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LEKTON: STOIC LOGIC AND ONTOLOGY

Summary: For the Stoics, the *lekton* is as an intermediary between the thought and the object. They do not exist independently of the mind, but, at the same time, the mind does not create them. Due to this status, they guarantee intersubjectivity of the rational discourse. They are incorporeals that do not exist, but subsist and the Stoic Logos-God guarantees their permanent subsistence. The *lekta* are semantico-syntactic entities. Their role is analogous to the role of an interlingua used as a tool for automated translation of languages.

Key words: Stoics, ontology, semantics, the *lekton*.

According to Diogenes Laertius (DL 7.39–44), the Stoics divide philosophy into physics, ethics, and logic. Logic is divided into rhetoric and dialectic, and the latter into the study of language as sound and the study of language as what is said, the λεκτόν. The first part includes parts of speech, “solecism [wrong order of words] and barbarism and poems and ambiguities and harmonious utterance and music” which, roughly, is a province of phonetics and syntax. The second part of dialectic is devoted to the meaning of language and includes the study of presentations (φαντασίαι), *lekta*, and “arguments and modes and syllogisms and fallacies,” and so this part is the domain of syntax (logical reasoning), semantics, and epistemology. The present paper concentrates on the semantic side of dialectic, in particular, on the ontological status of the *lekta*. This is also the focus of dialectic because, as reported by Sextus Empiricus (SE 7.38), dialectic is the study of the true and the false, and only ἀξιώματα, a kind of *lekta*, can be true or false. Which means that syntactic analyses of dialectic are done from the perspective of semantics.

1 LEKTA AND THE STOIC ONTOLOGY

To the Stoics, φωνή is a sound; when it is divided, it is λέξις; its elements are 24 letters; λέξις can be meaningless, but discourse (λόγος) is always meaningful (DL 7.56–57, SE 8.80). In epistemological order, “the presentation is first and then the thought (διάνοια), which is verbally expressive, puts into *logos* what it experi-

ences because of presentation” (DL 7.49). This may be taken to mean that “as long as perceptual image is not expressed in articulated speech, it remains at the prerational stage.”¹ The result of this mental operation is the rational presentation, φαντασία λογική, which is the thought, νόησις (DL 7.51), the sensory presentation expressed by language (λόγῳ παραστήσαι, SE 8.70) and grasped by the mind. Epictetus defines *logos* as “the system of various presentations (σύστημα ἐκ ποιῶν φαντασιῶν); thus, by nature, it also becomes contemplative of itself” (*Diss.* 1.20). Therefore, *logos* can be self-referent.

Language does not exist in written and spoken form only. Chrysippus recognizes inner language (Galen, *De plac.* 5.345 = 2.903),² that is, words are formed in the heart, the seat of the commanding faculty (ἡγεμονικόν), before they are uttered. In fact, man differs from irrational animals not in respect to uttered speech (τῷ προφορικῷ λόγῳ), but in respect to internal speech (τῷ ἐνδιαθέτῳ [λόγῳ]) (SE 8.275) and ἐνδιαθέτος λόγος is defined as “the motion taking place in the mind without any utterance” (Nemesius, *De nat. hum.* 14). Therefore, the spoken word is dependent on the thought word.³

According to the Stoics, there are three things involved in understanding an utterance: the signifier (τὸ σημαῖνον), that is, the utterance itself, for example the word “stone”; the object (τὸ τυγχάνον), that is, the stone indicated by the word; and the thing signified (τὸ σημαινομένον), or the *lekton* (SE 8.11–12). “*Lekton*” is a neuter adjective of “*legein*,” and “*legein*,” “to say,” is defined as “to utter the sound capable of signifying the object conceived” (SE 8.80), where the object conceived is apparently the *lekton*. It is far from clear how the word *lekton* should be translated and many different ways of rendering it have been proposed: sayable (Long); what can be said, and what is said (Graeser), what is said, what is meant (Mates, Kneale), that (judgments) which can be expressed (Watson); *das Ausgesagte* (Verbeke), *das Ausgesprochene* (Zeller), *l’exprimable* (Bréhier), *dicibile* (Orth), that which is meant (Mates), but it seems that it is sufficient to render it simply as meaning.

The need for the third entity – next to the utterance and the object – arises in the situation when a Greek and a barbarian hear the same word; the barbarian does not understand the word although he hears the same sound as the Greek. The *lekton* is induced by the word in the mind of the Greek but not in the barbarian’s mind. The Greek and the barbarian have the same representation in their minds, the same intelligible object, but to the former a connection is made between the word and the object which is lacking to the latter. This connection between the stone and the word

¹ VERBEKE, Gerard: Der Nominalismus der stoischen Logik, *Allgemeine Zeitschrift für Philosophie* 1977, p. 37; VERBEKE, Gerard: La philosophie du signe chez les Stoïciens, in *Les stoïciens et leur logique*, Paris: Vrin 1978, p. 403. On the Stoic concept of *logos*, cf. MATES, Benson: *Stoic logic*, Berkeley: University of California Press 1961, p. 134.

² Numbers after equal sign refer to ARNIM, Hans von: *Stoicorum veterum fragmenta*, v. 1–4, Leipzig: Teubner 1903–1924 [reprint: Dubuque: Brown 1967].

³ “The articulation of voice is only a mirror image of the corresponding dynamics of the inner *logos*, the development and formation of *dianoia*,” POHLENZ, Max: Die Begründung der abendländischen Sprachlehre durch die Stoa, *Nachrichten der Akademie der Wissenschaften zu Göttingen, Philologisch-historische Klasse* 1939, p. 195; “*logos prophorikos* is the bodily form of the *logos endiathetos*,” LÖBL, Rudolf: *Die Relation in der Philosophie der Stoiker*, Amsterdam: Rodopi 1986, p. 97.

“stone” is an attribute of the stone of being signified by “stone.” However, this attribute should not change the nature of the object, and so it must be an incorporeal. This is a departure from Aristotle, to whom, in the words of his commentator, Ammonius, utterances signify thoughts and objects through thoughts as intermediaries. But the Stoics include the *lekton* as an intermediary between the thought and the object (*In De interp.* 16a3 = 2.168). By introducing *lekta*, the Stoics avoid the problem of determining how the thoughts – modifications of the *hegemonikon*, and thus a form of an expression – of two people, or, for that matter, the thoughts of the same person at different moments, can have the same meaning. For the Stoics, comparison of thoughts is possible because there is a *tertium comparationis*, namely the objective meaning of the thought, the *lekton*. Thinking is a subjective process of independent minds and as such, it cannot be transferred from one mind to another to make communication possible. But by introducing an invariant, the *lekton*, the Stoics enable this communication. An interesting question is, what is the ontological status of the *lekta*?

There are two general categories in the Stoic ontology: something (τί, *quid*) and non-something (οὐτί). For Plato, to be something is already to exist (*Parm.* 132bc). However, the Stoic category of somethings is divided into 1. bodies, 2. incorporeals (*lekta*, void, place, time), and 3. entities “falsely formed by thought” (Centaur, Giants), and mathematical constructs (points, lines) which can be considered as neither corporeals nor incorporeals.⁴ On the other hand, there are concepts (έννοήματα) that correspond to Platonic ideas; they are non-entities, non-somethings, at best quasi-somethings or “figments of the soul.”⁵ The concepts are outside of somethings, and, in a sense, outside the Stoic ontology. They correspond to universals, but in the Stoic ontology there are only single, individual entities, whether corporeal or incorporeal; to be something is to be a particular, and there is no room in this ontology for anything that surpasses the level of particulars – such as an idea of man, a man in general, and so universals are excluded from the category of somethings.⁶

Incorporeals, including the *lekta*, are sometimes considered to be mental constructs.⁷ However, the *lekta* were introduced to assure the objectivity of the meanings of utterances. If they were mental constructs, they would be subjective, and thus the problem of possibility of interpersonal communication would still be unsolved. Therefore, the ontological status of the *lekta* has to be grounded outside the mind. But does it mean that the existence of the mind has nothing to do with the subsistence of the *lekta*?

Lekton is defined as “that which subsists according to a rational presentation” (τὸ κατὰ λογικὴν φαντασίαν ὑφιστάμενον, SE 8.70; DL 7.63). So the *lekta* are

⁴ Seneca, *Ep.* 58.13–15; SE 10.218; DL 7.135; LONG, A. A.–SEDLEY, D.N.: *The Hellenistic philosophers*, Cambridge: Cambridge University Press 1987, v. 1, pp. 163, 165, 301, but see also BRUNSCHWIG, Jacques: *Papers in Hellenistic philosophy*, Cambridge: Cambridge University Press 1994, p. 97.

⁵ Stobaeus 1.12.3 = 1.65; Alexander, *In Top.* 127a26 = 2.329; DL 7.60–61.

⁶ Syrianus, *In Met.* 104.17–21, 1078b12 = 2.361; cf. LONG–SEDLEY, *op. cit.*, pp. 164, 181.

⁷ WATSON, Gerard: *The Stoic theory of knowledge*, Belfast: Queen’s University 1966, p. 42; CHRISTENSEN, Johnny: *An essay on the unity of Stoic philosophy*, Copenhagen: Munksgaard 1962, p. 25; GRAESER, Andreas: *Zenon von Kiton: Positionen und Probleme*, Berlin: de Gruyter 1975, p. 19.

not independent entities. The presentation implies the existence of the mind on which it is imprinted; therefore, “just as ‘walking’ entails the existence of a walker, so *lekta* would appear to entail the existence of a mind.”⁸ However, this does not mean that the *lekta* are constructs of the mind. They do not exist independently of the mind, but, at the same time, the mind does not create them. The definition of the *lekton* also suggests that it exists as long as the expressions corresponding to it.⁹ The mind, however, invokes a *lekton*; it does not construct it. The mind has no part in shaping the *lekta*, otherwise, the objectivity of the *lekta* would be destroyed.

Why are the *lekta* not bodies? It may be argued that their incorporeality is an expression of their objectivity. Of course, real bodies in the world are also objective, independent on people’s minds. But the *lekta* are connected to language. If they were corporeal, then there would exist another corporeal world, the world of meaning, behind the real world, which is at least redundant. This would resemble a situation when a map is created which is a material copy of the real world. But little is thereby gained. The *lekta* should assure that rational discourse is really rational, really intersubjective. Therefore, incorporeality of the *lekta* is not just an expression of its objectivity, but objectivity of the aboutness of language, of intentionality of discourse.

2 SEMANTICS OF *AXIOMATA*

A particular type of *lekta* are *axiomata*. The *axioma* is defined as “a complete *lekton* that can be asserted in itself.”¹⁰ As already mentioned, to the Stoics an *axioma* is either true or false¹¹ and only *axioma* can be true or false (SE 8.74), but Sextus who reports the latter restriction also says that presentations can be true (SE 7.243–244; Aetius 4.9.4 = 2.78). Presentations are modifications of the corporeal mind, and thus are corporeal. Can both presentations, which are corporeal, and *lekta*, which are incorporeal, be designated as true? Sextus states that “the sensibles are never true directly, but only as related to the corresponding intelligibles (τὰ παρακείμενα νοητά)” (SE 8.10); for Sextus, an intelligible designates an incorporeal¹²; therefore, true and false are necessarily predicates of an *axioma*, not of a presentation.¹³

⁸ LONG, A. A.: Language and thought in Stoicism, in A. A. LONG (ed.): *Problems in Stoicism*, London: The Athlone Press 1971, pp. 90, 94; also Nuchelmans seems to lean in this direction, NUCHELMANS, Gabriel: *Theories of the proposition*, Amsterdam: North-Holland 1973, pp. 86–87.

⁹ LONG, Language and thought, p. 97; GRAESER, Andreas: The Stoic theory of meaning, in RIST, J. M. (ed.): *The Stoics*, Berkeley: University of California Press 1978, pp. 88–89.

¹⁰ SE, PH 2.104; SE 7.38. *Axioma* is “an object that can be asserted in itself” (DL 7.65), where an object (*pragma*) means the same as a *lekton* (cf. TELEGDI, Zsigmond: Zur Herausbildung des Begriffs ‘sprachliches Zeichen’ und zur stoischen Sprachlehre, *Acta Linguistica Academiae Scientiarum Hungaricae* 26 (1976), p. 295). A question is a complete *lekton* that requires an answer (DL 7.66). It may be thus conjectured that the phrase “in itself” (ὅσον ἐφ’ ἑαυτῷ) in the definition of an *axioma* may mean that the *axioma* does not require anything else beyond itself, see FREDE, Michael: *Stoische Logik*, Göttingen: Vandenhoeck & Ruprecht 1974, p. 37; BOBZIEN, Susanne: *Die stoische Modallogik*, Würzburg: Königshausen & Neumann 1986, pp. 12–13.

¹¹ DL 7.65–66; SE 8.12; Cicero, *De fato* 38 = 2.952.

¹² The *noeta* in the quoted fragment “must be equated with the mind’s grasp of *lekta*,” although, technically, *noeta*, being states of the *hegemonikon*, are corporeals, and *lekta* are not, KERFERD, George:

The Stoics propose an interesting theory of truth. According to Aristotle who formulates in his *Metaphysics* the classical theory of truth that was later summarized by the Scholastic formula *adequatio rei et intellectus*, truth value is assigned to sentences. To the Stoics, sentences are not true (or false), but the *axioma*: “one who says ‘it is day’ seems to accept that it is day; so when it is day, the present *axioma* becomes true, and when it is not, it becomes false” (DL 7.65). More generally, the *axioma* expressed by a sentence is true when the state of affairs corresponding to the *axioma* is the reality. However, the truth value of an *axioma* can be defined without mentioning a sentence expressing it. Sextus quotes the Stoics who state that the “true *axioma* [= the true] is that which is (ὁπάρχει) and is contradictory to something,” that is, to another *axioma* (SE 8.10, 85, 88).¹⁴ This definition includes a mixture of syntactic and semantic components.

On the one hand, the semantic component, “that which is” (τὸ ὁπάρχον), is defined as “that which activates the cognitive presentation (τὸ καταληπτικὴν κινουὺν φαντασίαν)” (SE 8.85; SE, PH 3.242), which can only be a body since only a body can excite anything and “a cognitive presentation is one which arises from what is and is stamped and impressed exactly according to what is, [and is] of such a kind that could not arise from what is not” (SE 7.248). *Hyparchon* is an efficient cause of cognitive presentations because of κινουὺν: white object activates (κινουὺν) us (or our soul) by inducing a corresponding sensation (Aetius 4.12.1 = 2.54). But directly after the definition of the true (and the false), Sextus says that this is an incorporeal *axioma* and an intelligible (νοητόν, SE 8.10). True *axiomata* are pronounced to be incorporeals but at the same time, *ta hyparchonta*, existing objects. Are incorporeals existing entities?

To the Stoics, *axiomata* are divided into definite, indefinite, and intermediate (SE 8.96–98; DL 7.69) and primarily the definite *axioma* can have truth values. An indefinite *axioma* is true when the corresponding definite *axioma* is true, otherwise, it can be neither true nor false.¹⁵ The definite *axioma* “this man is walking,” say the

The problem of synkatathesis and katalepsis in Stoic doctrine, in *Les stoïciens et leur logique*, pp. 259, 270. See also BRÉHIER, Émile: *La théorie des incorporels dans l'ancien Stoïcisme*, Paris: Vrin 1928 [1908], p. 32.

¹³ Day is not true, but an affirmation: there is a day, as remarks BRÉHIER, Émile: *Chrysippe et l'ancien Stoïcisme*, Paris: PUF 1951 [1910], p. 70. “*Alethes* applies primarily and strictly to *axiomata* and only secondarily and derivatively to *phantasiai*. That is, the truth of a *phantasia* is dependent upon the truth of an *axioma* to which it corresponds,” LONG, Anthony A.: The Stoic distinction between truth (ἡ ἀλήθεια) and the true (τὸ ἀληθές), in *Les stoïciens et leur logique*, p. 300; similarly, MATES, *op. cit.*, pp. 19–26; KNEALE, William and Martha: *The development of logic*, Oxford: Clarendon Press 1991 [1962], pp. 150–151; NUCHELMANS, *op. cit.*, p. 77.

¹⁴ It is important to notice that the true (= true *axioma*) is not the same as the truth (Sextus is the only author who discusses this Stoic distinction between the truth and the true, SE, PH 2.80–83, SE 7.38–45). The truth is a body, thus not a set of true *axiomata*, but a mental disposition, a state of the *hegemonikon* which is a body (SE, PH 2.81); the truth is a system of concepts and presentations to be used to test the truth value of the *axioma*, “a coherent and comprehensive structure of valid general concepts which, in association with *kataleptikai phantasiai*, guarantee the truth of all propositions [*axiomata*] corresponding to them,” LONG, The Stoic distinction, pp. 304, 307.

¹⁵ It is claimed that only definite *axioma* can have truth values, KERFERD, *op. cit.*, p. 264, but see SCHUBERT, Andreas: *Untersuchungen zur stoischen Bedeutungslehre*, Göttingen: Vandenhoeck & Ruprecht 1994, p. 64.

Stoics, “is true (ἀληθὲς ὑπάρχειν) when the predicate (κατηγορημα), such as ... walking, applies (συμβεβήκει) to the object indicated” (SE 8.100). This causes a problem because a predicate is incorporeal and it cannot literally apply to an object. However, its being applied invokes the concept of an attribute (συμβεβηκός), which is defined by Aristotle as something that belongs to a thing (*Top.* 102b4-10). Sextus’ definition could thus be rephrased to say that an *axioma* is true when the attribute corresponding to the predicate belongs to the object.¹⁶ In what sense does it belong? The Stoic ontology allows only for the existence of individual bodies that can act. Actions expressed by verbs are predicates that state something about bodies and as such, predicates are incorporeal. Having reported Zeno’s view that a cause is a body and the effect is a predicate, Stobaeus says that being prudent occurs because of prudence (1.13.1c = 1.89).

Definition of a true *axioma* as a *hyparchon* should not be connected with the definition of the *hyparchon* as a cause of a cognitive presentation, but with the definition of a true definite *axioma* in which the *axioma*’s being (*hyparchein*) true is explained as the correspondence of a predicate to a state of an object.¹⁷ Sextus passed from the definition of *axioma* as a *hyparchon* to the definition of the *hyparchon* to criticize the vicious circle he thought he discovered in the Stoic doctrine: cognitive presentation is defined by the *hyparchon*, the latter is defined as something which induces the former (SE 7.426, 8.85–86, *PH* 3.242; *DL* 7.50). Sextus did not make any remark concerning the possibility of an incongruity between the incorporeal character of the *axioma* and its being an existent, a *hyparchon*.

The *lekta* are dependent upon the mind for their subsistence, that is, there are no independently existing *lekta*; however, this dependence goes even further, namely, an expression can outlive the *lekta* associated with it. Chrysippus is reported to have said that the *axioma* “this man is dead” is destroyed (φθείρεσθαι) when “this man” refers to Dion and Dion died because the reference no longer exists and now it is impossible to say about Dion, “this man is dead” (Alexander, *In An. pr.* 177.25–178.1 = 2.202a). This means that “this man is dead” is a meaningless utterance because there is no object corresponding to “this man”; the statement cannot be accompanied by pointing to Dion to indicate the reference of “this man.” One can point to the body of dead Dion, but this is not a man any more, but a lifeless body. For such statements, there is no corresponding *lekton* and object, its utterance cannot induce an *axioma*. As a whole, the statement is devoid of meaning although we still understand what is being a man, on the one hand, and being dead, on the other. The statement becomes a statement of the same category as “this is a square circle,” since although we know the meanings of being square and being circular, “this is a square circle” is devoid of meaning since we cannot point to any object that has the two properties at the same time, and thus there is no *axioma* corresponding to the state-

¹⁶ REESOR, Margaret E.: *The nature of man in Early Stoic philosophy*, London: Duckworth 1989, p. 41.

¹⁷ In this sense, it is true that *axioma hyparchei* can be translated as “the *axioma* corresponds to a fact,” BOBZIEN, *op. cit.*, p. 16. Cf. LONG, *Language and thought*, p. 93.

ment. In this sense, “the destruction of an *axioma* is its ceasing to be expressible.”¹⁸ An expression becomes void and, quite literally, meaningless. However, there is no corresponding problem with “Dion is dead” after Dion’s death. “Dion” refers to an individual quality unique to Dion and can be expressed even if Dion is no longer alive. In that case, the *axioma* “Dion is dead” is not destroyed; it is also true because the object, Dion, is dead. Does the *lekton* also depend on the object of reference?¹⁹ If the object of reference is Dion, then no, since the object does not exist any more, and yet the *lekton* does.

This discussion indicates that it would be difficult to treat *axiomata*, and, generally, *lekta*, as non-existents. As indicated by Long, it would be a vain effort for Sextus to offer arguments against existence of the *lekta* if it were not clear to him that the Stoics consider them as existing entities.²⁰ Also, Sextus explicitly mentions some who disagree with a real existence (ὑπαρχις) of the *lekta*, and Basileides who among the Stoics claimed that there are no incorporeals (SE 8.258).

Axiomata are said to exist, *hyparchein*, and to subsist, *hyphistasthai*. Which denomination is correct? As correctly indicated by Schubert, the main source for the application of the two terms is Sextus and the plethora of examples indicates that he has no scruples in switching between the two terms.²¹ Sextus applies both terms to both corporeals and incorporeals so that by the usage of the terms it is impossible to state that only bodies exist and incorporeals do not. However, because of their dependent existence, *lekta*’s existence can be considered somewhat lesser than the existence of bodies, mere subsistence, “the existence of a shadow.”²² But the *lekta* are incorporeal (SE 8.12, Seneca, *Ep.* 117.13), so their existence undermines the monistic character of the Stoic doctrine.²³ The *lekta* exist as, at the same time, a side-effect of the activity of the mind and the guarantee that different minds can meaningfully communicate. In that sense, the rational soul’s “capacity for abstract thought represents some kind of transcendence over the purely corporeal which is strictly the only kind of existence the Stoics recognised.”²⁴ Rationality does not seem to fit the monistic philosophy of the Stoics. To be sure, they could consider the *lekta* to be bodies, and they did not shun from extending the realm of bodies. After all, even

¹⁸ KNEALE, *op. cit.*, p. 154.

¹⁹ The Dion example is said to indicate that the *lekta* are dependent on the object of reference, LONG, *Language and thought*, p. 98.

²⁰ LONG, *Language and thought*, p. 84.

²¹ SCHUBERT, *op. cit.*, p. 167.

²² PASQUINO, Pasquale: Le statut ontologique des incorporels dans l’ancien stoïcisme, *Les stoïciens et leur logique*, p. 383; as he states somewhat picturesquely, incorporeals are “effects that are produced around the bodies, which appear and disappear, at the same time *tina* and *ouk onta*, the reality endowed with quasi existence, the reality accepted and disqualified at the same time,” p. 381; “there exists in nature an incorporeal, that is, an inexisting existent,” WEIL, Eric: Remarques sur le ‘matérialisme’ des stoïciens, *Mélanges Alexandre Koyré*, v. 2, Paris: Hermann 1964, p. 568.

²³ The mere discussion of incorporeals is considered to be a sign of the dualism of the Stoic doctrine, VIRIEUX-REYMOND, Antoinette: *La logique et l’épistémologie des Stoïciens*, Chambéry: Lire 1959, p. 62. Dualism can be found not only in the doctrine of the incorporeals; Popper sees in the Stoic concept of the *hegemonikon* “special form of body-mind dualism,” POPPER, Karl R.: *Objective knowledge*, Oxford: Clarendon Press 1972, p. 157, note 6.

²⁴ LONG, A.A.: *Stoic studies*, Cambridge: Cambridge University Press 1996, pp. 248–249.

virtues were bodies and they discussed whether walking, a body, is a breath sent by *hegemonikon* to the feet or *hegemonikon* itself (Seneca, *Ep.* 113.23 = 2.836). Why not *lekta*? It has been argued above that this would lead to a redundancy in the cosmos. It seems that the Stoics were more concerned about defending nominalism than monistic materialism. Therefore, the subsistence of the *lekta* would not be considered unacceptable by them, providing that the ἐννοήματα remain outside that category.

3 SYNTAX OF *AXIOMATA*

It has been mentioned that the definition of a true *axioma* as “that which is and is contradictory to something” is a mixture of syntactic and semantic components, the reference to a contradictory *axioma* being the syntactic component. Contradictory *axiomata* are defined as “such of which one exceeds the other by the negative” (SE 8.89). Two *axiomata*, *P* and *not P*, are contradictory because “the negative is prefixed to one of the *axiomata*” (SE 8.90). This is purely structural, syntactic criterion. Can an *axioma* be divided into an *axioma* and a negative? Can *axiomata*, or, more generally, *lekta* have parts? “No incorporeal can be either compounded or divided, for these are things peculiar to bodies,” says Sextus (SE 8.79), but according to Chrysippus, other incorporeals – namely space, time, and the void are divisible (Aetius 1.16.4 = 2.482). The problem is exacerbated by the Stoic division of the *lekta* into complete and incomplete. Incomplete *lekta* are expressed by incomplete sentences, e.g., “writes,” and they include predicates; complete *lekta* are given by complete sentences and they include *axiomata*, syllogisms, and questions (DL 7.63). Moreover, there are grammatical categories and their semantic counterparts. Common nouns signify (δηλοῦν) common properties, proper names signify individual properties (ἰδίαν ποιότητα), that is, bodies, not *lekta*, because properties are bodies. Verbs signify uncompounded (ἄσύνθετον) predicates (DL 7.58), which are *lekta* and are joined with a nominative case (πτῶσις)²⁵; a predicate forms an *axioma*; that is, the *axioma* is compound because it consists of a subject and a predicate as, for example, the predicative *axioma* “Dion is walking.”²⁶ This may make an impression that the incorporeal *axioma* is composed of a corporeal and an incorporeal. However, a complete *lekton* is not a compound *lekton*. *Axioma* expressed by the sentence “Dion walks” is not composed of the corporeal Dion and incorporeal predicate “walks.” The *axioma* is a *lekton* which expresses the fact that Dion is walking and nothing else. It expresses only one attribute of Dion, namely, that he is walking, but not that he is bold, married, young, etc. The *axioma* reduced Dion to one aspect only, to the fact that he is walking. All other attributes are stripped from him except that he walks. “Dion walks” denotes one thing: walking(Dion), Dion in the process of walking, walking-

²⁵ *Ptoxis* is a case, a syntactic category, but it seems to be used here as a noun, or a subject, that is in a particular case, see SCHUBERT, *op. cit.*, p. 81; see also NUCHELMANS, *op. cit.*, p. 73; LERSCH, Laurenz: *Die Sprachphilosophie der Alten*, Bonn: König 1838 [reprint: Hildesheim: Olms 1971], v. 2, pp. 54, 185–190; TELEGI, *op. cit.*, p. 291.

²⁶ DL 7.64–65, 70; Plutarch, *Quaest. Plat.* 1009c.

ness of Dion, Dion endowed with one attribute only: walking. Although the reference of the subject, Dion, is a real person, the attribute makes him unreal, incorporeal, because there is no one who can be characterized only by walking. It is not true, then, that “the true *axioma* has a structure corresponding to a similar structure in the object described.”²⁷ Although complete *lekton* is defined as a compound, the result is a seamless whole in which no subject and a predicate can be distinguished. In particular, the *axioma* expressed by the baffling statement “Dion is dead” can be true although there is no denotation for Dion.²⁸ It is true not because real Dion has to correspond to individual property *Dion*, on the one hand, and death has to correspond to predicate *dead*, on the other, but because the *axioma* as a whole connotes deadness of Dion, Dion’s being dead, an incorporeal entity corresponding at the same time to real (although not existing any more) Dion and real death.

The Tarskian definition of truth cannot be applied to the Stoic *axiomata*, at least to atomic *axiomata*. The definition says that the atomic statement $P_i(x_1, \dots, x_n)$ is satisfied in the domain (U, r_1, \dots, x_m) for a particular valuation (a_i) of elements in U when $r_i(a_1, \dots, a_n)$. This means that there is an isomorphism between a language statement $P_i(x_1, \dots, x_n)$ and the event expressed by the metalanguage statement $r_i(a_1, \dots, a_n)$. Importantly, for Tarski, truth value is ascribed to language elements; to the Stoics, it is ascribed to the *axiomata*. Therefore, to the Stoics, $P_i(x_1, \dots, x_n)$ should be an *axioma* and $r_i(a_1, \dots, a_n)$ a state of affairs. However, the Stoics would not require structural correspondence between an atomic *axioma* and an event because there is no structure in them, at least not in the atomic *axioma*. They could at best say that an atomic *axioma* P is true when r . It is true then, that “the Stoic semantics challenges the possibility of reducing the meaning of an utterance to that of its terms.”²⁹ But this is true only for the atomic *axiomata*. The syntactic aspect of the *axioma* is not abolished altogether. For the Stoics, *axiomata* are the material of logic with its five unprovable arguments or syllogisms (ἀναπόδεικτοι λόγοι) and four corresponding, unprovable metarules (θέματα).³⁰ Syntax appears on the level of nonatomic *axiomata*, in the discussion of negation, conjunction, alternative, and, in particular, the conditional. Stoic logic is propositional logic in which propositional variables are used. This is a departure from Aristotelian logic which uses only term variables.³¹ For example, one syllogism is, “if the first, then the second, but the first, then the second” (SE 8.227) in which “first” and “second” are variables, so that the syllogism

²⁷ KNEALE, *op. cit.*, p. 153 seconded by GRAESER, *The Stoic theory of meaning*, p. 80, but he also says that because their ontology is the ontology of facts, not substances, the Stoics cannot grant the *lekta* any exact object reference in the sense of a known isomorphic correspondence, GRAESER, *Zenon*, p. 27.

²⁸ GRAESER, *The Stoic theory of meaning*, p. 83.

²⁹ IMBERT, Claude: *Théorie de la représentation et doctrine logique dans le stoïcisme ancien*, in *Les stoïciens et leur logique*, p. 236.

³⁰ The sophistication of the Stoic logical theory is indicated by the fact that it can be shown to be complete, that is, any question posed in the language of this logic can be answered in positive or in negative, BECKER, Oskar: *Zwei Untersuchungen zur antiken Logik*, Wiesbaden: Harrassowitz 1957, pp. 39, 46–48.

³¹ This point is stressed strongly by Łukasiewicz who sees in it a major step in the history of logic, ŁUKASIEWICZ, Jan: *Z historii logiki zdań* (1934), translated in his *Selected works*, Amsterdam: North-Holland 1970, p. 199.

can be rendered as “if p , then q , but p , then q .” Clearly, the structure, that is, syntax, of the *axiomata* “if p , then q ,” “ p ,” and “ q ” is of critical importance for the proper application of the syllogism.

It seems to be inescapable to include syntactic analyses in the Stoic semantics. But this is also a problem – a philosophical, not a logical problem – in the Tarskian semantics as well. In Tarski’s definition, a language L_1 statement $P_i(x_1, \dots, x_n)$ is in essence translated into a metalanguage statement $r_i(a_1, \dots, a_n)$ and then, possibly, into a statement in a language L_2 to be proven in a theory formed in L_2 . In this process, all steps are purely syntactic procedures.³²

The world of *lekta* is primarily a semantic entity, the world of meaning, but it is not structure-free. It has its syntax, so the *lekta* are semantico-syntactic entities.³³ Their role is to be invariants behind actual utterances in whatever language and at whatever time they can be phrased. It is interesting to see an analogy between this understanding of the *lekta* and an effort to construct an interlingua as a tool for automated translation of languages.

4 INTERLINGUA

A great challenge in machine translation was to minimize the amount of work needed in translating many languages into many other languages. For n languages, there are needed $n(n-1)$ translation systems to translate languages into one another. It is possible, however, to translate each language into one common language, an interlingua, and then interlingua into each language, which requires only $2n$ translation systems. From a purely practical point of view, the interlingual approach is more appealing than the language-to-language approach for at least four languages, $n > 3$.

In the syntactic interlingual approach, interlingua turns into summalingua that includes syntactic categories of all languages. In the semantic approach, interlingua is envisioned as a web of meanings lying behind all languages. One interesting approach is the conceptual dependency theory proposed by Roger Schank. The main assumption of the theory is the statement that “the basis of natural language is conceptual. That is ... there exists a conceptual base that is interlingual, onto which linguistic structures in a given language map during the understanding process and out of which such structures are created during generation.”³⁴ Schank proposes an intricate structure of the interlingua. It consists of different types of concepts, conceptual cases, and dependencies, which are relations between all these conceptual categories. He gives a set of rules specifying permissible conceptual dependencies, conceptual syntax rules, or syntax of the conceptual level, which forms the grammar

³² This problem is discussed in my paper, Semantics of programming languages and the theory of truth, *Epistemologia* 16 (1993), pp. 281–310.

³³ This is also phrased as that the *lekta* “have a syntax as well as a model theory,” EGLI, Urs: Stoic syntax and semantics, in *Les stoïciens et leur logique*, p. 138.

³⁴ SCHANK, Roger: Conceptual dependency: a theory of natural language understanding, *Cognitive Psychology* 3 (1972), pp. 553–554.

of meaningful semantic relationships. It is important that interlingua is a conceptual language, a language of concepts, that is, a semantic entity that has its syntax. Although semantics is a more important side of interlingua, the interlingua is a semantico-syntactic union. It seems that the Stoic *lekta* were intended to play the role of an interlingua.³⁵

5 GOD AND SUBSISTENCE OF *LEKTA*

There remains a problem of the subsistence of the *lekta* and their objectivity. They have clearly no independent existence. How can one person truly communicate with another person? In what situation two people who refer to the same thing, mean the same? If one person utters an expression, then, during the utterance, its meaning, the *axioma* subsists. However, if after that, another person utters the same expression, he does not mean the same thing since another *axioma* corresponds to it as long as the expression lasts. The two *axioma* are not the same, cannot be the same, and hence the two people mean different things. But if there is one timeless *axioma* whose eternal subsistence can somehow be guaranteed, then there is always one *axioma* corresponding to the same expression uttered by different people in different times.

In other philosophical systems the permanence of *axiomata* can be accomplished by positing eternal meanings. Platonic ideas exist even if there is no material instantiation of these ideas. They existed before the Demiurge molded the world from the preexisting matter. Bolzano's sentences in themselves, which are meanings of spoken or written sentences, are independent of any language and any being, even God. As Frege states in his 1918 paper *Der Gedanke*, a thought is the meaning of a sentence, and it has non-sensory nature. It can be expressed in a sentence, but it does not have to be. Thoughts are independent entities since if they required a sentence expressing them, science would be subjective and there would not be science common to all. Thoughts are the third kingdom, which invokes immediately the concept of the third world. Popper himself states that the *axioma* are "the most important third-world linguistic entities."³⁶ But because of the objective status of the third world, its components are not the Stoic *axioma*. Also, the *lekta* can be at best considered as approximations of Bolzano's sentences in themselves and Frege's *Gedanke* or *Sinn*.³⁷ But even in the Stoic system, the dependent subsistence of *axioma* does not necessarily mean that they cannot be eternal. It may be assumed that the Stoic Logos-God is capable of holding all possible statements expressing all possible *axioma* in his mind, in his divine *hegemonikon*, and thus all the corresponding *axioma* timelessly sub-

³⁵ "A *lekton* ... is what remains constant in translation from one language to another," KNEALE, *op. cit.*, p. 158.

³⁶ POPPER, *op. cit.*, p. 157.

³⁷ MATES, *op. cit.*, pp. 19–25; BOCHENSKI, Joseph M.: *A history of formal logic*, Notre Dame: University of Notre Dame Press 1961, p. 110; KAHN, Charles H.: Stoic logic and Stoic Logos, *Archiv für Geschichte der Philosophie* 51 (1969), pp. 170–171, note 25.

sist.³⁸ Therefore, anyone who utters a particular expression refers to the same *axioma* as the expression existing from eternity in God's mind. Importantly, truth value of the *axioma* may evolve.³⁹ The truth value of the *axioma* corresponding to "Dion is dead" today may be different from that of the *axioma* corresponding to this expression tomorrow, after Dion's death, but, still it is only one *axioma* at any one time.

It is important to notice that there is no fundamental impossibility that God thinks at the same time all thoughts that induce the subsistence of requisite *lekta*. The universe is finite and thus God who is immanent in the universe is also finite. But although the world exists eternally, it undergoes periodic conflagration after which the same events happen in exactly the same order. Therefore, the number of different people and different thoughts and utterances is also finite. Incidentally, even if the Stoic doctrine did not include the thesis of eternal recurrences, God could accommodate an infinite number of the *lekta* as well. The Stoics could refer to Zeno's dichotomy paradox and say that some unit of the *hegemonikon* corresponds to all the thought sentences: a half of this unit corresponds to one sentence, one fourth to the second sentence, one eighth to the third sentence, etc. In this way, even a finite God can be a guarantor of the existence of an infinity of sentences and thereby of the subsistence of an infinity of *lekta*.

God-Logos saturates entire reality. He is present in all the nations, in all rational beings, regardless of what language they use, and thereby he can be a guarantor of a timeless subsistence of the *lekta*, of the eternal presence of the meanings of spoken and thought, or yet to be spoken and thought, statements. By the nature of the universe, there is one underlying interlingua, an eternal repository of meanings to which all languages of all rational beings can connect. The interlingua would thus be an incorporeal counterpart of the *cosmopolis* that transcends all institutions.

This solution can be strengthened by the fact that, after all, the whole of reality is dependent on God. The reality is in the eternal cycle of destruction and regeneration where God remains the only being the same in this cycle. Everything stems from God, all individual bodies and their properties, all the more, all incorporeals.

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³⁸ Kahn is convinced that "there should be some connection between the *lekta*" and the cosmic Logos, although the only suggestion he offers is that the *lekta* are "the mode of rationality reflected in human speech" as reflected in the word "logos," KAHN, *op. cit.*, p. 169.

³⁹ It seems to be correct that the Stoics have no atemporal *axioma*, an equivalent of today's proposition and that the *axiomata* that can change their truth-value, μεταπίπτοντα, form no special class of *axiomata*, since all *axiomata* can change their truth-value, BOBZIEN, *op. cit.*, p. 24.