An Introduction to the Critique of the Theory of Definition in Arabic Logic: Is Complete Definition Circular?*

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Abstract: This study focuses on Fakhr al-Dīn al-Rāzī's thesis of the impossibility of giving a complete definition (*al-ḥadd al-tāmm*) and discusses its impact, the parties to the debate, and especially the positive argument contra al-Rāzī by the Ottoman savant Ṭāşköprīzāde. The negative argument of al-Rāzī postulates that the complete definition is strictly circular, for the totality of parts that makes up the defined object are included in the definition, and the object is identical to the sum of its parts. Therefore, complete definition strictly commits the fallacy of defining a thing by itself. Ṭāşköprīzāde argues against this view by defending the possibility of complete definition. According to him, although in complete definition the defined object and the defining features include the same set of things, the modes of their presentation to the mind are different. Thus, a complete definition becomes circular only if both the content of the defined object and its mode of presentation to the mind are the same. If it can be shown that the contents of the definiendum and definiens have distinct modes of presentation, then the charge of circularity is discarded. In this article, I illustrate the two opposing approaches by distinguishing between form and content, or sense and reference. Both parties take for granted that the contents of the *definiens* and the *definiendum* are the same when it comes to the complete definition. The main point of contention lies in the modes of apprehending the contents. This article analyzes the arguments of two opposing semantic theories particular to the complete definition and shows that the question emerges as a result of the theories of constant form and variable form concerning meaning. In the period between al-Rāzī and Ṭāşköprīzāde, Ṭūsī bolstered the complete definition whereas al-Ījī refuted it. Both Ṭūsī's and al-Ījī's arguments will be discussed, though briefly, in the body of paper as well.

Keywords: The impossibility of complete definition, Ṭāşköprīzāde, Fakhr al-Dīn al-Rāzī, *definiens*, *definiendum*, definition, identity, circularity, general knowledge, specific knowledge

Aristotelian-Arabic logic has two main theories, one of definition and the other of syllogism, each of which introduces its own device of derivation in compliance with the binary division of knowledge as conception and assent. While the latter theory involves studying how a conclusion is necessarily derived from the premises, the former theory sets the ground rules as to how we get to know an unknown concept from the known ones and has as its main objective to analyze a complex yet unknown object and uncover its components in order to comprehend it. The disclosed parts are made into a whole and reveal knowledge of the object. Therefore, definition is a synthetic whole that, *eo ipso*, consists of parts, the binary combinations of which are determined by the rules of the theory of definition. The best case is the complete definition (*al-ḥadd al-tāmm*).

Complete definition means defining a complex object by putting it under the scope of two universals, a proximate genus and a differentia, that are the constitutive properties of the object and thus comprise its quiddity. In other words, the object is considered to be a "whole" and its essential properties are regarded as "the parts of the whole" therein. For instance, let's suppose that a human being is an unknown complex object. In this case, we give a complete definition of the whole when we express it through the concepts of animality and rationality, taken as the proximate genus and the differentia.

According to the essentialist perspective, the object (essence) is a whole and the essential properties are its parts. If we presume that the ontological relation between the whole and its parts is transitive and that the same applies to the fields of epistemology and logic, the *definiendum* can be regarded as the whole and the complete definition as the parts. The constitution of the *definiendum* as a whole, with the *definiens* as its parts, poses a significant question: Is the sum of the parts identical to the whole? The positive and negative answers to this question are the point of departure for this article's subject: the impossibility of a complete definition. We face two opposing theses here:

i. The whole is identical with the sum of its parts.

ii. The whole is the sum of its parts, but they are not identical.

If the latter thesis is correct, the theory of complete definition will be retained. But if the former is correct, a complete definition cannot be given[1] because if the sum total of its parts is identical with the whole, this would indicate the fallacy of circularity.

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1   In this article, the "impossibility of complete definition" is abbreviated as IoCD.

That something cannot be defined by itself is one of the definition theory's basic axioms with which almost all classical scholars agree,[2] such that one slips into a vicious circle if one uses the *definiendum* as a part or the whole of the definition. In fact, this condition is enough to refute the definition.[3] Based on this fundamental principle, philosophers who support IoCD attempt to reduce the complete definition to circularity. The first arguments in this line of criticism were laid out by Fakhr al-Dīn al-Rāzī (d. 606/1210).[4]

To the best of my knowledge, he first articulates the negative arguments pertaining to the possibility of complete definition in the section titled "*Shukūk fī taqsīm al-taʿrīfāt*" [*Doubts on the classification of definitions*] of *al-Mulakhkhaṣ*.[5] There, he supposes that one cannot define a thing with its components because the total sum of the components is the thing itself. He therefore concludes that if we cannot define a thing by itself, then neither can we do so with the sum of its parts. In other words, assuming that the complete definition consists of the genus and differentia, he proposes that because the *definiens* and *definiendum* in a complete definition are identical and that identical pairs cannot define one another, no complete definition is possible. This refutation was of interest especially to later theologians. For instance, al-Ījī (d. 756/1355) does not only cite the argument in full in *al-Mawāqif*, but also successfully rebuts the argument of al-Ṭūsī (d. 672/1273-74), who is among the first to try to solve the problem.[6]

2   Fakhr al-Dīn al-Rāzī, *Lubāb al-Ishārāt wa-l-tanbīhāt*, ed. Aḥmad Ḥijāzī Aḥmad Saqqā (Cairo: Maktabat al-kulliyyāt al-Azhariyya, 1986), 155; Naṣīr al-Dīn al-Ṭūsī, "Taʿdīl al-miʿyār fī naqd Tanzīl al-afkār," in *Manṭiq va mabāḥiṣ-i alfāẓ: majmūʿa-i mutūn va maqālāt-i taḥqīqī*, ed. Mahdī Muḥaqqiq and Toshikiko Izutsu (Tehran: Institute of Islamic Studies, McGill University, 1974), 155; Quṭb al-Dīn al-Rāzī, *Taḥrīr al-qawāʿid al-manṭiqiyya fī sharḥ al-Risālat al-shamsiyya*, ed. Muḥsin Bīdārfar (Qom: Manshūrāt-i Bīdār, 2005), 210; ʿAlī b. ʿUmar al-Kātibī, *Baḥr al-fawāʾid*, MS Ragıp Paşa 1481, 84b; Fakhr al-Dīn al-Rāzī, *Sharḥ ʿUyūn al-ḥikma*, ed. Aḥmad Ḥijāzī Aḥmad Saqqā (Tehran: Maṭbaʿa-i Ismāʿīliyyān, 1994), 1:91.
3   Muḥy al-Dīn ʿAbd al-Hamīd, *Risālat al-Ādāb fī ʿilm Ādāb al-Baḥth wa-l-Munāẓara*, ed. Orhan Gazi Yüksel (İstanbul: Yasin Yayınevi, 2009), 44; Afḍal al-Dīn al-Khūnajī, *Kashf al-asrār ʿan ghawāmiḍ al-afkār*, ed. Khaled el-Rouayheb (Tehran: Iranian Institute of Philosophy & Berlin Free University, 2010), 61.
4   Fakhr al-Dīn al-Rāzī might be the most noteworthy person to have guided the metaphysical problems of the definition theory through his objections. Besides the problem of complete definition, his supposition that differentia are not the cause of genus, which also pertains to complete definition, seeks the definition's metaphysical associations. İbrahim Halil Üçer was the first one to analyze the intense debates among post-classical logicians. The relevant article discusses the perspective of philosophers and theologians, who inquire into the question of how we can obtain substantial unity, based on genus and differentia, over the Ottoman philosophical corpus. See, İbrahim Halil Üçer, "Müteahhir Dönem Mantık Düşüncesinde Tanımın Birliği Sorunu: Molla Hüsrev'in *Nakdu'l-efkâr fī reddi'l-enzâr*'ı Bağlamında Bir Tahlil," *Kutadgubilig Felsefe-Bilim Araştırmaları Dergisi* 22 (2010): 97-122.
5   Fakhr al-Dīn al-Rāzī, *Manṭiq al-Mulakhkhaṣ*, ed. Aḥad Farāmarz Qarāmalikī (Tehran: Intishārāt-i Dānishgāh-i Imam Ṣādiq, 2002), 102.
6   al-Sayyid al-Sharīf al-Jurjānī, *Sharḥ al-Mawāqif* (Qom: Intishārāt-i Sharīf Riḍāʾ, 1991) 1:109-12.

However, anti-IoCD philosophers suppose that a whole, even though it is composed of parts, is not identical with the sum of its parts. I shall focus on Ṭāshkūbrīzāda, who defends the possibility of a complete definition, by closely analyzing his treatise *Risālat al-taʿrīf wa-l-iʿlām fī ḥall mushkilāt al-ḥadd al-tāmm*,[7] which is devoted exclusively to this issue. According to him, there is a fundamental difference between the whole and the sum of its parts: The whole is general (*ijmālī*), whereas the parts are specific (*tafṣīlī*) – a difference that purports that they cannot be regarded as identical. Therefore, even if the essence or content of "human being" consists of the constituents "thinking" and "living," "human being" is not identical with "thinking animal."

This article seeks to present how the problem of complete definition came about, to extract certain arguments proposed as a solution for it from the pertinent texts, and to undertake an extended analysis of Ṭāshkūbrīzāda's solution. I seek to show how the supporters of IoCD (i.e., Fakhr al-Dīn al-Rāzī, ʿAḍud al-Dīn al-Ījī, and al-Sayyid al-Sharīf al-Jurjānī [d. 816/1413]), constructed their arguments using the basic tools of the argumentation theory by abstracting their arguments from the texts and presenting them in an easily trackable, clear way.

I. The Basic Principle of the Definition Theory: The Indefinability of a Thing by itself

Since the principle that a thing cannot be defined by itself is the main justification of IoCD's proponents, I will first take it briefly into consideration.

The first question that the human mind articulates when it comes across that which is unknown and of which it has no notion (*al-majhūl al-taṣawwurī*) is "What is it?" This question is posed with a probing intention to determine what something we do not know is comprised of and how its quiddity is set up.[8]

The rules collected under the headings of "explanatory expression" (*al-qawl al-shāriḥ*) and "definition" (*taʿrīf*) explain how a thing should be defined. Moreover, the explanatory expression is a compound phrase that expresses what the essence of the thing with the unknown complex structure is. One of the significant rules under this heading is the rule of circularity:

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7   Taşköprîzâde Ahmed Efendi, "Tam Tanımla İlgili Sorunun Çözümü," in *Mantık Risaleleri*, ed. and trans. Mehmet Özturan (İstanbul: İstanbul Medeniyet Üniversitesi Yayınları, 2017), 138-70.

8   The use of "quiddity" to analyze the essence of a complex object is a particular usage. See al-Sayyid al-Sharīf al-Jurjānī, *Kitāb al-taʿrīfāt*, ed. Muḥammad ʿAbd al-Raḥmān al-Marʿashlī (Beirut: Dār al-nafāʾis, 2003), 206-207.

Definiens cannot be identical with *definiendum*, for the former is known before the latter is known. However, something cannot be known before itself.[9]

Metaphysically speaking, the definition theory bears keen marks of the causality theory. There are two sides in a definition: *definiens* and *definiendum*. When we read and comprehend the defining statement, this comprehension enables us to acquire knowledge of that which is unknown. In other words, the knowledge of *definiens* *causes* the knowledge of *definiendum*. This leads us to another principle of the causality theory: The cause has to precede the effect.

The antecedence of cause to effect necessitates the precedence of *definiens* over *definiendum*, because the former causes the knowledge of the latter. The principle of circularity is derived directly from this conclusion. Thus, if something defines itself, it would be both *definiens* and *definiendum*. In this respect, it has to be precedent since it causes the knowledge of itself, and subsequent so that it will be known as a result of it. Given that a thing cannot be before itself, it would be impossible to define a thing by itself.[10]

Thus the definition of a thing by itself is refuted here because it leads to a metaphysical absurdity. The case of "defining itself," which contravenes an ontological principle, hereafter appears before us as the middle term in the arguments of IoCD supporters as follows: Since complete definition is a derivative of defining a thing by itself, it is impossible.

II. Arguments for the Impossibility of Complete Definition

Before expounding on the arguments, one should note the standpoint of Fakhr al-Dīn al-Rāzī, who posed the problem of IoCD and proposed the first arguments against it. He first advanced the pro-IoCD argument in *al-Mulakhkhaṣ*:

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9   Al-Khūnajī, *Kashf al-asrār*, 62-67; al-Rāzī, *Manṭiq al-Mulakhkhaṣ*, 102-06; al-Kātibī, *al-Risālat al-Shamsiyya*, 210; idem, *Jāmiʿ al-daqāʾiq*, Süleymaniye Library, MS Hacı Beşir Ağa 418, 19a-21a; idem, *Baḥr al-fawāʾid*, 83b-84a; idem, *al-Munaṣṣaṣ fī sharḥ al-Mulakhkhaṣ*, Süleymaniye Library, MS Şehit Ali Paşa 1680, 44b.

10   Something cannot be defined by itself. al-Kātibī, *Baḥr al-fawāʾid*, 84b.

As for the definition of essence with the sum of its parts, this sum is either (1) the essence itself, (2) included in it, or (3) external to it. The first option (1) is circular. However, the scholars note the impossibility of this (the definition of something by itself).[11] [12]

Therefore, there are three ways to derive our knowledge of an object: From (1) the object itself, (2) its parts, or (3) some things partially or entirely external to its constitution.

Although al-Rāzī argues that none of these options allow one to know the object, we will focus mainly on the first and second ones. The impossibility of the first option, as stated above, is a firm axiom of the definition theory. However, the second option can be considered in two respects: (2a) To define a thing with some of its internal elements or (2b) with the sum of its internal elements. What corresponds to the complete definition among the subsets of (2) is 2b.[13] The main project of al-Rāzī and the IoCD's proponents is to reduce 2b to the first option and thereby prove this proposition: If the whole essence is identical with the sum of its constituents, then this involves the error of circularity.

Fakhr al-Dīn al-Rāzī's Argument: F

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11   Al-Rāzī, *Manṭiq al-Mulakhkhaṣ*, 102. One can find this argument in al-Rāzī's many books: idem, *Muḥaṣṣal afkār al-mutaqaddimīn wa-l-muta'akhkhirīn min al-'ulamā'* (Cairo: Maktabat al-kulliyyāt al-Azhariyya, n.d.), 17-18; idem, *Sharḥ 'Uyūn al-ḥikma*, 91-93; idem, *al-Maṭālib al-'āliya*, ed. Aḥmad Ḥijāzī Aḥmad Saqqā (Beirut: Dār al-kitāb al-'Arabī, 1987), 9:103-04. However, it is uncertain if he really adopted this view, for while he criticizes the IoCD in passages from *al-Mulakhkhaṣ* and *Sharḥ al-'Uyūn*, he nevertheless relays the IoCD arguments in *al-Muḥaṣṣal* without remarks and he defends the arguments in *al-Maṭālib*. As Eşref Altaş's comprehensive work on the chronology of al-Rāzī's oeuvre shows, he penned both *Sharḥ 'Uyūn* and *al-Maṭālib*, which are listed among his later works in the same year: 1209. He opposes the IoCD in *Sharḥ 'Uyūn* and yet supports it in *al-Maṭālib*. However, if we take into account that the former work is an Avicennian commentary, we may surmise that his actual opinion is more like the standpoint given in *al-Maṭālib*. See Eşref Altaş, "Fahreddin er-Râzî'nin Eserlerinin Kronolojisi," in *İslam Düşüncesinin Dönüşüm Çağında Fahreddin er-Razi*, ed. Ömer Türker and Osman Demir (İstanbul: İSAM Yayınları, 2013), 154. A more compelling piece of evidence for his pro-IoCD stance is its compatibility with his epistemology. One of his most renowned theses is that all conceptions are self-evident, among the logical consequences of which is that no concept can be comprehended by a logical inference, that is, no concept is acquired. He probably arrived at such a thesis after refuting the definition theory. This is, however, a subject for another study, one on whether there is no definition because all representations are self-evident or vice versa. But what is certain is the compatibility of these two theses.

12   The expressions of essence and parts of/in an essence will be common hereafter in the quotations from the philosophers. Several terms located in different contexts will be employed to avoid confusion. The following sets of terms will be used synonymously: (i) Essence, object, whole, *definiendum* and (ii) parts of essence/object, *definiens*.

13   Ḥasan Chalabī, "Ḥāshiyat Sharḥ al-Mawāqif," in *Sharḥ al-Mawāqif* (Qom: Intishārāt-i Sharīf Riḍā', 1992), 1:109.

(1) If the entirety of the *definiens*' parts is the entirety of the *definiendum*'s parts, these two are identical.

(2) If these two are identical, it would be impossible to formulate a complete definition.

(3) If the entirety of the *definiens*'s parts is the entirety of the *definiendum*'s parts, it would be impossible to formulate a complete definition.

$$(p \rightarrow q), (q \rightarrow r)/ \therefore (p \rightarrow r)$$

In the valid inference above, the antecedent of the first premise (i.e., the "p" in F1) stands for the complete definition and its consequent (q) stands for the identity. Whereas the first premise (F1) is disputable, the second premise (F2) is an axiom and thus beyond disputation. Therefore, someone willing to defend the theory of complete definition has to target the conditional clause in the first premise and demonstrate that being composed of the same parts does not necessitate identity. In other words, the opponents of IoCD will try to make the following counter-case: Even if the *definiens* and *definiendum* are composed of the same parts, they are not identical.

III. The First Objection: Different Times, Different Objects

Al-Ṭūsī denies one of the premises of F in order to criticize the argument F.[14] Since F2 is regarded as an undisputed fact, such a denial will turn toward F1. In *Talkhīṣ al-Muḥaṣṣal*, which he penned against al-Rāzī, he presents the following demonstration to deny F1:

> The opinion that the sum of the parts of essence is the essence itself is incorrect because the parts *ipso facto* precede the whole. In all cases of antecedence-precedence, it is impossible for the precedent to be identical with the subsequent.[15]

Based on the paragraph above, al-Ṭūsī's argument can be expressed in the following form:

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14   This move is called denial (*manʿ*) and contradiction (*munāqaḍa*) in the rhetorical literature. See Taşköprîzâde Ahmed Efendi, "Âdâbü'l-Bahs ve'l-Münâzara," in *Mantık Risaleleri*, trans. Berra Kepekçi (İstanbul: İstanbul Medeniyet Üniversitesi Yayınları, 2017), 23.

15   Naṣīr al-Dīn et-Ṭūsī, *Talkhīṣ al-Muḥaṣṣal al-maʿrūf bi-Naqd al-Muḥaṣṣal*, 2d ed. (Beirut: Dār al-Aḍwāʾ, 1985), 7. The same argument, attributed to al-Ṭūsī, is cited with minor differences in Ṭāshkūbrīzāda's epistle on complete definition. See Taşköprîzâde, "Tam Tanımla İlgili Sorunun Çözümü," 157. The same argument is also conveyed in *Sharḥ al-Mawāqif*. Seyyid Şerif Cürcânî, *Mevâkıf Şerhi: Şerhu'l-Mevâkıf (metin-çeviri)*, trans. Ömer Türker (İstanbul: Türkiye Yazma Eserler Kurumu Başkanlığı, 2015), 1:198-99.

Naṣīr al-Dīn al-Ṭūsī's Argument: N

(1) If all of the object's parts were identical with the object, they would not exist prior to the object.

(2) The object's parts exist prior to the object.

(3) Then the entirety of the object's parts is not identical with the object. $(p \rightarrow q), \neg q, / \therefore \neg p$

In the paragraph cited herein, al-Ṭūsī, in contradistinction to Ṭāshkūbrīzāda, builds his objection on what identity implicates, instead of on what identity is implicated by, as attested to in the first premise. Two things must be simultaneous in order to be identical. If al-Ṭūsī shows that the essence and its parts come into being at different time intervals, he would be demonstrating that the whole is different from its parts, meaning that the *definiendum* and the *definiens* are not identical.

The basis of his argument is the principle that nothing precedes itself, which forms the philosophical ground of the circularity axiom. This principle is so self-evident that it requires no proof. But we are aware of a temporal difference in the objects' coming into being, namely, that certain things exist before others. Therefore, we can suggest their non-identity once we focus on the essence/object by means of the qualities of priority/posteriority and demonstrate a relation of antecedence-subsequence between the essence and its parts. Assume that M is the object (essence or *definiendum*) and that M1 and M2 its parts (*definiens*). According to al-Ṭūsī's argument, M1 and M2, the constituents of the object M, are antecedents to the object. Thus, he constructs his argument in the following way: M cannot precede M (primary cause). If M were identical with M1 and M2, then M1 and M2 could not exist prior to M. However, because M1 and M2 exist prior to M, M cannot be identical with M1 and M2.

Yet the expression "the object's parts" in his argument, that is, the definition's parts, is ambiguous, for it is not obvious whether he means each part or the sum of the parts in the definition? That is to say, does he intend to say "M1 alone precedes M and M2 alone precedes M" or "M1+M2 precedes M"? Since there are two possibilities, al-Ṭūsī has to defend either (i) the essence and the *sum* of its parts are not identical with each other or (ii) *each* part of the essence separately is not identical with the essence.

It is worth repeating that the problem with complete definition is to determine whether the *definiens* is identical with the *definiendum*. Since definition is *the sum of genus and differentia* (i.e., M1+M2), the problem will not be resolved by

demonstrating that the genus by itself and the *differentia* by itself exist prior to the species. Thus, al-Ṭūsī has to prove the second premise if he wants his argument to succeed, for remaining stuck in the first premise signals its failure. Al-Ījī and al-Jurjānī claim that al-Ṭūsī could not verify the second premise, for it does not follow from his argument, they claim, that *the sum of genus and differentia* (i.e., *definiens*) does not precede *definiendum*.

IV. The Critique of *al-Ṭūsī* in *Sharḥ al-Mawāqif*: Does "All" Mean "Each" or "the Entire Set"?

While reviewing al-Ṭūsī's argument based on temporal difference, al-Ījī notices an unjustified inference: Following from his statement "for the part *ipso facto* precedes the whole," al-Ṭūsī seems to conclude erroneously that the *definiens* has to exist prior to the *definiendum*. His thesis, stated above, therefore contains a quantitative uncertainty. The expression "part" in the thesis is ambiguous and this ambiguity can only be eliminated in two ways: "part" can be substituted with (i) "each part" or (ii) "the sum of the parts." But in the second way, however, the sum of the parts is, in fact, equivalent to the *definiens* itself. In the objection presented here, al-Ījī refutes al-Ṭūsī's argument using the first way through *reductio ad absurdum* because the second way is, as a matter of fact, the main thesis that is supposed to be proven. In other words, al-Ṭūsī set out to demonstrate the *definiens*' temporal priority, which is the sum of its parts, to the *definiendum*. If he is able to do so, he will conclude that the former is not identical with the latter, since the former precedes the latter. Thus, presuming the second way would give rise to the fallacy of "using what is to be demonstrated in the steps of demonstration," that is, *petitio principii* (*muṣādara ʿalā al-maṭlūb*).

Let's first check how the argument is made in *al-Mawāqif*:

> That each of the parts (of the essence) is prior to the essence does not necessitate that all parts (of the essence) be prior to the essence.[16]

In the first quotation, al-Ījī points out that al-Ṭūsī's expression "parts" contains quantitative uncertainty: Does it mean "each part" or "the sum of the parts"? Making the argument more concrete, al-Jurjānī takes "parts" to mean "each part" in order to eliminate its ambiguity. Based upon this, the proposition in the premise

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16   ʿAḍud al-Dīn al-Ījī, "al-Mawāqif fī ʿilm al-kalām," in *Sharḥ al-Mawāqif* (Qom: Intishārāt-i Sharīf Riḍā', 1992); Cürcânî, *Mevâkıf Şerhi*, 200.

of T1 thus turns into: If each part exists prior to the object, then each part of the object is not identical with the object itself.[17]

The interpretation of "parts of the essence" as "each part of the essence" has a destructive effect on al-Ṭūsī's argument. How al-Ījī and al-Jurjānī managed to eliminate the ambiguity in "parts" by reducing it to such options as "each" and "the entire set" forms the basis of the objections in *Sharḥ al-Mawāqif*. At this juncture, we are faced with two concepts that play a significant role: "each" and "the entire set."

The Arabic word *kull* means both "each" and "the entire set."[18] However, when it comes to propositions, there are significant differences between these two meanings. "Each" is a preposition that marks quantity, the scope of which is the proposition's subject. It expresses that the predicate applies to each and every item falling under the subject. For example, the proposition (i) "All human beings fit in the house," expresses that each element of the set of human beings may fit in an ordinary house. However, the function of *kull* in the second sense is different. When this preposition modifies a subject, it means that the predicate applies to the subject's members only in their entirety. Thus, the proposition "All human beings fit in the house," obviously does not mean that all of humanity together fits in the house. Similarly, when saying (ii) "All soldiers vanquish the enemy," the predicate of vanquishing applies to the set of soldiers in its entirety and thus does not mean that "each soldier alone vanquishes the enemy." Consequently, although the same word "all" is used in propositions (i) and (ii), it means "each" in the first and "the entire set" in the second.[19]

As shown, al-Ṭūsī was trying to demonstrate the non-identity of the complete definition with essence (i.e., *definiendum*) and wanted to derive the conclusion that "if each part of the complete definition exists prior to the essence, a complete definition would also exist prior to the essence" for that purpose. Hence, al-Ījī and al-Jurjānī deny this implication by stating the non-equivalence of "each" and "all," and definitively say: "The temporal priority of each part of the essence to the essence itself does not necessitate the priority of the complete definition, which

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17   Where I stated al-Ṭūsī's argument, I wrote the first premise thus: "If all the parts of the object were identical with the object, these parts would not exist prior to the object." The above premise, however, is formed by adding the quantitative modifier of "each" to the statement of "If parts exist prior to the object, the parts of the object are not identical with the object," which is equivalent to the previous one.

18   The term used for "every" meaning "each" is *al-kull al-afrādī*, and for meaning "all" is *al-kull al-majmūʿī*. See Taşköprîzâde, "Tam Tanımla İlgili Sorunun Çözümü," 159; ʿAbd Allāh b. Ḥusayn al-Yazdī, *Ḥāshiya ʿalā Tahdhīb al-manṭiq*, 2nd ed. (Qom: Islami Publishers affiliated to the Group of Lecturers of Islamic Seminary of Qom, n.d.), 271.

19   Al-Jurjānī, *Sharḥ al-Mawāqif*, 111; idem, *Mevâkıf Şerhi*, 200.

is regarded as the sum total of these parts, to the essence." But what if it did? If a relation of priority-posteriority is established between the essence and all of the parts constituting it, then it would be appropriate to use al-Ṭūsī's principle of temporal difference.

However, al-Ījī and al-Jurjānī blocked that path by highlighting an important difference between two senses of "all."

Al-Ījī and al-Jurjānī's Argument: Ī

(1) If the priority of each part of the object necessitated the priority of all of its parts, then all of the human beings would fit into a house that each human being fits in.

(2) Not all of the human beings fit into a house that each human being fits in.

(3) The priority of each part of the object does not necessitate the priority of all.

$(p \rightarrow q), \neg q, \therefore \neg p$

The error of generalizing the qualities exhibited by the parts alone to the sum of all parts has an even more devastating effect on al-Ṭūsī's argument, which is based on the principle of temporal difference. In the second step, al-Ījī demonstrates that this over-generalization results in an ontological absurdity that would necessitate the priority of a thing to itself. This would result in the absurdity of the priority of a thing to itself, if the conclusions that are derived for objects at the scope of the quantitative modifier "each," apply to "all" (i.e., the sum total of these objects).[20]

It is important to note that there are three units in definition theory facilitating the better comprehension of the critique in *Sharḥ al-Mawāqif*: (1) Parts of *definiens*: M1 and M2, (2) *Definiens* (*ḥadd*): M1+M2, and (3) *Definiendum* (*maḥdūd*): M. To prove that the *definiens* is different from the *definiendum*, al-Ṭūsī first claims that 1 is different from 3 and then jumps to the conclusion that the same difference holds between 2 and 3. Since the elements of 1, M1 and M2, the parts of *definiens*, come out separately at different points in time, they are different from 3, that is, M. If we assume, like al-Ṭūsī did, that a predicate valid for each part of (1) applies to the sum of these parts, then we can substitute (2) for (1) and conclude that M1+M2 is different from M. In other words, if a proposition is verified when we take the elements of (1) to the proposition's subject, the same should be true when

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we do it for the elements of (2). Al-Ījī argues that this error of over-generalization leads to the fallacy of prioritizing the thing to itself and displays the absurdity by suggesting that the same rule be applied to (1) and (2). In short, while al-Ṭūsī meant to say that "M1+M2 is different from the *definiendum* M," he could not see that the same presumption could be applied between the parts of the *definiens* and their sum.

M1 and M2 are parts of *definiens*; M1+M2 is their sum. When al-Ṭūsī suggests the antecedence of the *definiens* to the *definiendum*, the priority of the parts of the former to the latter was already subsumed, and he directly inferred the anteriority of the sum of *definiens* to the *definiendum*. He has to assume an equivalence between the parts of *definiens* and its sum. To put it differently, the substitution and replacement of "each part" and "the sum of the parts" in a true premise will not change the truth of the conclusion. Then, let's take a proposition that is verified when M1 and M2 are the subject: "M1 and M2 are antecedent to M1+M2." Thus, if we substitute M1+M2 for M1 and M2 in the subject position in this proposition, the conclusion that one thing is antecedent to itself is obtained. In brief, al-Ījī's objection consists of applying al-Ṭūsī's assumption to (1) and (2).

In the statements below, 1-4 are al-Ṭūsī's and 5-6 are al-Ījī's and al-Jurjānī's arguments of *reductio ad absurdum*:

(1) The conclusion derived for "each" can also be drawn for "all" (the fallacy of hasty generalization).

(2) Each part of *definiens* is M1 and M2; the entire *definiens* is M1+M2.

(3) Each one of M1 and M2 is prior to M.

(4) Then M1+M2 is prior to M (from 1, 2, and 3).

(5) Each one of M1 and M2 is prior to M1+M2.

(6) M1+M2 is prior to M1+M2 (*reductio ad absurdum* from 1 and 2).

Al-Ṭūsī's defense of complete definition therefore fails. Another defense for resolving the problem is investigated in Ṭāshkūbrīzāda's *Risālat al-taʿrīf wa-l-iʿlām fī ḥall mushkilāt al-ḥadd al-tāmm* treatise in a way that is similar to Gottlob Frege's (d. 1925) distinction of *Sinn* (sense) and *Bedeutung* (reference). Ṭāshkūbrīzāda's solution seeks to show that there is a difference between the *definiens* and the *definiendum* due to different perspectives that depend on mental features. In his opinion, even if they possess equivalent contents, the mind's forms and modes of seizing these items cannot be presumed to be identical.

V. Ṭāshkūbrīzāda: Same Content in Different Cases

Ṭāshkūbrīzāda's *Risālat al-taʿrīf* is a full-length work that deals with the arguments for and against the theory of complete definition. This work, which displays the developmental steps related to the problem of complete definition, also cites and discusses the notable figures who took a stance in the debate: Fakhr al-Dīn al-Rāzī, al-Ṭūsī, al-Ījī, al-Jurjānī, Ṣadr al-Sharīʿa (d. 747/1346), Sirāj al-Dīn al-Urmawī (d. 682/1283), Saʿd al-Dīn al-Taftāzānī (d. 792/1390), and Ibn Mubārakshāh (d. post-784/1382) *Sharḥ al-Mawāqif*'s section dealing with the same question presents all of the names, together with their views, except for Ṣadr al-sharīʿa, al-Taftāzānī, and Ibn Mubārakshāh. In this respect, the treatise is a text composed by closely studying *Sharḥ al-Mawāqif*. However, this article concentrates on how Ṭāshkūbrīzāda tackles the question of complete definition. Even if the treatise deals with various issues, its focal point is still to provide a justification for refuting one of al-Rāzī's premises.

Let's recall Fakhr al-Dīn al-Rāzī's counter-argument against the theory of complete definition:

Fakhr al-Dīn al-Rāzī's argument: F

(1) If all the parts of *definiens* (*muʿarrif*) are all the parts of *definiendum* (*muʿarraf*), these two are identical.

(2) If these two are identical, it is impossible to make a definition.

(3) If all the parts of the *definiens* are all the parts of *definiendum*, it is impossible to make a definition.

$(p \rightarrow q)$, $(q \rightarrow r)$ /∴ $(p \rightarrow r)$

The only premise of this argument to which Ṭāshkūbrīzāda can object is premise F1 – just as al-Ṭūsī did. As premise F2 is an axiom of the complete definition theory, it is unnecessary to object to it. However, premise F1 can be parried with the move of denial (*manʿ*) by presenting a strong justification. According to Ṭāshkūbrīzāda, F1 is false because even if *definiens* and *definiendum* consist of the same elements, they are not the same. In other words, the constitution of two things by the same elements does not necessitate their equivalence. For this to be true, Ṭāshkūbrīzāda has to demonstrate how the *definiens* and *definiendum* cannot be identical with each other, even though are composed of the same elements.

> Let's turn to the solution of this problem. We prefer this assumption: "*Definiens* consists of all the parts of *definiendum*." Nonetheless, we do not accede to the truth of this statement: "*Definiens* is the mirror of *definiendum*."[21]

In the paragraph above, Ṭāshkūbrīzāda explicitly accedes to the truth of F1's first antecedent; however, he opines that its consequent is false. In the classical literature of dialectics, the move of denying one premise with a counter-example is called "denial with support" (*man' ma'a-l-sanad*)[22] and is a move in the pattern of "I do not think P is true because of X." If the denial stands, the claimant has to set another syllogism that would yield this premise as the conclusion or give up this premise. If we summarize the paragraph above with respect to this input, we may present his move as follows: Definition and *definiendum*, although comprising the same elements, are not identical with each other because of reason X.

Now, let us focus on the content of reason X. According to Ṭāshkūbrīzāda, the content of this proposition reveals what the proponents of IoCD agreed upon as the basic assumption. In his opinion, the latent assumption of those who denied the possibility of complete definition is: "*Definiens* and *definiendum* are the same in every respect." Therefore, since Ṭāshkūbrīzāda would support the thesis that they are not the same in every respect, he has to both present a counter-example to the basic assumption of the sameness of definition and *definiendum* in every respect and demonstrate their difference in at least one respect. He supposes that the proponents of IoCD work u the assumption that *definiens* and *definiendum* are the same in every respect. This assumption can be inferred from these lines:

> However, we do not accede to the veracity of this view: "*Definiens* is the same as *definiendum*." Because the whole parts (of *definiens*) are known specificly while the thing (*definiendum*) is known in general. There is a vast difference between the two.[23]

As this quotation attests, Ṭāshkūbrīzāda takes for granted that the *definiens* and *definiendum* consist of the same parts but tries to prove that this does not necessitate their being identical by pointing out a critical difference between them, namely, that of generality-specificity. Since the *definiens* and *definiendum* both contain the parts of M1 and M2, both comprise the same parts. But since there is a difference of generality-specificity between the two, the *definiens* can be represented with M1+M2, whereas the *definiendum* can be represented with M in order to emphasize that it is the compact form of the *definiens*.

21   Taşköprîzâde, "Tam Tanımla İlgili Sorunun Çözümü," 152.
22   Taşköprîzâde, "Âdâbü'l-Bahs ve'l-Münâzara," 43.
23   Taşköprîzâde, "Tam Tanımla İlgili Sorunun Çözümü," 152.

We can abstract his argument with the first two quotes as follows:

Ṭāshkūbrīzāda's argument: T

(1) If "(the *definiens* and the *definiendum* have the same content and are identical)" is true, *definiens* and *definiendum* exhibit the same qualities.

(2) The *definiens* and the *definiendum* do not exhibit the same qualities.

(3) (*Definiens* and *definiendum* have the same content and are identical) is not true.

$(p \wedge q) \rightarrow r, \neg r / \therefore \neg (p \wedge q)$

As can be seen, Ṭāshkūbrīzāda rejects the premise F1 above, which is shown as $(p \wedge q)$ in the argument T. His sole purpose is to determine what the proposition F1 necessitates and then demonstrate that complete definition and the *definiendum* do not display this necessary condition. Besides assuming that these two bear the same content, these two units have to be the same in all properties in order to claim identity. Therefore, Ṭāshkūbrīzāda could suggest that they are not identical if he demonstrates a difference between the *definiens* and the *definiendum*.

V. A. There is a Vast Difference between the Definition and the *Definiendum*

The difference of generality-specificity, briefly mentioned above, between the *definiens* and the *definiendum* is used to mean that they are not the same in every respect, namely, they are differentiated in at least one regard. While commenting on the IoCD supporters, Ṭāshkūbrīzāda makes their justifiability conditional upon the equivalence of the *definiens* and the *definiendum* with respect to content and quality. If the IoCD proponents are keen on demonstrating that complete definition is an identity and hence the impossibility of such a definition, they have to prove more than that the *definiens* and the *definiendum* contain the same units (i.e., the unity of content), but that they are completely the same in all respects. In brief, Ṭāshkūbrīzāda argues that the IoCD proponents, to whom he attributed the assumption that *definiens* and *definiendum* are identical if they possess the same properties in all respects, cannot support the condition of equivalence of all properties for identity. In his opinion, the difference between the two originates from generality and specificity: *Definiendum* is a general known, and *definiens* is a specific known.[24]

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24   The distinction of generality-specificity was already known to Arabic logicians. In fact, I pointed out that Fakhr al-Dīn al-Rāzī adopted this view in *Muḥaṣṣal* and *ʿUyūn al-ḥikma* at the beginning of the article. Thus, it is not an original solution by Ṭāshkūbrīzāda.

A distinction based on generality-specificity is Ṭāshkūbrīzāda's main reason for denying identity. It is essential to comprehend thatterms of generality-specificity are forms like mental labels in order to understand the grounds of justification. Stating that the *definiens* is known specifically and that the *definiendum* is known generally requires an acceptance of their ability to exhibit different qualities with respect to mental features, for the aspects of generality and specificity pertain to the two knowns in the mind, namely, the *definiens* and the *definiendum*. Thus, Ṭāshkūbrīzāda emphasizes that both of these are "items of knowledge" and hints of their presence in the mind. Hence, one needs to consider mental features in order to make a judgment concerning their identity.[25] Therefore, he points toward a far more limited field of properties even if he reckons the condition of the equivalence of all qualities for the identity of *definiens* and *definiendum*: mental features. Accordingly, his assumption can be stated thus: Although the *definiens* and the *definiendum* are formed of the same content, they are not identical insofar as they do not exhibit the same mental features.

Even though there are no direct references, we may suggest that this perspective originates from Avicenna:

> Especially if we wish to comprehend the unknowns by means of derivation and to render these unknowns into what is known, we necessarily need to take into consideration their qualities in the world of imagination, (because) things (are qualified) as unknowns only insofar as they are in the mind. Likewise, if they are qualified as known, it is because they are in a mental world. Although (we accept) that things have different qualities in themselves, the qualities that are attached to things in the course of moving from known to unknown things are (in fact) the qualities that are attached in the mental world.[26]

Based on the paragraph above, it would be too much to claim that all features of the *definiens* and the *definiendum* must be the same in judging their identity. The paragraph hints at the answer to the question of which qualities we should expect to be the same: mental ones. While *definiens* and *definiendum* are employed as

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25   "The quiddity of things sometimes resides with their extended being, and sometimes in imagination (thought). Therefore quiddity is treated in three ways. (...) The third is the assessment of quiddity with respect to its presence in the mind. In that case, there will be attachments to quiddity, accidents, which are imparted later on, like being a subject, predicate, universality-particularity in predication, essentiality-accidentality in predication peculiar to its mental being. Because *res extensa* do not possess essentiality, accidentality, being a subject or predicate, premise or syllogism. When we would like to think about things and know them, ipso facto we need to imagine them. Thus, states present in imagination are attached to things and we inevitably need to take into account these states that things have in imagination, especially if we wish to obtain unknowns by means of thought, and that happens following what is known. İbn Sînâ, *Mantığa Giriş*, trans. Ömer Türker (İstanbul: Litera Yayıncılık, 2013), 7-8.

26   For another translation, *cf.* İbn Sînâ, *Mantığa Giriş*, 8.

words in absolute terms, both are things that are known: We know the *definiendum* only because we know the *definiens*. Both of these are mental entities that work in the mind. Thus, if we wish to suppose that they bear the same qualities in order to suggest their identity, the space in which we check the list of qualities should be the mental space, and the qualities on the list should be the mental ones. In short, the thesis that they bear the same qualities is narrowed down to the thesis that they bear the same mental qualities. Afterwards, the issue to deal with is whether they have the same mental features, for what gives way to the question of complete definition, in this interpretation, is the unawareness of the fact that the *definiens* and the *definiendum* have different mental features.

It is significant that the debate as to whether "complete definitions (*definiens*) and objects (essence, *definiendum*) are identical" immediately slips into a discussion of mental identity, or, in fact, is regarded as a question of mental identity. The main thesis of the equivalence of *definiens* and *definiendum*, is revised as their equivalence in the mind after Ṭāshkūbrīzāda dropped the hint that they exist in the mental space and have different mental features. Then, the objection to the thesis amounts to a demonstration of definition and *definiendum*'s differentiation in terms of their purport, notwithstanding that they have the same components in the mind.

> However, the relevant doubt raised in the first place was due to a failure to discriminate between knowing the parts specifically and generally.[27]

Ṭāshkūbrīzāda's main strategy for solving the problem of complete definition is to distinguish between "the mental object" and "the perspective on the mental object." The main theme of this proposed solution, reminiscent of Frege's distinction between sense and reference, is that that *definiens* and *definiendum* are known concepts and therefore mental objects. Their common property is being mental objects, and both are equivalent in content. However, our mental perspective on these two entities, which possess the same content and share the same genus (i.e., being known) are different from each other. In other words, each entity, despite being common in genus, is presented to the mind in a different manner than the other. Thus, one may deny the strict equivalence/identity of their constituents because of the difference in forms or modes of comprehension in the mind, although the contents are the same.[28] Even though the expressions

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27   Taşköprîzâde, "Tam Tanımla İlgili Sorunun Çözümü," 152.

28   Philosophers who distinguish the external existence of an object from its mental existence state the distinction by the expression "one in essence, different in respect," (*muttaḥid bi-al-dhāt mukhtalif bi-al-i'tibār*) and its derivatives. For example, the same man being named "uncle," "father," etc. is a result

"human being" and "rational animal" capture the same mental objects, according to Ṭāshkūbrīzāda, they are apprehended in different forms. In a different idiom, they are one in reference but different in sense.

The difference in mode of comprehension for *definiens* and *definiendum* is a general statement. Afterwards, Ṭāshkūbrīzāda introduces two particular qualities for modes of comprehension: *generalization (ijmāl)* and *specification (tafṣīl)*. Specification means to divide a whole into its constituents and components and to discern and detail it. Generalization, however, is to collect separate constituents, collate them as a whole, and unite them. Thus, suggesting that the difference of "human being" and "rational animal" would be, after introducing this particular distinction, as such: "Human being" is a bound sense, whereas "rational animal" is a signification that is specified, discerned, and distinguished. Therefore, once the mind apprehends the definition in all of its constituents one by one, it combines what it apprehends and unites them into a single thing. *Definiens* and *definiendum*, which appear to have the same content, corresponds to two prospects in the mind, discerned and collated, respectively.

The Steps of Derivation

Ṭāshkūbrīzāda's second move concerning IoCD is to prove his thesis based on the generality-specificity distinction. In his opinion, the *definiens* and *definiendum* are formed at different steps in the mind in the course of definition, and these steps have genuine features. Then, they are qualified by different features because they are formed at different steps. For instance, what is known is described as "specified" in one step but as "generalized" in another. While the former is, on the one hand, the *definiens*, the latter is, on the other hand, the *definiendum* because the known thing in specific features is the *definiens* and the known thing in general features is the *definiendum*. Even though they share the same content, their trajectory through different steps or stations modifies them in quality, if not in content. Since they exhibit different features in the mental world, they cannot be considered identical.

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of different perspectives, for we mean the same person. However, differentiation in respects brings out different names, just like Venus is called "Morning Star" and "Evening Star" for being sighted at different time slots. Even though these names refer to the same star, their ways of referring are different. In other words, they are united in reference but varied in sense. We can think of what Avicenna said concerning instruction and education in *al-Burhān* as a classical example: "Instruction and education are one vis-à-vis essence and two vis-à-vis indication. Because a single thing – which is to head towards obtaining an unknown *via* a known – is called "education" vis-à-vis its target (i.e., the effect) and "instruction" vis-à-vis it source, that is, the efficient cause." İbn Sînâ, *İkinci Analitikler: Burhan*, trans. Ömer Türker (İstanbul: Litera Yayıncılık, 2006), 8.

Presenting an application of the Avicennian perspective that what enters the mind is willy-nilly influenced by the mental features, Ṭāshkūbrīzāda maintains that "what is known" has to run through four steps in the course of a definition.[29] The number four is not arbitrary, for, in line with the theory of four causes, definition has material, formal, and final causes – the efficient cause being the mind –, each one of which corresponds to a step in the process of defining something. As the first two steps explicate how the matter is made up, the third explicates how it acquires a form, and the fourth explicates to what end this matter, which acquried a form in the previous step, is made up. By writing about all of these steps, what Ṭāshkūbrīzāda really meant to show is that those who regard complete definition as impossible mistakenly consider the third and fourth steps identical, because those are where the *definiens* obtains the quality of "being specified" and the *definiendum* acquires the quality of "being generalized," respectively, for in the last two steps *definiens* gains specific, and *definiendum* gains general, features.

The First Step: Pure Generality

أن الأمر الخارجي هو مجموع الحقائق المفصلة، فإذا حصلت صورته في الآلات يحصل بالإجمال المحض من غير علم بكنهها

The external object is a collection of specific facts, so that when its image forms in vessels, it is realized in sheer generality (collected) without the knowledge of its source (that makes up the external object).[30]

أولاها: مرتبة الإجمال المحض وهو المطلوب المجهول

First: the step of pure generality is the unknown for which it is strived.[31]

إذ لو لم يوجد الأولى لم تتوجه النفس إلى الكسب أصلاً

For if it weren't for the first, the soul would never turn to apprehension (derivation).[32]

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29   Ṭāshkūbrīzāda does not identify each of the four steps all at once, but in different paragraphs and sometimes in different pages. The relevant information will be reordered herein.

30   Taşköprîzâde, "Tam Tanımla İlgili Sorunun Çözümü," 153.2.4-5 In this and the following footnotes, the numbers separated by point indicates page, paragraph, and line, respectively.

31   Ibid., 155.1.1.

32   Ibid., 155.1.4-5.

The first step, the phase of pure generality, is the images that we acquired from the external world. Our mind is in a passive state when it encounters the world, which consists of separate objects and harbors multiplicity in this regard. Our mind is unconsciously exposed to this world via the senses. As a result of this exposition, forms abstracted from the external world pour into the mind; however, their content is uncertain. Just like a storehouse officer unaware of what kind of package he keeps in storage, the mind parcels theexternal world and wraps it up in separate packages. Hence, what Ṭāshkūbrīzāda calls "pure generality" reflects the parceling of the outer world in a collected unity via the senses and storing it in the mind. In short, the external world is parceled by the senses in the phase of pure generality, but what the parcel contains is uncertain.

Even if (i) we do not have a *complete* knowledge of these packages stuffing our mind, (ii) they are not things that we *in no way* have any knowledge of. Both of the theses that we have a complete knowledge of things and that we do not know the things at all are incompatible with the widely accepted ideas of Islamic philosophy concerning the activities of learning, for each of the theses inhibits the learning activity. The first one is reduceable to the principle that "to realize that which has already been realized is impossible" (i.e., if we know something fully already, we would not like to know it once more).[33] The second one that we would in no way like to know that what is unknown to us is false due to the principle that "the soul's turning toward the absolute unknown is vain" (i.e., the human soul cannot carry out informative activity pertaining the absolute unknown).[34] Thus one cannot say that the content of these images or packages, collected from the external world and carried into the mind, is either *completely known* or *absolutely unknown*. Then these forms are known in one regard and unknown in another. Thus, "pure generality" in an ontological sense and "the sought unknown" in an epistemological sense in the paragraph conveys the condition outside these two states. Subsequently, we may describe the sought unknown as such: Subsequently, we may describe the sought unknown as mental forms, the quiddities of which are not entirely known, but can be known by analysis since they are known at least to be compound.

How do we infer that the sought-to-be-defined object is of a nature that can be known? Ṭāshkūbrīzāda leaves this question unanswered. Yet the representation

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33   Quṭb al-Dīn al-Rāzī, *Taḥrīr al-qawāʿid*, 55.
34   Ibid., 25.

of the external world in bound form by means of mental forms does count as an answer for suggesting that the forms take place in the mind *collectedly*, for it carries the latent supposition that they belong to complex objects. This is so because it is not sensible to speak of a simple thing as collected, given that the collected object has to have multiple elements in order to speak of a collection.

It is a critical assumption to presume the existence of collected objects or images from the standpoint of definition theory, for this theory involves the study of derivation rules pertaining to complex objects. Furthermore, this theory suggests that a simple object is indefinable; at least a logical definition cannot be provided.[35] Hence, the representation of the external world in the mind as pure generality in fact means the conversion of the external world into material that is suitable for the definition theory because an object can only be an element of the set of what can be defined if it is a complex object. As a result, the character of pure generality or the sought unknown as that which can be known is due to their complex nature. Its nature as knowable can be considered a supposition that it can be interpreted due to knowing how it is collected, but not knowing what the content of collection is.

The phase of "pure generality" or "sought unknown" which has been discussed so far is the first step in Ṭāshkūbrīzāda's explanation of the act of apprehension (derivation). The sought unknown awakes in human beings the wish to make a derivation. In other words, it is the object to which the wish to make a derivation turns. He opines that in the absence of this phase, human beings would not set out to derive concepts in order to obtain the knowledge of unknowns, that is, to make definitions. But since this human endeavor is an incontrovertible fact, there has to be a phase of pure generality and sought unknown.

These forms, present in the mind with unknown content in a collected assemblage, make up the set of the object that we would like to know, namely, the sought unknown. If something is expected to be known, it is taken out of this set and placed on the operating table. In this sense, the object of intellectual activity is not *res extensa*, but rather the objects in a repository where the mental forms of *res extensa* are kept. That is to say, we can only strive to learn what is kept there.

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35   İbn Sînâ, *İşaretler ve Tenbihler*, trans. Ali Durusoy (İstanbul: Litera Yayıncılık, 2005), 16.

The Second Step: Discernment

ثم إذا التفتت إليها النفس تتنبه أن لها تركبًا من الحقائق المفصلة، فتُحلّلها بقوتها المميزة إلى مفهومات كثيرة بعضها ذاتيات وبعضها عرضيات.

Henceforth, if the soul beholds it (this form), it notices that it is an assemblage of specific facts and distinguishes them into many concepts, some essential and some accidental, through the faculty of discernment.[36]

وثانيتها: مرتبة التحليل إلى الأمور المعلومة التي هي مادة الحدّ

Second: the analytical step to the known things that are the matter of definition.[37]

ولو لم يوجد الثانية لم تتمكن من الكسب أصلًّ

Were it not for the second [phase], it [the mind] would never be able to apprehend.[38]

In the second stage, the mind glances at these collected and assembled forms. The first thing that it notices is that these spilled-over forms, albeit collected and fitted, are compound entities, meaning that they are collected from different elements. It then subjects these general forms to a conceptual analysis. Many fragments result from this analysis, all of which form the main material of definition and act of derivation. Thus, Ṭāshkūbrīzāda calls this material the matter of definition, referring to the theory of four causes, and the operation that occurs in this phase the discernment. The storehouse officer, who discretely parcels out the external world and passes it to the mind in the first step, in the second step notices that the packages are compounds and sorts out them by their elements.

Since he regards the act of definition as a mode of thought, he also mentions what each step means for intellection. In this comparison, the thing called "knowns" in the statement "putting the knowns in an order,"[39] which occurs in the definition of thinking, corresponds to the material in the definition/definiens. As the constitution of *definiens* is only possible with this material, conceptual thought (conception) cannot come true without these fragments in the position of material cause.

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36   Taşköprîzâde, "Tam Tanımla İlgili Sorunun Çözümü," 153.2.5-7.
37   Ibid., 155.1.1-2.
38   Ibid., 155.1.5-6.
39   Quṭb al-Dīn al-Rāzī, *Taḥrīr al-qawāʿid*, 53.

The Third Step: Seeking Form

ثم تُميز الذاتيات من العرضيات وتعين أعم الذاتيات وأخصها بواسطة مباحث الكليات ثم تلاحظ كيفية تحصيل الأخص للأعم، وإزالة إبهامه على نحو ما وقع في العلم الفعلي بواسطة قوانين مباحث القول الشارح حتى تحصل تلك الحقيقة الواحدة الجامعة للحقائق المفصلة

Hence, it distinguishes the essentials from the accidentals and determines the most common and specific features among essentials by means of principles of universals. It then reflects on how these more specific features form the more general ones and removes its obscurity in the manner of actual knowledge by means of laws and principles of the explanatory sentence, so that this single compact reality, which includes specified realities in itself, comes into being.[40]

وثالثتها: مرتبة معرفة جهة الارتباط بينها وهي صورة الحدّ المعبّر عنها بالترتيب

Third: the step of knowledge of the aspect of the link between (the known things). It is the form of the definition, which is called order.[41]

ولو لم يوجد الثالثة لم يحصل أثر الاكتساب أصلًا

If there were no third step, the result of apprehension would never be obtained.[42]

The third step of the definition is the one in which the definiens acquires a form. Ṭāshkūbrīzāda notes that a definition is made for the sole purpose of obtaining this formal part.[43] Then what is this form? As will be recalled, the mental object is subjected to analysis and exposition in the second step of this process and split into multiple fragments. In the third step, these fragments/matters are subjected to two operations: (i) they are marked as either "essential" or "accidental" and (ii) are rearranged in a manner that would grant us the object about which we wish to be informed in the second process. Definition is furnished with form in the second process.

In the first operation of the third step, the mind tries to classify the matters of definition that it obtained through the prior analysis. Since these concepts, which emerge as the result of analysis, are universals, they need to be assessed according to the qualities and rules particular to the universal concepts. These rules correspond

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40   Taşköprîzâde, "Tam Tanımla İlgili Sorunun Çözümü," 155.2.7-8.
41   Taşköprîzâde, "Tam Tanımla İlgili Sorunun Çözümü," 155.1.2-3.
42   Ibid., 155.1.5-6.
43   Ibid., 169.1.6.

to the basic concepts treated in the section of universals in texts of logic. The mind makes an assessment by these rules, and firstly distinguishes the essentials from the accidentals by classifying the conceptual fragments (i.e., universals) as essential and accidental. Essentials also need to be classified, for this process determines the most general and the most specific, that is, the candidates of genus and differentia, respectively, among the essentials. This process of determination reflects on the principles pertaining to the five universals (mabḥath al-kulliyyāt), the definitions and principles of which form a toolkit for determining the concepts of the most general and the most specific.

The main purpose of reflecting on the essentials is to find out how an essential property particular to the species is to be articulated with an essential property that is more comprehensive than the species. The essential property particular to the species is differentia, and the essential property more comprehensive than the species is genus. Genus is an ambiguous notion because it is more comprehensive than the species. Thus, the mind tries to find the exact differentia to add to the genus in order to obtain the species whose definition is sought.[44] This process keeps running until the species is acquired.

According to this interpretation, articulating the genus with differentia in order to obtain the species is "the formal part" of the definition, namely, the ambiguity of the genus and its formation by adding differentia. Ṭāshkūbrīzāda states persistently that definition's form means eliminating the ambiguity of genus. Moreover, he thinks that the reflection of the word "order" in the definition of thought over definition means removing ambiguity by adding differentia to the species. Thus, arrangement is not a design in the form of the priority of genus succeeded by differentia. To summarize, the third step of definition is the pursuit of form for the object, the matter of which is determined, that is, ascertaining the ambiguous genus with differentia.

As attested to, these two processes of the third step correspond to the two sections of logic: universals and definition theory. The theory of universals involves the study of conceptual qualities pertaining to the universal concepts, and the fragments in the stack of material are assigned labels of "essential" and "accidental" as a result of this investigation. In other words, the relations between the mental materials with regard to the object that is to be defined are determined. And the definition theory is used to eliminate the ambiguity in the species.

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44   For the idea of the uncertainty of genus and that the essence is obtained by adding differentia to it, see Quṭb al-Dīn al-Rāzī, "Muḥākamāt: Sharḥ Sharḥay al-Ishārāt wa-l-tanbīhāt," in *al-Ishārāt wa-al-tanbīhāt* (Qom: Nashr al-Balāgha, 1996), 1:76.

The Fourth Step: Definition's Collection

… حتى تحصل تلك الحقيقة الواحدة الجامعة للحقائق المفصلة كما حصل في العلم الفعليّ

[So] that, this single compact reality, which includes specific facts in itself, comes into being as it did in the actual knowledge.[45]

ورابعتها: مرتبة حصول الحقيقة الواحدة وهي مرتبة معرفة المحدود

Fourth: The step of realization for the single reality, which is the step of the *definiendum*'s knowledge.[46]

ولو لم يوجد الرابعة لم يحصل غرض الاكتساب فيكون الكسب لغوًا

Were it not for the fourth step, the end of acquisition would not come into being and the acquisition, therefore, would become redundant.[47]

The fourth step is to compile the definition and convert it into a single truth. What is to be compiled certainly has to be a multitude, which emerged during the second and third steps. The second step is the fragmentation and discernment of the mental image, and the third step is an assortment of the fragments ripped from the mental object so that it would procure the object's knowledge. In the fourth step, the mind unites/unifies. While running the course of definition, a single body, one that gathers and compiles different facts (i.e., the universals in the mind) emerges. The act of thought and definition does not reach its goal without this step. In other words, all of the previous steps would be fruitless without this one.

While the second and third steps are the phases in which we obtain the knowledge of *definiens*, during the fourth step we acquire the knowledge of *definiendum*. These steps differ with respect to form. Although the third step contains a form in the sense of effacing ambiguity, the form in the fourth step has another function: to combine the hitherto separately standing fragments like a glue and make them a single entity. Therefore, the fourth step, which is to know the *definiendum*, is equivalent to the sum of matter and form in the second and third steps of the definition process. In other words, the mind compiles the knowledge of definition (i.e., it makes a single package by gathering and taping the separate packages). This

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45   Taşköprîzâde, "Tam Tanımla İlgili Sorunun Çözümü," 153.2.8-10.

46   Ibid., 155.1.3-4.

47   Ibid., 155.1.3-4.

package contains two bundles, which the mind has already acquired, marked by the essentials that form it. But in the last stage, it sews them together and makes them a single package. Thus, to know the *definiens* and the *definiendum* can be likened to knowing two different packages and then their combined form as a single package.

As we learn from Ṭāshkūbrīzāda's study, the definition theory contains *two different forms*. The first one, which belongs to the *definiens*, involves adding differentia to genus, that is, effacing the ambiguity of the genus with the differentia in order to define the object. Since genus is a more general concept than species and differentia, it is insufficient by itself in differentiating the object to be defined from other things in the mind. The second form is regarding genus and differentia as a holistic unity. As a matter of fact, the second form can also be regarded as the mind's synthetic function, for the universals obtained in the earlier step (i.e., genus and differentia) are synthesized and turned into a single truth.

There is a significant difference between the *definiens* and *definiendum*. That is to say, the third and fourth steps differ from each other: Knowing the *definiens* involves the knowledge of many because the mind reveals the parts of the mental image by analyzing and disclosing such knowledge in the process of knowing the *definiens*. These parts are genus and differentia. Knowing *definiens* is to know genus and differentia as well as the relation between them. However, knowing the difference is a single, non-fragmented knowledge: A form juxtaposing genus and differentia appears in the mind, so that this knowledge penetrates each part (i.e., genus and differentia) and represents their qualities in the mind in an assorted fashion. Subsequently, the knowledge of *definiendum* appears with a second form, one that is single and gives a general knowledge of the genus and differentia it contains. However, the knowledge of *definiens* is acquired with respect to the mental forms.

As noted above, in the first step of definition the external world is recognized in the mind in general. Stating that *definiendum* is a general knowledge in the last step, Ṭāshkūbrīzāda is aware of the following complication: The knowledge in the first and last steps of the fourfold procedure of definition is a general knowledge. In other words, while the sought unknown is a general knowledge, so is the *definiendum*. And yet, in his opinion, there is a notable distinction between them, for the sought unknown does not lend any clue to the content. But since it is an assembled knowledge, its fragmentary nature is revealed by exposition and analysis. However, it also differs from the *definiendum*, for even though it presents a general knowledge, we are cognizant of its content, the knowledge of which we acquired by grasping genus and differentia in the third step. Consequently, while the general knowledge

acquired in the first step is an assembled knowledge, the content of which is not disclosed, yet we recognize that there is something; the general knowledge in the last is one that is combined and bound after the content is revealed.

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So far, Ṭāshkūbrīzāda's fourfold solution for making a definition has been presented. To him, the definition theory is explicated by sticking to the theory of four causes. The second step stands for the matter of definition, the third for its form, and the last for the purpose. This is because in the first step, the general mental form is transmitted to the mind as a representation of the external world; in the second one, this general form is analyzed and examined to obtain the universals that constitute the matter of definition; in the third, these universals are put into categories of genus-differentia so that they will give the *definiendum*, which means that the form of definition has been acquired; and in the fourth, the multiplicity of genus and differentia is unified and rendered general , which is the aim of definition. Therefore, the identity to be established between complete definition and the *definiendum*, in Ṭāshkūbrīzāda's opinion, is a confusion of the third and fourth steps. We now present an analogy that facilitates one's understanding of his solution.

The objects to be defined are folders on the desktop, each of which contain different files. Each folder gathers and collects different files. Yet we presume ignorance of its content, even if we are aware that it is not empty. Clicking on a folder and thereby becoming informed of its files, we may then close the folder, after which it will remain as a single folder on the desktop. However, the prospect and the cognitive stance against the folder, the content of which we are informed about, will differ this time because whereas it was a single folder with unknown content at the beginning, now its content is known to us.

Thus, the major difference that he notes between the *definiens* and the *definiendum* resembles this: We see many files when we glance inside the folder, but it appears as a single folder while maintaining its content when we close it. In both cases, the number and content of the files are the same. However, we encounter a multitude when we look into the folder and see many files; and we face a unified whole when we look at the folder after closing it. That is to say, while the *definiens* and the *definiendum* remain the same in content, the former is considered in terms of multitude and the latter in terms of unity. This example also applies to the *definiendum* and the sought unknown, for both deliver general knowledge. The *definiendum* delivers knowledge, the content of which is known, whereas the sought unknown delivers the knowledge that it is a composite of as yet unknown parts that are to be disclosed.

VI. Assessment and Conclusion

Two opposite views of complete definition have been analyzed. One view belongs to Fakhr al-Dīn al-Rāzī, who first noted the question, and his followers, and the other to Ṭāshkūbrīzāda, who sought an answer through mental forms. The debate's main question is whether complete definition is circular, that is, whether complete definition amounts to definition by itself. Al-Rāzī suggests in his renowned argument that complete definition is definition by itself and that this kind of definition is not legitimate, rightly supposing that a thing cannot be defined by itself. The crux of his argument is this: The complex objects and essence are *nothing more* than the sum of their essential parts, for given that there are two essential parts, these objects and essences are identical with the sum of them. He expresses this justification thus: "If all the parts of *definiens* (*muʿarrif*) are all the parts of *definiendum* (*muʿarraf*), then these two are identical." We can apply this approach to the complete definition: There are two poles in complete definition: *definiendum* and *definiens*. *Definiendum* corresponds to the compound mental object; *definiens* comprises the essential parts that constitute it. Once identity is regarded as the sum of these essential parts and nothing beyond that is broached, *ipso facto* *definiens* and *definiendum* will be identical. However, the identity of definition and *definiendum* is not legitimate.

Contrary to al-Rāzī's argument, Ṭāshkūbrīzāda opines that the problem of complete definition can be resolved only if one takes into account not only the parts but *also* their modes of presentation to the mind. To put it differently, if the question of identity between the *definiens* and the *definiendum* is treated with regard to the mental features and forms, the ascribed identity will not hold since both possess "different features," by which he means that the same content possessed by them is kept in different forms. The basis of his argument is that identity requires more than content and that the presentation of the content has to be included in the definition of identity as well. Therefore, he tries to resolve the issue of identity between the *definiens* and the *definiendum* through his formula of "content plus form." This solution can be summarized as follows: As definition and *definiendum* are "known" things, they are therefore both present in the mind. Even if the fact that they are known indicates that they share the same genus, this commonality is insufficient to deem them identical. For example, the *definiens* "rational animal" is formed by analyzing an unknown yet compound item, whereas "human" is the *definiendum* formed by the mind through collecting and then casting distinct components in a single form. Thus, *definiens* is a specific body with multiple elements, whereas *definiendum* is a bound body. They are the same in content but

different in form, and it is this difference that prevents them from being identical. Ṭāshkūbrīzāda therefore concludes: Although they have the same content, they are not identical.

Surprisingly, both parties shy away from giving examples while discussing the complete definition problem. However, one can provide a suitable example, at least for Ṭāshkūbrīzāda's argument. In fact, the difference of generality-specificity between the *definiens* and *definiendum* can be expressed in a single logical form: M as *definiendum* and generality, M1+M2 as *definiens* and specificity. According to Ṭāshkūbrīzāda, the logical form of complete definition should be "M is M1+M2" which, in concrete terms, can be stated as "the human being is the rational animal." This logical form gives him a significant advantage with respect to the defining statement's cognitive content, which he did not introduce in the text.

This form, which analyzes the essence, shows its complexity, and zips up this analysis into one single form, can be broadened by applying it to epistemology, for between knowing something in a general manner and knowing it in a detailed, specified manner, there is at least the difference of an increase in knowledge, if not more. Given this, the problem can be assessed on epistemological grounds as to whether it imparts knowledge. This matter-of-fact conclusion engendered by the forms of generality-specificity adds a dimension of informativeness to the complete definition and discards the charge of circularity. This difference is generally corresponded with the term (*taḥṣīl al-ḥāṣil*), a common expression in Islamic philosophy, namely, the principle that what is already known cannot be acquired anew; that is impossible. This principle is exemplified in necessary, underived, commonplace, and tautological statements. For instance, the statements of "M is M" or "M1+M2 is M1+M2" express only that a thing exists as itself. This is a necessary knowledge. Those who read this sentence experience no increase in knowledge, just as those who read the definitions "a human is a human" or "a thinking animal is a thinking animal" find them of no avail. Consequently, a circular definition adduces no knowledge and is thus *taḥṣīl al-ḥāṣil*. At this point, it is reasonable to make an argument, such as: If "complete definition" and "definition by itself" were identical, an aspect of definition by itself would also be present in a complete definition. However, there is no increment of knowledge in a circular definition.

And yet there is an increase of knowledge in the logical form befitting Ṭāshkūbrīzāda's argument, an increase that is not tautological. As such, there is no informativeness in the statement "M1+M2 is M1+M2." However, in the statement "M is M1+M2," "M1+M2" is presented as the expansion of M. At least M1+M2 provides a specific analysis of M. While someone who reads "M1+M2 is M1+M2"

learns nothing, someone who sees "M is M1+M2" does in fact gain knowledge. Consequently, establishing identity between the *definiens* and the *definiendum* as regards complete definition does not seem possible due to the difference in informativeness between the two with respect to the logical form introduced by Ṭāshkūbrīzāda.

Following this specific argument and approaches about complete definition, one can arrive at noteworthy conclusions pertaining to metaphysics, the philosophy of language, and epistemology. The two opposing views that consider complete definition to be legitimate or illegitimate basically focus on the parts of two structures - definiens and definiendum - that possess the features of mentality and complexity due to " the complexity of essence" -, and try to decide whether they are identical. In other words, the parties, who have two different theories of meaning and object, discuss the question of "What is identity and how should it be defined?" in the case of complete definition. The two different answers show the existence of two different semantic theories. Two different semantic theories emerge with respect to the the identity of the structures of *definiens* and *definiendum* and the way they hold their content: that of constant forms and that of variable forms. The first one belongs to al-Rāzī. As will be remembered, he supposed that complete definition is circular in proposing the IoCD argument. In my opinion, he has to presume that "M1+M2 (*definiens*) is M1+M2 (*definiendum*)" as the logical form of the complete definition so that he can advance the IoCD argument.[48] Only with this form can he suggest that the complete definition is circular, for the *definiens* and the *definiendum* have one common expression in this form. In other words, a constant form repeats in both of them. This shows that the IoCD's supporters, and particularly al-Rāzī, prefer to keep the compound form of the complex thing that is to be defined as it is and do not accept the different purports of an object's mental parts. Since the form of the complex object's parts and the way/mode they are held in the mind is the same for the *definiens* and the *definiendum*, by defining identity as "constant form, same content," they have concluded that the *definiens* and the *definiendum* are identical in complete definition. In the classical idiom, the *definiens* and the *definiendum* are the same in both essence and respect. I call this perspective, which requires the equivalence of both content and form, the semantic theory of *constant forms*, for one has to suggest the constancy of not only the contents of their parts but also of their forms in order to defend IoCD in a consistent manner.

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48   This compound form results from the complexity of objects to be defined in the definition theory.

Against the theory of constant forms, Ṭāshkūbrīzāda adopts the semantic theory of *variable forms* on the ground that even if the *definiens* and the *definiendum* comprise the same content, they hold it in different forms. In a Fregean idiom, even if their references are the same, their senses are different, for their being constituted from the same parts does not necessitate their equivalence because the boxes they were put into in the mind are different, even if they are the same in matter. The constituent elements of *definiens* are in the specified form and the constituent elements of the *definiendum* are in the generalizing box, even though the contents are the same. Therefore, despite being the same matter for both, they evade identity thanks to the different mental forms like generality-specificity.

The contrariety of constant and variable forms can be articulated by "united in essence, different in respect" (*muttaḥid bi-l-dhāt mukhtalif bi-l-iʿtibār*) in terms of Islamic philosophy as well as Frege's distinction of sense and reference. Thus, according to al-Rāzī, who accepts the theory of constant forms in complete definition, these two are one not only in essence but also in respect, by which he means that their contents and forms are the same. But according to Ṭāshkūbrīzāda, who supports the theory of variable forms, they are one in essence and different in respect. In other words, their forms are different, notwithstanding that their contents are the same.

Clearly, the conception of constant form is the main cause that leads to the impossibility of complete definition. I suppose that this theory has two important results: Thinking that the contents of mental matter (i.e., essence) do not undergo any change in form necessitates that the complete definition be expressed in a single form. Hence, based on this single form, al-Rāzī first concludes that there is no such definition category as complete definition for expressing the *definiens* and the *definiendum* in the form of M1+M2 certainly means that there is no way out of the error of circularity. Since it leads to such an error, complete definition must be impossible. In brief, his counter-arguments refute definition theory altogether. Furthermore, he suggests that we cannot conceive of a thing by defining it or deriving its knowledge from definition theory. The second result we get from this condition is as follows: One of the significant steps that leads al-Rāzī to the thesis that all conceptions are self-evident is his refutation of complete definition and of definition theory in general. In a system in which all conceptions are conceived as self-evident, one cannot make a logical definition. One can take this conclusion even further: Whatever is put before us as a logical definition is nothing more than the explanation of a name at a linguistic level, that is *sharḥ al-ism*. This is an entry point into a nominalist definition theory.

It is also noteworthy that the theory of mental representation in which the components of essence are represented to the mind as constant forms invalidates the thesis that complete definition is informative, for the statement "M1+M2 is M1+M2" is not cognitively informative.

In this article, my only focus was the analysis of al-Rāzī's argument with which Ṭāshkūbrīzāda was particularly concerned. It is certainly not easy to trace the backdrop of the question of complete definition and its consequences in the case of a prolific and versatile author like al-Rāzī. This study draws from many critical subjects, such as classical mereology, hylomorphist semantic theory, the theory of objects, the theory of knowledge concerning the mind and extra-mental objects, or whether absolute essence or noumena can be known. It is only a start for determining, as a consequence or symptom, of what sort of metaphysical and epistemological assumptions this problem emerged. And yet even given all of this, I conclude that the key point of the complete definition debate is the constancy/ variability of mental forms, for there is an equivalence between the idea that the statements of complete definition are circular, or analytical, and that mental objects are presented to the mind in constant forms. Likewise, the suggestions of the non-circularity of complete definition statements and their syntheticity (i.e., they are not tautological) are equivalent to their purport in variable forms, like generality and specificity. Therefore, we have to figure out why the general and specific forms emerge. There is no doubt that al-Rāzī and his followers were aware of these forms' existence, but they intentionally fixed the contents possessed by the *definiens* and the *definiendum* at only one form. So, we should dwell on the metaphysics of the theses of constant form-constant content and variable form-constant content. We seek to elucidate these aspects in future works.

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