

ARGUMENTATION, R. PAVILIONIS'S MEANING CONTINUUM AND THE KITCHEN DEBATE*

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Abstract. *In this paper, I propose a logical-cognitive approach to argumentation and advocate an idea that argumentation presupposes that intelligent agents engaged in it are cognitively diverse. My approach to argumentation allows drawing distinctions between justification, conviction and persuasion as its different kinds. In justification agents seek to verify weak or strong coherency of an agent's position in a dialogue. In conviction they argue to modify their partner's position by means of demonstrating weak or strong cogency of their positions before a 'rational judge'. My approach to argumentation employs a 'light' version of Dung's abstract argumentative frameworks. It is based on Stich's idea of agents' cognitive diversity the epistemic aspect of which is argued to be close to Pavilionis's conception of meaning continuum. To illustrate my contributions I use an example based on the Kitchen Debate (1959) between Khrushchev and Nixon.*

Keywords: *abstract argumentation frameworks, cognitive diversity, Pavilionis's meaning continuum, the Kitchen Debate*

Introduction¹

This paper has four focal issues and suggests two narratives in which these issues may be shaped into a storyline. The focal issues are the formalized logical-cognitive theory of argumentation which was proposed in my other works (Lisanyuk 2013, Lisanyuk 2014a)² and is based on the idea of agents' cognitive diversity, Rolandas Pavilionis's conception of meaning con-

tinuum, and the Kitchen Debate. One of the narratives depicts how the four issues are combined together conceptually; the other narrative is rhetorical and it tells how this paper is organized. The conceptual narrative expresses my key idea: verifying the coherency and the cogency of agent's position in a dialogue is a core cognitive objective of argumentation, where agents' cognitive diversity provides a firm ground for these objectives to be successfully achieved. Regarding agents' knowledge and beliefs, the idea of agents' cognitive diversity amounts to two aspects: epistemic and epistemological. The two aspects taken together provide the necessary conditions for the agents to achieve their cognitive objectives in a

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² For a concise presentation see van Eemeren et al. 2014: 739–746.

dialogue. The epistemic aspect makes the agents realize the need of argumentation of a definite kind in order to get to know what arguments are acceptable or admissible for some or all agents in the dialogue. The epistemological aspect helps them to identify the reasons why these arguments are so evaluated in this dialogue. There is another angle from which the epistemological aspect can serve as a necessary condition for agents' engagement into the argumentation dialogues. It has to do with the ways agents, whenever they agree on the procedures of justifying or convincing in the dialogue in which they are participating, can benefit from the disagreement between them with respect to achieving their cognitive goals. Example of the Kitchen Debate, apart from being an illustration for the technical part of the paper, demonstrates that rational agents are able to pursue their cognitive goals regardless of their emotional and psychological benevolence to each other given the epistemic diversity in their beliefs and the epistemological diversity of acquiring them, to which such procedures belong.

The paper proposes two minor contributions to the discussion of Pavilionis's legacy. The incorporation of Pavilionis's conception of meaning continuum into the context of the cognitive diversity explicitly supports the idea expressed by Dagys (2014) that matching this conception to the analytic tradition in philosophy is not that obvious as it may be prompted by the clearly analytical discourse in which Pavilionis develops it. Another impact of the incorporation suggests a perspective in which a reply to the second question (of 'the lack of discussion of the epistemic aspects of meaning') of Gilaitis (2014: 37) may be found.

The conceptual narrative evolves in the following way. As a conceptual foundation for the formalized logical-cognitive theory of argumentation, the cognitive approach to argumentation is based on a broadly understood idea of cognitive diversity of agents launched by Stich and his followers (Weinberg et al. 2001). Pavilionis's conception, if taken not in the perspective of its primary linguistic or semantic aspects, but rather in the aspect of their pragmatic and logical implications, may be seen as an independent repercussion of the idea of cognitive diversity. According to the logical-cognitive theory of argumentation, the key objective of argumentation dialogue amounts to the issue of whether an agent's position is defensible against other agents' critical arguments to it. In the formalized theory of argumentation, the notion of agent's defended position is defined on the basis of a "light" version of Dung's abstract argumentation framework (Dung 1995) with respect to two kinds of argumentation, justification and conviction. In a justification dialogue, agents seek to determine if the set of arguments expressing her position in the dialogue can be defended either from the inside (weakly coherent), or from the outside (strongly coherent). In a conviction dialogue, weak and strong cogency of the agent's position argument set are at stake, for these notions represent the extension to which the agents' positions are (weakly or strongly) convictive and are capable of being admitted by other agents. The notions of coherency and cogency are based on the credulous and the sceptical modes of defeasible semantics respectively. An example of conviction dialogue based on the Kitchen debate (1959) between Richard Nixon and Nikita Khrushchev illustrates

how sharp confrontation of the opponents in argumentation dialogue employs both the idea of cognitive diversity and the notions of coherency and cogency of an agent's position.

The paper is designed as follows. I start with a brief story of Kitchen debate and present an example of dialogue based on it. In section 2 I give a concise overview of my tripartite distinction of kinds of argumentation. Section 3 suggests an outline of the idea of agents' cognitive diversity and transfers its epistemic aspect to Pavilionis's conception of meaning continuum, which is then discussed in Section 4. In Section 5 the example of conviction dialogue is analyzed on the basis of my formalized logical-cognitive theory of argumentation.

1. The Kitchen Debate: How It Happened.

In 1959 the then US Vice-President Nixon opened the American National Exhibition in Moscow as a part of his official visit to the USSR. At one of the exhibition's showpieces – a fully equipped modern kitchen – the famous Kitchen Debate between him and the then Soviet leader Khrushchev has started. The debate among the two has continued in a television studio and later its record was broadcast both in the USA and in the USSR. In the home countries of the discussants, the assessments of the political impact of the Kitchen Debate were controversial.

Some experts pointed that the US spectators had been presented with Nixon's strong willingness to advocate capitalist values against the communist ones, the idea that very likely would have earned him yet more votes in his 1960 presidential cam-

paign against John Kennedy (Nixon 1990). However, the debate about the values also left an impression that Nixon had been hoping to win it by means of a contest including military weapons competition as well, something that might have been read as a message of unsafety and thus could have been one of the reasons of Nixon's defeat to Kennedy, who, in contrast, looked as a "soft touch" (Safire 2009).

In the Soviet Union, the impact of the Kitchen Debate was also diverse. On the one hand, the very fact of live debate between the leaders of the two confronting countries was one of the repercussions of "Khrushchev thaw" during which the ideological atmosphere became less suffocative. Since the discussion touched many issues of family household, it helped to pave the way to several significant developments in the Soviet economy indicating a consumer turn, such as mass production of television sets, house refrigerators, washing machines, etc. It also boosted the mass construction of the low-cost apartment housing called "khrushchevki", which had been launched about a decade before it. On the other hand, in 1961-2 the world saw the sudden erection of the Berlin Wall and the deployment of the Soviet missiles in Cuba, the events which some experts tend to interpret as an implication of Khrushchev's wrong evaluation of both Nixon's readiness for a missile shirtfront clearly articulated in the Kitchen Debate and Kennedy's adherence to the idea of diplomatic negotiations. Khrushchev's subsequent decisions directed towards the discharge in the Cuban missile crisis were regarded by many in the Soviet political elite as surrender to the US initiative, which eventually led to his removal from the office (Fursenko and Naftali 1998).

Anyhow, before the Cuban missile crisis, the Kitchen Debate, in which neither of the discussants succeeded in convincing the other, nor did they show up themselves as seeking for some strategic compromise, highlighted the possibility of a nuclear confrontation between the USSR and the USA. However, at the same time it gave a clue for overcoming it by means of cooperation between the two countries. The opponents' explicitly tough rhetoric seems to have made the idea of the two countries' competitive collaboration yet clearer, though perhaps not to the discussants themselves, but rather to their audience, who may be regarded a 'rational judge' of the debate.

Had the need of a dialogue cooperation not been recognized by both parties of the Kitchen Debate, neither of them could have benefited from this unique opportunity to advertise his country and his system of values in the opponent's country and worldwide, to advance the evidence in their favour and thus to contribute significantly to the support of his position. This is the reason why I have picked the Kitchen Debate as an example illustrating two significant aspects of argumentation as cognizing activity. On the one hand, it demonstrates that argumentation is an intentional and purpose-oriented activity of cognitive, or intelligent, agents who perceive each other to be carriers of distinct knowledge and beliefs. On the other hand, it suggests that, for the effectiveness of the dialogue cooperation, it is irrelevant whether dialogue participants are well- or ill-disposed to each other, and what really matters is that they thoroughly employ their cognitive and communicative competences and supply their positions with sound arguments organized in a certain way. To put it in other words, an intelligent agent can

collaborate in a dialogue with other agents for the sake of making her own cognitive objective feasible regardless of her personal emotional or psychological evaluation of the dialogue partners, provided that each of the partners realizes two key issues, necessary and sufficient: (i) that the other agent possesses definite knowledge or beliefs which are different from those of her own; (ii) that her cognitive task may not be accomplished without acquiring some of the other agent's knowledge or beliefs.

The key issue of the Debate was the question which of the two political and economic systems is better, American or Soviet. Khrushchev argued that progress in science and technology, manifest in the USSR, provides Soviet people with better opportunities, which is the main reason why not only the Soviet people but also many people in other countries support communist ideas. Nixon countered to this that in the USA the impact of new technologies implementation in the consumer production as well as the average level of living are higher than in the Soviet Union, "for Americans can afford private housing, sophisticated household equipment and lots of other goods – something that Soviets had never even heard of, and because of that people rather are afraid of communists than support the communism".³ The following dialogue is based on the transcript of the Kitchen Debate and is meant to be an example of an argumentative dialogue between two parties. Here I will preserve the name of the Kitchen Debate to refer to my example, which otherwise is neither a reconstruction of the real debate nor pretends to be an analysis of the discussion between Nixon and Khrushchev. The names of the

³ Cf. a transcript (http://www.foia.cia.gov/sites/default/files/document_conversions/16/1959-07-24.pdf).

two discussants will be employed as the names for the respective intelligent agents in the example.

Khrushchev (K): *The Soviet political and economic system is the best (K1), for this is demonstrated by its progress in the standard of living (K2) and its high output in science and technology (K3). It enjoys high support in many counties outside the USSR (K5).*

Nixon (N): *The American system is better than the Soviet one (N1), because Americans have more money and we live better than the Soviets (N2). We eat meat, and you eat cabbage (N3). Average Americans can afford private housing, sophisticated household equipment and lots of other goods – something that the Soviets had never even heard of (N4), for instance, color television sets or such kitchen (N5), and this is the reason why the Soviets and lots of people outside the USSR are rather afraid of communists than they support communism (N6).*

Khrushchev (K): *Well, we also don't kill flies with our nostrils (K4). The USSR exists for less than one century, whereas the USA dates back for almost three centuries and this is the reason why many of the things Americans can afford are still unaffordable for the Soviets. Right now we are working to make all these affordable for our people, and soon we will get not only this done, we will also catch up and overtake you, Americans. Let's compete and let win the system which will perform better in providing its citizens with better opportunities (K6).*

2. Argumentation: Two Trends and Three Kinds

People often disagree with each other and they make their disagreements explicit through speech communication: negotiation, information seeking, education, eristic quarrel, etc. There are many reasons why they do so, but here I confine myself to pur-

suing only one of those, namely, whenever they engage themselves in a dialogue in order to advance their position concerning some issue, provide evidence in its favour with the help of arguments or criticize the positions of their dialogue partners by means of counter-arguments. This is what we normally call argumentation.

There are two trends in contemporary argumentation research that can be called dialectical and formal. Analysts belonging to the dialectical trend pursue social, communicative and pragma-linguistic aspects of argumentation. They treat argumentation either as a dialogue activity of a special kind (Walton 2006), as a specific intellectual activity in the form of a dialogue (Blair 2012), or as a speech activity aiming to convince or persuade (van Eemeren et al. 2014). These three approaches – the dialectical, the one connected to informal logic and critical thinking, and the pragma-dialectical – are the most influential in the dialectical trend but they do not exhaust the whole research landscape where a remarkable variety of still developing conceptions deserve to be included into the general picture. The approaches belonging to dialectical trend share the idea that investigating the ways in which argumentation evolves in a dialogue provides an in-depth understanding of what argumentation essentially amounts to. Authors who contribute to the formal trend abstract from the dialogical or speech forms of argumentation and instead focus either on its inferential aspects, both deductive (Barth and Krabbe 1992, Besnard and Hunter 2008) and defeasible (Baroni and Giacomin 2009), or on its computational aspects (Dung 1995, Gordon et al. 2007). The key idea of the formal trend is that argumentation is a kind of ordering imposed

on the arguments as its atomic or molecular elements. In this trend, up to the last decades of the 20th century, argumentation was understood mostly in the vein of application of logical theories the scope of which was seen as modelling the arguments on their propositional level both from the inside of them and from the outside. Consequently, argumentation was treated as a collection of inference-like transitions from the arguments to the contention, or, to put it in traditional logical terms, from the premises to the conclusion. Dung's seminal idea of abstract argumentation framework opened a perspective of modelling argumentation as a framework in which arguments were understood as entities unanalyzed from the inside that were ordered and reordered from the outside in certain ways that resulted in identifying of definite argument sets exhibiting different formal properties. The semantic counterpart of Dung's formalism is construed by means of the argumentation framework's set-theoretical extensions based on the definite kinds of ordering of the argument sets which correspond to the different notions expressing the idea of how an argument set can be defined as defended against the attacks of the counterarguments. Abstract argumentation frameworks were designed to model how rational agents can modify their positions by amending them with new arguments in order to make their positions resistant to the attacks. Dung called such modifications extensions, and he distinguished stable, preferred, complete and grounded extensions, or ordered subsets of the argument sets, depending on two issues: on the kind of the semantics employed, sceptical or credulous; and on the type of argument ordering imposed in the set of arguments added to the initial set. Dung's approach expanded the research focus of

the formal trend from that of analyzing the ways in which argumentation can be closed just under some consequence-like relation between the arguments and the contention towards a broader look on the ways of argument ordering which also presupposes the classical deductive orderings, though it does so whenever special rationality postulates are met (Amgoud and Caminada 2007).

The two trends intersect in many ways. First of all, they do so conceptually, for there is a permanent interchange flow between them when the ideas proposed in one of them get developed in the other (Krabbe and Walton 1995, Woods 2004). Another meeting point is historical, for they both rely on similar historical background which dates back to Plato's dialectical disputations, Aristotle's logic and topics, ancient Greek and Roman rhetoric, and Euclidean mathematics. Last, but not least, there is also a practical aspect of this interrelationship, for there are authors contributing to both trends.

Argumentation is social and intellectual activity of intelligent agents, which is aimed at verifying coherency or cogency of agents' positions put forward in a dialogue. The tasks of verifying coherency and cogency of agents' positions may be described as epistemological, since in argumentation agents focus their efforts on three key objectives, each of which can be called epistemological, though in a different way:

- (1) to justify (the coherency of) an agent's positions, including doing so with respect to counter-arguments;
- (2) to convince the dialogue partner, which amounts to verifying (the cogency of) agents' positions before a 'rational judge';
- (3) to persuade the dialogue partner to act in a certain way by means of adopting a definite line of behaviour.

I will call the kinds of argumentation, in which agents pursue these goals *justification*, *conviction* and *persuasion* respectively. Justification and conviction differ from one another in the following way. In a justification dialogue, an agent questions and investigates her own position and does so either by means of exploring its internal coherency, or by means of defending it against critical arguments. In a conviction dialogue, an agent seeks to modify the position of her dialogue partner. To this end, the agent outlines her position in such a way as to demonstrate its cogency before the so called “rational judge” – an abstraction used to describe the function of an autonomous referee, whose task is to independently assess arguments of the discussants. This universal evaluation function points to the sets of arguments, if any, which are cogent to a definite extent to all agents in the dialogue. The idea of defeasibility of arguments in the course of the argumentative dialogue, in the vein of which Dung-style semantics is construed, suggests that the agents can evaluate someone’s beliefs in two ways: credulously or sceptically. Regarding their own beliefs, I assume that the agents argue in the credulous mode and they try to defend their positions in the dialogue by justifying them on the basis of the maximal coherent subsets of their beliefs expressed by means of the arguments belonging to the agent’s position. Contrary to this, other agents’ beliefs and the arguments expressing them in the dialogue are evaluated in the sceptical mode so that the positions of other agents are considered defended and thus convictive on the basis of the minimal cogent subsets of the arguments. This idea lies behind the notion of the ‘rational judge’ function aimed to select the minimal defended subsets of

arguments in the argumentation framework. Clearly, the sceptical mode of evaluating arguments holds also for the credulous mode but not vice versa. Therefore, the borderline between justification and conviction may be drawn in two ways: structurally, or with respect to the agent’s positions, or functionally, with respect to the “rational judge”. In the first case, justification is a kind of argumentation in which only one position of the agent is at stake, whereas in conviction there are at least two positions of distinct agents confronting each other. In the second case, only in conviction there is a need of a ‘rational judge’, since the cogency of agents’ positions may be assessed in many ways from a variety of standpoints belonging to the agents involved in the dialogue, but in order to be convictive it has to be assessed in a universal way which would be accepted by all of them. Consequently, in the conviction the sceptical mode seems to be more reliable candidate for providing a firm semantic background in the argumentation framework than the credulous mode, which provides the same for the justification. Justification and conviction, on the one hand, and persuasion, on the other, are distinct with respect to their objectives which are at stake when agents argue in these dialogues. The borderline between them amounts to whether the disagreement in the agents’ positions has to do with evaluating their beliefs which are on the agenda in justification or conviction, or it is concerned with assessing their intentions and reasons to act deliberated in persuasion dialogues.

In real dialogues, people seldom draw sound distinctions with respect to whether they are intended to argue about what values they should accept or disregard, which statements are true and which are

not, or which means fit better to the ends in question. To a large extent this is due to the fact that whatever is considered in each of these issues in one way or another has to do with the agent's cognitive profile, which can be observed in its manifold details as well as from a variety of angles. Thus, to discriminate whether in fact discussants argue about what they believe to be the case or about what is vitally important or should be done under certain circumstances means to divide the agent's profile into two distinctive parts: conceptual "data base", which, apart from knowledge and beliefs, also includes value judgments, moral principles, etc., and practical "data base", which is in many aspects connected to the first one and which embraces agent's activities, planning, goals, concessions, obligations, desires and the like. The idea to divide agent's profile into the conceptual, or theoretical, and the practical part, responsible for the agent's behaviour, is far from new. It has been substantially observed since antiquity up to today and I will not go into details here, but just point to two issues pertaining especially to argumentation. The first one is the idea of cognitive diversity which roughly amounts to saying that different agents possess different knowledge and beliefs. I consider it to be a repercussion of Pavilonis's idea of meaning continuum, though perhaps in a somewhat unexpected context of argumentation. The other one is the idea that since it is not possible to infer deductively the agent's intention to act in a definite way from her knowledge or beliefs, as John Searle convincingly argues (Searle 2001), practical argumentation, which amounts to reasoning about what and how to do, is manifestly distinct from theoretical consideration, which is reason-

ing about what is (possibly) true and how to demonstrate this (Lisanyuk 2014b). In this paper, I will focus on justification and conviction as kinds of argumentation and I will not discuss persuasion, or practical argumentation.

3. Cognitive Diversity

The idea of cognitive diversity in its original Stich's setting amounts to two hypotheses (Stich 1988) which will be called the epistemic and the epistemological aspects of it.⁴ The epistemic aspect proposes that agents differ in what they know or believe to be true, the epistemological aspect claims that the ways in which they are able to assess their knowledge and beliefs are manifold. The epistemic aspect suggests that agents may seek to cognize each other inasmuch as they cognize anything else. This aspect explains why an agent's strategic decision to engage herself into an argumentation dialogue aims to achieve the cognitive goal of acquiring information concerning the knowledge and beliefs of other agents in the dialogue. The epistemic aspect serves as a necessary conceptual reason showing why agents start arguing. The epistemological aspect supports the decision to start arguing by providing an efficient tool for evaluating the arguments in the dialogue, and it amounts to the rational character of the ways of expanding or modifying agent's beliefs advanced as the arguments. In other words, this aspect helps agents to perform

⁴ Stich advances his idea of cognitive diversity in the context of cultural and ethnic variety and develops mostly the epistemological aspect of it which he labels as properly cognitive. Since I would like to reserve the term 'cognitive' for the whole of his idea, I introduce the term 'epistemological' to refer this aspect and thus escape from confusing the whole with its part.

their argumentation successfully, for it says that since all cognitive agents are rational and reasonable, they are capable of means-ends considerations as well as of weighing pros and cons.

The epistemic aspect of the idea of cognitive diversity claims that there are some propositions which are known or believed to be true by some agents, and at the same time there are other agents who are yet unaware that these propositions are in fact true, or they believe, perhaps mistakenly, that these are not so. This leads us to an epistemic observation that despite the fact that only true propositions are eligible to form up cognitive agent's domain of knowledge, not all true propositions are known to each cognitive agent. This trivially implies that agents, if they wish or need to, may investigate whether a set of propositions they believe to be true, are in fact so, and that they may undertake such investigation not only with respect of their own knowledge and beliefs, but also regarding to the beliefs of other agents.

The epistemic aspect of the idea of cognitive diversity has been studied in agent-oriented trends of computer science (Shoham 1993), in the AGM belief revision trend (Alchourron et al. 1985), and in the theory of conceptual space (Gärdenfors 2000). These trends search for an in-depth understanding of how knowledge and beliefs arise, change and get organized in intelligent agents or in knowledge data-bases. Pavilioni's conception of the non-verbal meaning continuum out of which agentive belief propositions spring up and develop into a system of meanings seems to explore the domain which comes very close to the epistemic aspect of the idea of cognitive diversity.

The epistemological aspect proposes that agents have different inferential and computational abilities (van Benthem 2003), that the way they use them varies in ethnic or cultural communities (Weinberg et al. 2001) and that they are unequal with respect to the effectiveness of their brain activities output and regarding the capacities of their memory (Churchland and Sejnowski 1992). These observations imply that for agents the availability of the modes of belief revision and of the ways of knowledge is diverse (Ditmarsch et al. 2008). In other words, agents are not only different in what they know or believe but they are also unequal in how they can get to know something or in how they can come to believe in this or that. Consequently, the ways in which they acquire their knowledge and beliefs are not just contingently diverse but they are necessarily so. The latter statement endorses the idea that, on the one hand, cognitive diversity when taken epistemologically, saves argumentation studies from the logical omniscience problem (Hintikka 1975), and, on the other hand, it invites to investigate itself not only in cognitive research, ethnology or neuroscience, but also in logic by means of applying different logical theories to tackle the distinctive agents (Liu Fenrong 2006).

Contemporary definitions of what intelligent, or cognitive, agents are originate either in research on artificial intelligence (AI), or in computer science (Russell et al. 2003: 48–50). In the former, intelligent agents are kinds of software used to process input information usually coming from different sources and to produce output results by means of accomplishing the goals, which in highly sophisticated cases may include learning or further agentive

activities' planning. Since in AI intelligent agents are assumed to be capable of 'behaving' independently or in coordination with other agents and are bound to do so according to certain models of rationality, they are often called autonomous, or rational agents. In the latter case intelligent agents are defined in a more technical way. For computer scientists, intelligent agents are just data processing programs used for definite practical tasks such as information searching, viruses or software assistance agents. Intelligent agents of this sort may be provided with some intelligence in a technical sense, which normally does not go beyond their feedback capacities. In this paper I rely on the AI-related notion of an intelligent agent. I also assume that in distinct dialogues one human being acts as distinct intelligent agents which may coincide by chance.

4. Pavilionis's Meaning Continuum and the Idea of Cognitive Diversity.

There are two good reasons why I consider Pavilionis's conception of meaning continuum in the context of argumentation studies given that, as far as I know, Pavilionis himself has never shown his interest in this area of research. One of these reasons is personal and the other one is conceptual.

A personal reason has to do with a fact from my research career which makes me feel grateful and proud at the same time. It was Pavilionis with whom I was happy to discuss my devotion— quite shaky at that time in the beginning of 1990s – to study logical aspects of language use. His support, both conceptual, him being one of influential analysts in the field,⁵ and admin-

istrative, as at that time he was Vice-Rector of Vilnius University, as well as his wise trust in my vague research outline became a pledge that eventually the research would be carried out.

The conceptual reason for considering Pavilionis's conception in the framework of argumentation analysis has to do with the idea of cognitive diversity of agents which his conception abuts and which provides a substantial background for my tripartite distinction of kinds of argumentation.

In 1970-80s Pavilionis has developed his conception of meaning continuum which emerged out of his considerations of three aspects of how a meaningful linguistic unit can be constructed, transmitted and analysed. Since he outlines these aspects on the basis of thorough discussions of the ideas of generative grammar and other formalized linguistic theories, logical systems and philosophical approaches to language, I will use the terms 'linguistic', 'logical' and 'philosophical' to refer to the corresponding segments of his considerations. Pavilionis's key idea is that

a subject is a carrier of a definite conceptual system, and it is him who outlines identification as well as discrimination of the objects on the basis of information about them he possesses in the form of concepts, i.e., as pieces of knowledge or beliefs about these

longs to the body of standard sources to be referred to in research papers in philology and cognitive linguistics. The database of dissertations (in Russian, from approx. 1980) <http://www.dissercat.com/> gives more than 2000 references, most of them belong to these two research areas and are mentions of (Pavilionis 1983) and (Pavilionis 1986) in their references lists; less than 1% are references found in dissertations on logic; approx. 20% of 1990–2002 references provide at least a brief mention of his conception in the body of the text. In the last decade the number of references has decreased, with only one of the authors mentioning his conception in the text.

⁵ In contemporary Russian academic community Pavilionis's conception of meaning continuum still be-

objects which he traces verbally by means of definite descriptions or proper names. According to this, a concept is a *meaning* of a singular term which, for a *definite language speaker*, generates the definite object in a universe of objects relative to the definite conceptual system, and does so not for the meaning of a singular term in some absolute objectivist view or in the ‘semantics of language’. Just because this meaning is relative to a definite conceptual system, it serves as the criterion of object’s identification and this is exactly to what intensional nature of meaning amounts to. (Pavilionis 1983: 166)

The linguistic aspect of his idea suggests that the fact that agents are able to transfer their meaningful messages from one to another is grounded on two significant issues. One of them is that agents generate these meanings in the frameworks of their conceptual systems which are distinct. The other presumes that what makes this transfer successful is that the meanings thus generated refer to the universal conceptual system created by the two communicating agents in the dialogue. In terms of the cognitive diversity of agents this amounts to saying that the fact that agents possess different conceptual systems is a necessary condition for the sound transfer of their meaningful messages. What makes this idea represent the linguistic aspect of Pavilionis’s conception is that the universal conceptual system through which such transfer is implemented is expressed in the language spoken by the agents.

There are two logical aspects in Pavilionis’s conception of meaning continuum which may be called major and minor with respect to the academic attention given to them so far. The major aspect says that since in formal logical theories the logical form of propositions normally

determines their meaning with respect to both their truth value and their sense, and since the propositions of beliefs have to be treated as distinct from the propositions of knowledge, the logical forms of the former and of the latter should be carefully discriminated from each other. Here I intend to consider his conception’s minor aspect which follows from the major. The minor aspect proposes an explanation of how an agent’s conceptual system emerges out of the agent’s meaning continuum. If we take the logical form of propositions to be a kind of definite compositional ordering imposed on either conceptual or linguistic entities meant to be expressed by this proposition (Mikirtumov 2013), this will lead us to the conclusion that ordering within the meaning’s continuum plays an important role. In a system of meanings, the ordering of different meaningful units matters not only with respect to how the fine-grained atomic units of meaning are organized inside the propositions, but it also matters with respect to how the molecular propositions bearing definite meanings are put together into a hard-grained conceptual system.

The minor logical aspect of Pavilionis’s conception implies that transferring meaningful messages between agents is necessarily based on the orderings that can and should be imposed on the continuum of meanings of an agent in order for it to become her conceptual system. Therefore, the agent’s conceptual system can be viewed as a continuum of meanings which is organized by the agent in a certain way whenever she starts communication with another agent. In this way, for every next communication, the agent’s continuum of meanings gets organized anew and then accordingly reorganized, which implies that

once the agent enters a dialogue with other agents, she construes a definite conceptual system as a certain subset of her continuum of meanings. This newly built conceptual subset is in two ways correlative to those of other agents in the dialogue: formally, for it exhibits a certain ordering of meaning which is correlative to the orderings of the conceptual systems put forward by other agents, and materially, since in the dialogue agents advance their positions concerning a certain topic which they are going to discuss. Pavilionis argued that “the linguistic units acquire their meaning and can be construed as meaningful only in the framework of a set of concepts which is characteristic of a person’s world view and which is correlative to what may be roughly called an ‘objective system of beliefs’. These units of meaning can be comprehended as certain verbal or speech units and are capable of being translated or transmitted in communication from one person to another in no other way than when they are presented as a conceptual system” (Pavilionis 1983: 258).

The philosophical aspect of his conception is prompted by its logical and linguistic aspects and it has been already touched in the above discussion of the epistemic aspect of the idea of cognitive diversity. Let me underline it once again. The epistemic aspect of the idea of cognitive diversity suggests that “there are significant and systematic differences in the epistemic concepts, judgements, and practices different people employ in evaluating cognition” (Bishop 2009: 114). Epistemic diversity of agents, thus understood, proposes that different agents not only may wish to cognize each other, but they may also wish to investigate themselves by means of critical arguments that are advanced or might have been ad-

vanced against their position concerning some issue. What then would enable them to do so? The epistemological aspect of the idea of cognitive diversity, which in the form of orderings imposed on their epistemic positions put forward in a dialogue provides intelligent agents with a rational pledge for this.

5. The Kitchen Debate Analyzed

Each of the two positions in the Kitchen Debate consists of 6 arguments, or debate moves, and together they make up an argumentation framework of 12 arguments arranged in a special way. Let us take a closer look on how these arguments are related to each other in the argumentation framework of the debate.

We will say that an agent has a position in an argumentation dialogue, if she has put forward a nonempty set of arguments related to each other in a certain way which will be called a *position ordering*. From the viewpoint of logic, agentive position ordering in argumentation is maintained by two correlative properties of the propositions included in it. It is their truth value that determines the initial ordering in a set of propositions, and the logical consequence, which establishes what propositions should be added to the initial set or eliminated from it. In the face of the idea of the agents’ cognitive diversity neither of the two properties, taken as they are, is eligible for being an appropriate candidate for the way of agentive position ordering in argumentation dialogues, since the epistemic aspect of the idea questions the former and its epistemological aspect doubts the latter. This observation implies that formal logical theories based on the notion of truth value and closed under a definite notion of logical consequence can-

not serve as formal tools for such ordering in the argumentation framework. Instead, I propose to treat agentive position ordering correlatively to one another in the argumentation framework. To this end, I will use binary relations and employ some elements of Dung-style extension semantics.

Depending on two issues, on the way of ordering imposed in the agent's position and on the way such agent's position ordering relates to the critical arguments to it, it is said to be *coherent* in a weak or in a strong sense respectively. Both notions of coherency are based on the credulous semantic mode. Note that in a dialogue critical arguments against an agent's position can be advanced either by the agent herself, whenever she tries to take a critical stand with respect to her own position, or by another agent. In the latter case, it is significant for distinguishing between justification and conviction that such critical moves refer to the agent's position in question and they do not introduce another agent's position into the dialogue. Therefore, a strongly coherent position presupposes its ordering from the outside which is relative to the counterarguments. In contrast, a weakly coherent position is defined with respect to its ordering from the inside, for such a position implies that its elements are organized in relation to each other in a definite way. A weakly coherent position is also able to confront counterarguments, though it does so by means of random attacking or counterattacking them, if there are any critical moves from the outside, and not by means of total defence against them. In this respect, weakly coherent and strongly coherent agents' positions show how the ordering imposed on them determines the extent to which the position can be justified in a dialogue.

Another definition of an agent's position ordering is its *cogency*, the notion by which I refer to a rationally determined extent to which the agent's position at question is capable of being accepted by other agents in the dialogue. The notion of cogency is based on the sceptical semantic mode. In a conviction dialogue, the agent's position ordering also plays a significant role. In these dialogues the effectiveness of conviction is determined by the "rational judge" function which is defined in two ways so as to point to weakly and strongly convictive, or cogent, sets of arguments picked out of the positions of the discussants. A weakly cogent argument set is a minimal set of arguments capable of being defended in the debate; a strongly cogent argument set is a maximal set of such arguments. Since argumentation in our view has to do with verifying the coherency and the cogency of agent's position in a dialogue, it becomes clear why the issue of how to identify the respective kinds of orderings of agent's position plays a crucial role. Another significant contention about the agent's position is that in order to be viably presented in both justification and conviction argumentative dialogues any such position requires some ordering imposed on it. That is to say, any such position is necessarily a certain *system* of arguments.

Let us consider our example and define the notions of coherency and cogency in a proper way. Khrushchev's and Nixon's positions consist of the two sets of arguments $K = \{K1, K2, K3, K4, K5, K6\}$ and $N = \{N1, N2, N3, N4, N5, N6\}$ respectively. I will call K-set and N-set *argumentative sets*. I also employ the term *argumentative framework* (of the debate) for the total set of arguments put forward in the debate by both

discussants. Our Kitchen Debate example represents a finite argumentative framework AF_{KD} , and it consists of the following 12 arguments:

$$AF_{KD} \subseteq \{K1, K2, K3, K4, K5, K6, N1, N2, N3, N4, N5, N6\}$$

Words ‘debate’, ‘discussion’ and ‘dialogue’ will be used informally as synonyms to point to a course of an argumentative dispute.

Three types of binary relations between pairs of arguments can be observed in AF_{KD} : *attack*, a fundamental relation by means of which one argument in the pair defeats another argument, and two derivative binary relations – *rebuttal*⁶ which amounts to an attack on the attacking argument, and *support* which signals that arguments in the agent’s position are organized in such a way as to endorse the whole of the agent’s

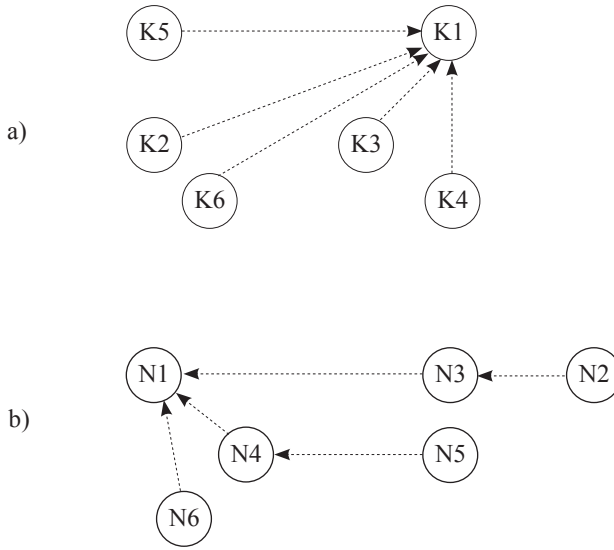
⁶ The notion of rebuttal is widely used in argumentation analysis and has two major ‘faces’, formal and informal. The informal account of rebuttal was perhaps best given by (Toulmin 2003). According to him, a rebuttal is just a counter-argument which is included in the reasoning and is observed as a plausible default to its conclusion. A rebuttal, if it eventually proves to be true, is able to defeat the conclusion. K6, counter-attacking on N1, is an example of such rebuttal which relies on an implicit premise that it is fair to compare only the systems existing within a comparable length of time. In the formal account of rebuttal, it is a kind of attack on the key contention of the reasoning, and thus it is distinct from the other two kinds of attacks: from undercuts, or attacks on the inference rules, and from undermines, or attacks on the premises of the reasoning (Prakken 2012). Discriminating among the three types of rebuttal is possible on the level of an argumentative set only, provided that the inside structure of the arguments is also taken into account. In the argumentative framework all three types of rebuttal appear just as the attacks on the contention. If we were to analyze the inner structure of the arguments, then N6, N1 and N5 would be the examples of undercut, rebuttal and undermine respectively. Here I use the term ‘rebuttal’ as an umbrella name for its formal account, but I will not discriminate among these three kinds of rebuttal.

viewpoint. Observe that the debate is constituted by two kinds of orderings: *attack* which organizes all arguments in the debate on the argumentative framework AF_{KD} , and *support* which imposes a partial ordering in the argumentative K- and N-sets.

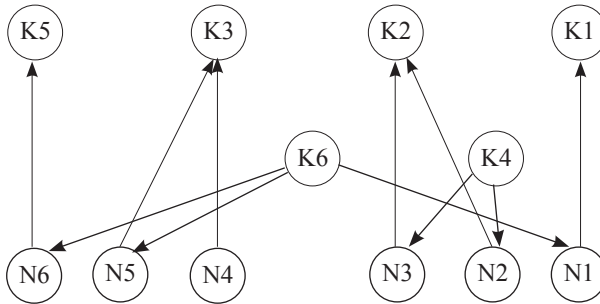
I write *attack* [A; B] and say that argument A *attacks* argument B, if there exists a non-empty argumentation framework AF to which both arguments A and B belong: $A, B \in AF$, and A is critical to B. The targets of the attacks by means of which an ordering on the argumentation framework AF_{KD} is imposed give a better understanding of how K- and N-sets are criticized and defended in the debate. Given that there are two arguments such that $A, B \in AF$ and *attack* [A; B], and that there is an argument $C \in AF$ which in turn attacks A: *attack* [C; A], we say that C *rebuts* A. For such arguments $A, B, C \in AF$, argument C is a *rebuttal* of attacking argument A, if and only if *attack* [A; B] and *attack* [C; *attack* [A; B]]. We will also say that B is *defended* within the argumentation framework AF, if and only if

- (i) there is *attack* [C; *attack* [A; B]]; and
- (ii) there are no other rebutted attacks on B within the framework AF; and
- (iii) the arguments which *attack* C are either rebutted within the framework AF, or the set of such arguments is empty.

In the Kitchen Debate there are 11 attacks, 5 of which also rebut other attacks (cf. Scheme 2). However, only arguments K1, K2 and K3 are defended in it. It is natural to say that in an argumentative dialogue a position is *defended*, if each of the arguments belonging to it is defended against



Schemes 1a and 1b. **Support in Khrushchev’s and Nixon’s positions**



Scheme 2. **Attacks in the Kitchen Debate**

all attacks. Consequently, an argument B is *defended* with respect to an argumentative set $S \subseteq AF$, if and only if all arguments attacking B in AF are rebutted. In this respect, neither Khrushchev’s nor Nixon’s positions are defended, though for different reasons. Khrushchev’s position cannot be called defended in the above-mentioned sense because of the following two observations. Firstly, despite the fact that the attacks on $K1$, $K2$, $K3$ are rebutted, $K5$ attacked by

$N6$ is unrebutted. Secondly, since there are no attacks or rebuttals with respect to $K4$ and $K6$, this implies that these cannot be called defended either. The second observation makes Nixon’s position in the Kitchen Debate also not defended, for there are no rebutting attacks in his position.

For two arguments C , D belonging to an argumentative set S (which may in turn be a subset of an argumentative framework AF : $S \subseteq AF$) we say that C *supports*

D: *support* [C; D], if and only if neither *attack* [C; D], nor *attack* [D; C] holds in S. We will also say that an argumentative set S is *attack-free*⁷, if there are no such pairs of arguments [C, D] in it that attack each other. Consequently, to say that an argumentative set S is attack-free is just the same as to say that all the arguments in S support each other in the above-defined sense of *support*. This also means that in the attack-free argumentative set there are no rebuttals, since there are no attacks, and all its arguments support each other.

Every attack-free argumentative set is *weakly coherent*, for in such a set all the arguments included in it support each other. N and K are examples of weakly coherent agent positions in the Kitchen Debate. Note that K4, K6 and N6 belong to K and N respectively, and they can be said to support K1 and N1 in our sense of *support*, but just because the content of K4, K6 and N6 may be treated as irrelevant to that of K1 and N1, it is not clear if they can be considered as supporting K1 and N1 in a traditional sense of how arguments are supposed to support the standpoint in argumentation. Thus, according to my approach, the arguments are considered to support the standpoint in a dialogue whenever they either *support* or *support*, or an argument set is attack-free. This setting of the structure of the agent's position in a dialogue provides a good perspective for analysing the fallacies of argumentation (Lisanyuk 2008). In contrast to a weakly coherent argumentative set, an attack-free argumentative set is *strongly coherent* if it is defended in the dialogue. The notion of a strongly coherent argumentative

set corresponds to what Dung calls a set of admissible arguments (Dung 1995: 328). Such argumentative set has the preferred extension in the framework, if and only if it is a maximal subset of the defended arguments in it. In this sense, neither K nor N is strongly coherent, and there is no preferred extension in the framework. This also implies that neither K nor N are successfully justified in the strong sense in the dialogue. In other words, if Khrushchev and Nixon had advanced their K- or N-sets in a justification dialogue composed of the moves they made in the Kitchen Debate, neither of the two would have succeeded in the strong sense.

Now let me turn to conviction. Note that according to my approach the Kitchen Debate is a conviction dialogue, though in the above discussion I used certain debate moves from it to illustrate justification. Let us introduce a characteristic function of a 'rational judge' F_{KD} within our argumentative framework AF_{KD} :

$$F_{KD}: 2^{N,K} \rightarrow 2^{N,K}; F_{KD}(S) = \{A | A \text{ defended with respect to } S\}^8$$

The "rational judge" function F_{KD} picks the defended in AF arguments out of the argumentative sets N and K and verifies if the argument at issue has a defence in AF provided by another argument belonging to the same argumentative set. Observe that the defended argument picked out by F_{KD} is so with respect to the argumentative set to which the attacking argument belongs. This implies that despite the fact the resulting subset S is formed up by the defended arguments only, in practice F_{KD} marks out

⁷ Dung's conflict-free argumentative set [Dung 1995, 328] is also attack-free, though the reverse does not hold, strictly speaking, for the former has no support-ordering defined in it.

⁸ I use S as a variable for pointing to a nonempty subset of N or K sets in AF_{KD} .

the ordered pairs of arguments belonging to the same argumentative set, and such pairs consist of the attacked and the counter-attacking arguments. Clearly, S is formed up by the first members of these pairs.

An argumentative set $S \subseteq AF$ is *weakly cogent*, if it is a minimal argumentative set defended with respect to the ‘rational judge’ function defined in AF . S is *strongly cogent*, if it is a maximal set defended in this way. The notion of strongly cogent argumentative set implies that such set has a grounded extension in AF what means that S as the set of all defended arguments in AF has no proper non-trivial subset which includes all the defended arguments belonging to S . Such set S is the complete extension in AF , if and only if it defends all arguments belonging to it in AF . It is easy to see that F_{KD} gives several minimal non-trivial results including $\{K1\}$, $\{K2\}$, $\{K3\}$. Observe that each of their nonempty intersections is also weakly cogent. F_{KD} gives only one maximal result: $\{K1, K2, K3\}$.⁹ Apparently, the most convictive agent’s position is the one in which the maximal subset of the defended arguments is the complete extension in AF . In this respect, neither K nor N is convictive. However, the notions of weak and strong cogency provide us with somewhat less obligatory idea of what a convincing position might amount to. Neither K nor N is strongly cogent as well, though K is weakly cogent. In terms of conviction as a special kind of argumentation, this means that only three arguments in Khrushchev’s position are in fact convictive: $K1$, $K2$, and $K3$, and this is so due to $K4$ and $K6$.

⁹ Note that F_{KD} can select the defended arguments from any argumentative set in AF_{KD} , so that it is not necessary that all the selected arguments come from one and the same set, as it by chance happens in AF_{KD} .

Conclusion

Our analysis of justification and conviction in terms of coherency and cogency of agents’ positions in argumentation shows that there are four ways in which the orderings of the positions (can be said to) contribute to how intelligent agents are able to cognize themselves or other agents in argumentation. Weakly and strongly coherent positions demonstrate how a set of arguments can be organized into a system of arguments capable of being defended against counter-arguments. The coherency evaluates the internal and the external orderings of an agent’s position. The cogency does so with respect to the position of another agent, for weakly and strongly cogent argument sets maintain how agent positions come to be convictive before (the function of) a “rational judge”. The idea of agents’ cognitive diversity, which underlies my formalized logical-cognitive approach to argumentation, suggests a broader look into epistemic, or extensional, and epistemological, or intensional, disagreements between human beings. In its extensional aspect this idea echoes Pavilionis’s conception of meaning continuum. As for the practical output of the considerations of all the three issues, kinds of argumentation, coherency and cogency of agent positions and agents’ cognitive diversity, it seems evident in the Kitchen Debate example and amounts to saying that intelligent agents can cognize themselves and other agents in an argumentative dialogue regardless of their attitude to each other. The conclusion drawn by the technical analysis of the Kitchen Debate suggests that since agents are cognitively diverse, there is always a need for a ‘rational judge’ to be maintained for the success of convictive argumentation between them.

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ARGUMENTACIJA, R. PAVILIONIO PRASMĖS KONTINUUMAS IR VIRTUVĖS DISKUSIJA

Elena Lisaniuk

Santrauka. Straipsnyje pateikiamas loginis-kognityvinis požiūris į argumentaciją ir teigiama, kad argumentacija suponuoja, jog į ją įsitraukę protingi veikėjai pasižymi kognityvine įvairove. Autorės prieiga leidžia įvesti skirtis tarp pagrindimo, įtikinimo ir įkalbėjimo kaip skirtingų argumentacijos rūšių. Pagrindimo atveju veikėjai siekia verifikuoti savo pozicijos dialoge stiprų arba silpną koherentiškumą. Įtikinimo atveju veikėjų tikslas yra pakeisti partnerių poziciją įrodant savosios pozicijos silpną ar stiprų įtikimumą idealizuoto „racionalaus teisėjo“ akivaizdoje. Autorės prieiga pasitelkia P. M. Dungo abstrakčių argumentacinių struktūrų versiją. Ji paremta St. Sticho kognityvinės įvairovės idėja, kurios episteminis aspektas yra artimas R. Pavilionio prasmės kontinuumo koncepcijai. Dėstomas požiūris iliustruojamas pavyzdžiu, paremtu virtuvės diskusija, vykusia tarp N. Chruščiovo ir R. Niksono 1959 metais.

Pagrindiniai žodžiai: abstrakčios argumentacinės struktūros, kognityvinė įvairovė, prasmės kontinuumas, virtuvės diskusija

Įteikta 2015 m. kovo 30 d.