility of something being predicated of something else is proven/by the existence of that thing in a single case. Thus, if someone asserts that every C is necessarily B but finds a single C that is not B, then the universality of the rule is disproved. Likewise, if someone asserts that it is impossible for any C to be B but then finds a single C which is B, then the law will be disproved. However, if someone asserts that any C may be B, this is disproved by neither the existence nor the absence of instances. Thus, should someone claim that some universal is contingently true of another universal—for example, asserting the "B-ness" of C—then **he need find** only a single instance that is B and another that is not B in order to show that the universal B is not impossible in the nature C (since otherwise no individual C could be described as being B) and that [B] is not necessary [in C] (since in that case no individual C could fail to be B). *al-Ishrāq* (1999, p. 38).

Suhrawardī's text on the rules for justifying assertions involving modalities follow the so-called dialectical *no-counterexample* interpretation of the quantifiers, by the means of which the search for a counterexample is governed by rules of interaction. In such a context, to grasp the meaning of a proposition involved in an assertion amounts to knowing:

- (a) what *requests* or *challenges* are granted to the antagonist by that assertion
- (b) what *commitments* (i.e. *defences*) does the assertion engage to.

That is what we mean when we speak of *dialectical meaning explanation* – see Rahman et al. (2018, chapter 3) and Crubellier et al. (2019). The dialectical approach constitutes in fact the main background we follow for the reconstruction of Suhrawardī's logic and theory of syllogism..

### II.3.2. Dialectical s Meaning Explanations of Non-Modal Universals and Existentials

In order to elucidate the role of presences in the constitution of dialectical meaning let us focus first on non-modal propositions.

#### II.3.2.1 Meaning Constitution and the Experience of Presence

<sup>12</sup> Saleh Zarepour pointed out in an email to Rahman, and rightly so, that in the Arabic source for someone seeking to prove a necessary contingency it **suffices** (كفاه) *to find a particular [instance of C] that is B and another particular [instance of C] that is not* rather than **needing** to find such instances, as in Zia and Walbridge's translation above. Zarepour's point is an Avicennian one: if contingency amounts to **necessarily** finding at least one instance where the potentiality is realized (and one where it is not), then this seems to lead to a strong form of plenitude: anything possible must be once realized. Ibn Sīnā's take on plenitude is a weaker one: what is required is that such an instance is *conceivable*. This has been admirably discussed by Griffel (2009). Nevertheless, it is difficult to decide if Suhrawardī endorse or not a weak form of plenitude: on one hand the insistence on *presence*, seem to be more ontologically committed than *mere presence in the mind*, on the other there are texts that might suggest this, such as in the case of mixed syllogisms – cf *Mantiq al-talwīḥāt* (1955, p. 35-36),. Rayane Boussad (University Lille) suggested that strong plenitude is the form of plenitude directly linked to Suhrawardī's epistemology of presence, however, weak plenitude can be also incorporated into that epistemology as the result of a process of abstraction. In other words, according to this suggestion, the different forms of plenitude correspond to two different levels of epistemological abstraction with a decreasing level of epistemic force.

The first semantic level upon which all other depend on concerns establishing links between concepts. This level does not directly render a proposition but rather the semantics conditions out of which a proposition obtains. So, the conceptual link

(the concept) *Knowing Being* entails (the concept) *Living Being*

is to be understood as

for any instance (presence)  $x$  of *Knowing Being*, an instance of *Living Being* can be obtained by a semantic process that renders instances of the latter out of instances of the former. If we, employ Ranta's (1994) Type Theoretical Grammar where instances (presences) can be expressed at the object language level we obtain

Linear notation	Vertical Notation
<i>Living Being</i> [ $x$ ]: <i>prop</i> ( $x$ : <i>Knowing Being</i> )	( $x$ : <i>Knowing Being</i> )
	...
	<i>Living Being</i> [ $x$ ]: <i>prop</i>

At a further (connective) level of analysis this either constitutes a propositional implication or a universal quantification such as

*if it is knowing then it is living*, or also  
*Every knowing being is a living being.*

The connective/quantifier level presupposes the semantic level. Only when we know how one concept is dependent upon another one, can we render the corresponding logical connective or quantifier. According to our analysis this is one of the most distinctive features of the Epistemology of Illumination and can be declined as the obtaining from the following steps:

1. Conceiving the universal *Everything knowing, is living* as a proposition presupposes:
2. Every presence of *Living Being* has been experienced as associating presences of *Knowing Being* with presences of *Living Being*. Isolating and identifying the association-procedure itself is production of a further abstraction step. Formally speaking, the association-procedure can be rendered as a function  $b(x)$ : that takes presences of the antecedent and yields presences of the consequent:

Linear notation	Vertical Notation
$b(x)$ : <i>Living Being</i> [ $x$ ]: <i>prop</i> ( $x$ : <i>Knowing Being</i> )	( $x$ : <i>Knowing Being</i> )
	...
	$b(x)$ : <i>Living Being</i> [ $x$ ]: <i>prop</i>

In short, and expressed as an inference process, now from the simpler to the complex after the experience of the concrete presence has been settled:

$$\begin{array}{l} \textit{Living Being}(x): \textit{prop} \quad (x: \textit{Knowing Being}) \\ \hline \textit{b}(x): \textit{Living Being}(x) \quad (x: \textit{Knowing Being}) \\ \hline (\forall x: \textit{Knowing Being}) \textit{Living Being}(x): \textit{prop} \end{array}$$

This can also be seen as playing a role in Suhrawradī's criticism of, what he calls the *peripatetic* take on definitions (and genus). Universals expressing definitions already assume that their underlying meaning constitution process has been established before. In other words, universals expressing definition and genus assume the formulation of meaning formation rules that encode knowledge gathered by grasping the dependence or interdependence of the actual instances (presences) of the terms involved – cf. Ardeshir (2008, P. 120). Curiously, this seems to echo Ibn

Sīnā’s notions of implicate (*lāzim*), containment (*taḍammun*) and implication (*iltizām*) – cf. Strobino (2016). Still, Suhrawradī’s epistemic point, so we claim, is that the ability of gathering knowledge of the universal by experiencing a presence that instantiates it, should be an explicit part epistemology.

- This suggests that formalized meaning explanations for the forms of statements used in Suhrawradī’s epistemology and logic should include presences or **witnesses of such presences**, in the object language.
- With *witness of a presence* we mean the logical-linguistic construct won by an abstraction process on experiences of presence.

**II.3.2.2 Presences and the Dialectical Meaning of Universals and Existentials**

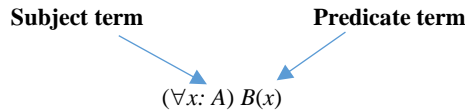
Setting the *dialogical meaning explanation* of the universal quantifier, amounts to the following: If player **X** states a universal quantifier he has to be able to associate a suitable presence of the **consequent** for any arbitrary presence of the **antecedent** chosen by the challenger **Y**.

Statement	Challenge	Defence
$X ! (\forall x: A) B(x)$  X states the universal <i>Every A is B</i>	$Y a: A$  Y chooses an arbitrary presence <i>a</i> of <i>A</i>	$X ! b[a]: B(a)$  X associates <i>a</i> with a presence of <i>B(a/x)</i>

This again presupposes those meaning formation rules encoding the knowledge required for producing universal propositions mentioned above:

Statement	Challenge	Defence
$X (\forall x: A) B(x): prop$  X states that the universal is a proposition	<b>Challenge1</b> $Y ? \mathcal{L}$  Y asks for the formation of the <b>left</b> ( $\mathcal{L}$ ) component of the universal	<b>Defence1</b> $X A: set/prop$  X responds that it is a set (or proposition not dependent upon another one)
	----- <b>Challenge2</b> $Y ? \mathcal{R}$  Y asks for the formation of the <b>right</b> ( $\mathcal{R}$ ) component of the universal	<b>Defence2</b> $X B(x): prop (x: A)$  X responds that <i>B(x)</i> is a proposition dependent upon <i>A</i>

This notation comes close to the analysis of a universal assertion in traditional logic whereby the Predicate-Term is said to apply to any instance of the Subject-Term:



The dialogical meaning explanation for an existential, leaves the choice of the presence to the defender:

Statement	Challenge	Defence
$X ! (\exists x: A) B(x)$  X states the existential <i>Some A is B</i>	<b>Challenge1</b> $Y ? \mathcal{L}^{\exists}$  Y asks for the left: Which/ Who of the <i>A</i> 's are <i>B</i> ?	<b>Defence1</b> $X a: A$  X responds that <i>a</i> is one of those <i>A</i> 's
	----- <b>Challenge2</b> $Y ? a/x: A \mathcal{R}^{\exists}$	<b>Defence2</b> $X b(a): B(a)$  X associates the presence of <i>a</i> with a presence of <i>B(a/x)</i>

	<b>Y</b> asks for the right: Show me that this choice of yours (namely, $a: A$ ) is indeed a $B$	
--	--	--

This analysis allows expressing the Subject-Term as a restricting an underlying domain. Let us take Ibn Sīnā’s example

*Some poets are good*

Which, as pointed by Ibn Sīnā in the *al-Iṣārāt* (1983, Chapter 10.1, pp. 501-502) does not support the inference *There is someone, say, Imru’ al-Qays, who is good and a poet.*<sup>13</sup> Clearly what is asserted is

*Some poets are good as poets* ( $\exists x: Poets$ )  $Good(x)$

In other words: Within the domain restricted by the subject, namely, poets, some (of them) are good. Thus, the existential expresses a set, in our example the set of

*(All) those presences of poet that are good (as poets)*  $\{x: poet \mid Good(x)\}$

Since this set, is what the meaning of the existential amounts to, the dialogical meaning explanation is the same as the one of the existential.<sup>14</sup>

<sup>13</sup> Recall Aristotle’s famous example of the *good cobbler* (*Peri Hermeneias*, XI, 20b35-36 and 21a14-15, *Sophistical Refutations* 20, 177b14-15).

<sup>14</sup> At the strategic level the Proponent, has a winning strategy for a universal iff for any presence of the Subject the challenger can show produce an instance of the Predicate for this choice of the Opponent. The way to implement this, is to allow the Opponent to choose always a **new** instance

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Statement	Challenge	Defence
<b>P</b> ! ( $\forall x: A$ ) $B(x)$	<b>O</b> $a: A$	<b>P</b> ! $b(a): B(a)$
<b>P</b> states that he has a winning strategy for the universal	<b>O</b> chooses the <b>new</b> presence $a$ of $A$ , and requests <b>P</b> to show that it witnesses a presence of $B(x)$	<b>P</b> associates $a$ with a presence of $B(a/x)$

Thus, at the strategic level, the truth of the universal asserted by **P**, requires him to be able to associate presences of the Subject with presences of the Predicate, by means of substituting  $x$  in  $b(x)$  for any presence of the Subject **O** might choose. In other words, the truth of the universal ( $\forall x: A$ )  $B(x)$  requires the Proponent

- a) to build out of the associations triggered by whatever presences of  $A$  **O** might choose, witnesses of  $B(a/x)$  an association-procedure  $b(x)$ ,
- b) to build the abstract construct of this procedure, namely  $(\lambda x)b(x)$ , called the lambda-abstract of  $b(x)$ . The lambda-abstract indicates that for whatever choice of the Opponent the association-procedure  $b(x)$  can be executed in order to yield an instance of  $B(a/x)$  for that choice, and
- c) **P**’s execution of  $b(a/x)$  is justified by **O** being forced to state himself  $B(a)$ : this actually is the core of proving the validity (building a winning-strategy) of a syllogism involving universals.

Thus, the canonical form of a winning strategy is: **P**  $(\lambda x)b(x): (\forall x: A) B(x)$

In relation to an existential, such as ( $\exists x: A$ )  $B(x)$ , at the strategic level, the truth of this existential requires **P** to be able to state some presence  $a: A$  chosen by **P** himself, as response to the first challenge, and to state  $B(a)$ , as a response to the second challenge, by building the association procedure  $b(a/x)$ .

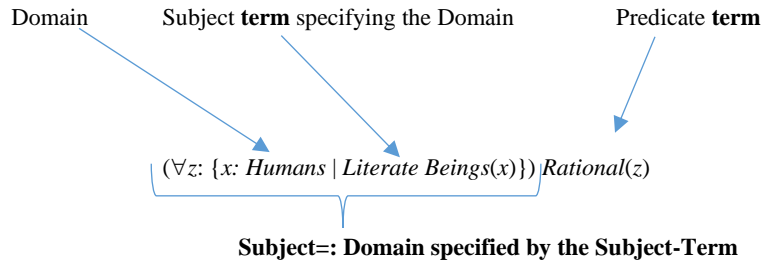
Statement	Challenges	Defence
<b>P</b> ! ( $\exists x: A$ ) $B(x)$	<b>Challenge1</b> <b>O</b> ? $\mathcal{L}^{\exists}$	<b>Defence1</b> <b>P</b> $a: A$
<b>P</b> states that he has winning-strategy for the existential	-----	<b>P</b> responds by choosing one $a$ and that it is one these presences that witnesses $A$
	<b>Challenge2</b> <b>O</b> ? $a/x: A \mathcal{R}^{\exists}$	<b>Defence2</b> <b>P</b> $b(a): B(a)$
		<b>P</b> associates the presence of $a$ with a presence of $B(a/x)$

Within a syllogism, premises and conclusion share a common domain, over which the Subject term and the Predicate term have been defined. This is what allows the middle term, to occur as the Predicate in one premise and as Subject in the other. Let “Subject” denominates here the Subject term + the domain upon which the Subject term has been defined, then we have:

*All Humans who are Literate Beings are Rational*

Should be understood as

*All presences  $z$  of the set of all those Humans who are Literate Beings, are Rational*



This renders the Subject-Predicate form of traditional syllogism.

	<b>Traditional Form</b>	<b>Explicit Encoding</b>
<b>Universals</b>	Every ( $D$ who are) $S$ is $P$	$(\forall z: \{x: D \mid S(x)\}) P(z)$
	No ( $D$ who are) $S$ is $P$	$(\forall z: \{x: D \mid S(x)\}) \sim P(z)$
<b>Particulars</b>	Some ( $D$ who are) $S$ is $P$	$(\exists z: \{x: D \mid S(x)\}) P(z)$
	Some ( $D$ who are) $S$ is not $P$	$(\exists z: \{x: D \mid S(x)\}) \sim P(z)$

In a dialectical context, it is useful to indicate that the “testing-instances” for a universal stated by **X**, are chosen by the challenger **Y**. In our example it amounts to the indication that **Y**’s choice of an instance witnessing the subject, is *an animal who is human*. Since *Animal* is the left component of every instance  $z$  witnessing the Subject, we adopt the notation “ $\mathcal{L}^{\{1\}}(z)^Y$ ”, that indicates that **Y** choses some animal who is rational, as his (**Y**’s) case to build a counterexample to the universal – cf. Crubellier et al. (2019) and McConaughy (2021, chapter 4):

$$\mathbf{X} \! \forall z: \{x: \text{Animal} \mid \text{Human}(x)\} \text{Rational}(\mathcal{L}^{\{1\}}(z)^Y)$$

The framework, allows what we call a dynamic encoding. In other words, an encoding where the instances witnessing the Subject and Predicate terms are made explicit during the challenge-defence interaction:

	<b>Traditional Form Before Interaction</b>	<b>Dynamic Encoding Before Interaction</b>	<b>Explicit Dialectical Encoding Before Interaction</b>
<b>Universals</b>	$\mathbf{X} \! \text{Every } (D \text{ who are}) S \text{ is } P$	$\mathbf{X} \! (\text{Every}_{SD})P$	$\mathbf{X} \! (\forall z: \{x: D \mid S(x)\}) P(\mathcal{L}^{\{1\}}(z)^Y)$

--	--	--

In other words, the truth of the existential requires the Proponent

- a) to state that some presence  $a$ , chosen by **P** himself witnesses  $A$ , **and** build out of the association of  $a$  with a presence of the  $B(a/x)$  an association-procedure  $b(a/x)$
- b) to build the complex construct  $\langle a, b(x) \rangle$ , which results from **P**’s responses to both challenges:
- c) **P**’s choice of some  $a$ :  $A$ , and the execution of  $b(a/x)$  is justified by **O** being forced to state himself both  $a$ :  $A$  and  $B(a)$ : this actually is the core of proving the validity (building a winning-strategy) of a syllogism involving existentials

Thus, the canonical form is :  $\mathbf{P} \langle a, b(x) \rangle: (\exists x: A) B(x)$

	$X ! \text{No } (D \text{ who are}) S \text{ is } P$	$X ! (\text{Every}_{SD})\text{no-}P$	$X ! (\forall z: \{x: D   S(x)\}) \sim P(\mathcal{L}^1(z)^Y)$
<b>Particulars</b>	$X ! \text{Some } (D \text{ who are}) S \text{ is } P$	$(\text{Some}_{SD})P$	$X ! (\exists z: \{x: D   S(x)\}) P(\mathcal{L}^1(z)^Y)$
	$X ! \text{Some } (D \text{ who are}) S \text{ is not } P$	$X ! (\text{Some}_{SD})\text{no-}P$	$X ! (\exists z: \{x: D   S(x)\}) \sim P(\mathcal{L}^1(z)^Y)$

	<b>Traditional Form During Interaction</b>	<b>Dynamic Encoding During Interaction</b>	<b>Explicit Dialectical Encoding During Interaction</b>
<b>Universals</b>	$X ! \text{Every } (D \text{ who are}) S \text{ is } P$ $Y ! d_i \text{ is } S \quad X ! d_i \text{ is } P$	$X ! (\text{Every}_{SD})P$ $Y S_D(d_i) \quad X ! P(d_i)$	$X ! (\forall z: \{x: D   S(x)\}) P(\mathcal{L}^1(z)^Y)$ $Y S(d_i) \quad X ! P(d_i)$ Given $Y \mathcal{L}^1(z)=d_i: D$
	$X ! \text{No } (D \text{ who are}) S \text{ is } P$ $Y d_i \text{ is } S \quad X ! d_i \text{ is not } P$	$X ! (\text{Every}_{SD})\text{no-}P$ $Y S_D(d_i) \quad X ! \sim P(d_i)$	$X ! (\forall z: \{x: D   S(x)\}) \sim P(\mathcal{L}^1(z)^Y)$ $Y S_D(d_i) \quad X ! \sim P(d_i)$ Given $Y \mathcal{L}^1(z)=d_i: D$
<b>Particulars</b>	$X ! \text{Some } (D \text{ who are}) S \text{ is } P$ $Y \text{ which } S ? \quad X ! d_i \text{ is } S$ $Y \text{ which } P ? \quad X ! d_i \text{ is } P$	$X ! (\text{Some}_{SD})P$ $Y ? \mathcal{L}^3 \quad X ! S(d_i)$ $Y ? \bar{d}_i: D \mathcal{R}^3 \quad X ! P(d_i)$	$X ! (\exists z: \{x: D   S(x)\}) P(\mathcal{L}^1(z)^Y)$ $Y ? \mathcal{L}^3 \quad X ! S(d_i)$ $Y ? \mathcal{R}^3 \quad X ! P(d_i)$
	$X ! \text{Some } (D \text{ who are}) S \text{ is not } P$ $Y \text{ which } S ? \quad X ! d_i \text{ is } S$ $Y \text{ which } P ? \quad X ! d_i \text{ is not } P$	$X ! (\text{Some}_{SD})\text{no-}P$ $Y ? \mathcal{L}^3 \quad X ! S(d_i)$ $Y ? \bar{d}_i: D \mathcal{R}^3 \quad X ! \sim P(d_i)$	$X ! (\exists z: \{x: D   S(x)\}) \sim P(\mathcal{L}^1(z)^Y)$ $Y ? \mathcal{L}^3 \quad X ! S(d_i)$ $Y ? \bar{d}_i: D \mathcal{R}^3 \quad X ! \sim P(d_i)$

### III. The Dialectical Meaning Explanation of Suhrawardī's Modal Relations

How to distinguish the modal assertion from a no-modal one?. Suhrawardī, who is in this point very close to Ibn Sīnā views – see Strobino (2016, p. 263), is mostly, if not exclusively interested in modal propositions – and particularly in necessary and universal ones, since they are, on his view, the only ones that produce knowledge. Actually, though it is difficult to give a definitive answer, the following seems to apply:

- Categorical assertions, abstract away from both the specific (modal) way the predicate is related to the subject and the specific domain over which the subject and the predicate have been defined. So; in some sense, categorical syllogisms are blind to the diverse forms of internal contentual links at work in the premises involved. However, as we will discuss further on, when categorical assertions occur in a mixed syllogism of some figure, the implicit modality has to be spelled out in conformity to the rules of that figure.

#### III.1 The Dialectical Meaning Explanation of the Necessarily Necessary Relation

With regard to the necessarily necessary relation, let us recall that

<b>A necessarily necessary relation</b> amounts to attributing <i>actual instances</i> , i.e. <i>presences/tokens/verifiers</i> of the Predicate term to every presence of the Subject	
<b>1</b>	admits <b>(simple) conversion</b> , if there is simple conversion between presences of the subject and presences of the predicate – this corresponds to the notion of <i>definition</i> of Peripatetics; or
<b>2</b>	does not admit <b>(simple) conversion</b> – this corresponds to the notion of <i>genus</i> of the Peripatetics
If we combine this with our previous considerations, we obtain	
Assuming	$(\forall z: \{x: D   A(x)\}) \text{LLB}(\mathcal{L}^1(z) \text{ true}$ Subject term $A[x]: \text{prop } (x: D)$ Predicate Term $B[x]: \text{prop } (x: D)$

Notice that, since it is *better to make the modes of necessity, contingency, and impossibility parts of the predicate* – *al-Ishrāq* (1999, p. 16), and, as we mentioned above, we might have syllogisms where the Subject-Term is modalized, e.g. if it is middle term of the major premising of a syllogism of the first-figure, it desirable to have a

notation that encodes also these cases. Our proposed notation does exactly that. Indeed, it allows encodings such as the following whereby  $A$  is related to  $D$  by necessary contingency:

$$(\forall z: \{x: D \mid \mathbf{LMA}(x)\}) \mathbf{L} B(\mathcal{L}^{\{1\}}(z))\text{true}$$

A rendering of the rules that follows the traditional formulations of syllogism; should, on our view, combine the traditional term-notation with one where the use of instances of the quantified expression is only made explicit in the context of the rules that prescribe how to develop the dialectical interaction associated with a quantified assertion. It is only during the proof that instances come to the fore. Notice that, as we will discuss below this is particularly salient in relation to the temporal dimension which also only comes to the object language, as result of the interaction triggered by an assertion of contingency: we shall call this *dynamic encoding*. The dynamic encoding of a universal, prescribe the challenger to state the subject-term living implicit the previous step of choosing the element of the domain occurring in that term.

Encoding	Reading	Keys	Gloss
$\mathbf{X} ! \dots$			agent $\mathbf{X}$ claims ...
$A_D$			the set $\{x: D \mid A(x)\}$
<p><b>N, B:</b> The exclamation sign disappears when the instance of the proposition is made explicit. The point is that with <math>\mathbf{X} ! A</math>, the speaker claims that there is some instance verifying his claim, and with <math>\mathbf{X} a: A</math> the instance <math>a</math> is brought forward.</p>			

According to our reading of Suhrawardī's text, the point is that the modality prescribes how the defender has to establish the link between the predicate and the subject, given an instance of the subject, claimed by the antagonist to constitute a counterexample to the claim of necessity. This suggests the following rendering of the rules:

Statement	Challenge	Defence
<p><b>Explicit Dialectical Encoding</b></p> <p><math>\mathbf{X} ! (\forall z: \{x: D \mid A(x)\}) \mathbf{LL} B(\mathcal{L}^{\{1\}}(z))\mathbf{Y}</math></p> <p>All <math>D</math>'s that are <math>A</math>, are necessarily (necessary) <math>B</math> – whereby “<math>\mathcal{L}^{\{1\}}(z)\mathbf{Y}</math>” stands for an element of <math>D</math>, who is an <math>A</math>, chosen by the adversary <math>\mathbf{Y}</math>.</p>	<p><b>Explicit Dialectical Encoding</b></p> <p><math>\mathbf{Y} ! A(d_i)</math></p> <p>Given:</p> <p><math>\mathbf{Y} d_i: D</math></p> <p><math>\mathbf{Y}</math> states <math>A(d_i)</math>, whereby he chooses <math>d_i</math> as being one of those components of <math>z</math> in <math>D</math>, that are <math>A</math>.</p>	<p><b>Explicit Dialectical Encoding</b></p> <p><math>\mathbf{X} b(d_i): B(d_i)</math></p> <p><math>\mathbf{X}</math> associates <math>d_i</math> with a presence of <math>B(d_i)</math>.</p>
<p><b>Dynamic Encoding</b></p> <p><math>\mathbf{X} ! (\text{Every } A_D) \mathbf{LL} B</math></p>	<p><b>Dynamic Encoding</b></p> <p><math>\mathbf{Y} ! A(d_i)</math></p>	<p><b>Dynamic Encoding</b></p> <p><math>\mathbf{X} ! B(d_i)</math></p>

We have left by side two issues, namely

- the distinction between modalities that admit simple conversion and those that not, and
- the temporal dimension

We will deal with simple conversion for both necessary and necessary contingent propositions in a separate section. In relation to the temporal dimension, in the context of Suhrawardī logic, its explicit occurrence is much more relevant for the contingent. Indeed, since according to Suhrawardī temporality is a *condition*, it only involves the contingent: necessarily necessity is always actual in a double sense: it attributes actual presences of the predicate to actual presences of the subject. So, in fact the necessarily necessary is the truth at the present. This

might recall Aristotle’s passage on the necessity of the present: “What is, necessarily is, when it is”, *De Interpretatione*, 19a23.

Are there no other iterated modalities then? Actually, no. Indeed, in the epistemological framework set by Suhrawardī, only universals constituted by necessarily necessary relations and universals constituted by necessarily contingent relations provide certain knowledge. The first group provides necessary properties of the subject, the second necessary potentialities of the Subject. Bare necessity, expresses either a tacit necessity or a lack of contingency. Bare contingency has, to put it in Suhrawardī words, no scientific value.

### III. 2 The Necessarily Contingent Relation

#### III.2.1 Time and the Necessarily Contingent

Suhrawardī’s notion of the contingent is led by two main Aristotelian principles on time, namely (1) time is a logical presupposition of the contingent – i.e., given a pair of propositions expressing two incompatible attributes of the presence of the same substance their truth must be temporally relativized (if contradiction is to be avoided); (2) the experience of the contingent is an epistemological presupposition of time. Moreover, Suhrawardī’ adds, the mental witness of an experience of the contingent, is an epistemic presupposition of existence (*al-Isḥrāq* (1999, p. 16))

In other words, the temporal dimension is constitutive of the meaning of Suhrawardī’s notion of contingency. Moreover, if we have a close look at Suhrawardī’s texts it seems quite clear that temporal conditions are not here understood here in a propositional way, neither as implications nor as indexes that saturate a propositional function, which by the way would made time to become a substance (in contravention to very well-known metaphysical views on time in ancient and medieval philosophy). Temporal conditions are contextual parameters that can be made explicit in order to *enrich* an assertion that has already content,<sup>15</sup> rather than in order to complete the meaning of a propositional function.

One way to render this formally, is the following: if “ $T(Time)$ ” stands for some set of instants, and “ $@$ ” for a monadic operator that enriches a proposition with elements of  $T$  we obtain expressions such as  $B(d)@t_i$  – whereby “ $@$ ” can be thought correspond to an adverbial. In fact,  $B(d)@t_i$  encodes the outcome of the *timing* function  $\tau$  which associates presences of  $B(d)$  with instants of time – e.g. the function *times* presences of laughing:

The assertion *There is some witness of d laughing at t<sub>i</sub>*, is formalized as

$$\mathbf{X} ! (\exists x: B(d)) \tau(x) = \tau t_i$$

Which, using the operator  $@$  yields the following dynamic encoding and further gloss

$$\mathbf{X} ! (\exists x: B(d)) \tau(x) =_{\tau t_i} \Rightarrow \mathbf{X} ! B(d)@t_i \Rightarrow d \text{ laughs at } t_i$$

Or more generally *There is some witness of d laughing at some time t*

$$\mathbf{X} ! (\exists x: B(d)) (\exists t: T) \tau(x) =_{\tau t} \Rightarrow \mathbf{X} ! B(d)@t \Rightarrow d \text{ laughs at some time } t$$

- Since in Suhrawardī’s framework the explicit appeal to temporality comes to the fore when the counterpart of the individual witnessing the subject has been identified, we will make this enrichment process explicit once such an identification has taken place. More precisely, in Suhrawardī’s setting temporality is made explicit when a witness for an assertion on contingency has to be produced.

<sup>15</sup> We owe the expression *enrichment* to Recanati (2017).



Statement	Challenge	Defence
<p><b>Explicit Dialectical Encoding</b></p> <p><math>X ! (\forall z: \{x: D \mid A(x)\}) LMB(\mathcal{L}^{\{1\}}(z)^Y)</math></p> <p>All <math>D</math>'s that are <math>A</math>, are necessarily contingently <math>B</math> – whereby “<math>\mathcal{L}^{\{1\}}(z)^Y</math>” stands for an element of <math>D</math>, who is an <math>A</math>, chosen by the adversary <math>Y</math>.</p>	<p><b>Explicit Dialectical Encoding</b></p> <p><math>Y ! A(d_i)</math> <math>\mathcal{L}^{\{1\}}(z)=d_i : D</math></p> <p><math>Y</math> states <math>A(d_i)</math>, by choosing a <math>d_i</math> which is one of those left components of <math>z</math>, that that are <math>A</math> in <math>D</math>.</p>	<p><b>Explicit Dialectical Encoding</b></p> <p><math>X b(d_i): (\exists y: A_D) B(d_i) \supset \sim B(y)</math></p> <p><math>X</math> associates <math>d_i</math> with <math>B</math> iff some <math>d_j</math>, chosen by <math>X</math>, witnesses its absence</p>
<p><b>Dynamic Encoding</b></p> <p><math>X ! (Every_{AD})LMB</math></p>	<p><b>Dynamic Encoding</b></p> <p><math>Y ! A(d_i)</math></p>	<p><b>Dynamic Encoding</b></p> <p><math>X ! (Some_{AD}) B(d_i) \supset \sim B</math></p> <p><math>X</math> states that <math>d_i</math> witnesses <math>B</math> iff some <math>d</math> witnesses its absence.</p>

Statement	Challenge	Defence
<p><b>Explicit Dialectical Encoding</b></p> <p><math>X b: (\exists y: A_D) B(d_i) \supset \sim B(y)</math></p>	<p><b>Explicit Dialectical Encoding</b></p> <p><math>Y ? \exists</math></p> <p><math>Y</math>: who is that <math>y</math>?</p>	<p><b>Explicit Dialectical Encoding</b></p> <p><math>X b(d_i): B(d_i)@t_i \supset \sim B(d_i)@t_j</math></p> <p>Whereby <math>\mathcal{L}^{\{2\}}(y)=d_i : A_D</math> and <math>t_i \neq t_j</math></p> <p><math>X</math> states that <math>d_i</math> is the <math>y</math> who also witnesses the absence of <math>B</math>, but, of course, at a time different to the one when it witnesses the presence of <math>B</math>.</p> <p>It might be also the case that <math>d_i</math> never witnesses <math>B</math>. This will be handled in our section on plenitude.</p> <p><b>Or</b></p> <p><math>X b(d_i): B(d_i)@t_i \supset \sim B(d_j)@t_j</math></p> <p>Whereby <math>d_j \neq d_i : A_D</math></p> <p><math>X</math> states that <math>d_j</math> (different to <math>d_i</math>) is the <math>y</math> who witnesses the absence of <math>B</math>. The time of the latter might or not be the same as the one of the former.</p>
<p><b>Dynamic Encoding</b></p> <p><math>X ! (Some_{AD})B(d_i) \supset \sim B</math></p>	<p><b>Dynamic Encoding</b></p> <p><math>Y</math> Who is that <math>A_D</math>?</p>	<p><b>Dynamic Encoding</b></p> <p><math>X ! B(d_i)@t_i \supset \sim B(d_i)@t_j</math></p> <p>Whereby <math>t_i \neq t_j</math></p> <p><b>Or</b></p> <p><math>X ! B(d_i)@t_i \supset \sim B(d_j)@t_j</math></p> <p>Whereby <math>d_j \neq d_i : A_D</math></p>

### III. 2.2 On Weak Plenitude

### III. 2.2.1 The Now and the Flow of Time

In the precedent sections we tacitly assumed a form strong plenitude. That is, the pair witnessing the contingency, was assumed to occur at moments occurring on actual or ‘real’ course of events. Presumably, occurring at the future with regard to a moment of utterance: it seems to be reasonable to assert that some witness of the subject-term enjoys a potentiality or capacity, if it is not being actualized *now* but it will be, rather than it has been actualized in the past. Perhaps, for Suhrawardī’s general epistemological aims, it does not matter if the potentiality has been lost at the time of utterance. We will take it that potentiality opens to the future, though, so far we can see, nothing hinges on such an assumption.

Be that as it may, what is important is to consider a time of utterance, the *now*, with regard to which the direction of the flow of time is defined. The time of utterance, does not only shape dialectical interaction on assertions of contingency, but it also is constitutive of Suhrawardī’s view on time, when the instantaneous moment of the *now*, is introduced as a mental (imaginary) reference point,<sup>16</sup> to determine the *before* and the *after*:

“Before” and “after” are so considered in relation to the instantaneous moment of imagination, and time is that which is around it. *al-Ishrāq* (1999, section 185, p. 120).

Notice that, though when dealing with strong plenitude we might not need to make explicit the *history* or sequences of moments, upon which the contingency is claimed to hold, making explicit alternative histories are unavoidable when weak plenitude is at work.

Moreover, if we follow Zarepour’s suggestion that weak plenitude might also be at work in Suhrawardī’s notion of contingency, this amounts to conceiving alternative courses of events following the utterance moment  $t_0$ , such that, whatever the future brings, one particular history will be realized.<sup>17</sup> If in this history,  $B(d_i)$  actualizes, there is another possible course of events, that did not in fact actualize, but on which  $\sim B(d_i)$  actualizes instead:

- $B(d_i)$ , actualizes at some moment  $t_i > t_0$  on the **real** history  $\boxed{h_i}$ , iff  $\sim B(d_i)$  actualizes at a ‘**twin**’ moment  $t_i^* > t_0$  on the alternative course of events  $h_j$  – histories  $h_i$  and  $h_j$  cross  $t_0$ .  
In short,  $B(d_i)@_{t_i>0}/\boxed{h_i} \supset \sim B(d_i)@_{t_i^*>0}/h_j$ .

The square in the expression  $\boxed{h_i}$  indicates this story is the *actual course of events*, and ‘ $t_0$ ’ indicates the reference point *now*.

WEAK PLENITUDE		
Statement	Challenge	Defence
$X ! B(d_i)@_{t_i>0}/\boxed{h_i} \supset \sim B(d_i)@_{t_i^*>0}/h_j$  Actually, the setting also admits the variant in which the negative occurs on the real history.	$Y ! B(d_i)@_{t_i>0}/\boxed{h_i}$  <b>Or</b> $Y ! \sim B(d_i)@_{t_i^*>0}/h_j$  $Y$ challenges the bi-implication by either stating the left or the right of it.	$X ! \sim B(d_i)@_{t_i^*>0}/h_j$  ----- $X ! B(d_i)@_{t_i>0}/\boxed{h_i}$  $X$ defends by stating the right if $Y$ states the left and vice versa

#### Remarks on Capacities and De Re Plenitude

<sup>16</sup> Because of the flow of time, fixing such a moment a static reference point is an abstract product of the mind.

<sup>17</sup> This assumes that the flow of time has a branching structure.

- In principle, weak plenitude seems to make more sense when applied to acquired capacities rather than to “natural” ones – it seems implausible to claim that I will never laugh, but it is sensible to claim that no human will actually ever master 150 languages.
- Suhrawardī does explicitly mention neither strong nor weak plenitude, he prefers instead the more cautious move to assume that there are potentialities that might never actualize (at least, for an individual), and others that do actualize at least once.
- *Individual plenitude* applies if contingency is attributed *de re*. *Generic plenitude* might be closer to *de dicto* contingency or perhaps to a mixed *de re/de dicto* suggested by Thom (2008, pp. 365-371; 2012, pp. 243-247) in Ibn Sīnā.<sup>18</sup>

### III.3. Simple Convertibility

In order to implement convertibility in the dialectical framework, we will index the notation for modalities in the following way:

	Admits Simple Conversion	Does Not Admit Simple Conversion
Necessity	$L \Leftrightarrow$	$L \not\Leftrightarrow$
Contingency	$M \Leftrightarrow$	$M \not\Leftrightarrow$

The dialectical meaning explanation will thus allow further challenges, namely

- 1 requesting to specify the kind of necessity or contingency involved.
- 2 requesting to show the application or not of simple convertibility

Statement	Challenge 1	Defence1	Challenge2	Defence2
$X ! (\forall A_D) LLB$	$Y ? L \Leftrightarrow \mid L \not\Leftrightarrow$ Does it admit simple conversion or not?	$X ! (\forall A_D) LL \Leftrightarrow B$ It admits simple conversion.	$Y ? \Leftrightarrow$ Execute the conversion	$X ! (\forall B_D) LLA$
		$X ! (\forall A_D) LL \not\Leftrightarrow B$ It doesn't admit simple conversion.	$Y ? \not\Leftrightarrow$ Show the non-convertibility.	$X ! (\exists B_D) LL \sim A$ There is at least one $B$ for which $A$ is impossible
$X ! (\forall A_D) LMB$	$Y ? M \Leftrightarrow \mid M \not\Leftrightarrow$ Does it admit simple conversion or not?	$X ! (\forall A_D) LM \Leftrightarrow B$ It admits simple conversion.	$Y ? \Leftrightarrow$ Execute the conversion	$X ! (\forall LMB_D) LLA$
		$X ! (\forall A_D) LM \not\Leftrightarrow B$ It doesn't admit simple conversion	$Y ? \not\Leftrightarrow$ Show the non-convertibility.	$X ! (\exists LMB_D) LL \sim A$ There is at least one necessarily contingently $B$ for which $A$ is impossible

<sup>18</sup> Kaukua (2022, p. 53) contests Thom's mixed *de dicto/de re* interpretation and stresses that *de re* is the most important form of modality in Suhrawardī. In principle, we endorse Kaukua's point on the priority of *de re* modality. Nevertheless, we submit, if we recall the central place, dialectical meaning explanations of the modalities have for his logic, then, we submit, the concept of *generic plenitude*, can be seen as playing the role that *de dicto* modality have in other settings.

#### IV Syllogism: Dialectical Meaning Explanations at Work

The reconstruction of Suhrawardī's dialectic meaning explanations discussed above renders his own ways to present syllogistic proofs (though his proofs are often quite sketchy). Because of space restrictions on an already too long paper, we will restrict our discussion to the first figure

On *Mantiq al-talwihāt* there is a development that indicates how the meaning explanations are to be deployed in a proof. The text involves the controversial *Barbara* mood where the minor premise contains a possibility modality, the major a categorical universal and the conclusion a possibility (usually notated as **XMM** in the Aristotelian notation and **MXM** in the Islamicate one). Moreover, Suhrawardī's argument already prefigures his main *illuminationist rule* for the first figure set in *al-Ishrāq* (1999, pp. 22-23), whereby **XMM** is reduced to **MMM**):

Know that the conclusion in first-figure syllogisms follows the major in the mixed-premise syllogisms, except when the minor is possible and the major is existential. If we say 'Possibly every J is B' and 'Actually (*bi'l-wujūd*) every B is A', it is known from the nature of possibility that it may never actually occur; so if the J is never described as B, it does not follow that the A comes to it actually, but only potentially, so it's possible. *Mantiq al-talwihāt* (1955, p. 35-36), quoted and translated in Street (2008, p. 170).

The point seems to be that if the universal of the major premise *Every B is A* is read as asserting that actual instances of A are predicated of actual instances of B, then if the conclusion should follow the major premise, then the major term in the conclusion should be an actualization of A. However, the instances of the middle term B, we obtain from the first premise *Possibly every J is B* – i.e. *Every J is possibly B*, might not be an actualized B, thus the middle term, if univocally understood in both premises, should be thought as standing for a possibility. In such a case, Suhrawardī concludes, A can only be predicated potentially. This line of thought leads Suhrawardī to assume that in a proof of such a kind of syllogism the middle and major terms are not actualized potentialities (in both premises) – which in fact amounts to *al-Ishrāq*'s rule for the first figure whereby a term occurring in a syllogism of the first figure is required to have the same modality/non-modality in all the places it occurs. The development of the proof sketched in the text assumes in fact that the categorical universal of the second premise, includes non-actualized capacities in the subject and the predicate – this coincides with our previous remark that the terms involved in a categorical can be read as admitting modalities .

If we display Suhrawardī's argument sketched in the text quoted above, as a dialogue with a proponent **P** and an Opponent **O**,<sup>19</sup> and we assume strong plenitude, we obtain:

0. **P** ! I can show that every element of domain of discourse *D*, who is a *J* is possibly *A* follows from the premises: I), Every element of *D* who is *J*, is possibly *B* and II) Every element of *D* who is *B* is *A*.
1. **O** ! Fine, I give you the premises. Show me now, that the consequent of the conclusion follows from some *d<sub>i</sub>* in the domain of discourse *D* who is *J* : **O** challenges the conclusion with the move **O** ! *J(d<sub>i</sub>)*.
2. **P** ! What I will do is to show you that the endorsement of the premises will force you to assert this consequent. Let us start with the first premise. Since the first premise states that every element of the domain of discourse who is *J* is possibly *B*, and you just chose *d<sub>i</sub>* in the domain of discourse with your first move (sic move 1), that *B* is possible should also hold of *d<sub>i</sub>*, right?: **P** challenges the first premise with the move **P** *you<sub>1</sub> J(d<sub>i</sub>)*; whereby "you<sub>1</sub>" stands for the indication "you just stated the same at move 1).
3. **O** ! Indeed, I have to assume that *d<sub>i</sub>* is one of those in the domain of discourse that are possibly *B*. However, notice that I neither state herewith that *B* is actualized in *d<sub>i</sub>*, nor do I state that *B* is never actualized. **O** defends the first premise with the move **O** ! *B(d<sub>i</sub>)@t<sub>i</sub> ⊃ ~B(d<sub>i</sub>)@t<sub>j</sub>* – we skip the steps leading to this answer, whereby the Opponent took the choice to focus on the same individual **O** !  $(\exists y:A_D)B(d_i) \supset \sim B(y)$ , **P** ? $\exists$ .
4. **P** ! Ok, however, premise II states that every element of the domain of discourse who is *B*, is *A*, this must include all those elements in *D* who are non-actualized instances of *B*, so let us again take precisely this *d<sub>i</sub>* that you just conceded with your move 3 as being a non-actualized possible *B*. This possible *B*, must be a possible *A*, right?: **P** challenges the second premise with the move **P** *you<sub>3</sub>: B(d<sub>i</sub>)@t<sub>i</sub> ⊃ ~B(d<sub>i</sub>)@t<sub>j</sub>*.
5. **O** ! Right. This element of the domain *D* must be possibly *A*: **O** defends the second premise with the move **O** ! *A(d<sub>i</sub>)@t<sub>i</sub> ⊃ ~A(d<sub>i</sub>)@t<sub>j</sub>*.

<sup>19</sup> The informal presentation below should be sufficient to follow the development of a dialogue. In the appendix we provide a short overview of rules for dialogical logic. The reader might also consult Clerbout & McConaughy's entry Dialogical Logic in the Stanford Encyclopedia of Philosophy.

6. **P** ! But this is exactly what you asked me to show. You just conceded it with your move 5: **P** defends the conclusion with the move **P** *you*:  $A(d_i)@t_i \supset \sim A(d_i)@t_j$ .

**N.B.**

- Notice that if at move 5, instead of answering, **O** decides that he wishes to state after all that  $d_i$  is never  $B$  and challenge **P**'s move 4, **P** can copy-cat the same move and challenge himself move 3 of **O**. If **O** answers the latter challenge with the move corresponding to strong plenitude, then **P** can emulate the same answer for his response to this new version of 5. Once this has been carried out the play will resume with the original moves 5 and 6. **However, it looks as if Suhrawardī way to proof such kind of syllogisms involving contingency, does not commit to any side of the bi-implication.**
- For **weak plenitude** it suffices to use  $B(d_i)@t_i \supset \overline{h_j} \supset \sim B(d_i)@t_i \supset h_j$  and  $A(d_i)@t_i \supset \overline{h_j} \supset \sim A(d_i)@t_i \supset h_j$ .

This development is based on the following rules, that we take from Rahman et al. (2018, p. 62), adapted to syllogism in McConaughy (2021, chapter 4.2, table 4.9) and present in a simplified form:

**1. Starting rule**

The player who states the conclusion move 0 is the proponent **P**. He states the thesis.

*In the context of syllogism, the thesis amounts to the proponent committing to the conclusion provided that the opponent commits to the initial premises*

**2. Development rule**

Once the starting rule has been implemented, each player in turn plays a move according to the dialectical meaning explanations for quantifiers, connective, modalities and the other structural moves.

**3. Socratic rule**

Some specific propositions, we call them *unanalysable constituents*, may not be stated by **P**, unless **O** stated them before. **O** can state such propositions when required. When **P** states such a proposition, he will justify it with the indication *you<sub>n</sub>*, which indicates that his statement is backed by **O**'s endorsement of it at move  $n$ , and that he (**P**) adheres himself to the knowledge conveyed by **O**'s endorsement.

In the context of Suhrawardī's logic unanalysable propositions include positive and negative literals (i.e. elementary propositions with and without negation). In order to shortcut the length of a play, expressions of unactualized capacities such as  $B(d_i)@t_i \supset \sim B(d_j)@t_j$  and  $! B(d_i)@t_i \supset \overline{h_j} \supset \sim B(d_i)@t_i \supset h_j$  will also be treated as unanalysable. However, if, for some philosophical reason, needed these expressions can be further analysed. Defining such expressions as unanalysable meets purely logical aims. Unanalysable constituents cannot be challenged (since **O** is allowed to state them when required and **P** only states them after **O** endorsed them by stating them before).

**4. Pragmatic coherence rule** (concerns mainly the third figure)

When the conclusion Proponent defends is particular and all the premises Opponent defends are universal, Proponent may request the Opponent to instantiate the subject of a premise with the instance  $d_i$ , chosen by **P**, **provided**  $d_i$  is **new**: challenge: **P** ? $J(d_i)$ ; defence: **O** !  $J(d_i)$  (for a universal with  $\{x: D \mid J(x)\}$  as subject, and  $J$  as Subject-Term), (this prevents **O** to state  $J(d_i)$  when he endorsed before some  $J^*(d_i)$  whereby  $J$  and  $J^*$  are incompatible).

**5. Ending rule**

The player who states  $\perp$  give-up, immediately loses. Otherwise, the player who has no available move left at this turn loses.<sup>20</sup>

Let us now present Suhrawardī's argument in the form of a dialogue that implements these rules, focusing on his own example:

<sup>20</sup> **Comments on the Rules.**

- i) The rationale behind the *Socratic rule* is that proving the conclusion of syllogism within a dialectical framework amounts to analysing the premises in such a way that the resulting statements are those that constitute the conclusion. Since the premises are stated by **O** and the conclusion by **P** the later but not the former is committed to justify the conclusion by justifying each of the constituents of the conclusion, by grounding them on statements of **O** involving constituents of the premises. In other words, the use of the Socratic rule allows defining a winning strategy for **P** (the dialectical way to proof validity) as a sequence of moves that force **O** to state those constituents of the premises that should provide a justification of the conclusion. The role of **O** is to collaborate in testing the robustness of the thesis by endorsing the premises and requesting **P** to show under this assumption the conclusion. Clearly if the components of **O**'s statements were false, then **P** would win immediately and the dialogue stops. But then, the thesis has not been tested under the strongest possible conditions.

In standard dialogues *unanalysable constituents* are elementary propositions. In Suhrawardī's logic we need to add expressions of not actualized capacities and also metathetic negations added to elementary propositions, since the former is part and parcel of his take on necessary contingent propositions and the latter concerns his proposal to deal with negated elementary propositions as affirmative ones.

- ii) The rationale behind the pragmatic coherence rule concerns the way to deal with ontological assumptions such as those required by *Darapti*.

- iii) The prescription on giving up in the ending rule concerns the dialogical interpretation of negation. When challenging a negation such as  $\sim A$  stated by player **X**, the challenger **Y** must now overtake the burden of the proof and state  $A$ . The defender of the negation has two options, either counterattack  $A$ , or simply give up and concede. The latter is indicated by the move **X** !  $\perp$  give-up. In the Aristotelian texts the move  $\perp$  give-up, corresponds to the dialectical use of the term  $\acute{\alpha}\delta\upsilon\nu\alpha\tau\omicron\nu$ .

All humans are necessarily contingently literate  
 All literate beings are walkers  
 Therefore, all humans are necessarily contingently walkers

If we place a syllogism within a dialogue, then, the idea is that the proponent **P**, claims that that the conclusion holds if the opponent **O**, concedes to state the premises. This yields the notation:

$$\begin{array}{ll}
 \mathbf{O} ! (\text{Every}J_D)\mathbf{LMB} & \mathbf{O} ! (\forall z: \{x: D \mid J(x)\}) \mathbf{LMB}(\mathcal{L}^{\{1\}}(z)^P) \\
 \mathbf{O} ! (\text{Every}B_D)A & \mathbf{O} ! (\forall z: \{x: D \mid B(x)\}) A(\mathcal{L}^{\{1\}}(z)^P) \\
 \hline
 \mathbf{P} ! (\text{Every}J_D)\mathbf{LMA} & \mathbf{P} ! (\forall z: \{x: D \mid J(x)\}) \mathbf{LMA}(\mathcal{L}^{\{1\}}(z)^O)^{21}
 \end{array}$$

Recall that explicit dialectical notation, also indicates which player is in charge of the substituting the variables. Since the premises are stated by the opponent, and these are universals, it is the proponent who will choose the presence of the subject of which the predicate is requested to be stated. The dual is the case of the universal in the conclusion: since the conclusion is stated by the Proponent, it is the Opponent who will choose the presence of the subject of which the predicate is requested to be stated. In fact, a consequence of the Socratic rule is that a winning strategy for **P** should follow the idea to leave **O** choose first and the copy-cat this choice for his own challenges to the premises. Notice that **O** is forced to choose if he challenges a universal (stated by **P**) or defends an existential stated by himself.

**N.B.** In order to keep close to the text we skip in most of the dialogues the steps **X** ( $\exists y:A_D$ )  $B(d_i) \supset \sim B(y)$ , **Y**  $\exists$ . Moreover, we will assume that **X**'s answer, focuses on individual plenitude. The resulting variants, triggered by the option of introducing a second individual are pretty straightforward.

<b>O</b>		<b>P</b>	
I	$! (\forall z: \{x: D \mid J(x)\}) \mathbf{LMB}(\mathcal{L}^{\{1\}}(z))$	$! (\forall z: \{x: D \mid J(x)\}) \mathbf{LMA}(\mathcal{L}^{\{1\}}(z))$	0
II	$! (\forall z: \{x: D \mid B(x)\}) A(\mathcal{L}^{\{1\}}(z))$		
1	$! J(d_i)$ $\mathcal{L}^{\{1\}}(z)=d_i; D$ ?0	<i>you</i> <sub>1</sub> : $A(d_i)@t_i \supset \sim A(d_i)@t_i$	6
3	$! B(d_i)@t_i \supset \sim B(d_i)@t_i$	?I $! J(d_i)$ $\mathcal{L}^{\{1\}}(z)=d_i; D$	2
5	$! A(d_i)@t_i \supset \sim A(d_i)@t_i$	?II <i>you</i> <sub>3</sub> : $B(d_i)@t_i \supset \sim B(d_i)@t_i$	4
<b>Proponent wins</b>			

- With move 4 **P** makes use of the rule that middle term must have the same modality in both premisses. That is *every B*, is understood as including also contingent cases of *B*.
- The dialogue ends since 6 is an unanalysable constituent of the conclusion, namely the not actualized capacity  $A(d_i)@t_i \supset \sim A(d_i)@t_i$ , that cannot be challenged, since **O** himself endorsed it with move 5.
- As mentioned above, if we prefer not to include not actualized capacities among the *unanalysables* and further analyse the bi-implication the end-result of the dialogue will not change. It will only a bit longer: as soon as **O** challenges the bi-implication, **P** will do the same. However, this does not seem to be the way Suhrawardī develops syllogisms involving capacities.

<b>O</b>		<b>P</b>	
I	$! (\text{Every}J_D)\mathbf{LMB}$	$! (\text{Every}J_D) \mathbf{LMA}$	0
II	$! (\text{Every}B_D)A$		
1	$! J(d_i)$ ?0	<i>you</i> <sub>1</sub> : $A(d_i)@t_i \supset \sim A(d_i)@t_i$	6
3	$! B(d_i)@t_i \supset \sim B(d_i)@t_i$	?I <i>you</i> <sub>1</sub> : $J(d_i)$	2
5	$! A(d_i)@t_i \supset \sim A(d_i)@t_i$	?II <i>you</i> <sub>3</sub> : $B(d_i)@t_i \supset \sim B(d_i)@t_i$	4
<b>Proponent wins</b>			

<sup>21</sup> If we deploy the formalization  $\mathbf{L}(\forall x (J(x) \supset \mathbf{M}B(x))), \mathbf{L}(\forall x (B(x) \supset \mathbf{M}A(x))) \vdash \mathbf{L}(\forall x (J(x) \supset \mathbf{M}A(x)))$  and assume contemporary modal logic *K*:  $\mathbf{L}(A \supset B) \vdash \mathbf{M}A \supset \mathbf{M}B$  will be required – see Movahed (2012; p. 9), which assumes one-sided possibility. But this contravenes Suhrawardī's notion of contingency, whereby a contingency is neither necessary nor impossible.

**P** can repeat the same sequence of moves for any arbitrary element of discourse **O** happens to choose to challenge the universal in the conclusion. In other words, **P** has a winning strategy for this syllogism, and therefore it is valid. The strategy can be seen as a “recapitulation” and generalization that produces an algorithm for winning.<sup>22</sup> In our case, informally the winning strategy amounts to the following:

- 1) Let **O** choose any arbitrary instance of the universal in the conclusion
  - 2) **P** should use exactly this instance, *whichever* this instance chosen by **O** is, to challenge the first premise, and force **O** to predicate *B* of it
  - 3) **O** predicates *B* of it, but as a not actualized capacity
  - 4) **P** should use exactly this endorsement of **O** (that the non-actualized capacity *B* can be predicated of the instance at stake), to challenge the second premise
  - 5) **O** is forced to predicate *A* of it, but again chooses to endorse it as a not-actualized capacity
  - 6) **P** can now use this last endorsement to respond to the challenge to the conclusion
- Apply this sequence for any *d<sub>i</sub>* chosen by **O** at move 1

The resulting winning strategy can also be represented as a sequent calculus, where **P**’s assertions are to translated as assertions at the right of the turn-style and **O**’s assertions at the left – Rahman, Seck, Drissi (forthcoming). However, the point is that, this sequent calculus has been generated by the winning strategy produced by the dialogue: it is the interaction between players that puts the dialogical meaning explanation of the modalities at work, by fleshing out the meaning of each constituent.

Once more, in the text *Mantiq al-talwihāt* (1955, p. 35-36) quoted above, the subject and the predicate of the major premise (here premise II), are both modalized de facto. Or to put it otherwise the categorical universal include actual and merely possible instances of the subject.

The point is that, on Suhrawardī’s view the middle and major term of a productive syllogism of the first figure must share the same modality in both of its premises and its conclusion. In *al-Ishrāq* (1999, pp. 22-23), Suhrawardī explicitly formulates this as a rule and provides two examples, namely, when the major term relates to its subject by necessity and when the major term relates to its subject by contingency. The latter amounts to making explicit the contingent modality assumed in his discussion of **MXM** (or **XMM** in the Aristotelian notation) in *Mantiq al-talwihāt* (1955, p. 35-36):

There is no need to multiply the moods of syllogism, rejecting some and accepting others. Further, since the last term leads to the first term by means of the middle, the modes in the definitely necessary proposition are made part of the predicate in one or both of the premises, thus leading to the major. For example, ‘All men. are necessarily contingently literate, and all contingently literate beings are necessarily animals by necessity (or contingently walkers), therefore, all men are necessarily animals by necessity (or contingently walkers). *al-Ishrāq* (1999, pp. 22-23).

In one of the examples the middle term is necessarily contingent and the major term is necessarily necessary also in both premises. In the second example the middle term is necessarily contingent as in the first example, but the major term is necessarily contingent. In both examples the modalities of the terms are the same wherever they occur.

Let us lay down the notation for both examples and leave the developments for the diligent reader

### Necessarily Predication of the Subject in the Major

All humans are necessarily contingently literate  
 All (necessarily) contingently literate beings are necessarily animals, by necessity  
 Therefore, all humans are necessarily animals, by necessity

**O** ! (Every  $J_D$ ) **LMB**

**O** ! ( $\forall z: \{x: D \mid J(x)\}$ ) **LMB**( $\mathcal{L}^1(z)^P$ )

<sup>22</sup> As pointed out by McConaughey (2021, p. 140), Kapp (1942, pp. 14-16 & 71) points out the importance of two stages in a dialectical context, anticipation and recapitulation. These are indeed, the elements that allow to build a winning strategy. See too Crubellier (2011) who indicates that one of the first meanings of *syllogismos* is precisely recapitulation.

$$\text{O} ! (\text{Every}J_D)\text{LLA}$$

$$\text{P} ! (\text{Every}J_D)\text{LLA}$$

$$\text{O} ! (\forall z: \{x: D \mid \text{LMB}(x)\}) \text{LLA}(\mathcal{L}^1(z)^P)$$

$$\text{P} ! (\forall z: \{x: D \mid J(x)\}) \text{LLA}(\mathcal{L}^1(z)^O)$$

### Necessarily Contingent Predication of the Subject in the Major

All humans are necessarily contingently literate  
 All (necessarily) contingent literate beings are necessarily contingently walkers  
 Therefore, all humans are contingently walkers by necessity

$$\text{O} ! (\text{Every}J_D)\text{LMB}$$

$$\text{O} ! (\text{Every}J_D)\text{LMA}$$

$$\text{P} ! (\text{Every}J_D)\text{LMA}$$

$$\text{O} ! (\forall z: \{x: D \mid J(x)\}) \text{LMB}(\mathcal{L}^1(z)^P)$$

$$\text{O} ! (\forall z: \{x: D \mid \text{LMB}(x)\}) \text{LMA}(\mathcal{L}^1(z)^P)$$

$$\text{P} ! (\forall z: \{x: D \mid J(x)\}) \text{LMA}(\mathcal{L}^1(z)^O)$$

Negative moods of the first figure are not a problem if we follow Suhrawardī's own formulation where he places the negation before the possibility or more precisely as an impossibility. Thus, Suhrawardī's

*All humans are necessarily impossibly stones.*  
*al-Ishrāq* (1999, p. 23)

can be encoded as

$$(\text{Every}Human_D)\text{L}\sim\text{MStone}$$

## VI Conclusion

Does Suhrawardī reject the approach to knowledge of essences of the Peripatetic thinkers of his time?  
 No doubt he does.

Is Suhrawardī's logic compatible with essentialism as claimed by Street (2008)?  
 Yes, definitely so.

However, the logic of illumination has some striking original features of its own, that result from the intertwining of the *baḥthī* the *dhawqī*, which as already mentioned above, according to Griffel (2022, p. 263) *forms the foundations of all his innovations*, namely

- the logic of illumination shapes knowledge as emerging from the experience of presence – logic presupposes knowledge, knowledge is foremost experience of presence – more precisely self-awareness, which leads to the mental construction of the now;
- the meaning theory underlying Suhrawardī's modal logic requires distinguishing different kinds of dependent relations between predicate and subject term – this meaning theory is shaped by the rules we called *dialectical meaning explanations* that prescribe how to build a counterexample;

The dialectical framework proposed for the reconstruction of Suhrawardī's logic also allows distinguishing (i) the **time involved in the construction of knowledge** – studied by Ardeshir's (2008) approach to Suhrawardī's epistemology – that is, the succession of moves indexed by the utterance time leading to the justification of the thesis, (ii) the **now** during which a presence is grasped by an immediate act of knowledge, and (iii) the **timing** encoded by the modality at work. Neither the first nor the latter forms of temporality are captured by standard temporal quantifiers or Priorian temporal operators.

Having said that, there is no explicit systematic development of a complete dialectical framework for his logic in the texts. The formal dialogical framework for the logic of Illumination in the present paper is of course due to our own reconstruction, it is the result of putting together the textual sources where Suhrawardī presents the meaning



explanations mentioned above his own logical proofs and his own general aim of developing a philosophy rooted in both discursive and taste/intuition-based knowledge. Still, our main claim is that a dialectic perspective on how to justify an assertion shapes Suhrawardī's logic of modalities in a manner that dovetails with his philosophy of presence. This suggests that he proposed a new, radical way for the unifying of logic and dialectics.

The present study should be read as a kind or prelude to a further deeper exploration involving historic and systematic pending issues such as

- The study of the legacy of some of his main predecessors such as the works of Abū'l-Barakāt al-Baghdādī (1080-1165), particularly in al-Baghdādī's *Book of Evidence* – cf. Ziai (1990, pp. 19-20 and Street (2008, p. 166) and Sahlān Sāwī's *al-Baṣā'ir (The Insights)*; commentaries to his work by, among others ; Ibn Kammuna,Shahrazuri, Shirazi, Ibn Rizi, al-Albhari, Allamah Hilli, al-Jurjani, Ibn Abi Jumbur Ahsa'i, al-Dawani, al-Dashtaki, Abd am-Razzaq, Mulla Sadra, Isma'il Ankaravi, al-Harawi and Hazin Lahiji.
- Examining the role of the dialectical stance in logic with regard to the concept of knowledge as a relation (*iḍāfa*).
- Examining Suhrawardī's views modality in the light of his take on causality, whereby 1) “contingency” means to be necessary by a cause, 2) causes are ontologically but not temporally prior to their effects, 3) causes may be composite and include conditions and removal of impediments – cf Walbridge and Ziai (1999, introduction p. XXV).<sup>23</sup>

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