Gyula Klima as Medievalist

Jacob Archambault

January 2, 2022

Abstract

This essay provides a broad introduction to Gyula Klima's work in the field of medieval philosophy, with special attention to his pioneering work in semantics and on the 14th century Parisian Arts Master John Buridan. Klima's scholarship provides one of the best examples available among philosophers living today not only of how to read thinkers in the medieval tradition, but also of how the effort to understand a radically different paradigm embodied in that reading provides the first steps to resolving broader problems effecting a breakdown of communication in philosophy as a discipline at large.

1 Introduction

The breadth of Gyula Klima's scholarship stretches historically from some of philosophy's best-known figures in Anselm, Aquinas, Ockham and Descartes to lesser-known figures including Thomas of Sutton and Henry of Ghent, to Frege, Geach, Kenny, and others who have produced some of the most impactful scholarship in the analytic tradition; and thematically from debates on identity, categories, and causation in metaphysics, on skepticism in epistemology and theories of mental content in philosophy of mind, to others too numerous to mention. This essay provides a broad overview of that body of work, I begin with an overview of Klima's pioneering work in the field of medieval semantics, From there, I consider his work editing, translating, and analyzing the logician and Parisian Arts Master John Buridan in particular, closing with some thoughts on the unique character and import of Klima's work as a historian of medieval philosophy within today's' philosophical landscape.

2 Gyula Klima's contributions in the history of semantics

From his earliest work in semantics, Klima recognized that classical logic, being primarily interested in developing an account of the semantics of propositions as a precondition for the development of a theory of consequence, affords much less attention to the components of propositions themselves. Klima fills this lacuna

by providing some of the earliest and most ambitious applications of restricted quantification in the history and philosophy of logic, using it both to formalize the medieval theory of supposition and to provide a general account of quantitatively ambiguous natural language sentences.[1] Elsewhere, Klima's formalizations of supposition theory specifically and medieval semantics more broadly provide us with an account of the semantics of intensional verbs (Klima 1991b), a semantic foundation for Aquinas' theory of the analogy of being (Klima 1996, 2002a), and a clean resolution of the problem of existential import in the Aristotelian square of opposition.[2]

In one sustained thread of that work, Klima decouples *via antiqua* and *via moderna* semantics from the realist and anti-realist metaphysics with which they are most commonly paired, contending that neither semantics by itself strictly entails its associated metaphysics (Klima 1999, 2011b). Rather, archtypical realists were required to adopt non-straightforward semantic accounts of the meanings of terms in at least some cases by their antecedent metaphysical commitments (e.g. to divine simplicity) (Klima 2002b), while some of the best known nominalist logicians incorporated what today would be regarded as realist elements in their logic (Klima 2005). For Klima, the *via antiqua* and *via moderna* traditions of medieval logic differ not in their *quantity* of ontological commitments, but in the tools they provide for *handling* ontological commitments, which in turn differ from those of the model-theoretic framework dominant today.

Via antiqua semantics takes an affirmative statement to be true when what is signified by its predicate inheres in what is signified by its subject - sometimes called the *inherence theory of predication*. Within this framework, terms predicating common natures or accidental features of a subject are taken to ultimately refer to exactly the categorical entities one might expect. But the framework avoids full, immediate, fundamental commitment to entities today's nominalists might find objectionable by providing a rich theory according to which being is predicated in different degrees.[3]

Conversely, the *via moderna* framework that became ascendant after Ockham takes an affirmative statement to be true when its subject and predicate term refer to the same object - sometimes called the *identity theory of predication*. Within this framework, terms predicating common natures or accidental features of a subject need not be taken to ultimately refer to different types of objects such as abstract genera or relations, but instead refer to familiar objects *differently*. For example, the truth of 'Socrates is a father' does not require commitment to a distinct entity that is Socrates' fatherhood. Instead, the sentence's predicate may (non-rigidly) refer to Socrates himself, albeit connoting his being a father, and hence refer to the same object as that rigidly referred to by the proper name 'Socrates'. Granting some license for intensional contexts,[4] the verb 'is' or 'exists' in *via moderna* semantics is equally ontologically com-

[1](Klima 1988, 1990, 1991a; Klima and Sandu 1990). Cf. (Parsons 2014).
[2](Klima 2001). Cf (Read 2015).
[3]See (Klima 2002a).
[4]See (Klima 2005).

mitting in its various uses, but *what* one is committed to by its uses need not be immediately apparent (Klima 2008b, pp. 437–430).

Both medieval frameworks would reject the object-language metalanguage distinction taken for granted since Tarski in their theory of truth, and in their use of ampliation for tensed, modal, and intensional contexts, both provide ample tools for rejecting a naïve application of Quine's account of ontological commitment in terms of existential quantification.[5]

2.1 Ontological neutrality and independence

None of this means that there is *no* relationship between an author's positions in metaphysics and his semantics: rather, the semantic framework an author adopts conditions what options that author has in metaphysics without fully determining them. For example, extreme realism in metaphysics doesn't follow strictly from the *via antiqua*'s inherence theory of predication, but it is the most natural fit for that theory if one accepts the view that terms signifying accidental being denote their referents rigidly while rejecting that framework's insistence on multiple, analogically related senses of 'being' (Klima 1999, p. 125). Conversely, the broad outlines of Ockham's account of the relation between language, thought, and reality serve not only as a foundation for Ockham's own metaphysical reductionism, but also for the realism of a Descartes, Malebranche, Putnam or a Leibniz (Klima 1991b).

There is, however, no relationship of *entailment* from purely semantic principles to metaphysical truths. Klima writes:

> To be sure, this is not to say that metaphysical principles are to be derived from, or somehow justified in a weaker sense on the basis of, semantic principles. Metaphysical principles, being first principles using the most general terms, such as the transcendentals and the categories, cannot be derived from prior principles, and their terms cannot be defined on the basis of more general terms. What semantics can do, however, is that it can provide the principles of interpretation of metaphysical principles. On the basis of these principles of interpretation the implications of metaphysical principles are more clearly delineated, which then can be used in their evaluation in dialectical disputations concerning their acceptability in the interpretations thus clarified. Furthermore, if the semantic principles of interpretation are made explicit, they can also be subject to further evaluation, in a disputation on a different level, the sort appropriate to the comparison of different logical theories (Klima 2011a, p. 49).

Modern mathematics calls this relation *independence*, though as the name implies the fundamental notion itself is by no means a recent one. Just as Cantor's continuum hypothesis is neither provable nor refutable from the principles of Zermelo-Fraenkel set theory alone, or - to provide a more medieval example -

[5]Cf. (Klima 2004), (Klima 2009b, pp. 171–174).

truths of revealed theology are neither provable nor refutable from the principles of natural philosophy, neither on Klima's account are metaphysical principles provable or refutable from those of semantics alone.

2.2 Pluralism, linguistic imperialism, and the problem of cross-cultural communication

Two complications distinguish the semantic case from those mentioned. The first is that while both the set-theoretic and theological case mentioned above concern provability and refutability in a single system, the sheer multiplicity of semantic frameworks itself may provide a barrier to a broadly acceptable account of provability across those frameworks. The second generalizes a problem nearly the opposite of that established by Gödel in his first incompleteness theorem (Gödel 1931): where that theorem established the expressibility of unprovable claims of number theory in any sufficiently robust system, the semantic problem we face here is that a claim of metaphysics may be taken to be established or refuted merely on account of the lack of expressibility of the particular semantic framework one is working in.

Klima's response to these problems is anti-pluralist without thereby being dogmatically classical. While it would be easy enough to, for instance, construct a metalogical account of validity by quantifying over distinct logical systems on the model of possible world semantics and regarding as valid all and only those theorems valid in every system, Klima instead recognizes the known limitations of classical semantics while also taking the provable equivalence of systems containing distinct logical primitives as *prima facie* evidence for the possibility of a fundamental diversity at the *conceptual* level that nevertheless doesn't entail a despairing or indifferent anti-realism at the *metaphysical* level (Klima 2012). Instead, Klima's response, both technically and philosophically, is to *extend the framework*. Meeting the tradition where it is, he extends classical semantics to allow for treatment of donkey sentences (Klima 1988, 2010), non-existent entities (Klima 2001), and quantificational phenomena (Klima and Sandu 1990), while more broadly appealing (in a rare quote of a 'continental' philosopher that shows up in multiple places throughout his *œuvre*) to the possibility of a 'fusion of horizons' mentioned by Gadamer as a solution to the impasse of communication across distinct semantic frameworks, cultures, or philosophical traditions and the attitude of metaphysical anti-realism it encourages (Klima 2000, 2009a).

3 John Buridan

Nowhere has this effort been more sustained than in Klima's scholarship on John Buridan', which has helped elevate the 14th century arts master from a lesser-known figure to one whose stature is closer to that of an Ockham, arguably surpassing the Franciscan in his logic.

Like the study of medieval contributions to logic and philosophy of science in the early 20th century more broadly, the recovery of Buridan's work at this time was in part stimulated by both its promise as a resource for solving contemporary problems in these disciplines and by the way in which it seemed herald contemporary developments: Duhem, for instance, held out Buridan's theory of impetus as a precursor to Galileo's account of projectile motion; Boehner took the logical systems of Buridan and his contemporaries to be closer to the formal work of the Lvov-Warsaw school than to the anti-formalist tendencies in neo-scholastic texbooks of the day (Boehner 1952), and Louise Nisbet Roberts took Buridan's solution to the Liar paradox to anticipate that of Tarski (Roberts 1953, p. 100). This interest paved the way for critical editions of Buridan's works, beginning with Hubien's edition of his *Tractatus de consequentiis* in 1976 and later extending to his various works on logic, philosophy of mind, physics and metaphysics.[6]

Klima has built on these contributions both straightforwardly as an editor and translator as well as critically across his articles, books, and various other contributions. The subtlety of Klima's work as a translator is apparent throughout his translation of Buridan's *Summulae*, whose footnotes provide an interesting window not only into the text itself, but also into his own decisions on how to translate a text whose parts are frequently concerned with linguistic imprecision and ambiguity. Take, for instance, the following footnote text introducing his translation of the Latin *passio* as 'attribute' early on in treatise 1:

> The term *passio*, deriving from the verb *pati* (to suffer, to be affected/acted on, to undergo change), has the primary sense of something affecting a subject (which receives the action of an agent). But since the relation between the term signifying such an affection and the term that signifies the subject is analogous to the relation between the affection itself and the subject itself, the term signifying the affection is also called a *passio* (and the term signifying the subject is also called *subiectum*). Therefore, in this technical sense, whenever a *passio* is correlated with a *subiectum*, referring to a term that is attributed to a subject term in an act of predication, I will translate *passio* as 'attribute'. Whenever *passio* is used to refer to the correlative of some action, however, as is normally the case in the context of Aristotelian physics, or to the correlative category of the category of action, or to the third species of the category of quality discussed below (3.5.4), as is usually the case in the context of the theory of categories, I will use the customary English transcription 'passion'. To be sure, even despite existing translational traditions to this effect, this may occasionally sound odd, given the primary contemporary meaning of the term indicating some strong emotion (which is actually quite fitting in the case of the third species of quality, especially in 3.5.4(2)). But this will be very useful when

[6] See the extensive bibliography provided in (Zupko 2018).

> Buridan exploits some of the conceptual relations between the notions of 'passion' in the technical senses intended here and those of being affected, being acted on, undergoing change, suffering (as the Passion, i.e., the suffering of Christ), and passion in the emotional sense, all of which are conveyed by the Latin *passio* (John Buridan 2001, p. 5).

In this example (which apart from its discussion of present-day English idiom could well pass for a translation of one among the better specimens of scholastic Latin), Klima's parsing out the different significations of the term *passio*, relating its meaning to that of its English derivative, then justifying different translations for different scientific contexts provides a worthy example of how Klima's long study of Buridan's logic and semantics itself inform his translation of the very Latin texts conveying them.

Klima's Buridan scholarship contrasts with that of preceding generations, however, in three main respects. The first is it's breadth: the arc of Klima's work - first gaining notoriety in the fields of logic and semantics, extending from there into medieval natural philosophy and metaphysics, and with an increased focus in recent decades on philosophy of mind and epistemology culminating in a critical edition of and companion volume to Buridan's *Quaestiones De Anima* - has over time expanded to cover the whole territory of Aristotle's 'semantic triangle' mapping out the relations between word and thing through the mediation of concepts. Because of this, Klima's body of work provides what is arguably the most integrated and complete account of John Buridan's philosophy to date.

The second is its stance vis-a-vis contemporary Analytic philosophy. Where much of the earlier scholarship on Buridan's philosophy stressed its proximity to recent discoveries to lend it greater credibility, Klima has more often used this proximity to challenge contemporary positions on their own terms. For example, where every well-known model theory since Tarski both identifies truth in a model with satisfaction and grounds its account of logical consequence on that of truth (in a model), leading Tarski himself to regard all semantically closed languages as inconsistent (Tarski 1943, pp. 348–349), Klima shows Buridan (rightly) both rejects the first identification and inverts the grounding relation between consequence and truth. Reason for rejecting the first can be found without recourse to semantic paradoxes, merely by considering statements like 'no sentence is negative' whose satisfaction conditions preclude them from being true (Klima 2004, pp. 96–100). Furthermore, not only is there is no need for an account of satisfaction grounding that of consequence to do double duty as an account of truth, but because one way statements may fail to be true is by being inherently inconsistent with what they posit (as occurs with 'no sentence is negative'), or even merely contingently so (as occurs with reciprocal liar sentences that in other contexts would be merely true or false), the semantics for terms like 'true' and false themselves presuppose a notion of entailment like that hinted at in Buridan's idea of a sentence virtually implying its own

truth.[7] Consequently, a sentence meeting its satisfaction conditions constitutes a necessary, but not a sufficient condition for its truth, and the T-Schema for truth is simply mistaken. In another example, Klima inserts Buridan into the dispute between Quine and his fictional interlocutor Wyman over what exists to argue both are mistaken not in the particularities of their approach to ontological commitment, but more broadly in accepting a context-insensitive quantifier with its tacit assumption of the availability of a metalinguistic 'view from nowhere' as a criterion for ontological commitment at all: 'the solution Buridan offers is not an overall split between object-language and meta-language but a more careful regulation of the reflective uses of the same language' (Klima 2009b, p. 174). More recently, Klima has expanded the differences expressed archtypically here in different attitudes towards the object-metalanguage distinction into a concise summary of the different orientations of the medieval project Buridan engaged in and that which animated Quine, Tarski and the tradition after them:

(1) The "modern project": to "cannibalize" ever greater portions of all possible forms of natural language reasoning, expand the expressive resources of our formal language(s) for which we can have a uniform definition of validity, grounding the construction of a universal method for checking validity either in terms of deduction rules or a compositional semantics.

(2) The "medieval project": to "regulate" ever greater portions of all possible forms of natural language reasoning, regiment the syntax of our natural language as much as ordinary usage would tolerate, so as to be able to accommodate as many forms of natural language reasoning as possible, and thus to be able to separate valid from invalid consequences in accordance with a range of different criteria of validity.[8]

This depth of its critical engagement with both medieval and modern philosophy has often led to Klima's work being prescient in its themes and positions: his use of restricted quantifiers in formalizing Buridan's logic predates revived interest in these in work on relevant logic and semantic paradox by roughly twenty years;[9] his formalization of the medieval square of opposition, on which the existential import of categorical sentences is determined by their quality (affirmative or negative) rather than their quantity (universal or particular), predates comparable formal work in ancient and medieval philosophy by roughly a quarter century,[10] and his early analysis of suppositional descents is echoed in work on pronouns and donkey anaphora being published as this paper is being written.[11].

[7](Klima 2004, pp. 101–107). Cf. (Klima 2009b, pp. 221–225), (Hughes 1982, pp. 22–27).
[8](Klima 2016, p. 341). Cf. (Klima 2008b, pp. 429–430).
[9]Cf. (Klima 1988), (Beall et al. 2006), (Field 2014). For earlier work, see (Hailperin 1957a,b)
[10]Cf. (Klima 1988, pp. 18–43), (Chatti and Schang 2013) (Read 2015).
[11]Cf. (Klima 1990), (Blumberg 2021)

4 Klima as historian

The third respect in which Klima's Buridan scholarship, and indeed his work as a medievalist as a whole, has distinguished itself is in its orientation towards its source material. While the above shows Klima amply capable of both 'pure' historical scholarship and bringing medievals into engagement with contemporaries, much of his work goes beyond that to broader questions of how this history has occasioned the adoption of beliefs widely held today, and by extension the impasses they lead to. In this way, Klima's readings of Buridan, Ockham, Aquinas and others does not so much mine them as resources for arguments and positions as it takes their study as part of a kind of philosophical disaster recovery program. In this respect, the introduction to this volume's extended comparison to MacIntyre is an apt one. In various places his work begins with one question only to lead its reader to a higher one: moving, for instance, in his Stanford Encyclopedia article on medieval theories of Universals from Porphyry's account of the various questions arising out of Plato's theory of forms inherited via Boethius to a consideration of how the debate factored into to the disintegration of scholastic discourse (Klima 2017); or from considering changes to the notion of an efficient cause in the late medieval period to the impact of those changes on how we continue to think about knowledge and certainty today (Klima 2013).

In a review of Anthony Kenny's *Aquinas on Mind*, Klima contrasts Kenny's approach, making Aquinas' ideas 'accessible to the philosophically interested contemporary reader in terms of such philosophical, scientific and everyday concepts with which the reader can safely be assumed to be familiar'(Klima 1998, p. 113) with his own approach follows:

> First, as should be obvious, we shall never understand properly any of Aquinas's theories without first "learning his language". However, "learning his language" does not mean just learning Latin, but rather acquiring the radically different conceptual apparatus encoded in his language, constantly reflecting on how this different apparatus constitutes its own self-evident truths, while questioning the validity of what we take to be self-evident truths on account of the conceptual apparatus encoded in our philosophical language. Second, we shall never be able to communicate our understanding of Aquinas authentically unless we learn how to "teach his language" (ibid., p. 115).

For an example of the kind of teaching that Klima is demanding here, let us consider an example from elsewhere in his *corpus*, where he leverages a comparison to modern thermodynamics into a defense of one of Aquinas' oft-quoted passages from Aristotle's *Physics* that 'man is generated by man and the sun'

> [A] universal cause as Aquinas thinks about it, is certainly not a universal in its being (given that Aquinas rejects Platonic universals), but in its causality: a particular cause is the cause of only this particular effect, whereas a universal cause is a cause of several

> particulars of a given kind. However, an immediate consequence of this interpretation and the above-demonstrated irreflexivity of per se efficient causality is that a universal cause of a given kind of particulars itself cannot be of the same kind; for otherwise, being the cause of all particulars of the same kind, it would have to be a cause of itself, which is impossible. Therefore, the universal cause of a species cannot be a member of the same species: it has to be a non-univocal cause, that is to say, the form by virtue of which it acts and produces and/or sustains its effects is not the same form that it brings about in its effects. This is the reason that talking about more or less universal causes, which Aquinas also explicitly identifies with more or less remote causes, he means not only that the causality of a more universal cause extends to more kinds, but also that the reason why its causality covers more kinds of effects is that it is causing them in a more universal respect: it has a power and a corresponding activity that can be received in so many different ways by different kinds of recipients, as the radiation of the sun received as heat in water powers the water cycle around the globe, while received in the chloroplasts of plants, it powers (most of) the biosphere (Klima 2013, p. 41)

The unintuitiveness of the claim itself provides a solid test case for the kind of work that Klima takes to be necessary for understanding medieval philosophy, and with it for understanding how its developments both presage and hint at ways out of persistent philosophical impasses. Within the pages preceding this selection, Klima outlines the notion of efficient causality largely taken for granted today as one of a diachronic relation holding between events, contrasts it with the medieval notion as a synchronic relation between individual things, and lays the groundwork for showing how the medieval notion is in certain ways closer to the scientific accounts used today in thermodynamics and information theory. The charitable aim here is fundamentally higher than that typically afforded to medieval these theories - not merely to explain how they could have been believed given the information available at the time and/or the psychological makeup of its inhabitants, but to explain how such claims *understood on their own terms* could even be true.[12]

5 Conclusion

Despite the depth and breadth of his work, the amount of space Klima devotes to advancing positions that are unambiguously his own, rather than to steelmanning positions of historical or contemporary figures he may or may not agree with, is comparatively little.[13] Still, Klima's solution here provides a

[12] Cf. (Rovelli 2015).

[13] Exceptions include his acceptance of both Anselm's proof of God's existence and Aquinas' proof of the immateriality of the intellect as sound (Klima 2000, 2009a) and his advancing,

window into the answer to a more personal question that his scholarship solicits: namely, of all the intellectual pursuits to devote oneself to, why study medieval philosophy, and specifically medieval semantics?

In one uncommonly autobiographical passage, Klima writes:

> I remember that when I was at Notre Dame (so this happened in the second half of the nineties), I asked several of my colleagues, and even the then visiting David Armstrong, to provide metaphysically non-committal clarifications of the semantics of the language they were using in describing their metaphysical theories. In response, I was given puzzled looks and declarations strongly reminiscent of the way medieval nominalists characterized the attitude of their realist opponents: we don't care about names; we go right to the things themselves!—Well, just look at the history of late-scholasticism and early modern philosophy to see what good that attitude did for them.
>
> So, what can we do to avoid the late-scholastic scenario, going on another cycle of endless and more and more meaningless metaphysical debates until the arrival of another Kant declaring the whole enterprise ill-founded and another Carnap declaring it to be meaningless, to launch another anti-metaphysical cycle of meaningless search for meaning to be abandoned yet again for metaphysics, etc., etc.? Why don't we try both in tandem, i.e., analysis and metaphysics at the same time, as the very designation "analytic metaphysics" would seem to demand? For then we could start by laying down our clearly defined semantic principles (instead of making them up and twisting them around as we go) and engage each other in our metaphysical debates according to the same principles, instead of talking past each other, making clear that whoever is talking according to different semantic principles is just playing a different game (Klima 2014, pp. 86–87).

Here, the difficulty that Klima's apology for analysis aims to alleviate remains - namely, that in much debate in the core disciplines of analytic philosophy and in metaphysics in particular, rival participants are often unable or unwilling to state their positions in a linguistic context their opponents would be able to agree to, leaving such debates unfruitful from the start. Without the opportunity for common ground that semantics provides, not only shared understanding, but even proof, refutation, and disagreement itself become unattainable.

With this problem in mind, the study of medieval semantics, as a study of frameworks of meaning remarkably foreign to that of our own time, provides an example *par excellence* of the kind of interpretive charity needed to surmount our own crises of meaning and communication.

---

based on an examination of Buridan's treatment of reciprocal liar paradoxes, that any adequate semantics for natural language must be semantically closed and token-based (Klima 2004, 2008a).

References

Beall, J. C. et al. (2006). "Relevant Restricted Quantification". In: *Journal of Philosophical Logic* 35.6, pp. 587–598. DOI: 10.1007/s10992-005-9008-5.

Blumberg, Kyle (2021). "Pronouns as Demonstratives". In: *Philosophers' Imprint* 21.35.

Boehner, Philotheus (1952). *Medieval Logic: An Outline of its Development From 1250 to C.1400*. Hyperion Press.

Chatti, Saloua and Fabien Schang (2013). "The Cube, the Square and the Problem of Existential Import". In: *History and Philosophy of Logic* 34.2, pp. 101–132. DOI: 10.1080/01445340.2013.764962.

Field, Hartry (2014). "Naive Truth and Restricted Quantification: Saving Truth a Whole Lot Better". In: *Review of Symbolic Logic* 7.1, pp. 1–45. DOI: 10.1017/s1755020313000312.

Gödel, Kurt (1931). "Über formal unentscheidbare Sätze der Principia Mathematica und verwandter Systeme I". In: *Monatshefte für Mathematik und Physik* 38.1, pp. 173–198.

Hailperin, Theodore (1957a). "A Theory of Restricted Quantification I". In: *Journal of Symbolic Logic* 22.1, pp. 19–35. DOI: 10.2307/2964055.

— (1957b). "A Theory of Restricted Quantification II". In: *Journal of Symbolic Logic* 22.2, pp. 113–129.

Hughes, G. E. (1982). *John Buridan on Self-reference*. Cambridge: Cambridge University Press.

John Buridan (2001). *Summulae de Dialectica*. Trans. by Gyula Klima. Yale Library of Medieval Philosophy. New Haven: Yale University Press.

Klima, Gyula (1988). *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern*. Budapest: Institute of Philosophy of the Hungarian Academy of Sciences.

— (1990). "Approaching Natural Language *via* Mediaeval Logic". In: *Zeichen, Denken, Praxis*. Ed. by J. Bernard and J. Kelemen. Vienna: Institut für Sozio-Semiotische Studien, pp. 249–267.

— (1991a). "Latin as a Formal Language: Outlines of a Buridanian Semantics". In: *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 61, pp. 78–106.

— (1991b). "Ontological Alternatives Vs. Alternative Semantics in Mediaeval Philosophy". In: *S: European journal for semiotic studies* 3.4, pp. 587–618.

— (1996). "The Semantic Principles Underlying Saint Thomas Aquinas's Metaphysics of Being". In: *Medieval Philosophy and Theology* 5.1, pp. 87–141.

— (1998). "Anthony Kenny, Aquinas on Mind". In: *Faith and Philosophy* 15.1, pp. 113–117.

— (1999). "Ockham's Semantics and Ontology of the Categories". In: *The Cambridge Companion to Ockham*. Ed. by Paul Vincent Spade. Cambridge: Cambridge University Press, pp. 118–142.

— (2000). "Saint Anselm's Proof: A Problem of Reference, Intentional Identity and Mutual Understanding". In: *Medieval Philosophy and Modern Times*. Ed. by Ghita Holström-Hintikka. Vol. 288. Synthese Library. Dordrecht: Kluwer, pp. 69–87.

Klima, Gyula (2001). "Existence and Reference in Medieval Logic". In: *New Essays in Free Logic*. Ed. by Alexander Hieke and Edgar Morscher. Kluwer, pp. 197–226.
— (2002a). "Aquinas' Theory of the Copula and the Analogy of Being". In: *History of Philosophy & Logical Analysis* 5, pp. 159–176.
— (2002b). "Contemporary 'Essentialism' vs. Aristotelian Essentialism". In: *Mind, Metaphysics, and Value in the Thomistic and Analytic Traditions*. Ed. by John Haldane. Notre Dame, IN: University of Notre Dame Press, pp. 175–194.
— (2004). "Consequences of a closed, token-based semantics: the case of John Buridan". In: *History and Philosophy of Logic* 25.2, pp. 95–110.
— (2005). "The Essentialist Nominalism of John Buridan". In: *Review of Metaphysics* 58.4, pp. 739–754.
— (2008a). "Logic without Truth: Buridan on the Liar". In: *Unity, Truth and the Liar: The Modern Relevance of Medieval Solutions to the Liar Paradox*. Ed. by S. Rahman, T. Tulenheimo, and E. Genot. Berlin: Springer, pp. 87–112.
— (2008b). "The Nominalist Semantics of Ockham and Buridan: A Rational Reconstruction". In: *Handbook of the History of Logic: Mediaeval and Renaissance Logic. Mediaeval and Renaissance Logic*. Ed. by Dov M. Gabbay and John Woods. Vol. 2. Amsterdam: Elsevier, pp. 389–432.
— (2009a). "Aquinas on the Materiality of the Human Soul and the Immateriality of the Human Intellect". In: *Philosophical Investigations* 32, pp. 163–182.
— (2009b). *John Buridan*. Great Medieval Thinkers. Oxford: Oxford University Press.
— (2010). "Natural Logic, Medieval Logic and Formal Semantics". In: *Magyar Filozófiai Szemle* 54, pp. 58–75.
— (2011a). "Thomas of Sutton and Henry of Ghent on the Analogy of Being". In: *Categories and What is Beyond*. Ed. by Gyula Klima and Alexander W. Hall. Vol. 2. Proceedings for the Society of Medieval Logic and Metaphysics. Newcastle upon Tyne: Cambridge Scholars, pp. 49–64.
— (2011b). "Two *Summulae*, Two Ways of Doing Logic: Peter of Spain's 'Realism' and John Buridan's 'Nominalism"'. In: *Methods and Methodologies: Aristotelian Logic East and West 500-1500*. Ed. by Margaret Cameron and John Marenbon. Leiden: Brill, pp. 109–126.
— (2012). "Ontological Reduction by Logical Analysis and the Primitive Vocabulary of Mentalese". In: *American Catholic Philosophical Quarterly* 86.3, pp. 403–414.
— (2013). "Whatever Happened to Efficient Causes?" In: *Skepticism, Causality, and Skepticism About Causality*. Ed. by Gyula Klima and Alexander W. Hall. Proceedings of the Society for Medieval Logic and Metaphysics 10. Cambridge Scholars, pp. 31–42.
— (2014). "The Rises and Falls of Analysis and Metaphysics". In: *Metaphysical Themes, Medieval and Modern*. Ed. by Gyula Klima and Alexander W. Hall.

Vol. 11. Proceedings for the Society of Medieval Logic and Metaphysics. Newcastle upon Tyne: Cambridge Scholars, pp. 85–88.

Klima, Gyula (2016). "Consequence". In: *The Cambridge Companion to Medieval Logic*. Ed. by Catarina Dutilh Novaes and Stephen Read. Cambridge: Cambridge University Press, pp. 316–341.

— (2017). "The Medieval Problem of Universals". In: *The Stanford Encyclopedia of Philosophy*. Ed. by Edward N. Zalta. Winter 2017. Metaphysics Research Lab, Stanford University.

Klima, Gyula and Gabriel Sandu (1990). "Numerical Quantifiers in Game-Theoretical Semantics". In: *Theoria* 56.3, pp. 173–192. DOI: 10.1111/j.1755-2567.1990.tb00181.x.

Parsons, Terence (2014). *Articulating Medieval Logic*. Oxford: Oxford University Press.

Read, Stephen (2015). "Aristotle and Łukasciewicz on Existential Import". In: *Journal of the American Philosophical Association* 1.3, pp. 535–544.

Roberts, Louise Nisbet (1953). "Every Proposition is False - A Medieval Paradox". In: *Tulane Studies in Philosophy* 2, pp. 95–102.

Rovelli, Carlo (2015). "Aristotle's Physics: A Physicist's Look". In: *Journal of the American Philosophical Association* 1.1, pp. 23–40. DOI: 10.1017/apa.2014.11.

Tarski, Alfred (1943). "The Semantic Conception of Truth and the Foundations of Semantics". In: *Philosophy and Phenomenological Research* 4.3, pp. 341–376. DOI: 10.2307/2102968.

Zupko, Jack (2018). "John Buridan". In: *The Stanford Encyclopedia of Philosophy*. Ed. by Edward N. Zalta. Fall 2018. Metaphysics Research Lab, Stanford University.