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WEAK REASONING ARGUMENTATIVE THEORY
A DIALOGICAL APPROACH FOR THE DISCOVERY OF PHILOSOPHY IN HIGH SCHOOLS

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ABSTRACT

In the literature on philosophical practices, despite the crucial role that argumentation plays in these activities, no specific argumentative theories have ever been proposed to assist the figure of the facilitator in conducting *philosophical dialogue* and to enhance student's critical thinking skills. The dissertation starts from a cognitive perspective that challenges the classic Cartesian notion of rationality by focusing on limits and biases of human reasoning. An argumentative model (WRAT – Weak Reasoning Argumentative Theory) is then outlined in order to respond to the needs of *philosophical dialogue*. After justifying the claim that this learning activity, among other inductive methodologies, is the most suitable for critical thinking education, I inquired into the specific goal of 'arguing' within this context by means of the tools provided by Speech Act Theory: the speaker's intention is to construct new knowledge by *questioning her own and other's beliefs*. The model proposed has been theorized on this assumption, starting from which the goals, and, in turn, the related norms, have been pinpointed. In order to include all the epistemic attitudes required to accomplish the complex task of arguing in *philosophical dialogue*, I needed to integrate two opposed cognitive accounts, *Dual Process Theory* and *Evolutionary Approach*, that, although they provide incompatible descriptions of reasoning, can be integrated to provide a normative account of argumentation. The model, apart from offering a theoretical contribution to argumentation studies, is designed to be applied to the Italian educational system, in particular to classes in technical and professional high schools belonging to the newly created network *Inventio*. This initiative is one of the outcomes of the research project by the same name, which also includes an original *Syllabus*, research seminars, a monitoring action and publications focused on introducing philosophy, in the form of workshop activities, into technical and professional schools.

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INTRODUCTION

Philosophical practice in technical and professional education

1.   The *Inventio* Project. Philosophical research as a driver for school innovation

One of the most common complaints addressed by common sense to philosophical research regards the limited applicability of the theories proposed, and of the issues raised, to reality. This prejudice is not only caused by the so-called 'abstractness' of the discipline and by the technicality of its language, but possibly also by an increasing tendency in every area, including research: namely, the need to measure and assess through reliable instruments the impact of human actions on society. The said impact, in the case of philosophy, is without doubt less evident, at first glance, than in other disciplines. Childish and unfounded judgements like that are precisely what a philosophical education, if it is effective, should be able to overcome. Actually, a more careful eye – not necessarily a philosophical eye – will not struggle to point out that philosophical inquiry is strictly intertwined with research conducted in other fields, such as science and technology. That is true not only because the most prominent philosophical approaches have the ability to influence mentality, methods and perspective of other researchers – and, more slowly, of society at large –, but also because every scientific investigation needs some philosophical presuppositions, explicit or not, without which they could not have any starting point:

> […] if [scientists] were not convinced of a reality external to the inquiring mind, if they were not persuaded of the astonishing fact that external reality is understandable by the human mind […], if there were not these *minimal metaphysical* ideas, then scientific research would not be conceivable. Scientific research is founded on such ideas (realism; comprehensibility of the world; order axiom; ethical value of scientific truths) (Antiseri, 2011, p. 39; my translation)

Furthermore, beyond the indirect effects of philosophical research on changes in reality, there are also cases where the output of a research process in philosophy manages to have direct effects on the world, being able to transform the *status quo*. Reforming trends that are able to introduce, in specific areas of social organization, new contents to deal with – or new approaches by means of which old contents are reinterpreted –, indeed, are not uncommon. Suffice it to mention, in the

educational field, the way specific philosophical ideas (e.g., the idea itself of child or of adolescent) have been capable of inspiring crucial changes within the educational system, which is by its nature fixed and conservative, just like every institution. These changes have modified, on the one hand, the content to be learned, the methodologies used, the goals which have been set and the proper assessments; on the other hand, they have changed the way of interacting with students and to encourage specific relationships between peers.

It sometimes happens that philosophical research is embodied in actual projects whose aim is to renovate certain areas, such as education. That is the case of *Inventio*, born between the end of 2020 and the beginning of 2021 from the research activity conducted by the Group *ΑΙΩΝ / ΑΙÓΝ – Filosofia e Didattica,* belonging to the University of Bologna and coordinated by Sebastiano Moruzzi and Carlotta Capuccino, and from the experience gathered in the classrooms by the Association *Filò – Il filo del pensiero*.[1] The project plans to introduce philosophy, twisted into workshops based on philosophical practices, in Italian technical and professional educational institution, by establishing a national network of schools.[2] The National Network *Inventio* (ARI, 2022), established in the school year 2022/2023, is the outcome of two years devoted to research, during which many events have been organized: academic seminars addressed to school teachers, working groups, training courses for experts and teachers, and an educational Experimentation. The attempt originated in the wake of a thirty-year debate started by the Brocca Program (1992), the first to suggest the possibility of adding philosophy to the curriculum of these kind of schools[3], and taken up by several ministerial documents that had encouraged this introduction, without success.[4]

In order to understand the purposes that *Inventio* wants to reach, we have, first of all, to look at the educational and system problems to which the project tries to respond, ideally in conjunction with a set of other advisable interventions by the legislator.

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[1] I have used the original names of the two institutions; they can be translated, respectively, as *ΑΙΩΝ / ΑΙÓΝ – Philosophy and Didactics* and *Filò – The Thread of Thinking*.

[2] 'Network of schools' is a type of organization established by Italian law (DPR 275/1999, art. 7; Law 107/2015, art.1, paragraphs 70, 71, 72 and 74), according to which a group of educational institutions decides to collaborate. These unions can be 'area networks', in cases where schools in the same district create a network to make the services more effective or to share some expertise, or 'purposeful networks', in cases where schools located in different geographical areas share the same purposes and the same project.

[3] In the Italian educational system, philosophy is part of the curriculum only in *licei* (singular: *liceo*), a set of educational curricula geared towards university, where it is taught for three hours a week in the three final years.

[4] I refer here just to three Documents. The first, also known as *Expert Advisory Document* (Essential Contents for basic education) proposes an innovative and clear educational vision; it states that philosophy should "endow every young person with conceptual instruments appropriate for their proactive and critical subjectivity" (CE, 1998, p. 5; my translation). The second, the *Memorandum of Understanding* (PI, 2011) between SFI (Italian Philosophical Society and the Ministry of Education (signed in 1997 and in 2001), proposes to extend the teaching of philosophy to any upper secondary school, through diversified curricula depending on the kind of educational institute. In the most recent document, *Guidelines for the study of philosophy in a knowledge-based society* (O, 2017), philosophy is described, on the one hand, as the appropriate means to endow students attending technical schools with cross-cutting competences (*soft skills*) – more and more necessary in the labour market –, on the other hand, as a lever to build the ethical, social and existential dimension of students.

The first problem observed is the backwardness of didactical paradigm. The reactionary system of Italian education, particularly in lower and upper secondary schools, is based almost exclusively on transmissive methodologies, that just encourage passive learning, although enriched by digital means. This is possibly one of the main factors in the social-cultural gap between a large number of students who remain on the margins, or even excluded, from the possibility of a true education, and a group of students who can follow the educational proposal and, eventually, succeed at university. One of the most serious consequences of the incapability of this approach to restyle itself and to fit the learning styles of young generations is early school dropout, which has reached a worrying dimension in technical and professional education.[5] In this framework, to place each student at the centre of education, letting them become protagonists of the learning process alongside their peers and under the guidance of teachers, would mean a decisive step forward in order to counteract attitudes such as demotivation, passivity and apathy, as pedagogical research confirms (Hanson & Moser, 2003; Scheyvens, Griffin, Jocoy, Liu, & Bradford, 2008[6]).

The second critical aspect is an educational offer unsuitable for the complexity of the economic-productive system. The historical hiatus between the highest level of education and the labour market is not due only to the teaching of knowledge not always in line with the technological changes, but also to a lack of interest, on the school's part, in soft skills: communicative abilities, decision-making autonomy, critical thinking, cooperation in groupwork, flexibility. Despite good technical competences, indeed, the school is seldom able to provide future graduates with the main soft skills, which, instead, would let them understand and successfully tackle the rapid changes associated with a more and more complex social-economic global system (digitization, automation, internationalization, participatory management, diversification, co-working).

This is accompanied by a possibly more alarming problem that precedes the beginning of any high school curriculum: namely, the dramatic decrease of enrolments in technical and professional schools, which has been dropping by one percentage point for more than ten years.[7] These data are worrying for the lack of professional offer that the phenomenon is causing in several strategic industrial sectors. For a country, such as Italy, that aspires to be a global leader in some of these sectors – for instance manufacturing, where it is second in Europe only to Germany –, we expect a

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[5] Out of the total 13.8% dropout rate in 2020, 3.8% and 7.2% was recorded respectively in technical and professional schools (Source: Centro Studi Manzoni).

[6] "By utilizing learning strategies that can include small-group work, role-play and simulations, data collection and analysis, active learning is purported to increase student interest and motivation and to build students' 'critical thinking, problem-solving and social skills." (Scheyvens, Griffin, Jocoy, Liu, & Bradford, 2008, pp. 51-52).

[7] To report just some data (source: Miur – Ministry or Education, University, and Research), in the school year 2009-2010, 42.3% of enrolments has been in *licei*, 33.6% in technical institutes and 24.1% in professional institutes; whereas, in 2022/2023, 56.6% of students chose a *liceo*, 30.7% a technical institute and 127% a professional institute. Hence, in 13 years technical and professional education has lost 14.3 percentage points.

future without practitioners able to use new productive technologies and to successfully operate on the service market. Technical and professional education needs to become more attractive in the eyes of students and their parents, possibly scared by the prejudice that these schools are intended for the future working class.

Finally, with regard to the pedagogical dimension, educational curricula are not planned to provide students with any opportunity for dialogue outside extracurricular activities. This aspect contributes to generate discomfort and demotivation, since the school does not manage to listen to one of the most strongly felt adolescents' needs, as emerges from data collected by Experimentation *Inventio* 2021-2022.[8] The issue is still more urgent today, after three pandemic years, during which the social fabric of adolescents has, in part, become frayed. A space of free and democratic discussion, among peers and with adults, would restore meaning to the effort that they make remaining seated at their school desks. Indeed, by addressing both universal and current problems shared by their generation (climate crisis, migratory waves, difficulties on the labour market, relation between legality and ethics, truth and fake news, etc.), they would discover how the school's function is essential in defining their role in the world. This has to do with a dialogical context that, however, should be led by expert figures, able to make dialogue work and to drive it deeper.

The project, hence, is born from the analysis of these issues, as well as from a review of its purposes, which can be summarised as follows: educational paradigm innovation, training in soft skills, more effective educational guidance and reduction of school dropout rates, promotion of dialogue and democratic discussion.

The very idea of philosophy in technical and professional institutes – a discipline associated by definition to *licei*, together with Latin – can generate a misunderstanding that needs to be clarified. *Inventio* definitely does not want to transform technical and professional schools into *licei*, by trying, through a few philosophy compendia, to mimic their curriculum. On the contrary, it aims to propose specific activities born within philosophy – which adopt its contents, methods, language, and basic notions – aimed to enhance two fundamental human competences, regardless of students' education and future profession: *thinking* and *dialogue*, both of which, as we will see, perfectly overlap with the practice of *philosophical dialogue*, since "Dialogue, unlike conversation, is a form of inquiry," (Lipman, 1991/2003, p. 91).

Before looking in detail at how these two goals are articulated in the proposal, it might be worth sketching out the structure of the National Network *Inventio*, a purpose network which educational institutes can freely join – as is stated by law – through a deliberation of the School

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[8] For a more detailed description of these data, cf. § 2 of this *Introduction*.

Board, that has to indicate in which classes the *Inventio Syllabus* (CI, 2022) will be introduced.[9] It is a form of school enhancement, to be adopted during classroom time (according to an arrangement established by the Classroom Board), that consists of 24 hours of activities per year, from year one to year five. The workshops are conducted by an external expert – a *facilitator* – who is duly trained before starting the activities and who is assigned to the school by the board of the National Network *Inventio.*

The aim, hence, is not only to allow students that would never meet philosophy during their schooling to taste philosophy, but to gradually and systematically lead them towards full achievement of the *Syllabus* goals, over the 120 hours planned.

2.   The *Inventio Syllabus*: dialogue, philosophy, critical thinking

2.1.   The origins of the project

To set up an educational project as *Inventio*, that for the first time in the Italian landscape aims to systematically introduce philosophy in technical and professional schools that adhere to the Network, required tackling a complex and intriguing task, namely to design a whole syllabus from scratch. Given the originality of the proposal, the work could not be compared with similar models, though a look at the functioning of educational system in other countries has been helpful.[10] The only available instance sharing the same values and purposes with *Inventio* seemed to be the *Philosophy for Children* Curriculum, structured into eight stories designed for an age between 4 and 16 years[11], and equipped with handbooks that propose activities based on these stimuli. Nonetheless, although Lipman and Sharp's visionary and forward-looking intuition that thinking education demands time and graduality is a reference point for *Inventio*, the difference of contexts and educational needs forced our Research Group to rethink the whole structure. Where could we find the resources, ideas and vision to design a syllabus able to channel in five years an education to dialogue and thinking by means of workshop activities? It was a tough challenge, also considering that it should have been introduced in heterogeneous schools with regard to curricula and local contexts, where students have possibly never been exposed to this subject.

The first resource has been the theoretical reflection that the fellows of the Research Group *AIÓN* have conducted over the past few years. In particular, they have inquired into the nature and

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[9] I postpone the description of the document to *Introduction*, § 1.

[10] For our purposes, it has been particularly interesting to consider the system of *professional licei* (*berufliches Gymnasium*) present in Brandenburg, that include classes with technical-professional curricula (economics, computer science, food science. biotechnology, electrotechnics) and philosophy as optional subject in the final two or three years, for 3-5 hours per week. The philosophy course is organized according to a competence-based learning focused on practical problems that students have to solve: it is about a learning strategy that starts from the analysis of a given problem to acquire new knowledge and skills.

[11] *The Doll Hospital, Elfie*, *Kio & Gus*, *Pixie*, *Harry Stottlemeier's Discovery*, *Lisa*, *Suki*, *Mark*. All the stories have been translated into Italian by Liguori Publishing, Naples.

structure of the methodology of *philosophical dialogue*, the way to design and facilitate a dialogical session, the contents and suitable materials, but also into the theoretical and pedagogical aspects of critical thinking and its intersection points with the practice of dialogue. The second element has been the experience gathered from the field by experts from the Association *Filò* in dozens of classes of every age and belonging to every kind of school, which helped them acquire and develop a practice – and teach it to everyone who is not yet experienced –, creating original didactical resources and tools. During these years of activities, the practice has always relied on the support of theory, and, in turn, it has always enriched and modified theory thanks to information collected in class. The last contribution to the drafting of the document has been given by the collaboration of the teachers who joined the working groups, where *Syllabus* began to flesh out. The focus was on topics close to the school curriculum, where the teachers could actually use their experience and competence. To rely on the experience of those who know better than anyone else the contexts where the project would be realized seemed to us the most natural way to construct *Syllabus* through a bottom-up process that finds its strength precisely in the synergy with teachers.

To summarize, one could consider the *Inventio Syllabus*, the core of the whole project, as the outcome of a three-sided experience – research, philosophical practice, teaching –, from which, also by looking the model of *Philosophy for Children*, a new and completely original path has been gradually structured, by involving a different expertise in order to foster dialogue.

2.2.   Methodologies: *philosophical dialogue* and inductive approach

Beyond the choice of the contents, the core of the project – its highlight – consists in adopting specific methodologies, deeply innovative for they are able both to make students actively enhance critical thinking skills and to encourage the growth of relational abilities. The main focus of the project is on *philosophical dialogue*, a pedagogical tool that, as we have just seen, is inspired by the experience of *Philosophy for Children* (Lipman, 1991/2003), and that then had interesting developments in following variants, such as Peter Worley's *Philosophical Enquiry* (*PhiE*) (Worley, 2011; 2016; 2021), another reference point for educational practices introduced by the project. By means of this approach, Lipman theorized, the class gradually turns into a *community of inquiry* (CoI), whose members, based on the model of scientific community (Peirce, W3, pp. 242–257; Dewey, 1910/1933) and under the guidance of a facilitator, cooperate in order to inquire into the issues addressed and, eventually, to solve them together, after observation and analysis. The CoI is an environment founded on relationships and verbal exchange between peers, arranged in a circular setting, who do not share a set of beliefs, but just a method and a style: *the attitude of thinking*. Indeed, if the communities are pre-reflexive and spontaneous contexts, normally based on

assimilation between participants and on keeping the *status quo*, the CoI is an intentional context based on discussion, difference and change (Cosentino & Oliverio, 2011): the judgements and the beliefs that they non-reflexively inherited from family and society, indeed, are discussed and challenged in order to reformulate new judgements – a new perspective – on the world. In other words, the CoI has the aim to "transform the spontaneous processes, those […] of daily experience, into oriented and conscious, reflexively controlled activities." (Cosentino & Oliverio, 2011, p. 1). To achieve this outcome, the facilitator, according to the technique of *scaffolding*[12], allows thinking to flow by encouraging participants to clarify vague and ambiguous concepts, by asking for stronger and more compelling arguments, by identifying obstacles to reflection or fruitful paths, etc.: namely, she guarantees, according to a constructive perspective (Bruner, 1961; 1990), development and co-construction of knowledge which is no longer the output of an individual inquiry, but of a collective one.

As regards the general structure, beyond its possible variants, *philosophical dialogue* provides an almost fixed pattern, which also can be reiterated over the same session: stimulus, question, inquiry (in the form of dialogue) (Zanetti, 2020). Instead of directly presenting the texts of philosophical tradition to students, by means of this methodology they are led to reflect and discuss on the same traditional problems, but by another way. The idea of the use of stimuli is born precisely from the necessity to place students close to philosophical problems through expressive means able to communicate with them in an immediate and fascinating way: literature texts, videos, pictures, movies, oral tales, paradoxes, creative activities (handcrafts, drawings, collages), body exercises, theatral performances, etc. The choice of the proper stimulus is very important for the general functioning of the whole workshop: indeed, on the one hand it should be aesthetically captivating and able to touch students, on the other hand it should be thought-provoking, namely able to be traced back to philosophical issues. The second phase, i.e., the question, can be conducted in two main different ways. The *Philosophy for Children* approach envisages that the question arises from a reflection and an aware choice of participants. That should be the output of the step known as *agenda* (Lipman, 1991/2003, p. 101-102), where the individual questions born from the

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[12] The term 'scaffolding' (borrowed from the construction sector) was introduced by Wood, Bruner and Ross (1976) and became central in pedagogical debate; it indicates the support that an expert provides to a less expert person in order to perform a task or solve a problem, without which the goal is not achieved. It is about an intervention that does not consist in providing information, but in leading and controlling the methodological and strategic elements that are initially beyond the competences of a learner, to gradually make her autonomous: "Discussions of problem-solving or skill acquisition are usually premised on the assumption that the learner is alone and unassisted. […] But the intervention of a tutor may involve much more than this. More often than not, it involves a kind of 'scaffolding' process that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts. This scaffolding consists essentially of the adult 'controlling' those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence. The task thus proceeds to a successful conclusion." (Wood, Bruner & Ross, 1976, p. 90).

stimulus are collected, elaborated and transformed by the group in order to come to a shared question. On the contrary, Worley's approach envisages that the question, usually after a *talk time* to discuss it in pairs or in small groups, is asked by the facilitator (Worley, 2011, p. 17), who, question by question (with the support of new stimuli), leads students to deal with predetermined issues. The two approaches demand from the facilitator different tasks: indeed, according to the open question, she has to show considerable improvisation skills, as she does not plan all the possible paths that the discussion takes, whereas, according to the constrained question, has to plan item by item all the workshop, not only the main question, but also the questions linked to the main one. Nevertheless, in both cases, all the questions of a workshop are designed to gradually conduct the CoI to the core of the philosophical issue: indeed, to allow the session to work, it is not sufficient for the facilitator to ask one or two questions leaving students alone in developing discussion, but she has to urge them by means, as we have seen, of many other requests (better justified arguments, clarifications, definitions, etc.) and new questions that emerge from the dynamic of dialogue, and that cannot be previously planned, not even in Worley's approach. The development of dialogue, at least until the CoI is mature enough to be autonomous, depends precisely on this capacity of the facilitator to conduct dialogue along this path that doesn't follow a linear movement, but, adopting a geometric metaphor, a spiral one – i.e., from the surface to the core of the problem. Certainly, the two approaches also involve differently students, that in the first case are required to construct the question itself, whereas in the second case are invited to follow the rigorous logic of the planned session. Lastly, the conclusion of a *philosophical dialogue* can be a draft answer that seems the most compelling, regarding the problem discusses or, simply, a sort of synthesis of the inquiry just completed. Sometimes, as the *Philosophy for Children* tradition recommends, a session can be concluded by a meta-reflective phase, where the facilitator asks students to self-assess dialogue, possibly following some established criteria.[13]

The choice of *philosophical dialogue* as the main methodology of the project is justified by evidence, reported by some important studies on the educational impact of *Philosophy for Children*[14]; this approach, indeed, is able to respond to the need for sensibilizing a series of socio-relational attitudes and for enhancing critical skills, traditionally overshadowed by the Italian school system. The creation of a space based on the dialectical exchange between peers breaks the traditional paradigm of an educational dialogue performed only between teacher and student, letting students address topics that actually involve, stimulate and challenge them, as well as develop

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[13] Cf. footnote 16 of the present chapter.

[14] Among the various studies available, it is worth mentioning the wider and more systematic one, conducted for two years by the Education Endowment Foundation (EEF) on a sample of around 3000 students aged 9 and 10 in 48 English schools (HC, 2014). The inquiry unequivocally shows a development of linguistic and logic-mathematical abilities, as well as an improvement of relational competences.

relational abilities, from listening to the others to question their beliefs. As confirmed, as we will see in Chapter I, by different theories in the domain of cognitive psychology (Mercier & Sperber, 2011; Hutchins, 1995) some thinking abilities, such as argumentation, find the most suitable environment for their enhancement in a context of dialogue and discussion. Nevertheless, integrative activities of reinforcement learning and conceptualization – such as those included in the third axis of *Syllabus*[15], specifically devoted to critical thinking – are useful for a more structured and ordered learning of such skills. Also in this case, by overturning the traditional deductive approach proposed by critical thinking handbooks[16], we designed specific activities, mostly game-based, designed according to a gradual order from year one to year five (from the notion of reason to the ability of constructing and assessing complex arguments), that follow an inductive approach. From the direct encounter with a reasoning problem, indeed, students are encouraged in a cooperative way to draw notions and general norms.

2.3. Educational aims

The starting point to elaborate our *Syllabus*, beyond the experiences told above and its models, was a deep reflection on the aims of philosophical practices, in particular on the instrument of dialogue. What do we want to make students acquire, in their exit profile, at the end of five years through this project? In particular, which attitudes and capacities do we want to help them develop through the pluriannual practice of dialogue? I have already mentioned, as main purposes, critical thinking and dialogical competences, macro-objectives that we articulated into hinge-objectives, in turn articulated into sub-goals – namely into micro-skills easier to measure by means of appropriate assessment tools. This task, which required considerable theoretical effort and the contribution of the whole research group, had not only the practical advantage of clearly defining the educational milestones and a set of useful standards to evaluate the effectiveness of the planned activities, but also the theoretical outcome of finding possible definitions of the notions at stake.

As concerns critical thinking, at least five abilities, which one can apply to different contexts and tasks, seemed to us indispensable: clear and effective use of language; the practice of doubt; rational argumentation; analysis and abstraction (considered here as two poles of the same task); search for problem-solving strategies. As concerns the construction of sub-categories of dialogue, we elaborated some standards outlined in literature about *Philosophy for Children* to assess *philosophical dialogues*.[17] The practice of *philosophical dialogue*, as a structured and cooperative

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[15] Cf. § 1.4.
[16] Cf. § 1.3.
[17] Maura Striano has defined a consistent set of standards of appraisal of *philosophical dialogue* performed following the *Philosophy for Children* approach. She distinguishes between *epistemic* (directionality, deepness, fluidity, accuracy, epistemic modularity, self-regulation / procedural control) and *regulative* criteria (democratic participation, equal

learning activity, aims to contribute to the development and shared construction of new knowledge (*epistemic dimension*). But, at the same time, this experience should lead those who take part in it to take care of other people's thinking and opinions, for the sake of the community (*socio-relational dimension*) and to act in an autonomous, mindful and responsible way, respecting democratic principles (*civic dimension*). Obviously, the epistemic, socio-relational and civic dimension are not discrete and detachable moments, but the improvement of competences in one area contributes to improvement of competences in another, following a homogeneous and integrated process. The same goes for the relation between dialogue and thinking: the same practice, indeed, serves both purposes, and, if the process works, critical abilities are trained as much as dialogical skills developed, and vice versa.

Both macro-objectives, in principle, could be achieved by means of participation in every form of dialogue that encourages students to argue, analyse the problems, etc., regardless of the contents, as confirmed by educational research within other domains – such as mathematics, physics, etc. To make dialogue *philosophical* is thus a matter of philosophical contents. That is undoubtedly true, since the specificity of this type of dialogue is that it is focused on philosophical problems, but the issue is not limited to contents: indeed, it does not aim to teach philosophical knowledge – for which other methodologies are possibly more effective –, but a conscious use of proper tools by the philosopher: one could say, to teach how to *think philosophically*, or, simply, *to philosophize*.[18] The third macro-objective, thus, concerns 'philosophical competences', summarized in the use of basic philosophical language, the analysis of a problem (both theoretical and practical) and, finally, the inquiry conducted through typical tools of discipline (argumentation, conceptual analysis, hypothetical and counterfactual reasoning, thought experiments, *method of cases*, etc.). At a closer look, the proximity of these competences with the critical thinking ones does not escape: despite the differences of contents and language, indeed, many tools used in philosophical research perfectly fulfil the critical thinking tasks. From this perspective, philosophy is not considered only as a specialistic knowledge, with its authors, its contents and its language, but also as a systematic attempt to codify natural human attributes – e.g., to make reasonings – precisely as grammar does with natural language learned in the pre-school age. Therefore, given the inherent link between

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opportunity for expression, respect of the fixed rules, interpersonal respect). The standards are available among the didactic resources that she employs during the training courses organized by the University of Naples Federico II, but they also are reported in Giolo (2011, pp. 78-79).

[18] The notion of *learn to philosophize* (*phlisophieren lernen*) has been employed for the first time by Kant as the goal of academic philosophical education, in contrast to that one of *to learn philosophy* (*Philosophie lernen*). The notion is reported in *Nachricht von der Einrichtung seiner Vorlesungen in dem Winterhalbenjahre, von 1765-1766* (Micheli, 2007), where he presented his pedagogical positions before the course that he held at the University of Königsberg in the academic year 1765/1766, where he was Professor since 1755.

philosophical tools and critical thinking techniques, the philosophical goals seem to be essential not only for a philosophical education, but also for thinking *tout-court.*

To summarize, as Lipman first understood (Striano, 2002), *philosophical dialogue* is not a dialogue like others, to which philosophical contents are applied, but it brings the CoI to its maximum potential by leveraging the instruments themselves offered by philosophy:

> […] actually Lipman, with a highly original move, has not just added an element extraneous to a construct (i.e., *community of inquiry*), but he brought to light and released hidden and not yet thematized potential elements present in Peirce and Dewey. (Cosentino & Oliverio, 2011, p. 304; my translation)

Before concluding, there is another aspect worth mentioning. After defining the aims, we reviewed *Pecup* (*Educational, Cultural, and Professional Profile*) (PECUP, 2005), which establishes the ideal exit profile of students at the end of upper secondary school, in order to understand whether they were in line with purposes described by the document. The discovery of an almost perfect overlap between the three macro-objectives of the *Inventio Syllabus* and the three purposes outlined by *Pecup* – 1) educational, cultural, and professional growth; 2) development of the autonomous judgement; 3) practice of personal and social responsibility – provided confirmation that the road taken was right: not for the need to comply with legislation or to legitimize the project, but for the intrinsic value of the purposes of *Pecup*. More specifically, if one takes into account the universality of the topics and problems addressed by philosophical tradition, one easily realises that philosophy is the appropriate driver to foster a wide and open cultural education, as demanded by the first goal. Moreover, the critical thinking competences pinpointed by *Syllabus* fully describe the goals to achieve autonomous judgement. Finally, the dialogical competences encouraged by the proposals of *Inventio* reach straight to the heart of an integrated education of person and citizen, from a community perspective: the improvement of the listening skills, as the care for the others' opinions, are just some goals to be reached for full personal and social responsibility of the future citizen. Since *Inventio* aims at an integrated education of the person, as recommended by *Pecup*, it was natural to adopt its goals to define the macro-objectives of the project.

2.4. Structure of the *Inventio Syllabus*

In terms of contents, our *Syllabus* consists of three axes. The first one deals with universal topics, also twisted into current issues (e.g., the problem of the lesser evil, justice, the value of scientific evidence, the emergence of consciousness, end-of-life, etc.). The second one deals with topics linked to the school curriculum (e.g., in technological-industrial areas, the relation between human

beings and artificial intelligence; in institutes belonging to services area, freedom of individuals in determined economic structures; etc.). Finally, the third axis includes a more technical in-depth analysis of the critical thinking notions and norms (the role of reasons, the structure of argument, concepts and definition, cognitive biases and fallacies, etc.). As we have seen, the first two axes will be developed through *philosophical dialogue*, while the last one also through activities that follow an inductive approach. In this way, a student will follow a path, over five years, during which she has been taught how to reflect, wonder, investigate and dialogue in respect of both some of the most significant universal issues and of topical questions relevant to her studies. Finally, she also has the opportunity to discover the most fitting ways to reason and argue, faced with tasks that require an active and mindful role.

Every activity envisaged by the three axes is planned and structured into the form of *philosophical workshop*, didactical paths lasting for some hours that aim to develop a topic of the philosophical tradition or critical thinking aspects. A *philosophical workshop* is usually divided into phases where the single planned activities are described (dialogues, critical thinking tasks, reality tasks, readings, etc.), as well as the goals and final moments of evaluation. To give an example reported in the *Inventio Syllabus*, a topic such as that of persuasion and manipulation, designed in the worktables for year four of a technical institute such as Administration, Finance, and Marketing, can be divided into three phases of two hours each: in the first one, the facilitator leads a *philosophical dialogue* that, starting from a scene of the movie *Matrix*[19] used as stimulus, inquires the relation between truth and self-deception; in the second phase, starting from a fake news that confirms some widespread stereotypes, students explore by means of another dialogue the possibility of distinguishing information content from the way this content is presented; finally, as a reality task, students are divided into small groups and are asked to compare the way the same news is presented by newspapers of different political orientation.

Besides the skeleton of the content, outlined mostly to provide a minimal structure to such a heterogeneous and complex matter, and to facilitate the designing of activities, the *Inventio Syllabus* intends to serve as guidance and reference point for teachers and experts and intends, at the same time, to set some principles on the basis of which the whole project is articulated: *elasticity*, *autonomy*, *cooperation.* By *elasticity* we referred to the fact that the document does not include a set of prescriptions to be orthodoxically followed, but rather a set of guidelines that need to be adapted by teacher and expert to the context where the project is introduced. This requires a fully *autonomous* choice of the contents to be proposed – namely, of the philosophical issues to be addressed – as well as of the schedule and the timing, provided that the amount of 24 hours is

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[19] The movie was made in 1999 and directed by Andy and Larry Wachowski.

respected. Elasticity and autonomy are achieved through the principle of *cooperation* between teacher and expert, not only in the co-design preliminary to the workshops, but also in progress, for instance in modifying the proposal to adapt it, if it is necessary, to the students' needs, and once the workshop is finished: for instance, by reflecting and evaluating it in order to develop its strong aspects and to correct any critical ones in view of the following school year.

Consistently with its origin, hence, the *Inventio Syllabus* leaves full freedom in the choice of contents and activities to propose to those who actually intervene in class. The idea is precisely to leverage on the expertise, background and personal interests of those who gradually turn out to be the protagonists of the project.

3.   Educational Experimentation 2021-2022 and its monitoring

As already mentioned, before the start of the *Inventio* National Network we launched an Experimentation, from February to May 2022, to test on a large scale *Syllabus* and, possibly, to rethink some aspects. 18 schools throughout Italy, in 10 regions, took part in the initiative, with 36 heterogeneous classes in total. The intervention, of ten hours per class, has been channelled into only one *philosophical workshop*, beginning with dialogue-based activities. The topic was autonomously chosen by teachers together with the experts, who, after a training period, continued to be led by the trainers to produce a consistent and effective proposal, in line with the teacher's educational requests.

We asked the schools joining the Experimentation to participate with two parallel classes (two first year classes, or two second year classes, etc.) of their choice, so that we would have a significant amount of data to observe by a broad monitoring and assessment activity, whose instruments have been developed under the supervision of Elisa Truffelli, Professor of Experimental Pedagogy at the University of Bologna. Always following an experimental perspective, the initiative also provided an opportunity to test the investigation tools themselves in order to adjust them for more capillary and effective monitoring to be conducted, in the medium-long term, since the school year 2022-2023 throughout the five years of participation in the Network: the aim was to anonymously track the whole school life of each student to understand the actual impact of the project on her educational profile.

Among the investigation tools included by the Experimentation, we adopted two of a quantitative kind and one of a qualitative nature. One of the first couple was an anonymous questionnaire, administered by teachers at the end of the ten hours, designed to gather personal perceptions and considerations; the second one was a test on basic critical thinking skills, administered at the end of the experience as well, both to experimental and to two control classes.

As regards the qualitative tool, instead, we organized an initial and final focus group, for each school, addressed to students and a focus group only at the end for the teachers. In this way, we could monitor multiple dimensions in order to figure out how adjust the proposal for the start of the Network. Although the data, partly still to be analysed, will be comprehensively presented in future papers, it is worth pointing out some significant patterns emerged also at a first reading, before a complete study.

As regards the so-called 'attitudes', among the numerous virtuous aspects that participants underlined, at least two of them deserve to be reported here. The first, in line with one of the general purposes of the project, concerns the capacity of the workshops to create opportunities for discussion where students felt they could freely express their point of view, without being judged or evaluated. This is a kind of exchange which, in many cases, they recognize as different from those they are used to, because it is considered orderly, rational (in the sense that it is based on the search for reasons), deep and able to go towards a direction and a development. From this perspective, *philosophical dialogue* was not seen as an instrument leading them to a final response to the problem discussed; on the contrary, students acknowledged that its functioning consists precisely in avoiding stopping to the first answer and in a demanding digging work about the issues addressed. The second aspect concerns the experience of change of view: several participants reported to have reflected on something new for the first time, on issues that they have never thought about and in ways that they have never experienced. Thus, the encounter with philosophy, in the form of dialogue, turned out to be, for many of them, something completely new, able to reawaken hidden aspects of themselves and to enjoy the pleasure – but also the effort – of investigation on crucial universal questions.

Nonetheless, also some critical points have been revealed by the inquiry that it is important to consider. For instance, we have observed that in some cases the topics chosen by experts and teachers were not capable to fully involve students, who would have preferred to deal with issues closer to their lives than those proposed. This issue is undoubtedly worth considering for future workshops, possibly by also fostering approaches, such as *Philosophy for Children*, that stimulate questions originating from the participants' experience itself, together with those where the question is posed by the facilitator.

On the other hand, as regards 'learning', what we could observe is an almost total lack of basic literacy about critical thinking contents and language. Simple exercises, where students were asked to pinpoint the conclusion and the reasons to support it, revealed a series of frequent mistakes: among them, it is worth mentioning the identification of more conclusions in the same argument and the systematic inversion between reasons and conclusion, likely depending on a

misinterpretation of grammatical connectives. In other exercises, that asked to write original reasons to justify a given claim, the difficulties detected were even greater: someone did not understand the question, filling the blanks by stating whether the claim (of a normative and philosophical kind) was, from their point of view, true or false; others completed the claim by adding extra information, or rephrased the claim by using other words without searching for reasons, etc. But, also among those who understood the question, we noticed some significant widespread difficulties, for instance the tendency to find reasons only for the claims that they believe, showing a strong resistance to argue the claims that they did not share. This phenomenon, known by cognitive psychology as *belief bias effect* (Evans, 2017, p. 70), consists of the incapacity to set aside our beliefs and to carry out a more detached reasoning based on reasons for or against a claim. It is a natural way of reasoning, indeed, that consists of not being able to assume a different perspective and to understand the others' reasons, because it is more focused on personal beliefs – something people usually do not reflect on – than on its validity. In dialectical terms, it seems that the crucial attitude of taking into account also the counterpart's reasons – that is extremely useful for a complete analysis of the problem, for being open to a possible change of view and for anticipating objections – is not widespread among students, at least among those who are not used to abstract reasoning, such as those attending technical and professional schools. The reason is probably that without an appropriate education we tend to reason by focusing not on the syntax of arguments, but just on the content of the conclusion: in other words, we do not assess the whole argument, but we limit ourselves to observe the acceptability of the conclusive judgment.

The examples reported are just instances of a bad cognitive attitude, which, nevertheless, has clear ethical and civic effects, since it prevents a deep and non-ideological discussion between people. One of the challenges for *Inventio* is to manage to provide – by means of a structural and gradual five-year path, that also includes more specific elements of critical thinking – the essential tools to develop good epistemic attitudes[20] and critical skills. These outcomes turn out to be essential, as underlined by *Pecup*, both for a fully conscious entrance of the student into maturity and, more in general, to build a society founded on dialogue, not only on debate and on conflicting opinions.

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[20] This issue will be discussed in the *Conclusion*. By 'epistemic attitudes' reference is made here to the way a thinker behaves in relation to an object of knowledge, especially in an interactional context.

4. The purpose of the dissertation: between practical and theoretical dimension

The project *Inventio* has a clear practical aim, namely to create an Italian network of high schools (professional and technical) where we want to introduce philosophy and critical thinking, following an original syllabus. On the other hand, it is a project originating from research, and without this support it would lose its innovative drive: indeed, it needs to be nourished by research to be followed up and upgraded. For this reason, the research work on *Inventio* does not finish once the Network has been completed, but it will keep on reflecting about the best ways to introduce these disciplines in professional and technical schools.

My research activity, included in this dissertation, is a theoretical contribution to the origin, development and follow-up of the project. It involves two different tasks, connected to each other. The first, carried out in partnership with the Research Group *AIΩN / AIÓN – Philosophy and Didactics* and under the supervision of Prof. Truffelli, consists in monitoring the 2021-2022 Experimentation of the *Inventio Syllabus*, in collecting data and feedback, and in reviewing the first version of our *Syllabus* accordingly: part of the project is complete, the analysis of data is, however, still in progress and, consequently, so are any adjustments related to the *Syllabus*. The second consists in developing a new argumentative model to regulate the activities planned by the project, most notably *philosophical dialogue*. Indeed, although many argumentative theories have been constructed in the last few decades, some of them general and applicable to every domain, others relevant to a specific field, a theoretical model for the context of *philosophical dialogue*, considered as a pedagogical methodology, has never been proposed in literature. That is particularly strange, considering the strong and inherent bond between argumentation and *community of inquiry*, as Lipman himself admitted [21] as did several later contributions.[22] In this dissertation, I will suggest a draft normative model (WRAT – Weak Reasoning Argumentative Theory) that has two different goals, although the first would not been conceived without the second, and vice-versa. The first, essentially practical, consists in providing an instrument that can help educators to teach students involved in *philosophical dialogue* – such as those involved in the project *Inventio* – to think critically. In this sense, the model is meant to offer practical guidance to educators. It focuses specifically on providing instructions for *planning* and *facilitating* single sessions and whole workshops, plus some guidelines for *evaluating* these activities and the achievement of learning goals, specifically critical

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[21] "The improvement of student thinking from ordinary thinking to good thinking depends heavily upon students' ability to identify and cite good reasons for their opinions" (Lipman, 1992, p. 234).

[22] To limit our overview to the Italian horizon, there are just some attempts to apply classical argumentative models to the dynamics of *philosophical dialogue* within the *Philosophy for Children* domain: Santi (2006) proposes a Toulminian interpretation of *philosophical dialogue*, whereas Giolo (2010) tries to read it in the light of Walton & Krabbe's *New Dialectics*.

thinking goals. The second aim, essentially theoretical in nature, is to contribute to enrich the debate on the argumentation theory through a proposal that tries to grasp the specific educational methodology of *philosophical dialogue*, and, consequently, to regulate discussion and enhance the quality of argumentation in the CoI.

Despite the difficulties encountered so far in striking a balance between these two needs, it is essential to maintain the double dimension of the dissertation, because one would not exist without the support of the other. Indeed, on the one hand, the practical output of my research – i.e., the guideline to plan and conduct the workshop activities of *Inventio* – is based on a theoretical inquiry on the fundamentals, the conditions and norms for argumentation, compared to other argumentative models, generally in line with the literature on argumentation studies. On the other hand, this practical output plays a crucial role in adjusting the theory through the discoveries emerged by experience gathered in the classes. This second task, as we have seen, is in progress, and any theoretical changes to the model will be made as part of future research work.

5.   To persuade or to question the beliefs?

Argumentation is a wide and interdisciplinary field, that has been developed and studied in several domains: philosophy (of language, of science, epistemology, logic), cognitive sciences, political sciences, law, media studies, linguistics, computer science, mathematics, sociology, etc. Moreover, it is relatively new, since its origin is considered as dating to 1958, when both *The Uses of Argument* (Toulmin 1958/2003) and the *Traité de l'argumentation: La nouvelle rhétorique* (Perelman & Olbrechts-Tyteca, 1958) were published. For these reasons, the debate on argumentation theory is open and vibrant. Indeed, every year many interesting proposals are put forward, therefore it is not easy to find common ground based on the same categories, notions and questions. After all, many different models have been conceived: descriptive or normative theories; models that are designed to respond to the needs of specific domains; models that differently consider, for instance, the role of the audience (or interlocutors), etc. They often propose diverse interpretations of the notion itself of argumentation (and argument), and of its goals. As we will see[23], Walton and Krabbe (1995) suggest at least six different types of goals, connected to different types of dialogue. This is an original and useful classification, however I think that it is still not sufficient to describe the whole range of possible kinds of argumentation. Nevertheless, the criterion of goals is probably the best one to try to outline some essential differences between theories, and, accordingly, to define the essential conditions for a new argumentative model.

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[23] Cf. § 2.1.1.

To understand the specific aim of argumentation within *philosophical dialogue*, I will make a proposal based on a conversational theoretical framework, namely the Speech Act Theory. However, before addressing the issue, I think that one main distinction may be outlined between the different interpretations of argumentation: is argumentation a way to persuade our interlocutors or to question their beliefs? In other words, is it a means to justify and support a personal claim (and, consequently, to convince our interlocutors about its soundness), or is it an instrument of knowledge, that, among its aims, also includes abandoning one's own opinions for the sake of truth? Beyond the traditional difference, in literature, between 'to convince' and 'to persuade' (Cattani, 2020), which is irrelevant for the purposes of this dissertation, argumentation can be divided at least into these two main functions, with a view to understanding its nature in the field considered. I will try to figure out to which of these two categories argumentation belongs, when it is performed in *philosophical dialogue*. From this research question – the work perspective – starts my inquiry on argumentation.

The first obstacle to overcome, a crucial premise for the whole research work, is to demonstrate the relation between the methodology of *philosophical dialogue* and critical thinking – in particular argumentation – since one of the main objectives of *Inventio* is to develop in students these kinds of skills. In Chapter I, starting from an analysis of the notion of critical thinking, designed to show a series of aspects always at play regardless of the critical task, I will try to demonstrate that the limits to learning this 'discipline' can be found in the deductive teaching (and learning) approach through which information is presented. After a comparison with the inductive approach, as an alternative and more suitable instrument for a critical thinking learning, I put forward the hypothesis that the method of *philosophical dialogue* is the best and more complete inductive way for this task. In order to claim this position, I present two arguments, both embedded in cognitive sciences: the first is *evolutionary*, the second is *constructivist*.

In Chapter II, as mentioned above, I frame the model proposed in the Speech Act Theory, considered the best conversational theory to grasp the essential aspects of argumentation in *philosophical dialogue*. Its theoretical construct (notions, categories, standards of appraisal, language) perfectly fits my purpose, and provides innovative tools to analyse and deeply understand the phenomenon of argumentation, or, to be more precise, the speech act of 'arguing'. After an analysis of all the dimensions of this speech act (*locutionary*, *illocutionary* and *perlocutionary* aspects), I propose an educational theory that should let the facilitator and students classify, analyse and manage 'arguing' during and after the relevant dialogue in class.

Chapter III is the central one, with a presentation of WRAT. Most argumentative theories assume a classical idea of rationality, according to which any good thinker has control of her

inferential processes, leading to sound reasonings and avoiding fallacies. In actual fact, this assumption does not correspond to the findings of cognitive psychological research, which in the last few decades has provided empirical evidence that human reasoning is flawed and biased. This new perspective of a weak rationality can serve as scientific basis of WRAT, a normative argumentative model that aims to train students in thinking critically, but considering the cognitive limits discovered. By analysing and comparing two accounts in line with this idea – *Dual Process Theory* and *Evolutionary Approach* –, the chapter has the objective of understanding which of them may fit such a model and to assess the role of intuitive heuristics in argumentation. After an overview of the notion of intuition in analytical philosophical debate, a pluralistic approach will be suggested, employing one theory or the other depending on the task: 1st-person decision making or 3rd-person theoretical judgment making. After that, I provide some pedagogical devices in order to apply the model.

Another crucial issue for critical thinking training is addressed in Chapter IV, namely the difference between deduction, induction and abduction. Based on an educational proposal made for mathematics, the three forms of reasoning described by Peirce will be analysed, in the light of Toulmin's argumentative model. Based on this interpretation, I hypothesize an inferential pluralistic knowledge process, namely one that moves upwards from abductive investigation of reality, via induction, to deductive reasoning, which has the function of testing previous hypotheses and to further develop inquiry. This account is the theoretical presupposition for a pedagogical device – designed in the context of *philosophical dialogue* methodology –, intended to lead students to work out different forms of reasoning, depending on the questions addressed by the facilitator. By means of this instrument, which enables students to try to solve the problems addressed in person and actively, they have the opportunity both to investigate, through dialogue, philosophical issues and to enhance their critical thinking competences.

Finally, after summarizing the main aspects of the model, I try to draw some general conclusions, both about the practical and theoretical side of the dissertation. On the one hand, the aim here is to evaluate whether the model is actually able to assist a facilitator in conducting *philosophical dialogue*, also by focusing on the conditions described in Chapter II and on the norms described in Chapter III: my hope is that this proposal can provide her with the instruments to better understand such complex learning dynamics. On the other hand, an attempt is made to evaluate the weak and strong points of the argumentative model described in Chapter III, outlining the aspects that cannot be described in detail here, but that, I think, deserve to be developed in future research work. There is, indeed, a set of open issues that go beyond the limits of this dissertation, which have hopefully been raised in these pages. One of them concerns the epistemic attitudes employed in

argumentation: indeed, beyond any possible development of argumentative skills – that this model aims to reach considering the cognitive limits of human reasoning –, epistemic attitudes seem just as necessary for a good arguer and, in general, a good thinker. Is it possible, however, to teach these argumentative attitudes?

To conclude, with regard to existing literature on argumentation, this proposal intends to offer a contribute to a domain, i.e., philosophical practice, that has never developed its own argumentative instruments, but has been limited to borrowing the categories of general theories. Moreover, this model tries, on the one hand, to be framed within an authoritative linguistic theory (Speech Act Theory), and on the other hand, to be theoretically grounded on scientific evidence, i.e., provided by cognitive psychology. If, in the last decades, many attempts to frame argumentative models inside Speech Act Theory have been made, the findings of cognitive psychology on reasoning have not yet been systematically applied to argumentation, despite the large interest that the two theories considered in this dissertation arose among the community of scholars in argumentation theory. I think that the challenge to ground an argumentative model on what scientific research on reasoning – its limits and potentialities – tells us is the first step both to propose a description of argumentation in dialogical contexts and to construct a set of norms aimed to regulate this crucial social practice. Finally, the last aspect of the proposal that is worth to be mentioned is its application to educational contexts: indeed, as I underlined above, WRAT does not intend to offer a normative model of argumentation in general, but it wants to help instructors to understand, plan, conduct and assess the specific activity of *philosophical dialogue* at school, with the possibility to gather, in the next years, data useful to evaluate its effectiveness.

CHAPTER I
Dialogical learning of critical thinking

1.1. Can we define *critical thinking*?

In educational and psychological sciences, few notions have been as successful and object of so much ambiguity as that of *critical thinking*. Universally considered as a skill crucial to tackle the challenges connected to the complexity of knowledge-based society, in particular in professional fields, critical thinking usually takes one of the first places among so-called *soft skills*, as reported by lists produced by educational institutions and platforms oriented to the labour market.

Nonetheless, the word is relatively recent. The first to theorize this specific modality of thinking was John Dewey in *How We Think* (1910/1933), milestone of pedagogy, which deals in a wide, original and systematic way with the issue of *reflective thinking*, as he termed it. He defined it as follows:

> *Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends* constitutes reflective thought. (Dewey, 1910/1933, p. 9)

The American philosopher at once clarifies the importance of evidence that supports one's own beliefs (or theoretical hypotheses, like those often employed by science): what we do when we think *reflectively* is to consider the acceptability of a claim on the basis of its grounds, that is also the criterion by means of which one should evaluate the claim itself, whatever it is: if a belief or a theory is not justified by good grounds, it does not have the status of a good belief.

The choice of the word *grounds*, which recalls a more concrete dimension than the more common *justification, reason, evidence*, etc., is probably because Dewey postulates a veritable isomorphism between the structure of thinking and that of reality. Indeed, an inference can be constructed based on the material link between the facts that occur in the world:

> Thinking […] is […] defined as *that operation in which present facts suggest other facts (or truths) in such a way as to induce belief in what is suggested on the ground of real relation in the things themselves*, a relation between what suggests and what is suggested. A cloud *suggests* a weasel or a whale: it does not mean the latter, because there is no tie, or bond, in the things themselves between what is seen and what is suggested. Ashes not merely suggest a previous fire, but they signify there has been a fire, because ashes are produced by combustion […]. It is an objective connection, the link

in actual things, that makes one thing the ground, warrant, evidence, for believing in something else. (Dewey,1910/1933, p. 12)

Avoiding entering here the classic and complex issue of the relation between thinking and world, what I want to underline is that Dewey founds, at least in Anglo-American context, a long tradition of studies in critical thinking, that generated, in the following decades, a very wide literature. In the Seventies, the birth of *Informal Logic*[1], a Canadian community of scholars specifically interested in argumentation studies, contributes to stimulate an intensive production of handbooks, papers, monographies and special issues on critical thinking: it is not a case that one of the first handbooks on the topic was *Logical Sel-Defence* (Johnson & Blair, 1977/1994), now considered a classic, written in 1977 by the two founders of the Canadian movement. *Informal Logic* was born as a reaction to the exclusive teaching of formal logic, perfectly suitable for artificial and symbolic systems, but not able, for these scholars, to provide to students a toolbox adequate for correctly reasoning and arguing within social practice and faced with daily issues. So, the link between argumentation studies and critical thinking has found in this movement, always interested in education, a synthesis: to argue, indeed, is an essential competence of critical thinking, therefore, to look for the best way to teach how to argue means, at once, teaching to think critically.

As I cannot mention all the most significant definitions of critical thinking that contributed to building the history of this concept, I limit myself to report one of the more recent and authoritative, proposed by Hitchcock, an *Informal Logic* scholar:

> […] critical thinking is careful goal-directed thinking. […] a careful thinking as excluding jumping immediately to conclusions, suspending judgment no matter how strong the evidence, reasoning from an unquestioned ideological or religious perspective, and routinely using an algorithm to answer a question. (Hitchcock, 2020)

Reading this definition, what strikes us is that it is *goal-directed thinking*, a goal that, depending on the kind of problem to face, can be both a *judgment* and a *decision*. That means that the notion includes both *theoretical* and *practical* (i.e., *deliberative*) problems, such as decision-making tasks, after all already considered within this research domain by the reflection of another influential scholar: "Critical thinking is reasonable, reflective thinking that is focused on deciding what to believe or *do*" (Ennis, 1987, p. 10; my italics). This distinction – which is extremely important in argumentation and critical thinking debate since it gave life to very different theories depending on

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[1] To mark the official birth of the *Informal Logic* was, in 1978, the foundation of the *Informal Logic Journal*, at the University of Windsor (Ontario, Canada), that was preceded in the previous years by the *Informal Logic Newsletter,* both launched by Anthony Blair e Ralph Johnson. The venture opened a research movement that brought to the birth, always at the hands of Johnson and Blair, of CRRAR (Centre for Research in Reasoning, Argumentation and Rhetoric), at the University of Windsor itself.

the argumentative goals and on the domain – will play a crucial role also in the model that I will propose.[2]

As much as the three definitions provided are universally accepted in the current debate, this research field must deal with an unavoidable semantic gap between these definitions and the pragmatic use of this notion. Assuming, according to the notion of language game (Wittgenstein, 1953, §43), that the meaning of a concept depends on its use, there is a problem that is hard to solve. Indeed, the cause of this gap is the constant changing that the concept of critical thinking is subjected to and continues to suffer, depending on the field and on the context in which it is used. The reason can be detected in the continuous widening of its semantic radius, that tries to cover an increasing number of individual cases and disciplinary fields: from philosophy of language to pedagogy, from media studies to linguistics, from cognitive science to computer science, from philosophy of science to game theory, etc. Nowadays, the use of critical thinking is recommended not only when one constructs an argument or evaluates the argument of someone else, but also when she analyses a text, she checks the information sources – an extremely complex task in the internet era –, she is faced with a decision-making task, she must solve a logic-mathematical problem, etc. The instances and the fields of action of the concepts are so many and subject to such an incessant change (just consider the domain of Artificial Intelligence and of deep learning), that also its definition tries to keep up with this broadening of meaning, trying to enlarge its chain links. But, obviously, when a definition turns out to be too generic, it cannot still fulfil its primary function: to distinguish, within a genre of individuals, a species with specific properties. Indeed, it is probable that if the question 'What is critical thinking?' were asked to an audience of non-experts, the answer would be remarkably similar to the definition of thinking *tout court*. To conclude, it seems that the task of defining this concept turns out to be too hard, maybe impossible.

Once we have taken note of this conceptual defeat, the only chance we have left to understand the notion is to point out the features that indicate the *attitudes* activated when we *think critically*. These features can be considered as necessary conditions (but not sufficient, possibly even if they are taken together) of the concept. I individuated at least four, that I will term *aspects* of this modality of thinking. With this word I do not mean a type of action that thinking performs, as, for instance, the argumentative activity; neither, the object of thinking, as, for instance, the content of a debate. Rather, I mean a property inherent to *thinking critically* and that supports and accompanies its action at every instant of the process, though, certainly, not every aspect always acts at the same way and degree. Furthermore, what makes this list more interesting is that these aspects are not to interpreted as independent, but as a *movement* of the same process. Indeed, they are connected to

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[2] I postpone the issue to § 2.3.1.

each other in a virtuous circle, since the development of one of them means the development of another one, which, in turn, triggers the evolution of the first, and so on.

An example may help to figure out this process. The activity of argumentation – that is, according to *Informal Logic*, one of the main tasks of critical thinking and the central topic of this dissertation – consists of both faculty of analysing and assessing arguments and of the capability of constructing correct and compelling arguments in relation to the context. It is essential that these activities are performed *autonomously*, and, as Hitchcock highlights (2020), non-automatically. It is not about learning an algorithmic procedure and activating it whenever one is faced with similar problems, but it is about structuring new thinking processes, every time there is a new problem, without uncritically adopting others' solutions. That does not mean, obviously, that the solutions provided by others are *a priori* unsuitable, but that a critical thinker, before accepting them, needs to sift through them in order to understand whether to reject or to integrate and modify them.

The notion of *autonomy* connected with thinking originates in Kant's *Selbstdenken* (Micheli, 2007), i.e., to think with one's own mind, concept that he employs to suggest his students how to learn to philosophize.[3] Among the several modern reconceptualizations of the notion, it is worth mentioning the one proposed by Merizow (2000, p. 8), whose *Transformation Theory* is focused "on how we learn to negotiate and act on our own purposes, values, feelings, and meanings rather than those we have uncritically assimilated from others […]". The acquisition of autonomous thinking, for the American sociologist, is not a goal to achieve, but a continuous movement, a method, by means of which we restructure our belief system, avoiding embracing the one belonging to the context in which we live.[4]

The second aspect of critical thinking, strictly related to autonomy, is the attitude to *question* every belief not properly justified. It could reasonably be considered as an activity of critical thinking, or even an element of argumentative competencies. In fact, as I will try to argue, it is an attitude that is proper of critical thinking, whatever object it is thinking about and, overall, whatever action it performs: to argue, to analyse, to conceptualize, etc. Indeed, each of these actions are *critical* only if the thinker adopts a sceptical[5] cognitive style, that can be translated into the attitude to not believe immediately every claim and to suspend judgment until it is analysed. To come back to the example of argumentative activity, when a critical thinker tries to justify her own belief by investigating the acceptable reasons, she does not start from the presupposition that this belief is undoubtable, but, on the contrary, in case she discovers that the found reasons are not acceptable or

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[3] Cf. footnote 16 of *Introduction*

[4] Let me point out the strict tie between the *community of inquiry* (*Introduction* § 1.2) and judging autonomy.

[5] The context should let the reader understand that I am not referring to the traditional philosophical view of *scepticism*, but to a more general attitude to check every claim that is not immediately evident; its opposite side can be considered gullibility.

sufficient or relevant to the claim[6], she remains open to the possibility of abandoning it. The same attitude supports every thinking activity.

The third element is *metacognition*. The notion, coined at the middle of the Seventies by the psychologist John Flavell (1976) to label the awareness and the control that the subject has on her own cognitive processes, is considered by cognitive psychology as the main and more transversal aspect of human psychic functioning, since it is at the base of every knowledge (Cornoldi, 1995). Its importance has been recognized by theorists of critical thinking since the Nineties, as clearly testified by another well-known definition:

> Critical thinking is that mode of thinking – about any subject, content, or problem – in which the thinker improves the quality of his or her thinking by skilfully taking charge of structures inherent in thinking and imposing intellectual standards upon them. (Paul, Fisher & Nosich, 1993, p. 4)

As the critical thinker's attention is always focused, contemporaneously, both on the object of thinking and on the way of thinking, she needs to assume the control of her own cognitive schemes. Also in this case, it is not about an outcome reachable once and for all, but a process that becomes more and more refined. In other words, it means a more and more advanced meta-awareness.

This notion introduces us to the last aspect, already mentioned by Hitchcock's definition (2020): critical thinking is a *thinking oriented* towards the accomplishment of a goal, that is, as we have seen, a judgment or a decision, that are the result of the critical practice of a reasoning that examined all the possibilities, that gave reasons, that challenges irrelevant or unjustified solutions, etc. In a more specific way than other forms of thinking, such as the intuitive, creative[7], wondering, analogical, narrative ones, the critical thinker orients her cognitive energies towards a goal, that can be the interpretation of a source, the assessment of an argument, the cost-benefit analysis of a decision, etc. This feature necessarily means a high degree of selection, namely of exclusion of what is not relevant to the task to perform and of inclusion of what it is relevant, such as the choice of the more suitable tools for the performance. But to choose the best tools, awareness of the features of the task is not sufficient; we need to be aware also of the instruments present in our toolbox: that means that we need to have meta-awareness of our own thinking.

As I tried to argue, hence, critical thinking is characterized by thinker's attitudes that accompany every moment of the activity and that develop themselves in an interdependent and reciprocal action: *autonomy*, *questioning*, *metacognition*, *orientation*. The question, now, is the following: how can we trigger and enhance this virtuous process? Before answering, I try to clarify

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[6] I postpone the issue of standards of appraisal of the argument to § 4.6.2.1.
[7] Actually, *creative thinking* is connected by some scholars to critical thinking (Fisher, 2011, p. 14).

the reasons why the traditional pedagogical instruments employed for critical thinking learning, in particular the handbooks focused on this topic, do not seem adequate for the goal.

1.2. The problems of traditional learning of critical thinking

If critical thinking skills are so crucial, as recognized by every discipline, the issue of the methods suitable for its learning is not secondary. Every disciplinary didactic approach (Didactics of Latin, of Philosophy, of Physics, etc.) looks for solutions to the specific problems of its domain and of those common to all didactic areas. But in the case of critical thinking, we are faced with a cross-cutting discipline – so if we want to call it –, since it is at the service of the others. The peculiarity of such a knowledge raises at least two problems, to be dealt with when we need to analyse and define the best methodological approach: the first concerns with its disciplinary content; the second with so-called *transferability*.

As we have seen, critical thinking is a discipline that belongs to a second order of knowledge, because its object of investigation is not a world portion or a specific perspective on it, but thinking itself, through whose lens we observe and understand the world – and the language through which it speaks. Consequently, the issue of defining its contents is decisive. Indeed, as we have seen, though the analysis and assessment of arguments has a prominent role in critical thinking, many other fields have been considered, over time, as connected to the discipline: problem solving, decision-making, *lateral thinking*[8], cognitive heuristics, gradualist models, etc. In the face of the broadening of its sphere of inquiry, handbooks, except for some attempts (e.g., Piro, 2016), are still strongly anchored only to argumentation. But, as it is not possible to define critical thinking according to the continuous widening of its boundaries, a handbook able to address all its objects would be likewise impossible.

To come to the second problem, we will discover that some of the soundest theoretical presuppositions that guaranteed such a success to critical thinking – i.e., its capacity of *transfer* – are actually weaker than one can imagine. But let us first understand what we mean by *transferability*.

We saw that metacognition allows the thinker an increasing control of the cognitive processes. The first consequence of this competence is the capacity of orienting these processes towards the resolution of new problematic situations: it is possibly one of the most refined cognitive outcomes that one can reach:

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[8] *Lateral thinking* can be defined as a particular modality to solve the problems, not consisting in addressing directly it, but in observing it from unusual perspectives (De Bono, 1994).

Transfer is "the capacity that one has to get or to access her own intellectual resources in situations where these resources can be relevant" […]. Through *transfer* the subject can use productively and creatively what she learned. (Santi, 2006, p. 37)

According to Santi, *transfer* is the most relevant indicator to evaluate learning. In these words, the echo of Dewey resounds, for he distinguishes 'verbal memory', considered mechanical and sterile, from 'judicious memory', the only that can "use the material in new situations where verbal memory would be completely at a loss" (Dewey 1910/1933, p. 79).

This valuable resource connected to critical thinking has been recently challenged by Daniel Willingham, one of the most authoritative voices of cognitive psychology applied to education. In *How to Teach Critical Thinking* (2019), he claims, in the light of extensive evidence collected, that what constitutes a real effective thinking varies from one domain to another. Therefore, the critical competencies learned within a domain – and that are applied to specific contents, problems, languages – cannot be transferred to domains with different contents, problems, and languages:

Wanting students to be able to "analyse, synthesise and evaluate" information sounds like a reasonable goal. But analysis, synthesis, and evaluation mean different things in different disciplines. Literary criticism has its own internal logic, its norms for what constitutes good evidence and a valid argument. These norms differ from those found in mathematics, for example. And indeed, different domains – science and history, say – have different definitions of what it means to "know" something. Thus, our goals for student critical thinking must be domain-specific. An overarching principle like "think logically" is not a useful goal. (Willingham, 2019, p. 6)

Willingham does not deny that there are principles applicable to every discipline, but the test subjects interviewed who are used to applying these principles to a field usually fail in correctly applying them to other fields or to other situations. That is exactly what *transfer*, according to Dewey, should let the thinker do. Without entering the substance of his argumentation, it looks as if one of the main limits to the effectiveness of *transfer* is connected to memory. Indeed, the point is not that in different domains we employ different critical thinking norms and abilities, but that learning of a single competence – e.g., inductive inference – is inextricably tied – "encapsulated" (Willingham, 2019, p. 7) – to memory of material to which the competence has been applied before being learned.

If Willingham's conclusions are correct, one of the main strengths of critical thinking, *transferability* – that makes it so essential in education –, collapses. Therefore, for what reason should a knowledge that presumes to be crosscutting be taught, if its resources are not transversely applicable to the other disciplines? Furthermore, what is the difference between critical thinking and the other disciplines (such as mathematics), whose attendance undoubtedly develops critical skills?

They seem problems that are hard to solve, at least until we remain within the reflection on the disciplinary goals. But if we move our focus on the issue of teaching approaches, then we will discover that the responsibility for failure of *transfer* from a domain to another is to be attributed to the means through which critical thinking skills are usually taught, means that are mainly of a deductive kind.

1.3. The limits of deductive approach

Most critical thinking handbooks, both Italian and English-language[9], share a specific methodological-educational approach, that I will describe in its main elements. I do not aim to find convergences in theoretical framework or in philosophical presuppositions, that, on the contrary, provide several and interesting differences. The perspective that I am assuming here is exclusively of an educational kind. The purpose, indeed, is to understand whether the stages in which basic information, proposed activities, apparatus (appendixes, didactic sheets, glossaries, references, indexes, etc.) are presented have the features appropriate for a critical thinking education. Without conducting an analysis of all individual handbooks – some of which are excellent texts for the order and conceptual clearness, the richness of in-depth studies, wideness of references and effectiveness of the tools provided –, almost all the handbooks that I examined share, from my point of view, an original sin. Indeed, the structure of the singles sections, beyond the contents division and the order followed, is always the same:

- definition of the notion introduced and related rules;
- more detailed description of the notion, with possible references to specialist literature and applications;
- examples, usually taken from current public debate;
- exercises to test the validity of the rules and the achieved learning of the notion and of the connected abilities.

The scheme corresponds to that proposed by scientific school textbooks, that, at least in Italy, adopts a *deductive* approach of a Euclidean kind: from a definition of postulates one can draw all the demonstrations to explain every theorem. In other words, from general rules to individual cases. The psychological vision behind this way to present the contents consists of the presupposition that the human mind works exactly in such a way, i.e., that it learns better once it is faced with theoretical notions and general rules, to fall later into the particular cases in order to test if these

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[9] Among the most interesting Italian handbooks, cf. Iacona (2005); D'Agostini (2010); Boniolo § Vidali (2011); Paoli, Crespellani Porcella & Sergioli (2012); Piro (2016); Boem (2021). Among the English-language ones, cf. Johnson & Blair (1977/1993); Govier (2010); Fisher (2011); Sinnott-Armstrong (2018); Bowell, Cowan and Kemp (2020). It is worth mentioning also Frixione (2007), that is not exactly a handbook, but it presented a wide description of the ways of human reasoning, considering also cognitive scientific findings.

rules fit the single examples, in so doing trying to explain the multiplicity of possible phenomena. That is an educational presupposition that, nevertheless, is not supported by empirical evidence, but, rather, it is disconfirmed by neuroscientific studies about the functioning of the mind in learning tasks (Bransford, Brown & Cocking, 2000).

Moreover, as it is true for all the learning approaches – and, in general, for all the methods –, also behind this approach, there is a determined epistemological presupposition: objective knowledge exists aside from the human mind, that, if it can follow all the stages provided by the handbook (unquestioned repository of the only possible knowledge), then it accesses knowledge. The same is said for teaching, where a deductive approach is still the most widespread: "The teacher's job is to transmit this knowledge to the students – lecturing being the natural method for doing so – and the students' job is to absorb it (Prince & Felder, 2006, p. 3)".[10] Looking at the psychological repercussions, that means that if the student is able to understand initial rules and definitions and to apply them to new examples, then she will feel able to access to knowledge, as it is established by the handbook (or by the teacher); on the contrary, if she cannot do it, she will feel unable to know the disciplinary truths.

Such a learning model unavoidably meets a series of flaws, that I consider sufficient to abandon it in favour of other approaches. First, it demands a great cognitive effort from students, who are asked to learn complex abstract notions difficult to memorize, since they are totally unanchored from their prior knowledge and experience. Indeed, as it is demonstrated by neuroscientific research, new information needs to meet a network of compatible old knowledge:

> Previous knowledge can help or hinder the understanding of new information. For example, knowledge of everyday counting-based arithmetic can make it difficult to deal with rational numbers; assumptions based on everyday physical experiences (e.g., walking upright on a seemingly flat earth) can make it difficult for learners to understand concepts in astronomy and physics and so forth. (Bransford et al. 2000, p, 78)

One of the consequences of this aspect, moreover, is that a deductive approach risks to guarantee to learn abstract contents only to few students, who already hold a strong capacity for abstraction together with a wide radius of knowledge. Whereas students who do not hold this capacity and knowledge – not necessarily those who present difficulties of learning – are excluded from the possibility to learn. And even the first ones, as soon as they get out from the learning environment, risk forgetting all the new elements. It is precisely in these cases – i.e., when students are subjected

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[10] As it was observed in the analysis of the focus-groups of *Inventio* conducted within the Research Group *AIÓN*, from the students' words the same presupposition merges: it seems, indeed, that they consider knowledge as something that exists and that, if one becomes experts, can reach. It is an evident unconscious consequence of the deductive approach widespread in Italian school system, especially in high schools.

to a deductive approach – that Willingham's claim about the transfer of critical thinking skills is corrected: new information is so abstract and detached from prior knowledge that it is hard to integrate to previous elements, and, consequently, it is hard to be applied to the following problems.

Consistently with the previous point, and assuming that the best way to access new knowledge is the conceptual one, this approach does not consider the fact that children achieve the capacity for abstraction gradually. As argued by classical views of developmental psychology (Piaget, 1967) [11], this competence is typical of the developmental stage of the child that requires a certain cognitive structure yet. That means that such a method also excludes children under a certain age and those who have never completed a full passage to a more evolved phase.

The second point raises an epistemological problem. The deductive model is by nature a normative methodology, i.e., an approach that presents a set of norms by means of which it tries to describe and systematize all the possible phenomena. But such a model leaves aside all those cases that do not fall under the rule or definition, and that for this reason fall under the generic label of 'exceptions'. That of exception is a *negative concept*, because it does not present any specific feature able to distinguish it from the other notions, but it just gathers all the cases that are excluded by the *positive* categories. So, it collects scattered elements that can be only memorized, not being able to be reconducted under any category. If we recall, for instance, the traditional learning of grammar, we can notice that in the handbooks of a normative approach, after the presentation of rules and examples, there is usually a table containing the exceptions. At this point, some educational-theoretical questions are unavoidable: Why should we accept the rule if it is not able to include all the cases? How can we positively conceptualize the cases excluded by the rule? How can we know that other more fitting rules do not exist? If we remained within the deductive approach, these questions could not find an adequate answer and, worse still, they could not be posed either.

The third and last problem concerns the process that led us to definition. In a close domain as the Euclidean one, wherein an autonomous and self-sufficient universe that aims to represent the real world is founded, the fact that norms and postulates are posed is inherently justified. Indeed, segments, half-lines, parallels, triangles, etc. are invented entities, mental representations that want to conceptualize the variety of the shapes in the world: the inventor designed a language and was obliged to provide its description and its rules. But, if our aim is to give an account of an argument starting from the sentences that compose it, we are not founding a self-sufficient universe regulated by its own norms, but we should describe, as faithfully as possible, its natural functioning, as it is photographed while it is working in a real task. Naturally, one could object that in argumentation

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[11] I do not intend to disregard several criticisms addressed to the traditional Piaget's division into cognitive stages, but, now become a milestone within developmental psychology, it continues to be the theoretical presupposition of many following theories, and mentioned by many studies. For an authoritative challenge to Piaget, cf. Donaldson (1978).

theory there is a *descriptive line*, aimed to observe the way people argue in natural contexts in order to point out some regularities, and a *normative line*, aimed, instead, to establish a set of general and unifying norms that characterize argumentative practice in order to indicate the good rules to follow to successfully conduct an argumentation. But, if we also adopted this second perspective, the hypothetical rules of a sound argumentation – hence, according to the deductive approach, those to be learned and memorized at the beginning of the process –, cannot be created without any consideration of the limits of reasoning[12], of its natural way of being articulated and, overall, of the situations where it is immersed in natural language, as, for instance, in a dialogical exchange. As I will argue in Chapter IV, some forms of reasoning are more natural than others. So, one could object that the goal of a critical thinking education is not to teach thinking as we naturally already know, but in a correct way, and, to do that, we need to detach students from their natural usage of reasoning. That is undoubtedly true, but all the critical thinking handbooks do not consider only logical rules and deductive arguments, but also other forms of reasoning, since they recognize the crucial role that they play both in everyday life and in some domains, such as the scientific ones.

For all these reasons, a deductive approach seems inadequate for the purpose to train students to critical thinking.[13] It is certainly more interesting to consider the *inductive* approach, a promising method, that, nonetheless, is not actually adopted by the handbooks that I examined, not even by those that try to make the reader meet the phenomenon through situations similar to the natural ones. For instance, Johnson and Blair (1977/1993), before introducing the definitions, always starts from a wide variety of examples; Piro (2016) starts from fictional dialogues between an expert and a student. Actually, on closer examination, it is about devices to make a tough and difficult subject more agreeable, but they are not essential in phase of learning, as demonstrated by the fact that the introductive parts can be skipped, or placed after, without any significant loss.

Let us now better explore the inductive approach and understand if – and how – it can be applied to critical thinking contents.

1.4. The universe of inductive learning

The inductive learning approach is a wide and varied universe that includes many different methodologies: *inquiry-based learning*, *discovery learning*, *problem-based learning*, *project-based learning*, *case-based teaching* and *just-in-time teaching* (Prince & Felder, 2007). Nevertheless, beyond the differences of these educational instruments, according to Prince and Felder (2006), there are some common features useful to define it.

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[12] For a wide discussion of this topic, that titles the argumentative model proposed (WRAT – Weak Reasoning Argumentative Theory), cf. Ch. III.
[13] I limited my analysis to the handbooks, but it can be extended to critical thinking classes where a deductive approach is employed.

Learning is no longer seen as a task that students must perform for the inherent value of knowledge, that, according to a deductive approach, must be transmitted to them. Rather, it is considered as a goal students feel the need for, since what they learn is somehow important for their life. As confirmed by neuroscientific research, motivation holds a central function in learning:

> Motivation to learn affects the amount of time students are willing to devote to learning. Learners are more motivated when they can see the usefulness of what they are learning and when they can use it to do something that has an impact on others (Bransford at al., 2000, p. 61).

This need to know, if it is wisely managed by an expert educator, can turn into a driver that forces students to discover new knowledge by themselves. This point has an important consequence on the roles played in learning: on the one hand, students acquire "more responsibility […] for their own learning than the traditional lecture-based deductive approach does" (Prince & Felder, 2006, p. 2); on the other hand, the teacher abandons the role of lecturer to play that of the *facilitator*, that means "guiding, encouraging, clarifying, mediating, and sometimes even lecturing" (Prince & Felder, 2006, p. 3). Without her function, learning would be disoriented and, soon, also motivation would fail, since the learning process would not be provided with the procedural elements – but also materials, tools, contents – essential to develop, step by step, knowledge.

Depending on the specific inductive methodologies that each educator chooses, learning starts from a problem to solve, data to analyse, a project to complete, a hypothesis to be tested, etc. In other words, they share a common starting element: "students are presented with a challenge and then learn what they need to know to address the challenge" (Prince & Felder, 2007, p. 14). So, instead of presenting them with pre-packaged knowledge – that would be, however, a personal synthesis made by the teacher or by the author of a handbook –, they are exposed to elements of reality that need to be understood and responded to. Once the challenge has been solved, the following step consists in checking whether the rules and the definitions adopted, the reasoning put forward, the solution found, etc. can be generalized from the particular situation that students have been faced with to a more general form of knowledge.

According to Prince and Felder (2006), and with a shared view in educational science, the inductive approach has its roots in constructivism, in particular in Bruner (1961; 1990). The main idea of this account is that individuals have the responsibility to construct and continuously reconstruct knowledge contents, "in an effort to make sense of their experience" (Prince & Felder, 2006, p. 4). So, from this perspective, knowledge is not a *thing* (e.g., a set of contents) that exists aside from individuals, but rather a *social construct*, continuously modified depending on development of research and on the contributions of the students-researchers. Indeed, according to Bruner's social-constructivist view, meanings are entities negotiated, exchanged and constructed

within and through social relationship and cooperation, and their truth is directly proportional to rationality of the instruments utilized. This approach is indebted to Vygotsky's lesson (1934/1978) for the role played by human symbolic instruments – first al all, language and interactions – in mediating the relations between individuals and society, and in allowing their internalization, therefore in constructing new meanings that are, more properly, *co-constructed*. Scientific research, for instance, constructs theories cooperatively and the truths reached from time to time can always be remodelled and adjusted through the new contributions of the scientific community. Thus, the truth is not an existing and individually reachable content, but a construct formed by means of social interaction. The same applies to other research domains.

What I have said so far should let us see that, even before its relationship with constructivism, the inductive approach has its theoretical roots in another philosophical presupposition: i.e., in pragmatism, in particular in John Dewey and his notion of *experience*. What we live, the events of our past, do not mean anything on their own, but it is the activity of reflective thinking to *attribute meaning to them*, transforming them into individual and collective *experience*. Thus, the thinking activity makes the subject aware of the meaning of the events, in a continuous and dialectical process of reconfiguration:

> The great reward of exercising the power of thinking is that there are no limits to the possibility of carrying over into the objects and events of life, meanings originally acquired by thoughtful examination, and hence no limit to the continual growth of meaning in human life. (Dewey, 1910/1933, p. 21)

According to Peirce (W3, pp. 242–257), the mind is forced to find new meanings when it is subject to *irritation*, namely when it meets problematic situations that break the spontaneous and unreflective course of actions, and, consequently, that challenge the consolidated beliefs. At this point, it is urgent for the subject not only to search for a possible solution to the current problem, but also to adopt a new belief system. It is exactly this process that Dewey wants to recreate in the classroom when it is set up as a *community of inquiry*.

In educational terms, the educator should submit to students problematic and doubtful situations – i.e., challenges – able to activate thinking in order to recompose the fracture, to enlighten ambiguities, to transform the enigmatic situation in a clear and ordered situation: that is to reinstate and construct new meaning. But the situation is felt as genuinely problematic only if it is born from an actual students' need: "to be effective instruction must set up experiences that induce students to construct knowledge for themselves […]" (Prince & Felder, 2006, p. 4).

To summarize, there are some principles that, according to a constructivist view – and, I add, to pragmatism –, all the inductive methodologies have in common. First, the challenge to which

students are exposed should be somehow familiar to their experience, "so they can make connections to their existing knowledge structures." (Prince & Felder, 2006, p. 4). All new information drops into a network of experiences, prior knowledge, beliefs, preconceptions, and to be learned needs to be integrated with them. As we could observe, the reason why a deductive approach is not effective is precisely that new information is provided as something abstract and unrelated with the original mental structure. Second, according to the 'Zone of Proximal Development' theory (Vygotsky, 1934/1978), the challenge must be designed by the instructor in order to foster students to make an effort to implement their cognitive potentialities, that is possible only under the guidance of an expert.[14] Third, students should be encouraged to become self-learners and always less dependent on educator: for instance, they should gradually not consider her as the only source of knowledge, but they are encouraged to get relevant information by themselves. This point is strictly linked to the fourth one, namely the metacognitive dimension: indeed, to let a student figure out what is relevant information, the fitting instrument for the task, the best strategy to follow, etc., she needs to previously know what her actual knowledge is, to explore the instruments and strategies available to her mind, and, also, to understand how to evaluate her learning. To implement all these principles, small groups help the learning process, because, if students work together and face the task through discussions with their peers, their judgments are continuously subject to challenges, improvements, reformulations. The last point, though it is not indispensable for an inductive approach, according to Dewey, Vygotsky and Bruner, is recommended.

Now, once the description of the inductive approach in its general features is done, let us return to the main topic of this chapter, i.e., critical thinking learning, and in particular Willingham's objections to transferability. His claim seems convincing, but his reflection is focused just on contents, not on learning methodologies. Indeed, within a deductive learning approach, *transfer* is clearly inconsistent with pragmatist and constructivist principles: the notions are provided by teacher (or by handbooks) as something abstract and unanchored from experience and prior knowledge. Namely, it is a new unrelated element in the mind, never internalized, and, without a particular effort of memory, is destined to be forgotten. Consequently, such an element cannot be transferred to new fields or epistemic situations. Indeed, if we recall Willingham's argument, he claims that the failed *transfer* is not due to the employment of different abilities in different disciplines, but to the difficulty in applying the same ability to different contents, since they have been learned in a separate way. Instead, if we adopt inductive learning, not only is *transfer* possible,

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[14] The Vigotskian notion of Zone of Proximal Development (ZPD), the space of children development between what the learner can do by herself and what she has the potentiality to do, but only if she is led by an expert – is evidently connected to that of Bruner's *scaffolding* (cf. *Introduction*, footnote 12).

but also it is facilitated, because knowledge is acquired by relating new to old information or, to say it better, students construct new meaning by relating it with old knowledge. The confirmation of such a result is provided, once again, by neuroscientific evidence:

> Transfer is affected by the degree to which people learn with understanding rather than merely memorize sets of facts or follow a fixed set of procedures […]" (Bransfor et al., 2000, p. 56)

> The context in which one learns is also important for promoting transfer. Knowledge that is taught in only a single context is less likely to support flexible transfer than knowledge that is taught in multiple contexts. With multiple contexts, students are more likely to abstract the relevant features of concepts and develop a more flexible representation of knowledge. The use of well-chosen contrasting cases can help students learn the conditions under which new knowledge is applicable. (Bransfor et al., 2000, p. 78).

Furthermore, as we have seen, one of the principles of the inductive approach is the search for learning autonomy. Now, if, as I argued, autonomy is also one of the main aspects of *critical thinking*, then the inductive approach is intrinsically oriented to critical thinking training. Indeed, the employment of inductive strategies demands that students involve forms of critical thinking to face new challenges and to find new solutions. Likewise, to learn critical thinking does not mean to memorize theoretical contents, since in such a way critical thinking would not be employed, but just memory; instead, only if students inductively employ critical thinking, can they learn critical skills. Besides, it is not by chance that Dewey, the father of critical thinking, can also be considered the father of the inductive approach.

For all the reasons provided in this section, the *Syllabus Inventio* is entirely focused on an inductive approach. As specifically concerns critical thinking skills, it proposes activities that start from reasoning/argumentative challenges to encourage students to draw some general norms and definitions. These tasks are usually tackled in a cooperative environment (small groups, teams or plenary discussions), that construct step by step their specific norms and definitions. Just to report one example, if the learning goal is to make students meet the notion of argumentative reason and to make them figure out its importance and its function in argumentation, the *Roundtrip reasoning workshop*[15] can be an effective device. After the class has been divided into two teams, one of them receives an *uncontroversial sentence* (e.g., 'The water is warm'), the other a *controversial sentence* (e.g., 'Life is hard')[16], and one group does not know the sentence of the other group. The first task for each team is to find a statement that, for them, can be logically drawn from the given sentence (e.g., respectively, 'We can bathe' and 'We must not have any moral concerns'). Once the teams

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[15] The activity is inspired to the game *What's Your Reason?*, available among the resources produced by the platform PLATO (https://www.plato-philosophy.org/teachertoolkit/whats-your-reason-game/).
[16] For the distinction of these two types of sentences that I propose, cf. § 2.3.2.

meet in plenary group, one team conveys to the other its statement: the first task is to guess the sentence (the *reason*) from which they infer the statement (*claim/conclusion*) conveyed. If, after three possibilities, the teams do not come to the right answer – as it usually occurs, even if sometimes, depending on sentences, they can approach to the solution –, the expert facilitates a discussion, gathering some free considerations: for instance, students could point out that the same claim can be supported by many reasons, and that, on the contrary, the same reason can support different claims. By asking the reasons why the teams failed the task, students are discovering the problem of the *underdetermination of theories by data*[17]: different plausible theories (*claims*) can be drawn from the same available data (*reason*). Students should thus realize that in the arguments constructed the link between reasons and claims is too weak, and that possibly, for it to turn out to be stronger, they need something else. Through a simple question (e.g., 'What let reason bring to conclusion?' or 'What can be the glue that logically hold together reason and conclusion?'), students are encouraged to realize that something is missing, but what? The second task, at this point, is to add something (a new reason) to the argument of the other team. In so doing, they will find new reasons that guarantee the link: in Aristotelian language it is about the *major premise*, or, in Toulminean language, it is about the *warrant*[18] (e.g., 'If the water is warm, then we can bathe' and 'If life is hard, then we cannot have moral concerns'). Finally, the teams discuss in plenary the solutions found to understand whether the reasons displayed are sufficient to bring to the conclusion: namely, whether one of the most important criteria to assess the argument, i.e., *sufficiency*[19], is fulfilled.

We have seen just an example of activity designed to lead students to know the basic notions of argumentation, and, at once, to develop some basic critical competencies. This activity requires from the facilitator a high level of knowledge of critical thinking literature and, moreover, a high effort in planning the workshop to allow it to work. Now, besides workshops like that, we will see another more complex inductive activity, that encompasses all the principles of inductive approach: *philosophical dialogue*. My aim is to argue that it can be considered a high form of inductive learning and that it is the best way to learn how to think critically.

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[17] Cf. § 4.4.
[18] Cf. § 4.3.
[19] Cf. § 3.6.2.1.

1.5. Dialogical approach

Based on the description of the inductive approach that I have provided in the previous section, *philosophical dialogue* – as briefly presented in the *Introduction* – seems to collect all the main features of this educational style. As Lipman recommends, according to Dewey's lesson, the stimuli selected, the problems which students face and the questions they try to answer must be related to the world of their experience: it is precisely for this relation that they feel the need to tackle the challenge proposed and that they are moved to undertake a philosophical inquiry and to carry it out, yet it can be hard and, sometimes, frustrating.

Moreover, as an expert facilitator well knows, a philosophical challenge works not only if it is urgent for students, but also if it is affordable for them, namely if it is within the Zone of Proximal Development: indeed, a philosophical problem completely detached from their life and that requests notions and skills that they do not hold is destined to not be taken up, and the dialogue to not be developed.

Third, *philosophical dialogue* is a device that demands evident self-learning attitudes: students are encouraged to propose personal answers to the questions they are asked, to search for original reasons, to construct independent arguments, to pose new questions and to invent new possible paths of investigation. This high degree of autonomy depends on the extraordinary openness of the discussion field and on the infinite number of possible solutions that they can find. The act itself of discussing, in fact, for it is based on expressing agreement or disagreement with the interlocutors' thesis and to argue in support of or to challenge it, is a methodology that inherently fosters "responsibility for one's own learning, questioning authorities rather than accepting their statements at face value […]" (Prince & Felder, 2006, p.6).

The fourth principle, metacognition, is one of the core elements of *philosophical dialogue*, that are explicitly oriented to enhance, among other thinking skills, also awareness of one's own thinking. As we will see in § 3.6.2, where I present the norms of WRAT that should allow for smooth functioning of dialogue, participants must demonstrate, at every moment, to be aware both of their cognitive processes and of the development of the collective inquiry. In this sense, metacognition is also one of the key criteria to evaluate both the dialogue and the ability level of individual participants.

Finally, cooperative learning is the proper way a dialogue works: it can also encompass some moments based on individual reflection, discussion in pairs or small groups, but the main setting of a dialogical session is a circle that includes the whole class. In any case, every cooperative moment of dialogue is designed to put students in the best conditions to address the philosophical issue and to collaboratively construct possible answers – or questions, as in Lipman's agenda.

It is not easy to classify *philosophical dialogue* under the methodologies considered inductive (Prince & Felder, 2007), because its dynamics and functioning seem to proceed in a distinct way: for instance, as I will argue below, the distributed cognitive process is a specific dimension of dialogue. Nevertheless, many features are in common with *case-based teaching* and with *problem-based learning* (PBL). Indeed, *philosophical dialogue* is similar to the first for the stimulus provided, since in *case-based teaching* students meet historical cases, but also hypothetical scenarios, like the *thought experiments* widely used in philosophical practices (Worley 2011; 2016; 2021). Moreover, they "are challenged to explore their existing preconceptions and modify them to accommodate the realities of the cases" (Prince & Felder, 2007, p. 16), that is one of the most important functions of dialogue, as we will see when I present some pedagogical devices[20]: to modify prejudices and to construct, collaboratively, new more structured and sound judgements. From the other hand, PBL is less structured and, since students have the responsibility of defining their goal and the strategies to achieve it, the activity can take directions unexpected by the facilitator, who risks feeling uncomfortable with issues and contents that she does not well manage. Furthermore, the psychological response provoked by PBL and *philosophical dialogue* are very close:

> PBL involves a spectrum of instructional features likely to provoke student resentment and resistance, including complex problems that have no unique solutions, […] and the logistical and interpersonal problems that inevitably arise when students work in teams. (Prince & Felder, 2007, p. 16)

Philosophical dialogue risks to provoke confusion as well, for at least two reasons: when students are not understanding exactly what the discussion is focused on and where it is going, they can feel disoriented, and consequently demotivated; moreover, since the methodology is designed to elicit the personal beliefs and to put them in contradiction with new beliefs – according to the Socratic lesson –, students can resist and refuse to abandon their old view, although they discover that it is supported by weak reasons. Nevertheless, if the facilitator is sufficiently expert and the CoI almost mature, the results obtained by such an activity are striking. Indeed, it is about a device conceived to "discover what students think in relation to the problems on hand, discussing their misconceptions sensitively, and giving them situations to go on thinking about which will enable them to readjust their ideas" (Bransford et al., 2000, p. 134), that is what should happen both in a dialogue and in *diagnostic teaching*, considered by Bransford et al. the most effective inductive strategy.

Beyond analogies and differences with other inductive devices, however, *philosophical dialogue* leads participants to the development of similar skills: problem-solving, conceptualization, metacognition, reasoning strategies, cooperative skills.

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[20] § 4.6.3

There is one more comparison that is worth mentioning: the one between *philosophical dialogue* and so-called *learning cycles*. It is about an inductive model structured in sequences involving different complementary thinking forms. In such a way, students are encouraged to adopt both types of thinking they tend to avoid, which they are uncomfortable with, and also types of thinking they are more familiar with. The goal is to make them understand that for a full effective thinking they need to integrate all the different forms proposed by the instructor. *Philosophical dialogue* also involves different types of thinking, though it is very hard to distinguish one from the other, for it is a dynamic activity that proceeds seamlessly and towards unpredictable directions. It is for this aspect that, in Chapter IV, I propose a specific device within *philosophical dialogue* ('AID questions device'), that involves the three forms of reasoning that are traditionally considered in argumentation and in critical thinking teaching: deduction, induction, abduction. I postpone all the details to the sections devoted to the issue. Now I just want to point out that the stages provided by this model are, in some respects, very close to those provided by 'AID questions device'. Just to mention the first ones, after students are presented with a challenge, they are encouraged to advance a first hypothetical answer that will be revised in the following stages, once they are provided with new elements. Beyond the similarity of the structure, the underlying idea of my proposal and the *learning cycles* model look the same: to stimulate students to undertake unknown forms of thinking and to try to recompose and integrate them in one inquiry process.

I think that the reasons to consider *philosophical dialogue* an inductive methodology are sufficient and deep. Now, I aim to argue that it is the most appropriate instrument to teach critical thinking, among both those that are usually adopted, i.e., deductive learning, and those rarely used, i.e., inductive approach. To justify this claim, I lean on two different theories in the domain of cognitive sciences: the first, that I will term *evolutionary argument*, is supported by one of the pillars of the Mercier and Sperber's argumentation theory; the second, that I term *distributed argument*, is embedded in the *Distributed Cognition*, a theory that, in some respects, is very close to Bruner's social- constructivism.

1.5.1. *Evolutionary* argument

Through the Argumentative Theory of Reasoning (2011; 2017), Mercier and Sperber intend to contribute to argumentation studies by giving a social account of the evolutionary genesis of reasoning. Given that it could not phylogenetically evolve to fulfil individual logical tasks, where, according to the authors, it turns out to be extremely slow, ineffective, and scarcely reliable, it could be developed for argumentative purposes: to justify one's own opinions and decisions within the community and to assess the others' opinions and decisions. Indeed, to take part in a discussion, individuals must prove they have a certain argumentative ability, otherwise they would be excluded

by it, and they would not benefit from it. As shown by some evidence (Mercier, 2011), indeed, from an early age children can understand many arguments, and they also can assess them, a competence that develops as they grow older, transforming them in experts in using a great amount of argumentative tactics. For instance, between 18 and 24 months, children begin to employ sentences to argue with their relatives to justify their own violations of the rules; even, where they are aged 6, they are already able to recognize a circular argument (*petitio principii*).

According to a thesis of Piagetian origin (Mercier, 2011, p. 12), the development of argumentative abilities is a function of the attempt to resolve conflict, born once the child discovers a point of view different from her own, that generates an imbalance between the parts. The presence of other subjects, that are bearers of verbal obstacles to the fulfilment of her own desires and to self-affirmation, seems, thus, to be the driver for the development of argumentative skills, which, outside the social dimension, have no reason to merge and evolve. Therefore, the argumentative competencies are not learned only through adult-child interaction, but also and above all if the latter is included in a peer group, where she is motivated to negotiate and to justify her opinion among conflicting points of view.

By channelling this theory into an educational key, one may hypothesize that to activate and enhance the natural argumentative abilities already present in the developmental age, it is necessary to guarantee for children and adolescents a social environment where exchanges and discussions frequently occur. But this social dimension can also be artificially recreated and controlled by the educator, as, after all, Mercier himself suggests:

> The most natural way to force people to construct better arguments is to offer counter-arguments, something that happens spontaneously in groups and explains in part their level of reasoning performance. But the quality of arguments can also be improved by setting high standards for students' explanations and by asking them to elaborate on their arguments. (Mercier, 2011, p. 13).

The most important thing is including them in a context most similar to the natural one, namely, where they are motivated to discuss on problems that they feel as close to them, born by real and urgent needs in line, I add, with pragmatist suggestion. The qualitative degree of their argumentation, indeed, as the French psychologist demonstrates, increases if children discuss daily or existential issues that they feel as strictly regarding their life. On the contrary, if participants in a group are asked to argue about abstract problems (e.g., of a mathematical kind), their involving turns out to be definitely lower. The interest, as after all Dewey had already maintained starting from his theory of experience applied to education (Dewey, 1910/1933), seems to play a pivotal role, barely replaceable by other sources of motivation to employ critical thinking.

However, to include the subjects in a peer group is not enough in itself. Once the suitable contextual conditions are created, by means of the choice of the appropriate stimuli, the educator has to force students to provide clear justifications for their claims and to elaborate new arguments more and more structured and sound, by leading them towards the construction of new knowledge that is the outcome of a dialectical negotiation.

Coming now back to our issue, that is the way an instructor can develop students' critical thinking skills, it seems that the *Argumentative Theory of Reasoning* provides sound empirical evidence not only to reject the deductive model, since it is designed for solitary learning and to place students face to face with problems completely unanchored from reality and their life, but also to support the model of *philosophical dialogue*. In the setting envisaged first by Dewey (1910/1933), then by Lipman (1991/2003), it occurs exactly what Mercier suggests. Moreover, by placing students in front of philosophical questions, inherently able to involve them on an emotional and existential level, this pedagogical instrument urges participation, exchange and the activity of giving and asking for reasons. If we add that, within *philosophical dialogue*, problems are not only dealt with through argumentation, but also through the support of the other tools provided by philosophy (definitions, conceptualization, explication of assumptions, hypothetical and counterfactual reasoning, etc.), then it should be easy to imagine that in such complex dynamics all the main critical thinking competencies are activated.

1.5.2. *Distributed* **argument**

Let us imagine a workshop of collective writing in a school class or in a creative writing course. The technique is the following: the instructor asks participants to write a sentence starting from the sentence left off by her companion; after her, someone else will make the story go on by adding a new sentence, and so on. The first participant has, possibly, the main responsibility and the hardest task, since, given the indeterminacy of a blank page, she needs to define some starting coordinates wherein inserting the story – about which she knows nothing yet –, such as space and time. The companion after her will have to decide whether to continuing the description of narrative space or to introduce a character; in cases where she opts for the latter choice, the following classmate will say something about this character; and so on. The story will slowly take shape in ways completely unpredictable by each of the participants individually, as well as by the instructor. Nonetheless, it will take a well determined shape, thanks to a series of competencies employed by participants in order to contribute to a common goal. Here are the main ones:

- *Creativity*: each of them is required to add only original elements;
- *Flexibility* and *adjustment*: each participant has to adjust to new and unpredicted situations, that she did not create, but rather received from the classmate before her;

- *Consistency*: every sentence must try to be logically and narratively consistent with the previous one;

- *Listening* and *care*: every contribution cannot arise from nowhere in an anarchic way, but it must take care both of what was already written and of how it has been written (style, language register, etc.);

- *Predictive power*: as long as the storytelling proceeds, once the initial uncertainties are overcome, the writer does not have to be concerned only about what has been written, but also to put the next classmate in the best conditions to let her continue the story successfully.

That is likely a partial list of skills, but it should be sufficient to let us understand what kind of cognitive phenomenon takes place in a creative practice like that. It is a kind of collective thinking that cognitive psychology labelled as *distributed cognition* (Hutchins, 1995), a theory claiming that thinking is not confined within the boundaries of the individual mind but is extended to the resources present in the environment, both material ones and other people. The idea, that is behind the following development of the *Extended Mind Theory*, is that it is not the world to be placed in the mind, but the mind to be placed in the world. That of collective story is an example of task performed by a distributed thinking, since it is not performed by individual but by a collective mind.

A similar process occurs during *philosophical dialogue*, though participants take advantage of different procedures and, of course, they deal with different tasks and contents. The philosophical investigation of a problem does not occur, indeed, individually, neither are the final conclusions reached the result of the sum of individual thinking of the members. It is, rather, about a community activity, that manages to proceed, to develop and, even more remarkably, to self-correct by means of the others' active and collaborative role: thinking that flows within the CoI is precisely a distributed thinking, a shared cognition that is articulated into an interchange of assertions, that are followed by questions, challenges, answers, requests for reasons, etc. The presupposition behind a *philosophical dialogue* is that, without the contribution of others, the individual mind is not able to formulate determined thoughts: in other words, only other people's thinking, if it is relevant, well justified by evidence, formally correct and deep, allows to open new epistemic perspectives.

If we focus, in particular, on argumentation, during a *philosophical dialogue* session it often occurs that the subject that asserts a thesis is not able alone, once she is asked, to find good reasons; at that point, the others' interventions help her, by providing support for an opinion they agree with or, if they disagree with the standpoint, by challenging it through counter-arguments – that is another essential way to contribute to the cooperative inquiry of the problem. Otherwise, by evaluating the reasons brought by one of the participants, someone else can discover that the underlying problem behind the words one is uttering is not in the conclusion of her argument, but in

a missed premise, possibly because it is about a presupposed belief of which she herself is not conscious. Inquiry becomes, thus, more and more accurate and deep. These are just two examples of a possible critical thinking distributed among the fellows of a CoI, in a setting wisely set up by the facilitator, which manages to express potentialities and resources that, as we have seen, are not reachable by an individual mind.

Confirming the proximity between this model of cognition and the *community of inquiry*, the facilitator, after posing a philosophical question, is not required to listen to the answers of all participants who raise their hand, but, after listening to a particularly promising intervention, she often judges it more fruitful for the group to pursue that road, to explore through a series of interventions impossible before the initial insight. Indeed, it is the facilitator's responsibility to guide the community in such a complex and unpredictable network of tracks, since, in light of her experience and knowledge, she can intuit more than anyone else which are the most fruitful to develop and deepen research, but also to recognize the ones that most likely bring the group to a dead end.

1.6. The need for anchoring to contents

Before concluding, it is important to deal with the issue of the relationship between critical thinking learning and contents, because it is functional to the basic thesis of this chapter, i.e., that *philosophical dialogue* is the best way to teach critical thinking. To do that, I need to express some of my metaphilosophical views.

As emerges from leafing through a critical thinking handbook, the skills that are gradually presented seem, considering the variety and heterogeneity of the examples provided, completely crosscutting and applicable to every domain and content. However, as we have seen thanks to Willingham's lens, the issue is more complex, since these abilities are not as easily transferred as it is assumed. To say, as Willingham does, that every domain makes its own use of critical thinking norms and techniques is not far from saying that every domain has its *own* critical thinking, since general norms and techniques are applied according to specific methods and to specific contents, that, by nature, activate inquiry models very different from each other.

If his claim is well-founded, as I think considering the accuracy of the data collected, then we should abandon the idea that an organized set of notions and norms (a language) can be applied to every discipline: a set that, once it is memorized, lets us critically judge the contents of whatever domain. Critical thinking handbooks different for each disciplinary field will possibly be more useful than general handbooks. At this point, the treatment of philosophical problems would be just one of the possible ways to teach critical thinking. Nevertheless, I think that what I have just hypothesized for other domains does not extend also to philosophy. Avoiding recovering obsolete

arguments that tried to claim an alleged superiority of philosophy over other disciplines, there is an element, however, that cannot be disregarded. Philosophy, beyond inquiring into its own issues (moral, aesthetical, ontological, etc.), also investigates the epistemological status of disciplines (philosophy *of mathematics*, *of law*, *of science*, etc.). For its attitude to place – grammatically and epistemologically – behind other disciplines, in the *meta* region where it reflects on principles, philosophy is located in a different position, from which it can observe other knowledge and even itself (philosophy *of philosophy*).

Furthermore, from Aristotle onwards, thinking itself has become one of the cardinal contents of philosophical tradition, with its procedures, mistakes, limits and potentialities. Consequently, as philosophy reflects, among other topics, on the epistemological principles of other disciplines and on thinking itself, then it has a metacognitive nature; and, given that metacognition is, as we have seen, one of the main aspects of critical thinking, then there is an inherent relation between critical thinking and philosophy. That means that to train students in critical thinking through philosophical problems is not like training them by means of political, juridical, or physical issues, since the philosophical contents themselves are structured according to the methods of critical thinking. Indeed, a philosopher who constructs, for instance, a strong philosophical argument, does not respect only the norms suggested by a critical thinking handbook – that whoever expert of whatever discipline should be able to do –, but she also is *aware*, thanks to her knowledge of investigation methods proper of philosophy, that the respect of those norms is constitutive of an argument, and, hence, she knows when they are transgressed. I am one more time coming back to the issue of metacognition, that is a land common to philosophy and critical thinking. It is likely not a case that many of the most authoritative argumentation theorists – and of the authors of critical thinking handbooks as well – are philosophers, though there is also an important and interesting line of research on the topic in the psychological domain.

There is a further argument supporting the inherent tie between philosophy and critical thinking. In empirical disciplines, when a finding is supported by strong evidence – and until proven otherwise –, almost all the scientific community over time agree with it. On the contrary, many philosophical problems always continue to interrogate human beings for they are still unresolved, being able to maintain, after centuries, a centrality in the debate: it is the case of aporia that consider beliefs in contradiction, but both undeniable. Indeed, while usually we do not commit ourselves to factual contradictory beliefs (e.g., that protons exist and that they do not), it is possible to suspend judgments on God's existence, on the problem of free will, on the adoption of a utilitarian or deontologist moral, etc. for a long time, even for your whole life. The aporetic status of

many philosophical problems (not only of paradoxes and dilemmas) requires a critical continuous activity of thinking, which cannot ever rest on a definitive accepted judgment.

To conclude, to anchor critical thinking learning to philosophical problems seems a privileged gateway for its development, since, if it is possible to *think critically* but not *philosophically* (such as when we think about the contents of other disciplines), it is impossible to *think philosophically* without *thinking critically*, since the act itself of philosophizing entails a set of attitudes – i.e., metacognition or questioning – that are the same as those involved in critical thinking.

1.7. Final remarks

I have tried to argue, also with the support of cognitive science, that to teach critical thinking is not sufficient to present the contents, to provide examples and to strengthen knowledge by means of exercises – i.e., to adopt a deductive teaching approach. To set up a learning setting that lets students be immersed in a dialectical context where they can actively actuate critical skills, like argumentative ones, is a more effective and involving means than the deductive approach, of which I stressed all the limits. Furthermore, by moving the analysis from methods to contents, I argued in favour of the necessity for specific contents, clarifying that philosophical problems are particularly fitting to develop critical thinking competencies, for the inherent link existing between this 'discipline' and philosophy. The analysis of the two terms that constitute the formula *philosophical dialogue* – where the first one indicates the method and the second one the content – should have demonstrated the worth of this approach, especially if it is compared with the traditional ways critical thinking is taught. This methodology, nonetheless, leads to some criticisms that are not easy to overcome.

The educational activities that I am suggesting as suitable for critical thinking learning are conveyed by orality, in line, hence, with the Socratic tradition, an essential reference point for modern *philosophical dialogue*. The problem, now, is to understand how to reorder in a clear and organized knowledge the whole set of notions, norms and techniques of critical thinking that are embodied in the dynamic and multiform texture of a dialogue. I am referring to a knowledge that allows a student to find in an ordered manner what she has experienced by participating in a dialogue – or, even, in a whole project like *Inventio*, articulated in more than one dialogue. The goal is that she should become aware of this new knowledge in order to be able to use it in new contexts and when she is faced with new challenges: in other words, the goal is that she can *transfer* new knowledge learned by means of the dialogical workshop combined with another instrument. Such a support could be something like a critical thinking handbook, but to be utilized only as an integration of the experience of dialogue.

However, such a resource can take shape only by means of writing, at least for how we are used to organize knowledge. How can we overcome, at this point, the incommensurability – in the mathematical sense, i.e., as a lack of a common measure – between orality and writing? This is a problem already addressed by Plato, that he tried to respond to through the literary construction of the character of Socrates and the foundation of the literary genre of dialogue, but that, after two thousand years, still recurs as soon as an educator chooses to propose again inquiry in oral form.

The issue is open and, as it touches a series of practical and theoretical complex problems, I cannot address it in this dissertation, although it would deserve further research. The attempt of *Inventio* to put together *philosophical dialogue* workshops and inductive activities on topics about critical thinking tries to provide a provisional answer to the issue. It is an ensemble that needs to be tested and certainly revised and refined year after year: we will discover only in a few years' time if it turns out to be a good solution.

CHAPTER II

The speech act of 'arguing': a conversational framework

2.1. Why the Speech Act Theory?

2.1.1. A conversational framework

Since I am interested in finding an argumentative theory suitable for the specific context of *philosophical dialogue*, I will regard as proper for this aim just those approaches that interpret argumentation – and the minimal unit of argumentation, i.e., the argument – as a conversational exchange (Hitchcock, 2020a, p. 133). Such an exchange can be schematized in the following form: a speaker states her standpoint about a certain issue, the listener challenges it by asking reasons, the speaker finds reasons to support the standpoint. This basic structure, which obviously can take a great variety of different forms, has its roots in Socratic dialogue, that could be termed the 'game of giving and asking for reasons' and that has its core in the move of questioning a standpoint. Another definition of this exchange can be found in Hamblin's *Fallacies* (1970), who calls it 'why-because game', which, in other words, is "an attempt by one interlocutor to elicit a satisfactory justification of an initial claim made by the other interlocutor" (Hitchcock, 2020a, p. 133). As this kind of exchange is strictly dialectical, it is included in the broader set of conversational exchanges. Therefore, whenever I use the terms 'argumentation' and 'argument', I explicitly refer to *conversational* argumentation and argument, not to inferential *processes*, *procedures,* and *products*[21] worked out alone. Hence, since argumentation is a specific type of conversation, I need

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[21] In argumentation literature, *product*, *procedure*, and *process* are traditionally associated with the Aristotelian classification of argumentation respectively as *logical*, *dialectical*, and *rhetorical.* Rapanta (2013) provides a useful synthesis of this tradition: "To proceed to any type of argument analysis, one first must consider the tripartite nature of argumentation. This structure involves at least three approaches, namely, logic, dialectic, and rhetoric, first proposed by Aristotelian philosophy and then expanded by contemporary philosophers, such as Tindale (1999) and Vega Reñon (2003). As the former scholar noted, "in several discussions of argumentation, the Aristotelian triad has been identified with the three p's of product, procedure, and process" (Tindale, 1999, p. 3). Viewing argument as a product, which is the basis of the logic perspective, implies the main consideration that argument is a unit of reasoning in which one or more propositions, that is, the premises, are combined to support another proposition, that is, the conclusion (Angell, 1964). Defining argument as a procedure calls for special attention to the dialogical aspects of argument, such as the use of reasoning in a context (Walton, 1998). Finally, argument as a process both involves and addresses the whole person and his or her context, that is, taking into consideration the particular circumstances in which the argument is used (Perelman, 1982)". It is worth mentioning that the debate is open and, though this tripartition is commonly accepted in argumentation literature, there is who challenges the traditional interpretation of the three dimensions. For instance,

to frame it within a wider conversational theory. Speech Act Theory (SAT), first developed by Austin (1962) and later systematized and deepened by Searle (1969; 1975), Strawson (1964), Sbisà (1989), Roberts (2018), and many other scholars, seems the most suitable to frame argumentation for several reasons.

First of all, SAT is one of the earliest and most original attempts to explain a conversation beyond the propositional content of discourse, contributing to develop the route of pragmatics, opened by Wittgenstein's *Philosophical Investigation* (1953). Indeed, to correctly interpret what really happens in a dialectical exchange, we cannot ignore, beyond semantics (i.e., the relation between linguistic sign and world) and syntax (i.e., the relation between the signs, or, in other words, the rules for the formation of sentences and arguments), the pragmatic dimension (i.e., the relation between signs and context), because dialogue is always embedded in a context that includes a wide range of variable factors: the use of language, the person who speaks, the person who listens, their relationship, the goal of the discourse, time, space, etc. Indeed, since the contextual factors of *philosophical dialogue* are inherently extremely variable, a model relying on a unique set-up of universally applicable general argumentative rules would be useless, being too rigid to capture the actual dynamics in different contexts. We need a flexible and pluralistic model, instead, that could adapt itself to the fast-moving circumstances of dialogue. In argumentation theory such proposals already exist. For instance, the first famous pluralistic theory elaborated by Walton and Krabbe (1995) goes precisely in this direction, because they distinguish six possible types of dialogue (*persuasion*, *negotiation*, *inquiry*, *deliberation*, *information-seeking*, *eristics*)[22], each of which has a specific goal: the correctness of the arguments presented by the interlocutors does not depend on general and universal rules, but on achieving the specific goal of the dialogue in question. Although this model is an important reference point for my dissertation, the distinction proposed based on goals is not sufficient to frame the complexity of dialogical dynamics, because it cannot fathom crucial aspects, such as speech intentions, expectations, attitudes, etc., considered both from the perspective of the speaker and of the listener. SAT, instead, provides appropriate instruments to build such a pluralistic model, for it describes a conversation looked at from an inner and situated perspective, not from an external point of view that observes linguistic phenomena just as abstract objects, outside the context.

Blair (2012, p. 148) suggests that "rhetoric is the theory of arguments in speeches, dialectics the theory of arguments in conversations, and logic the theory of good reasoning in each."

[22] In one of the last of the numerous works of Walton (2019), he mentioned a seventh type of dialogue, *discovery*, characterized by the goal of choosing the best hypothesis for testing. As we will see, it is about a kind of dialogue where abductive argumentation plays a crucial role. Through this new element, the schema of the different types of dialogue is roughly the same as that proposed in Walton & Krabbe (1995).

Second, thanks to SAT we may capture an essential aspect of argumentation, its inter-*actional* aspect. Austin coins a phrase, *performative*, that "indicates that the issuing of the sentence is the performing of an action" (Austin, 1962, pp. 10-11). For Austin, speaking is doing an action and as such it always has effects on the world, since it has some kind of impact on the listeners. In this sense, arguing is a speech act that explicitly intends to modify reality as well, namely a state of affairs (if the argument is *practical* – i.e., *deliberative*) or a state of mind (if the argument is *theoretical*).[23] Moreover, SAT offers a wide range of ways to act by uttering arguments and, if the components of an argument are looked at attentively, we can notice that not only assertive speech acts compose it, as I will try to demonstrate.

Third, Austin's distinction of the act in three aspects (*locutionary, illocutionary, perlocutionary*) looks like an effective way to make a linguistic and philosophical analysis of the speech act of 'arguing'. Searle (1969) claims that a speech act is the minimum unit of communication and, to distinguish one from another, we have to recognize its *intention* (considered the essential condition of speech acts), expressed by the *illocutionary force*: the same sentence, indeed, can hide different intentions[24] and, on the other hand, different sentences with different locutionary contents can express the same intention. This aspect was already grasped by Austin (1962, p. 9):

> But it does not by any means necessarily masquerade as a sentence of fact, descriptive or constative. Yet it does quite commonly do so […] It will be convenient, therefore, to study it first in this misleading form, in order to bring out its characteristics by contrasting them with those of the sentence of fact which it apes.

My analysis will focus on all the three aspects of speech acts (§ 2.5.1), but I will pay particular attention to the illocutionary force that is going to be employed primarily to recognize different speech acts, also those that I propose following new distinctions: *practical / theoretical* and *uncontroversial / controversial*. This central aspect in SAT may easily become a valuable tool in the hands of an expert on philosophical practices, who, for instance, by asking participants what the deep intention of an argument is beyond the superficial form of the utterances, may lead them to distinguish different types of sentences and arguments and, consequently, to evaluate their correctness (or, as I will argue, their *happiness*).

To conclude, all the reasons listed above should be sufficient to justify the choice of SAT as reference conversational model. Indeed, it seems to provide us the theoretical categories to

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[23] For a description of this distinction, to § 2.3.1.
[24] That is the case of *indirect speech acts* (Searle, 1975), namely speech acts that from a locutionary dimension express a certain content ('Can you pass the salt?'), but have another intention (to get the salt, not to ask whether or not the addressee is able to pass it).

elaborate a pluralistic model, able to catch the essential properties of argumentative speech and to recognize and evaluate the different types of argumentative speech.

2.1.2. The issue of the taxonomy

Related to the issue of *illocutionary force* is the problem of taxonomy of illocutionary acts, already widely addressed by Austin, but systematized for the first time by Searle (1975) in a now classical schema:

Illocutionary force	Examples of performative verbs	Description
Assertives	claim, maintain, affirm, assert, present, etc.	The speaker pronounces an utterance that reflects her beliefs.
Directives	order, ask, request, advise, implore, etc.	The speaker wants that interlocutor to do a certain action.
Commissives	promise, offer, threaten, allow, etc	The speaker, by talking, is committed to a future action.
Expressives	thanks, wish, greet, etc.	The speaker expresses her feelings or states of mind.
Declaratives	elect, appoint, declare, christen, etc.	The speaker exercises a power based on an institutional convention.

Like every taxonomy, it presents some advantages, such as a well-defined schema for the analysis of speech acts, and some limits, such as the heterogeneity of such categories: for instance, if we look at the family of *directives*, we find performative verbs with really different grammatical functions (e.g., 'to question' and 'to order'). Furthermore, this taxonomy is based on the distinction between performative verbs, but there are many other less explicit clues of a speech act. In the case of argumentation, for instance, it is uncommon to meet the performative verb 'I argue', and, as van Eemeren and Grootendorst suggest (1984, p. 31), the Austinian formula 'I hereby x' (where x represents the illocutionary act) – suggested to distinguish the illocutionary force of a speech act – does not work. The reason, as we will see, is because this specific speech act does not occur at the *sentence level*, but at a *higher-textual level.*

Along the same lines, but simpler, is the Roberts' taxonomy (2018), who tries to establish a line of demarcation retrieving the classical dichotomy descriptive/prescriptive[25], originating from the so-called Hume's Law, also used by Searle (1975):

> Searle offers several parameters which distinguish his speech acts. But the most important is *direction of fit*, of which there are two values: Speech acts display **word to world** fit just in case they portray the world as being so-described. Speech acts display **world to word** fit in case they propose that interlocutors behave in such a fashion that the world comes to fit the description. (Roberts, 2018, p. 318)

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[25] I will expressly address the issue in § 2.4.2. For in-depth analyses, cf. Sayre-McCord (2014) and Väyrynen (2021).

If *descriptive* speech acts are adjustments of the mind (and language) to the world, *prescriptive* ones are transformations that our minds (and words) want to impress upon the world. Starting from this distinction, Roberts tries to simplify the Searle's taxonomy, outlining a more natural elaboration:

– *assertion*: an act which proposes an additional element to the interlocutors' *common ground*[26] and, "if adopted, […] would commit the interlocutors to accepting that (and behaving as if) the *world fits the words*)" (Roberts, 2018, p. 318);

– *suggestion*: an act which intends that interlocutors act in a specific way.

The latter element can be divided in two further acts, which can be distinguished by the different goals that they want to achieve: *direction* (often expressed in natural language by the imperative mood) and *question* (normally expressed in natural language by the interrogative mood). And precisely from the distinction of the moods of the three basic clause types in the grammar of all known languages (declaratives, interrogatives, imperatives), Roberts wants to demonstrate the validity of her proposal.

Roberts' classification seems not only simpler than Searle's, but also more consistent with my approach, that suggests a different taxonomy based on a critical distinction between *uncontroversial* and *controversial sentences* (and *arguments*). Nevertheless, I will also take Searle's into account, since most of the speech act literature adopts it, in particular the first systematic attempt to apply SAT to argumentation that has been conducted by van Eemeren and Grootendorst (1984).

2.1.3. Research questions

Before moving to the issue of the relationship between SAT and argumentation theory, it might be useful to clarify the main research questions that will drive this inquiry:

1. Do the available proposals that interpret argumentation as a speech act fit the specific type of argumentation carried out in *philosophical dialogue*?

2. Is it possible, in order to describe properly the speech act of 'arguing', to make a new distinction between different types of sentences and arguments, beyond the standard of theoretical / practical reasoning?

3. What kind of illocutionary and perlocutionary act do we carry out while we are arguing? Which features can we find respectively in the illocutionary force and in the perlocutionary response of 'arguing', considering it under its interactional aspects?

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[26] The notion of *common ground* is a pillar of Stalnaker's conversational theory (Stalnaker, 1979; 2002), described as "presumed background information shared by participants in a conversation" (Stalnaker, 2002, p. 701) and as "what speakers [take] for granted" (Stalnaker, 2002, p. 702), i.e., what they presuppose when they speak. It is present also in Green (2017).

4. How can we derive, from the description of argumentation provided by Speech Act Theory, any guidelines for the practical model that I am trying to construct?

These questions will establish the structure of the present chapter. With regard to the first one, I will illustrate van Eemeren and Grootendorst's theory (§ 2.2.1) and I will analyse it (§ 2.2.2), highlighting its strengths and weak points, thanks also to other proposals advanced later: Bermejo Luque's linguistic normative model (2011), Jackson and Jacob's conversational approach (1981; 1982; 1989), and Labinaz's deontic account (2021).

With regard to the second question, I will address first the distinction between theoretical and practical arguments (§ 2.3.1), then the distinction between uncontroversial and controversial (§ 2.3.2), providing an overview on the birth of these categories and on their use in critical thinking literature. In § 2.3.3, I will try to argue that the suggested distinctions allow us to understand the nature of the speech act of 'arguing'.

With regard to the third question, I will conduct an analysis of the features of 'arguing' as a speech act (§ 2.4), using both the traditional categories of *locution*, *illocution* and *perlocution* (§ 2.4.1) and another criterion as the aspect of *temporality* (§ 2.4.2). After that, there will be all the elements necessary to outline the *happiness conditions* for 'arguing' (§ 2.4.3). Then, I will describe the essential aspect of 'arguing', i.e., *anchoring* (§ 2.4.4), dealt with thanks the contribution of Budzynska and Reed (2011), that will be considered crucial to try to capture the essential nature of this speech act.

Finally, with regard to the fourth question, I will suggest an educational proposal (§ 2.5-2.6) that tries to apply SAT (categories, features, standards) to educational aims, specifically to the conduction and the assessment of *philosophical dialogue*.

2.2. Speech Act Theory and Argumentation Theory: an overview

2.2.1. Pragma-dialectic approach

Speech Acts in Argumentative Discussion. A theoretical Model for the Analysis of Discussions Directed towards Solving Conflicts of Opinion (van Eemeren & Grooterndorst, 1984) is the first monograph of the Pragma-dialectic approach, launched by van Eemeren and Grooterndorst and destined to give rise, in the following decades, to a wide literature and to become one of the best known and authoritative argumentative theories. Feeling the need to frame their model within SAT, the authors dedicate three whole chapters to the analysis of the speech act of argumentation, consistently with their model, that considers argumentation as the means to solve a disagreement of opinions in a rational discussion. From the first page, it is clear that the only kind of argumentative activity that they take into account is the dialectical one that refers to a discussion carried out by two people through rational instruments about certain issues. It is important to underline that

argumentation is only about the statements that are verbally externalized – and that not necessarily overlap with the beliefs of the speakers –, because only once they express certain opinions or arguments, are they publicly committed to them. The standard dialectical exchange envisages specific stages: a protagonist states a standpoint and an antagonist disagrees with her ('confrontation stage'); they decide to conduct a discussion following certain rules ('opening stage'); the protagonist advances an argumentation to support her standpoint and the antagonists accepts or reacts to it ('argumentation stage'); the dispute finds a solution in the protagonist's or antagonist's favour ('concluding stage'). Thus, argumentation has the crucial role, within this discussion game, of allowing disagreement to be resolved. But, in any case, the analysis of argumentation led by the Dutch School is limited to the dialectical dimension, as it is confirmed in several later works.[27]

Van Eemeren and Grootendorst take as reference point in Speech Act literature the works of Searle (1969, 1975) and Searle & Vanderveken (1985). Consequently, they employ the same categories to define the happiness conditions of illocutionary acts (general, preparatory, propositional, sincerity, essential) and the same taxonomy. However, from the beginning of their analysis, they point out the limits of Searle's account. First of all, they argue that it is focused only on elementary sentences, whereas argumentation is a *compound illocution* or *an illocutionary act complex*, because it is composed of more than one statement. Second, it is focused exclusively on communicative aspects (from the speaker's perspective), not paying any attention to interactional ones (from the listener's perspective). In other words, for a full understanding of the speech act of argumentation, they judge it insufficient to consider only the illocutionary dimension (focused on the intention of the speaker), excluding the analysis of the perlocutionary dimension (focused on the effects on the listener). For these reasons, their account tries to keep together both levels, though they are analysed from different perspectives. This distinction allows the authors to consider separately the happiness conditions of the illocutionary and the perlocutionary act of argumentation. Indeed, it is about two different verbal acts, uttered by the same language expression, with two different goals: an illocutionary act is happy if the listener *understands* the content and the force (intention) of argumentation, while a perlocutionary act is happy if the listener *accepts* argumentation. The first is a necessary condition, but not sufficient to fulfil the speech act. Consequently, the listener plays a key role in the speech act of argumentation, since the decision about its full happiness depends on her.

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[27] For instance, the first sentence of van Eemeren (2010, p. 1) is the following "It is a truism that argumentation always arises in response to, or in anticipation of, a difference of opinions, whether this difference of opinion is real or merely imaginary."

Let us start from the analysis of the illocutionary dimension. The fact that in the speech act of argumentation there is no one-to-one correlation between sentence and illocutionary act means that some problems, not considered either by Austin or by Searle, need to be solved. In the case of argumentation, indeed, a single speech act has simultaneously two illocutionary forces[28], thus, only an analysis that takes into account the illocutionary force both at *sentence level* and at *higher-textual level* can help the understanding of this special speech act. Furthermore, argumentation is an illocutionary act complex, composed by a constellation of statements in a specific relationship to another sentence (the so-called *expressed opinion*, or standpoint), "so that the sentences uttered in an argumentation *must be linked to another sentence in a special manner*" (1984, p. 33).

In line with Searle (1969) and Fogelin (1978), van Eemeren and Grootendorst consider the statements that compose an argument exclusively as *assertives*, though argumentation is not an *assertive* in itself. Their category of *assertives*, in fact, is wider than the one outlined by Searle that defines them as truth-apt sentences, i.e. sentences the propositional content of which can always be characterized as true or false. For instance, the truth value of a standpoint, as it is usually a statement that is at the centre of discussion, cannot be easily defined, otherwise there would not be any discussion. So, the statement that expresses the opinion is not necessarily a factual statement, but it can be of a normative kind (aesthetic, moral, etc.). Thus, instead of the values true/false, the authors propose the value acceptable / unacceptable, but they still consider these sentences to be *assertives*.

As concerns the statements that properly compose argumentation, they admit that in natural languages we can use other illocutionary acts to express them, although (e.g., in the case of a rhetorical question) this illocutionary force is just superficial. Indeed, these kinds of speech act can be paraphrased as *assertives*. As commitment is referred just to externalized statements (not to states of mind), and as a speaker can be committed only to an *assertives*, only *assertives* can constitute argumentation and standpoints.

As regards the happiness conditions of the illocutionary act complex of argumentation, the authors pinpoint the different roles played by the *recognizability conditions* (which include *propositional content* and *essential* conditions) and the *correctness conditions* (which include *preparatory* and *sincerity* conditions). Moreover, argumentation can be fulfilled by the former (as in cases where both the content and the intention to argue have been recognized by the listener), but not by the latter (as in cases where the speaker does not honestly believe that the listener will accept the statements supporting the expressed opinion). The happiness of the illocutionary act is achieved

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[28] The same phenomenon is present in *indirect speech acts* (cf. footnote 4, Ch. II), although they consist of only one sentence.

only if both sets of conditions are fulfilled, because the fact that an argumentation is recognized does not automatically means that it is correct. Moreover, highlighting the role of the listener, the happiness of the speech act does not rest only on the correctness of communication by the speaker, but also by its recognizability by the listener. Below is the whole set of conditions related to pro-argumentation:[29]

- – RECOGNIZABILITY CONDITIONS:
  - ▪ Propositional content condition:
    The constellation of the statements S_1, S_2 (,…, Sn) consists on assertives in which propositions are expressed
  - ▪ Essential Conditions (the speech act purpose):
    Advancing the constellation of statements S_1, S_2 (,…, Sn) counts as an attempt by S to justify 0 [opinion] *to L's* [listener's] *satisfaction, i.e., to convince L of the acceptability of 0.*

- – CORRECTNESS CONDITIONS:
  - ▪ Preparatory conditions
    1. *S* [speaker] *believes that L does not (in advance, completely, automatically) accept the expressed opinion 0.*
    2. *S believes that L will accept the propositions expressed in the statements S_1, S_2 (,…, Sn)*
    3. *S believes that L will accept the constellation of statements S_1, S_2 (,…, Sn) as a justification of 0.*
  - ▪ Sincerity conditions[30]
    1. *S believes that 0 is acceptable.*
    2. *S believes that the propositions expressed in the statements S_1, S_2 (,…, Sn) are acceptable.*
    3. *S believes that the constellation of statements S_1, S_2 (,…, Sn) constitutes an acceptable justification of 0.*

Moving on to the analysis of perlocutionary act, all the analysis relies on a distinction between *inherent* and *consecutive* perlocutionary effects: the first, considered minimal, is the acceptance of argumentation by the listener, while the second, considered optimal, consists in the listener's desisting from opposition to standpoint (O). The perlocutionary act of argumentation consists in *convincing* the listener of the acceptability of the standpoint, by means of the acceptability (or unacceptability, in case of contra-argumentation) of the statements composing the argumentation. Subsequently, the performance of the speech act not only has the intention (illocutionary act) to

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[29] The authors provide also those related to contra-argumentation, in cases where a speech act of argumentation is performed not to assert a standpoint, but to deny it.

[30] As the authors point out, rather than the term 'sincerity' they would prefer 'responsibility': indeed, it is possible that the speaker does not believes the statements, but she only uses those to convince the listener. Nevertheless, once the statements are externalized, she is committed to them: if the listener understands that she is not actually committed, she understands that the speaker does not seriously intend to resolve the disagreement.

make the listener understand that the speaker is trying to justify (or reject) O, but is also designed to convince the listener (perlocutionary act) of the acceptability (or unacceptability) of O. The illocutionary act of argumentation is happy if the speaker has performed an illocution correctly and if she obtains the effect whereby the listener understands that the speaker is trying to convince her; the perlocutionary act of convincing is happy if the listener accepts O. In other words, the illocutionary force of argumentation is unactualized if the perlocutionary effects are not achieved.

Thus, also the perlocutionary act has its own conditions, that depend on the role of the listener, who is committed, also in this case, only to the externalized acceptance / rejection: the *propositional content conditions* consist of the content of the acceptance / unacceptance; the *essential conditions* consist of the intention to express agreement / disagreement with the speaker about O; the *preparatory conditions* consist in believing that who is arguing is seriously engaged in convincing the interlocutor of the acceptability or not of O; finally, the *sincerity conditions* consist in believing that O is acceptable, that S_1, S_2, …, S_n are acceptable and that S_1, S_2,…, S_n are acceptable justifications of O.

To summarize, the authors claim that an analysis of the speech act of argumentation must care about both the communicative and the interactional aspects of its performance. Arguing, indeed, is inherently linked to the perlocutionary act of convincing: one cannot say that she is arguing that *p* and not attempting to convince a listener that *p*. It should be noted, moreover, that *acceptance* is not a state of mind, like a belief, but just the desired effect of the perlocutionary act of convincing, that corresponds to agreement:

> It is not our intention simply to equate the acceptance or non-acceptance of an expressed opinion with 'being convinced' in the full psychological sense of the term. *Acceptance*, to us, is not a state of mind to be compared with a belief in its complexity and intensity. The acceptance or non-acceptance of an expressed opinion is a perlocutionary effect intended by the speaker, brought about by means of an illocutionary perlocution, and based partly on rational considerations by the listener. This perlocutionary effect is inherent in the success of the illocutionary perlocution of *arguing / convincing*. It amounts to no more nor less than *agreeing* to the point of view defended in the argumentation. Thus our term *accept* has a lesser extension than the expression 'be convinced' may have in colloquial idiom, and it is free of any psychological (and philosophical) connotations. (1984, p. 69)

The new belief about the discussed opinion can be, possibly, a subsequent effect, the final consequence of the speech act, as shown by the figure in the shape of a milk bottle (1983, p. 70).

Finally, van Eemeren and Grootendorst provide a systematic analysis of all the speech acts performed in a whole discussion, that are not part of argumentation (which is performed at the third stage), but still contribute to resolving the dispute. Without listing all the descriptions of speech acts in the different stages, they distinguish between those performed only by the protagonist, those

performed only by the antagonist, and those performed by both. The protagonist, besides *assertives*, also performs *commissives* (e.g., when she accepts or rejects the challenge brought by the antagonist: in this case she is committed to that acceptance / rejection). The antagonist performs *commmissives* as well (e.g., when she accepts or reject the protagonist's standpoint) and *directives* (e.g., when she casts doubt on the assertions of the protagonists, provokes, questions, requests, elicits *assertives*, etc.). The protagonist and the antagonist together perform both *assertives* (e.g., when they establish the result of the discussion) and *commissives* (e.g., when in the second stage they decide to conduct a discussion and following which rules, or, in the last stage, they decide to conclude it).

For different reasons, *expressives* and *declaratives* seem not to find a place in a rational discussion. The former express states of mind regarding presupposed opinions, but in a discussion the opinion cannot be presupposed, as it is the subject of discussion itself. The latter refer to specific institutional roles that provide a specific power, but, as argumentation can find no place in circumstances where someone is exercising her power, *declaratives* are inconsistent with argumentation. Nevertheless, they admit the use of *usage declaratives*, i.e., related to language usage, that can facilitate the discussion and that can be present at every stage: definition, precization, amplification, explication and explicitization.

2.2.2. An analysis of the Pragma-dialectic interpretation of argumentation as a speech act

The first, and possibly the most important, merit of Pragma-Dialectics is that it is the first argumentative theory that tries to provide a description of argumentation in term of speech acts. Van Eemeren and Grootendorst, indeed, figure out, at the beginning of the Eighties, that SAT would be able to offer the theoretical instruments to analyse argumentation, not as an autonomous inferential process, but as a concrete and context-embedded social activity. Thanks to these instruments, they lead a systematic analysis of whatever happens in a discussion: not only of the central moment of argumentation, but also of the other steps, equally strategic to the resolution of the dispute between two people. SAT, indeed, allows us to understand that a discussion is not a mere exchange of bits of information, but also of other moves decided by the interlocutors who concretely let them start, carry on, and conclude the discussion in the proper way. Just think of the role of commitment, necessary both to guarantee the passage between one and the other stage and to fulfil the correctness conditions of the illocutionary act of argumentation: only if there is a relationship based on commitment between an interlocutor and her statement, can a discussion work, i.e., lead to participants' resolving their disagreement.

But the highlight of their analysis led by means of SAT is the focus on the interactional aspects. Formulating a criticism to Searle – who they consider interested exclusively in the communicative aspects, relegating the listener to a totally passive role –, they focus on the intertwined relationship between communicative and interactionist aspects. That, in SAT terms, means a deep correlation between illocutionary and perlocutionary effects. The speech act of argumentation finds its full accomplishment if, after all illocutionary conditions are fulfilled, the listener *accepts* the standpoint initially expressed by the speaker and the argumentation on which it is grounded (perlocutionary happiness). Argumentation is a social activity, where the distributed roles played by the interlocutors are equally crucial to the achievement of the goal: to restore value for the listener means understanding the cooperative dimension of argumentation.

Nevertheless, the Pragma-dialectic account presents some unconvincing aspects, that it is worth mentioning and deepening in order to understand what an argumentative model, framed within SAT, needs in order to genuinely catch the dynamics of dialectical exchange, in particular within *philosophical dialogue*.

The first point is related to van Eemeren and Grootendorst's conception of argumentation. Both in formal logic and in Canadian *Informal Logic* tradition, the minimal unit of argumentation, that is the argument, is composed by premises and conclusion, where the latter follows from the former. This conception is commonly accepted in critical thinking and in argumentation literature, even by philosophers who do not reduce argumentation to pure arguments and in terms of premises and conclusion, like, for instance, Toulmin (1958/2003). In the Pragma-dialectic approach, instead, argumentation is a "constellation of statements" distinguished from the standpoint, that is the opinion that needs evidence. This concept would not be problematic in itself, once the reader has understood it. The problem arises when one considers the relationship between argumentation (that we could term *reasons*) and standpoint (that we could term *claim*), and, overall, between the single statements that compose argumentation. Indeed, the authors explicitly declare, when they list the difficulties that they had to overcome to describe the features of the speech acts of argumentation, that there is an inherent relationship between argumentation and standpoint, and "in no case can statements act as argumentation in isolation from a sentence which has the function of an expressed opinion" (van Eemeren & Grootendorst, 1984, p. 33). If, as they admit, the two parts are essentially tied together, how can an analysis of the speech act of argumentation disregard one of the two parts? Can we really understand the meaning and the functioning of argumentation without considering the claim that the reasons justify? Indeed, although the authors obstinately continue to consider the two parts as distinguished, they also need to examine the claim, that plays a crucial role in all the analysis both of illocutionary and perlocutionary acts, as it is demonstrated by the

presence of 'O' (expressed opinion) in the happiness condition. This distinction is unnatural and sometimes prevents the reader from a full understanding of their analysis.

Moreover, after they have underlined the problem that a compound speech act has a certain structure, i.e., a certain relationship between its components, they do not provide any description of this structure, nor of the relationship between the statements belonging to argumentation: are they converging but distinguished reasons, as in *conductive argument*?[31] Are they placed in a hierarchical relationship, as *data* and *warrant* in Toulminian terms (Toulmin, 1958/2003)? Do they compose a complete argument, with premises and conclusion, that in turn support the standpoint, as in a multi-layer argument?[32] Though the authors are not interested in these kinds of distinctions, the lack of this analysis prevents us from understanding what exactly we have to consider as 'constellation of statements', since, obviously, not every statement can belong to the same argumentation and they need to be tied in some way to avoid the problem of *underdetermination of theories by data.*[33]

An interesting proposal capable of overcoming this limit is provided by Bermejo Luque, who, in her linguistic normative model (2011), notices that the Dutch scholars erroneously consider argumentation as having the sole role of reason in the whole speech act. As well as to van Eemeren and Grootendorst, she refers to SAT in order to describe argumentation and considers it as a compound illocutionary act: namely, composed by the act of *adducing* (a reason R) and the act of *concluding* (a target-claim C). These acts count as two different illocutionary acts, that can be interpreted as composing a second-order speech act only if an addressee attributes to the speaker the performance of an implicit inference (if R then C); otherwise, they are distinguished and unrelated illocutionary acts. Therefore, the interpretation of the R/C relationship depends on the addressee's capacity to identify the second-order illocutionary act complex, playing a key role in so doing. Bermejo Luque developed the Speech-Act Schema of Bach and Harnish (1979), which consists in the presumption that, whenever a speaker performs a speech act, she is doing it with a recognizable intention – according to Grice's *principle of cooperation* (1975/1989). In argumentation, the presumption is that "the speaker, together with performing the second-order speech acts of adducing (R) and of concluding (C), is also intending to implicitly assert 'if R, then C' (argumentative presumption)" (Labinaz, 2021, p. 364). Some linguistic clues help the addressee in making this inference: epistemic qualifier ('probably', 'necessarily', etc.) and linguistic connectives ('so', 'therefore'. 'since', etc.). In this account, the illocutionary intention consists in showing that the

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[31] I will mention this reasoning type in § 3.6.2.2.
[32] Within the program *Rationale* (ter Berg, van Gelder, Patterson & Teppema, 2013), designed to develop argument mapping skills, it is an argument whose controversial premises are, in turn, supported by other premises.
[33] Cf. § 4.4.

claim is correct as it is well justified, regardless of the perlocutionary intention of convincing: thus, the two poles of the relationship R/C are inseparable.

The second problematic point that I detect in the Pragma-dialectic account is related to the previous one. The authors limit argumentation just to a specific stage of rational discussion, distinguishing it from other moves directed to the resolution of the dispute. Therefore, all the other dialectical moves, such as doubts, requests, challenges, questions, etc. are not technically part of argumentation, but of the wider framework of discussion. The point is whether it is possible, in an argumentative account that considers argumentation in its dialectical dimension, to see it as a unit separated from other moves, although they are linked together. In a concrete dialogical exchange – not in a rhetorical speech addressed to a silent audience – an argument is often formed not only by the utterances of the speaker, but also by those of the listener, that contribute to its construction and, when the process is virtuous, to its strengthening. This broader concept of argument and argumentation is based on a traditional distinction, in argumentation theory terms, drawn by O'Keefe (1977), who noticed that the English word *argument* has two meanings: the sort of argument that one builds (*argument1*) and the sort of argument that involves two or more people (*argument2*), realized by their contribution, as in the case of a dialogue where a question posed by Speaker2 challenges Speaker1 to give reasons for her first assertion. The narrow meaning of argumentation used by van Eemeren and Grootendorst takes into account only some statements – that, as we have just seen, are undefined within an undetermined set – uttered by only one speaker: this is not a very realistic picture considering the conversational dimension. The point is, I claim, that argumentation is not part of a discussion, but rather it is the discussion itself: even in cases where Speaker2's speech acts do not constitute a single argument – intended as a minimal reasoning *product* –, nevertheless, they play an argumentative (dialectical) role: a definition leads the interlocutors more easily to finding an agreement (or a disagreement), a request pushes Speaker1 to find a premise more readily, a challenge leads Speaker1 to renounce some or all their statements or to find evidence, etc.

Fortunately, argumentation literature has recently provided interesting accounts that consider arguments in the broader meaning, as also including moves conducted by Speaker2. I will report two of these (Budzynska and Reed's model and Labinaz' proposal) when I will try to define the essential features of the speech act of 'arguing' (§ 2.4.4). Here, I just report the main coordinates of Jackson and Jacob's conversational approach (1981; 1982; 1989), one of the first attempt to consider the speech act of argumentation as a cooperative process that includes both the speaker's and the listeners' moves. In their descriptive model, they distinguish between three different levels of analysis: structural, functional, and rational. Focusing only on the first one, that wants to

illustrate the structural organization of the discourse, argumentation is composed of a basic pattern termed *adjacency pair*: "two turns [performed] by different speakers that together form a pair, consisting of a first and a second pair part, such as 'question-answer', or 'request-grant/refusal'" (Snoeck Henkemns, 2014, p. 49). Argumentation is, strictly speaking, an expansion of this pattern, as it can be recurrent within the same discussion. The point is that it would not work if an opening move were not connected to a responding move, uttered by different people. Indeed, if a request is followed by a refusal, the one who refuses must provide a reason for it. As in Pragma-Dialectics, this account sees argumentation as the best means "whereby two or more individuals publicly arrive at agreement" (Jacobs & Jackson, 1982, p. 215): all the moves that allow the interlocutors to reach the solution of the dispute are seen as a *preferred* moves for a problem-solving task, while those that prevent this goal are regarded as *dispreferred.* In this case, they need to be justified.

Jacobs and Jackson share with van Eemeren and Grootendorst the same concept of argumentation as a means to resolve disagreements. Indeed, the four authors attempted to integrate their approaches, respectively descriptive and normative, within a single account (van Eemeren, Grootendorst, Jackson & Jacobs, 1993). In this work, the problem of the relationship between the individual statements composing an argumentation seems to find an adequate description in dialectical reconstructive schemata, using techniques of *argument mapping.*[34] But it is unexplainable that, though van Eemeren and Grootendorst integrate their approach with one that includes both the moves of speaker and listener, the conception of argumentation remains limited to only the statements uttered by one interlocutor.

The third criticism to the Pragma-dialectic theory is addressed to the prominent role played by *assertives*. Both the standpoint and the argumentation have an *assertive* illocutionary force, though van Eemeren and Grootendorst broaden Searle's category to also include normative sentences. Nonetheless, as we will see in the next section, many other kinds of speech acts can form an argument, and the proposal to paraphrase them as *assertives*, considered the real force under the linguistic surface, shows some limits. If we take the following instance:

(1)   I need money to pay the rent.
        If you lend me the money, then <u>I promise you that</u> I will return it as soon as possible.

        Therefore, please, *lend me the money!*[35]

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[34] *Argument mapping* is a method largely suggested, for critical thinking educational aims, to conduct a proper analysis and evaluation of arguments. Significant tools are provided both by scholars belonging to Informal Logic tradition (cf. Johnson & Blair, 1977; Kingsbury, 2002; Davies at al., 2021) and by the Melbourne Critical Thinking Project (cf. ter Berg at al., 2013).

[35] From now on, in the examples, when a premise or the conclusion has an illocutionary force different from the *assertive* one, I will conventionally mark it in italics.

the first premise is evidently an *assertive*, but the second one is a conditional sentence consisting, in the second part, of a *commissive*, by means of which the speaker committees herself to a certain future action. The promise uttered in the premise works as a form of guarantee for the conclusion, in this case to convince the listener to do something (*directive*). So, at least *directives* and *commissives* can compose, in ordinary language, an argument. Look now at the next instance:

(2)   *I'm really sad* about your leaving

       Therefore, *you mustn't leave!*

In this case, the only explicit premise is an *expressive*, through the speaker tries to justify the request (or order?) performed in the conclusion, that is a *directive*. Thus, although van Eemeren and Grootendorst exclude the performance of *expressives* both from argumentation and from other stages of rational discussion, it is clearly possible to find them even as components of an argument. Look now at the last instance:

(3)   The King said: "*I officially abolish* monarchy in this Country".
       A few months after the end of the monarchy, there were free elections.

       Therefore, the Country became a Republic.

In this case, more complex of (1) and (2), someone like a historian reports the direct discourse of the King, that came to us via a reliable historical source, which includes the exact words, officially uttered, whereby the King actually ends the monarchy. It is a *declarative*, that, together with other information brought by the second premise, an *assertive*, provides evidence for the conclusion, another *assertive*. Therefore, although van Eemeren and Grootendorst consider them *declarative*, for they are sentence uttered from power or authority, inconsistent with the nature itself of argumentation, it is possible that cases in which *declaratives* are components of an argument occur.

Certainly, they may object that all these speech acts could easily be reported, through a proper analysis, to express their hidden nature. The premise of (1) would thus be turned into 'S (speaker) needs the money to pay the rent', while the conclusion would be turned into 'S asks L (listener) to lend her the money'. In (2), the premise would turn into 'S is sad about the leaving of L' and the conclusion into 'S asks L to not leave'. Finally, in (3), the first premise would become 'The king, through his public declaration, abolished monarchy'. We could bring in many other examples and we would find that it is possible to turn every illocutionary force into an *assertive*. The reason is simple and consistent with SAT: every illocutionary act has a locutionary dimension, that consists in its propositional content (its semantic level). By translating every speech act into an *assertive*, we lay bare the abstract structure of the argument (its syntax). It can be a useful procedure, but if we

really considered the *assertives* derived from this analysis as the real nature of the speech acts composing the arguments, we would completely lose sight of the pragmatic dimension of language, betraying the revolutionary core of SAT and, simultaneously, the idea of argumentation intended by Pragma-Dialectics as a speech act embedded in a linguistic context. If we want to grasp the intimate pragmatic nature of speech acts, we have to regard them exactly as they are performed, preserving the 1st person and the present tense, that, as Austin claims (Austin, 1962, pp. 50-51) – and as we will see later –, are two grammatical irreplaceable features of speech acts. If we take, for instance, (2), to translate the *expressive* premise ('I'm really sad about your leaving') and the *directive* conclusion ('You mustn't leave!') into *assertives* would mean losing the original illocutionary force, that *literally* is the only one that could convince the listener not to leave: by means of the performance of these speech acts, she can see the actual sadness expressed in the premise and the actual desperate request expressed in the conclusion. That is what Austin means by introducing the term *force*. Losing the pragmatic dimension of argumentation means losing all its communicative power.

Therefore, the reduction proposed by van Eemeren and Grootendorst of every uttered speech act to *assertives* alone is inconsistent both with the core of SAT and with their own attempt to interpret argumentation and other parts of a rational discussion as speech acts. After all, the more recent theories that aim to achieve the same outcome, such as those proposed by Bermejo Luque and Labinaz, include other illocutionary forces as component of argumentation.

The last limit that I notice in Pragma-Dialectics is the tendency to reduce every other kind of argumentative activity only to the dialectical one, considered by them as the attempt to resolve a disagreement. From this perspective, the only perlocutionary effect of the illocutionary act of argumentation is *convincing*, the aim of which is to obtain the desired externalized effect of acceptance, that is sufficient to achieve the main goal. But that is only one of the possible instances of argumentation, not necessarily the most frequently occurring in personal and social life. As I mentioned above, Walton and Krabbe (1995) have the merit to understand, describe and normalize different types of argumentations: in inquiry, for instance, the goal is not to convince an interlocutor, i.e., to obtain her acceptance, but rather to rationally justify a theory; also in decision-making, as we will see, the perlocutionary act is not to convince someone else, but rather to subjectively reach the best decision based on a cost-benefit analysis; etc. This means that the relationship between the illocutionary act of argumentation and the perlocutionary act of convincing is not so obvious, but depends on the type of argumentation considered. Van Eemeren and Grootendorst consider only one type, without seeing that, even in a rational discussion aimed at reaching an agreement, *dialectical shifts* can occur – as Walton and Krabbe have theorized (1995,

pp. 100-108) – from a type of argumentation, with its own goal, to another type, with another goal. Within a rational discussion, indeed, moments devoted to inquiry or negotiation or deliberation are frequent, as Pragma-dialecticians admit at some stages: if they exclude these conversational exchanges from the category of argumentation, then they do not have the key to understand their occurrences; otherwise, if they reduce these conversational exchanges to the perlocutionary effect of convincing, they lose sight of crucial differences. In any case, their analysis of the perlocutionary effect is inadequate to understand the effects of argumentation in conversational contexts, and, thus, the speech act of argumentation. Given these premises, one of the tasks that I will try to achieve is to define both the illocutionary and the perlocutionary act of argumentation performed within philosophical dialogue.

2.3. Possible distinctions between different kinds of sentences and arguments

The long-standing issue of taxonomy of sentences is overly complex and the specialistic literature about it has employed many branches of philosophy: epistemology, metaethics, philosophy of language, logic, philosophy of science and argumentation theory. To reconstruct all the debate goes beyond the limits of this dissertation, so I will just select some notions and distinctions belonging to it, useful for my aims. The helpfulness of the main distinction that I will propose, the one between *uncontroversial* and *controversial sentences* (or speech acts), is widely confirmed – as we shall see – by authors of critical thinking handbooks. But, before presenting it, a general and classical preliminary distinction should be made: the one between *theoretical* and *practical arguments*.

The shift from the level of sentences to the level of arguments, and vice-versa, might seem unjustified. But, as arguments are a structured composition of two or more sentences, the analysis of the latter is essential in order to interpret the former. Thus, if I want to consider argumentation from a different perspective, I need to introduce new categories at a sentence level or, at least, to reinterpret the traditional ones.

2.3.1. Theoretical / practical arguments

Here, I will consider a distinction between different types of reasoning – *theoretical* and *practical* – widely accepted in literature. To understand the salient features of the second type of reasoning it is helpful to put it in contrast with the first one. Look at a description of *theoretical reasoning* provided by the Standford Encyclopaedia of Philosophy:

> The latter standpoint [theoretical reason] is occupied when we engage in reasoning that is directed at the resolution of questions that are in some sense theoretical rather than practical; but how are we to understand this opposition between the theoretical and the practical? One possibility is to understand

theoretical reflection as reasoning about questions of explanation and prediction. Looking backward to events that have already taken place, it asks why they have occurred; looking forward, it attempts to determine what is going to happen in the future. In these ways, theoretical reflection is concerned with matters of fact and their explanation. Furthermore it treats these issues in impersonal terms that are accessible (in principle) to anyone. Theoretical reasoning, understood along these lines, finds paradigmatic expression in the natural and social sciences. (Wallace, 2000)

In other words, we are engaged in theoretical reasoning when we think about states of affairs or events, external to our possibilities of choosing, that need to be judged and understood, as – but not exclusively – in case of past or future phenomena. Thus, theoretical reasonings are worked out when we need to formulate a judgement, that is to say a belief justified by reasons. These reasonings are typically activated by questions such as 'What is true?', 'What is it right to do?', 'What is beauty?', 'What is possible?', 'Why does it happen?', 'How does it happen?', etc.

Completely different are the questions and the personal involvement in *practical reasonings*:

Practical reason, by contrast, takes a distinctively normative question as its starting point. It typically asks, of a set of alternatives for action none of which has yet been performed, what one ought to do, or what it would be best to do. It is thus concerned not with matters of fact and their explanation, but with matters of value, of what it would be desirable to do. In practical reasoning agents attempt to assess and weigh their reasons for action, the considerations that speak for and against alternative courses of action that are open to them. Moreover they do this from a distinctively first-personal point of view, one that is defined in terms of a practical predicament in which they find themselves (either individually or collectively – people sometimes reason jointly about what they should do together). (Wallace, 2000)

These kinds of reasoning have a cost-benefit analysis as premises and a decision as conclusion. They are internal to our decision-making possibilities and are engaged, consequently, in the 1st person and in the present. It is worth solving an ambiguity that sometimes comes when we look at practical reasoning. If, for instance, we are debating normative issues, such as whether or not the Government should legalize euthanasia, an action is of course at stake, i.e., legalizing euthanasia or not; this hypothetical decision, however, is not made by us, but by the Government. We are simply discussing whether it is right or wrong to legalize euthanasia, hence, it is about a theoretical reasoning. Otherwise, the act of deliberating within the component of the Government involves deliberative reasoning. Walton clarifies this distinction:

However, it needs to be noticed in each instance [normative questions mentioned above in the paper] that the debaters discussing the issue are not in a position to make the decision whether to move ahead with the course of action or not, or to choose which action of the opposed pair they will carry out. (Walton, 2019, p. 215)

To sum up, what matters in deliberative reasoning is the involvement of the 1st person.

Now, since the focus of inquiry has its centre of gravity in argumentation theory – the communicative display of reasoning – and not on reasoning theory, let us consider the dimension of arguments. Although the perspective is different, the substance does not change, because argument and reasoning have the same logical structure and the same semantics.[36] What really changes is the pragmatic dimension, not central in the analysis of reasoning, but absolutely decisive within the argumentation theory. It is precisely for this reason, i.e., to catch the pragmatic dimension of argumentation, not by chance, that the model that I propose needs the framework of SAT and considers the act of 'arguing' in its concrete dimension, not just as a logical product.

First, I will provide a definition of the two kinds of arguments, based on the description of the relative kinds of reasoning; second, I will analyse these arguments in the light of SAT:

- *Theoretical Argument* (TA)[37] serves to decide on philosophical, scientific, moral, etc. beliefs. This argument is uttered in the 3rd person, because it formulates judgements (conclusions) on general problems that do not directly involve a subject and her choices. For instance:

  (4)   Nature is structured by a deterministic chain of events and phenomena.
         Human beings are part of nature.

         Therefore, all the events related to human beings are in a deterministic chain.

- *Practical Argument* (PA) are employed in decision-making tasks, i.e., whenever a person or a group of people is engaged in making a decision (conclusion) on the basis of reasons. This kind of argument is uttered in the 1st person (singular, in case of individual decisions, or plural, in case of collective decisions):

  (5)   The Italian economic situation is dangerous.
         Waiting for elections means doing nothing for months to solve the serious problems of this situation.

         Therefore, we [parliamentarians] will opt for a technical government right now.

Having outlined this distinction, how can one use SAT to analyse these two different kinds of argument? Assuming that the speech act is the minimal unit of communication, as Searle claims

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[36] This is a view shared by the majority of scholars of both reasoning and argumentation, as confirmed by Dutilh Novaes (2022): "The study of arguments and argumentation is also closely connected to the study of *reasoning*, understood as the process of reaching conclusions on the basis of careful, reflective consideration of the available information, i.e., by an examination of *reasons*. According to a widespread view, reasoning and argumentation are related (as both concern reasons) but fundamentally different phenomena: reasoning would belong to the mental realm of thinking – an individual inferring new information from the available information by means of careful consideration of reasons – whereas argumentation would belong to the public realm of the *exchange* of reasons, expressed in language or other symbolic media and intended for an audience."

[37] At the end of the chapter, the reader can find an appendix with all the acronyms that I will employ here.

(1969), it is fairly clear that every sentence that composes an argument is a different speech act. In this section, I will analyse the illocutionary force at the level of sentence, that is at elementary first-order level, whereas in § 2.4 I will analyse arguments as *higher-textual level* speech acts, as outcomes of a composition of different illocutionary acts.

Consistently with the Western philosophical tradition, for the centrality that the notion of assertion has occupied from Aristotle onwards in the analysis of discourse[38], we would tend to interpret the elementary speech acts composing an argument as *assertives*, according to van Eemeren and Grootendorst. All the sentences of (4) and at least the premisses of (5) are undoubtedly *assertives*. But, as we saw in (1), (2), and (3), all types of illocutionary acts can be uttered in the elementary sentences of an argument. If it is intuitively easy to grasp this 'illocutionary pluralism' in the speech acts that form a PA, probably it is not so intuitive to find it in TA. Even if, also in this case, within the context of dialogue, illocutionary pluralism is more frequent than it appears.

Let us start from PA. We can legitimately consider practical argumentation as included in an Action Theory, because it used to have, as an output, an action deliberation. The verbs that we utilize to make decisions are often different from *assertives*. That is one typical situation in which – if we want to use a Roberts' expression (Roberts, 2018, p. 318) – *world fits the word*, and, if we want to determine and transform the course of events, then we obviously need performative verbs that express an action. This aspect is particularly evident in those circumstances where the argument is uttered in a dialogical exchange:

(6)   If I get a high grade in the test, I have more possibilities to be accepted by the university.
       My being accepted means a lot to you, Dad.

       Therefore, *I promise you to study for the test*.

(7)   Yesterday I blamed you because I was furious.
       But it's not your fault if we lost the match.

       (Therefore) *I'm so sorry!*

As we can see thanks to (6) and (7), PA can consist of a variety of illocutionary acts. In the first case, the premises are *assertives*, because they can be evaluated in terms of truth or falsity, but in

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[38] Though this feature of Western tradition finds many confirmations, both in logic and in philosophy of language, there has been no lack of attempts of including other types of sentences in the analysis of discourse. It is worth mentioning the proposal of *inquisitive semantics* (Ciardelli, Groenendijk & Roelofsen, 2019), designed to find rules for exchanging information rather than just providing information, and, consequently, to obtain a unified analysis of statements and questions.

the conclusion the speaker utters a decision, in the form of a promise (*commissive*). In the second case, the premises are still *assertives*, but the conclusion is an explicit *expressive* illocutionary act, because the speaker utters an apology that corresponds to a decision. If we used Roberts' taxonomy, instead, 'I promise you to study for the test' and 'I'm so sorry!' would be both included in the *direction* move. It may surprise that both *commissives* and *expressives*, just like *directives*, *declaratives*, are all comprised in this large category, but if we come back to the essential distinction between speech acts which display *word to world fit* and those which display *world to word fit*, it is easy to see that both the conclusions of (6) and (7) do not describe states of affair, but have the intention of transforming the state of mind of the interlocutor.

We have already observed that (1), which is a PA because the conclusion is a decision (or, rather, the outcome of a decision) made by the speaker, is composed by a *commissive* in the second premise and by a *directive* in the conclusion. This is another example that demonstrates how in PA there is a variety of possible combinations of illocutionary acts. Here below is another instance:

(8)   A powerful State has invaded the territory of one of our allies
        We have to help our allies.

        Therefore, *we (officially) declare war on the invader*.

In (8), the speaker declares something (*declarative*), because of the power that she holds and of the social conventions that allow listeners to recognize that a specific formula entails certain consequences. This uttered declaration is grounded on the evidence of a fact and of a general rule[39], both uttered by means of *assertives*.

Moving on to TA now, we can find some non-*assertive* speech acts, that, in dialogical contexts, constitute an argument that can, however, prove correct. For the moment, we consider just *explicit* speech acts, which display an explicit performative verb:

(9)   A*: I ask you whether* you believe in relativism
        B: *Yes, I do.*

        A: Therefore, even your belief about relativism is relative as well.

In (9), belonging to the category of *Argument2*, SpeakerA does not claim her own philosophical thesis, but merely aims to reject the position of SpeakerB by showing the inconsistency of her beliefs. In the first premise, SpeakerA addresses to SpeakerB a question (*directive*). The following affirmative answer, together with the question, constitutes an implicit sentence:

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[39] As we will see in Chapter IV, according to Toulmin's model (Toulmin, 1958/2003), a fact corresponds to the category of *data* and a general rule to the one of *warrant*.

(9a)   You believe in relativism.

(9a) is not explicitly uttered, but it is easily inferred by the interlocutors in view of the dialogical context. Once again, if we considered the two premises of (9) as (9a) together, we would lose the illocutionary force of the *directive*, and all the pragmatic factors (e.g., irony) that made SpeakerA opt for a question rather than for an assertion.

Look at the next instance:

(10)   A: You are an expert of theatre.
        A: *How do you* interpret the main character of this piece*?*
        B: *I interpret* him as a symbol of Death.

        A: Ok, so the piece definitely talks about death.

In (10), an argument from authority, there is still a portion of argumentative dialogue composed by premises uttered by two speakers. The first premise is an *assertive*; the second one is a *directive*, performed in the form of a direct question instead of the performative verb 'I ask you whether'; in the third one the *declarative* verb 'I interpret' allows SpeakerB to express an intentional act, *interpreting*, useful to argue a certain thesis about the theatrical piece. The speaker could have simply said 'The main character is a symbol of Death' (*assertive*), but in the conversational context she prefers to underline her intentional act, that, together with the *assertive* that states her authority (the second premise), warrants the acceptability of the conclusion, another *assertive.*

When we analyse TAs that express performative verbs, it is not difficult to interpret the illocutionary force of their sentences. But when we try to analyse TAs that exhibit only the illocutionary force of *assertives*, things become more complex, although even more interesting, because what looks like an assertion often hides a deeper intention. Restricting our linguistic investigation to philosophical arguments (that, as we will verify, in general belong to the class of TA), one can observe that we often ask our interlocutor to suspend judgement every time we try to argue through hypothetical assumptions, as is the case in thought experiments:

(11)   *Assume that* two twins who grow in the same identical human environment and
        have the same identical experience may react in different ways to stimuli.
        What is true for a relevant instance is true for all the class of instances.

        Therefore, it means that human beings are not tabula rasa at the start.

The antecedent of the premise of argument (11) is not an *assertive*, because it does not describe the world as it is, but it is rather a request, addressed to the interlocutor, to believe, for a moment, the possible state of affair expressed by the locutionary act (two twins grow in the same identical

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human environment and have the same identical experience) is true. If this is true, we actually have a *directive* in the premise, not an *assertive*:

> (11a)   *I ask you to believe, for a moment, that* two twins grow in the same identical human environment and have the same identical experience.
> They may react in different ways to stimuli.
> ---
> Therefore, it means that human beings are not tabula rasa at the start.

This analysis tool can be applied to all those cases where a speaker asks her interlocutor to assume a belief in order to proceed in the reasoning and to reach the conclusion that she wants to claim. The assumption, as we know, is an essential instrument of theoretical inquiry – both in human and in scientific domains –, and to make it explicit is a good and correct practice to avoid hidden presuppositions that can surreptitiously orient all the reasoning. The problem is that, especially in certain fields such as philosophical inquiry, the status of many sentences is uncertain, and when they are uttered, they are presented as granted, though they are not actually acceptable: this is usually the case with statements grounded on theories or, at least, on other statements. It means that, when we utter this kind of speech act, we implicitly ask the interlocutor to assume that the propositional content is true, even if we have no factual evidence. Consider the next philosophical argument:

> (12)   Human beings are good in freedom and bad in captivity.
> To be good is a necessary condition for a happy society.
> --
> Therefore, freedom is the best condition for a happy society.

To understand the deep intention of the speaker, of course, we need a conversational context. In certain contexts, for instance, the two premises could be *assertives* and, as such, they must be interpreted. But in the context of research, as it should be a philosophical debate, although the two premises can be interpreted as genuine *assertives*, they can also be interpreted as assumptions that the interlocutor is asked to accept. In this case, (12) can be transformed as follow:

(12a)   *I ask you, for the moment, to believe that* human beings are good in freedom and bad in captivity.
        I ask you, for the moment, to believe that to be good is a necessary condition for a happy society.

        Therefore, freedom is the best condition for a happy society.

If the illocutionary act of the conclusion is an *assertive*, the premises would become *directives*. If we used Roberts' conversational framework, they would be part of the category of *suggestions*, since these speech acts have the intention to make the world fit the words, in this case to modify the state of mind of the interlocutor. Though the propositional content of the premises of (12) and of (12a) is the same, the illocutionary act changes and, we can conclude, different illocutionary forces involved in an argument produce different effects on its use.

This interpretation of the illocutionary force in TAs leads us to the main distinction that I will try to outline in the next paragraph, being aware that I will address a thorny and long-standing issue: the distinction between *descriptive* and *prescriptive* sentences.

2.3.2. *Uncontroversial / controversial*: a heuristic distinction for the analysis of arguments.

2.3.2.1. *The dichotomy fact / value*

The dichotomy *fact/value*, originally presented in a famous passage of the *Treatise of Human Nature* (T 3.1.1.27), was inherited, through Kant's mediation, by the Vienna Circle and taken on by some of the protagonists of the epistemological and scientific philosophical debate in the twentieth century. What has become known as 'Hume's Law' pointed for the first time to the *naturalistic fallacy*, that consists of the confusion between ontological level (*what is*) and evaluative or prescriptive level (*what should be*), in order to argue that from the description of nature we cannot derive any prescription. This insight underlines the irreducibility of the evaluative level to nature, and vice versa. Many influential philosophers, especially those belonging to logical empiricism, emphasized this dichotomy: indeed, they claimed that in any set of scientific statements it is possible to distinguish, through their criterion of *empirical significance*, between those that have a factual content and those that have no factual one. This position became a sort of dogma of logical empiricism, according to which facts are objective and values are subjective, and the two dimensions can never meet. This principle, which was at the time widely shared in many branches of contemporary philosophy – from philosophy of science to metaethics –, became one of the central theses, in ethics, of *non-objectivism* (values and norms can be only subjective) and of *non-*

cognitivism (it is not possible to objectively recognize values as existing independently of the subject who observes them).[40]

Nevertheless, the principle has been questioned by Hilary Putnam in a famous paper (Putnam, 1992), that soon became a milestone in the metaethical and epistemological debate. According to Putnam, it is impossible and damaging to draw a demarcation line between the two poles of the supposed dichotomy, because factual assertions – and the practices used by scientific inquiry to decide what is a fact and what is a value – always need to presuppose values. The facts do not show themselves to the glance of the observer as immediate and raw, but they are always mediated by theories that we previously assumed.[41] Hence, factual judgments, even though entirely objective – i.e., the *observation sentences* – for the scientific naturalism of Quine (1975), are inextricably permeated by values. The thesis, borrowed from the pragmatistic tradition, maintains the interdependency of values and facts: knowledge of values presupposes that of facts and knowledge of facts presupposes that of values.

Considering Putnam's position, that I find fully acceptable and I do not want to question, the distinction that I will propose encounters obvious difficulties. But, if we try to get away from this theoretical debate and to enter a practical dimension, as in case of a philosophical dialogical practices, then every participant can spot a clear difference if they are asked to discuss, for instance, the next two statements:

(13)   The Earth is ellipsoidal.

(14)   Justice is giving everyone their due.

Indeed, if we asked them what the difference is between (13) and (14), they would probably answer that (13) is certain and objective, while (14) is uncertain and subjective.

How can this contradiction be explained? Why does a distinction that met strong challenges in the theoretical debate still work in daily social life? It is not easy to answer such a question. Probably, we would need the help of social epistemology to figure out the phenomenon, but it is beyond the purpose of this dissertation. We can just consider this case as one among several examples of issues that are interpreted differently by *common sense*[42] and by specialistic inquiry, whether it is about problems addressed in scientific or in philosophical domains. Considering the practical aim of the argumentative model that I am developing, I will use the dichotomy facts/values

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[40] For an overview on this philosophical position, cf. van Roojen (2018).

[41] This thesis is taken to the extreme by Feyerabend (1981), who claims the totally theoretical character of factual assertions.

[42] The notion of *common sense* that I employ here is that of a universal and natural ability to judge before arguing, which most people are expected to do. For a similar definition, cf. van Holthoorn & Olson (1987, p. 9): "common sense consists of knowledge, judgement, and taste which is more or less universal and which is held more or less without reflection or argument."

with a specific heuristic function, that is its usability for educational purposes. I do not want to commit myself to any theoretical position within the debate, trying to argue some metaphysical differences between these two categories of sentences. Adopting this taxonomy in the context of philosophical practices, when dialogue moves between two different levels of truth, or, in other words, cannot be evaluated by means of the same criteria, we will have an analytical tool at our disposal to distinguish among them: I mean the transformation of *assertives* into *directive* 'requests to assume'. Therefore, I propose the following heuristic distinction between theoretical sentences:

- *Uncontroversial sentences* (US), the propositional content of which can be *easily* and *commonsensically* judged as true or *easily* and *commonsensically* judged as false, since it is considered by the speakers as grounded on strong evidence (factual, scientific, mathematical, etc.);

- *Controversial sentences* (CS), the propositional content of which can neither be *easily* and *commonsensically* judged as true nor *easily* and *commonsensically* judged as false, since it is not considered by the speakers as grounded on strong evidence (such as some ontological statements) or their true/false criterion is unsuitable (such as normative statements).

Given these definitions, we can consider (13) as US and (14) as CS, as the first is a pure description of an object accepted by almost everyone and that rests on strong evidence, whereas the second is a normative sentence with a political-philosophical content. But it is important to underline that the category of CS is very heterogenous, and among its instances we may outline another distinction, mentioned in the definition: normative statements (moral, political, religious, etc. judgments; subjective evaluations, aesthetic interpretation, etc.), that are traditionally seen as lacking truth-aptness, but that are considered as acceptable or inacceptable; metaphysical, ontological, psychological, etc. statements that could be assessed as true or false, but it is difficult – or impossible for available knowledge – to establish a definitive judgement about their truth value (e.g., 'God exists' or 'The identity of the objects relies on their shape'), since external evidence is not always available. The common feature shared by normative and ontological etc. sentences is, quite simply, that they can both be chosen by the interlocutor as standpoint on which it is worth discussing, precisely because it is not obvious that there is agreement about them.

A crucial feature of CSs, indeed, beyond the subcategories to which they belong, is precisely that they cannot commonly be considered certain. Sometimes, when the interlocutors agree about a CS, but disagree about their *strength*[43], this degree becomes the issue at stake. In this respect, CS often include (explicitly or implicitly) a qualifier (undoubtedly, necessarily, likely, possibly, etc.)

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[43] The *strength* (of a statement or an argument) indicates its degree of certainty. The notion of strength in logic and argumentation derives from a line that starts from Frege and, passing throughout Toulmin, reaches Austin and, in general, the Speech Act Theory. Argumentative strength indicates the degree of necessity that - from premises - is transmitted to the conclusion (impossibility, possibility, probability, plausibility, … necessity); the strength of a single sentence, instead, indicates the degree of necessity of the sentence assessable in itself.

intended to express their *strength*, that is to say linguistic cues useful to recognize them.[44] To accept this dichotomy, we have to guarantee a crucial epistemological condition: the interlocutors need to be *epistemic peers*, this means that they share cultural background, knowledge, experiences, and they must have "been exposed to the same evidence and have worked on it comparably long, carefully, etc." (Frances, 2010, p. 424).[45] *Epistemic parity* is a necessary condition similar to a general norm that guarantees the good functioning of any dialogue, because it allows both interlocutors to roughly consider the same bundle of statements as *uncontroversial* or *controversial*. Indeed, one of the reasons why often a real dialectical discussion does not take place is the refusal by one of the interlocutors to consider CS as US, or vice versa. This phenomenon can depend on epistemic ignorance, ideological beliefs, different cultural background, etc., but, in any case, it is about occurrences of epistemic imparity. This condition is almost satisfied in contexts, such as a classroom, where an expert leads a session of critical discussion. If it is not fulfilled, it ought to become the prominent goal to achieve by means of *philosophical dialogue* and other complementary activities aimed to provide to every student a lowest common epistemic background, at least with regard to the matters that will be dealt with.[46]

What should be clear, by now, is that in any case it is impossible to derive the category (US/CS) just from the propositional content of the sentence, but we need to refer it to the *epistemic context*, since a switch of factors determining the contexts (who is speaking, who is listening, when, where, etc.) means different categorical interpretations of the same sentence. Also, the same subject can interpret the same sentence differently in different moments of her life. To summarize, we cannot find distinctions starting from semantics, but there is a whole *epistemic history* that shows us all these contextual factors and helps those who analyse the sentence to determine its belonging to one or the other category. Once again, I am referring to the pragmatic dimension of language, that, after this digression on the semantic aspects of a statements, brings us back to SAT, a framework with which the US/CS distinction is perfectly consistent, since the sentences are not observed from an external perspective, but are considered as speech acts performed by a subject in a given context. First, however, I will provide an overview on this distinction in critical thinking literature.

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[44] As we will see in Chapter IV, in Toulmin's model (1958/2003) the notion of qualifier (Q) has the specific function to define the degree of necessity of the claim (C).

[45] The notion of *epistemic peers*, appeared for the first time in the philosophy of religion debate, in the following years became an important issue of epistemology. The notion has a close tie with that of *Common Ground* (Stalnaker, 2002; Green, 2017). For an overview of recent debates, cf. Feldman & Warfield (2010).

[46] I am perfectly aware that *epistemic parity* should be the main goal of education *tout court*, not only of *philosophical dialogue*. But, while for the former it is a goal, for the latter it is a condition, that needs to be fulfilled to guarantee its functioning. A dialogue between people with unequal background does not work, not because it is uncapable to delve into the matter, but because the conditions of dialogue itself are not met.

2.3.2.2. The uncontroversial / controversial distinction in critical thinking literature

This distinction is commonly used in critical thinking handbooks. A brief overview of some of these texts, belonging both to Italian and Anglo-American literature, can be helpful to understand how it is crucial, for every scholar that aims to teach reasoning and argumentation topics, to distinguish statements evaluable by means of different criteria.

Piro (2016, pp. 33-35), after having outlined a difference that reflects Searle's taxonomy, examines in more detail the assertions (that he terms *thetic sentences*), dividing them further into three categories: *declaratives*, *prescriptives* and *evaluatives*. A *declarative*, in line with the tradition, accounts for a reality independently of us, and, as such, truth-apt (i.e., '2+2=4'; 'Lead has a specific weight higher than iron'; etc.). Piro does not clarify if these sentences are *uncontroversial* or *controversial*, he just provides examples that I would classify as *uncontroversial*, so one may conclude that his notion of *declarative* corresponds to my notion of *uncontroversial*. This is confirmed by the second category, *prescriptives*, that reports rules to follow in actions (i.e., 'It is good to walk after dinner'). In these sentences one cannot establish their truth value, because they are not truth-apt, but we can only discuss about their acceptability. It is interesting that Piro underlines that *prescriptives* can be considered as *non-thetic* utterances disguised as *thetic* utterances, such as orders or imperatives ('Take a walk after dinner!'). This analysis – consisting in transforming an *assertive* speech act into another one, the opposite paraphrase proposed by van Eemeren and Grootendorst – resembles my proposal to analyse philosophical theoretical sentences (§ 2.3.1). Finally, *evaluatives* express our feelings about things and events ('Holland is wonderful!'; 'Crocodile meat is disgusting'; etc.) and, just like *prescriptives*, raise agreement or disagreement. Piro's perspective becomes clear when, after this division, he maintains Searle's distinction – the same quoted by Roberts – between sentences that are adjustments of the mind to the world (*declaratives*) and sentences that are changes that our mind would imprint to the world (*prescriptives*).

The theoretical proposal of D'Agostini is different (2010, pp. 85-88), since she observes sentences from the perspective of *kind of truth* to which the speaker commits. The first category of sentence commits to a contingent truth, in the sense that its truth relies on the context ('It rains'; 'Today, 10th may 2008, in Turin, in Cavour Street 14, it rains').[47] In these sentences one can say whether their content is true or false. The second category is that of true or false sentences in general, regardless of their context ('Cows are ruminants'; 'Napoleon was Emperor of Japan'; etc.). The third category is that of sentences logically true (tautologies, such as 'The moon shines or does not shine') and logically false (contradictions, such as 'The moon shines and does not shine'). The

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[47] It is worth pointing out that some indexical sentences, as in the examples provided by D'Agostini, can express necessary propositions (e.g., 'This number is even').

most interesting category, for us, is the last one, which includes all the sentences that cannot be included in the other families ('Women are good cooks'; 'Italian people are creative'; 'Killing is always wrong'; 'Justice must be based on truth'). These sentences do not have specific and sharp properties[48], except that of being questionable. D'Agostini names the truth of this kind of sentences *controversial*, the notion that I use in my main distinction. She adds that argumentation usually has to deal with controversial sentences, admitting that it would be ridiculous to argue about the truth of sentences such as 'Cats are mammals', this being a statement grounded on ontological differences between natural species.

Fischer (2011, pp. 86-88), speaking about the claims uttered to discuss a problem, distinguishes between sentences that present facts, evidence or data, those that express value judgments, definitions, causal explanations and, finally, suggestions. Leaving aside the last three categories, it should be noted that the first distinction reflects exactly the one between facts and values. The author, committing himself to an alethic pluralism view, empathizes that such different kinds of claims need to be evaluated in different ways: factual claims need to be judged in terms of correspondence with the truth, value claims in terms of their consequences and other values – and definitions - in terms of accuracy.

I conclude this overview with the handbook written by Sinnott-Armstrong (2018, pp. 18-20). Starting with the issue of increased polarization in the American public debate, he notices that this phenomenon is found not only in respect of political values and norms, but even in factual matters (i.e., the issue of climate change), highlighting the difference between these two dimensions of beliefs. A difference that, evidently, is reflected in the statements that express these facts and values. He claims, nevertheless, an intrinsic epistemological connection between facts and values, but adding a different argument from Putnam:

> Facts and values are connected, of course. […] When people do not agree about crucial facts, they are unlikely to agree about what to do in face of the facts. (2018, p. 19)

The author claims that there is a relationship of dependence between values on facts, that have a logical and ontological priority over values: before discussing what is right to do, for instance, about climate change, we need to recognize this phenomenon as a fact.

2.3.2.3. *Uncontroversial and controversial speech acts: a new basic taxonomy*

If we consider US and CS as different illocutionary acts – as I will explicitly do above –, we can overcome the semantic and metaphysical obstacles raised by Putnam, since we consider the pragmatic dimension of language, where factors such as illocutionary aspect, the role of the speaker

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[48] This set of sentences actually seems a mixed cluster that contains both vague utterances (generalizations which express prejudices) and utterances with a normative vocabulary.

and of the listener, the epistemic relation between them, etc. determine the deep meaning of a speech act. It is perhaps not a coincidence that Austin himself proposes an illocutionary force that fits almost perfectly the CS category: the *verdictives,* that van Eemeren and Gootendorst mentioned in passing (1984, pp. 96-97), reducing them to the wider family of *assertives*. According to Austin, who drafts a first and open taxonomy, v*erdictives* are specific speech acts characterized by uncertainty about their truth value:

> The first, verdictives, are typified by the giving of a verdict, as the name implies, by a jury, arbitrator, or umpire. But they need not be final; they may be, for example, an estimate, reckoning, or appraisal. It is essentially giving a finding as to something-fact, or value which is for different reasons hard to be certain about. (Austin, 1962, p. 150)

Austin's category includes both speech acts that refer to facts and to values, because they share the feature that "they need not be final", and it is "hard to be certain about" factual speech acts and values. Among the performative verbs that he considers, indeed, there are instances that can be referred both to facts and values, but in no case is it possible to establish a definitive solution: acquit, convict, find (as a matter of fact), interpret as, understand, reckon, estimate, grade, rank, assess, describe, etc. What they all have in common, as the name suggests, is that they are usually, but not exclusively, uttered by an official position, such as that of a judge or an umpire:

> Verdictives consist in the delivering of a finding, official or unofficial, upon evidence or reasons as to value or fact, so far as these are distinguishable. […] Verdictives have obvious connexions with truth and falsity as regards soundness and unsoundness or fairness and unfairness. That the content of a verdict is true or false is shown, for example, in a dispute over an umpire's calling 'Out', 'Three strikes', or 'Four balls'. As official acts, a judge's ruling makes law […]. It is done in virtue of an official position: but it still purports to be correct or incorrect, right or wrong, justifiable or unjustifiable on the evidence. (Austin, 1962, pp. 152-153)

As it seems intuitive reading this passage, if *verdictives* have connections with truth and falsity, soundness and unsoundness, fairness and unfairness, and they rely on evidence, it is exactly the kind of speech acts that constitute the conclusion of an argument, that – precisely because their content is controversial – need to be justified. There is an inherent relationship between *verdictives* and argumentation. For Labinaz, indeed, *verdictive* is the illocutionary act of argumentation:

> Indeed, there is usually a verdictive at the core of argumentation, the correctness of which (truth, rightness, etc.) is focused on as being problematic. In fact, a speaker performing a verdictive presents herself as willing to take on responsibility for the correctness (truth, fairness etc.) of the judgment issued […] (Labinaz, 2021, p. 370)

Although I do not agree with his reduction of all elementary speech acts in an argument to the category of *verdictives*, he still captures the main feature of argumentative speech acts, i.e., the utterance of standpoints that, due to their controversial nature, need to be justified.

At this point, moving from the level of elementary statements to that of argument, we can extend the heuristic distinction proposed here also to distinguish different kinds of arguments, based on different kinds of conclusions:

- *Uncontroversial arguments* (UA) are reasonings which employ US in the conclusion:

    (15)   The vaccine campaign can defeat the Coronavirus just if 80% of population is vaccinated
    To date, 45% of the population is vaccinated.

    Therefore, at the moment, the vaccine campaign still cannot defeat the Coronavirus.

- *Controversial arguments* (CA) are reasonings which employ CS in the conclusion:

    (12)   Human beings are good in freedom and bad in captivity.
    To be good is a necessary condition for a happy society.

    Therefore, freedom is the best condition for a happy society.

Now we try to figure out just the nature of the conclusions of arguments, by understanding their illocutionary and perlocutionary dimensions, that is still not the analysis of the speech act of 'arguing', which we will see later (§ 2.4.1). The taxonomy that I am proposing, and that distinguishes *uncontroversial speech acts* (USA) from *controversial speech acts* (CSA), is justified by the fact that the two conclusions have two different illocutionary forces, i.e., intentions: USA wants just to *communicate a fact*, a description of the world; instead, CSA intends to ask the interlocutor to *believe* in the truth/fairness/correctness/reasonableness of the *subjective judgment* expressed.

This proposal, in line with Roberts' since it evidently reflects the *descriptive/prescriptive* distinction, does not want to overcome Searle's traditional taxonomy, still able to describe the wide universe of speech acts. However, it can be a useful instrument to recognize which kind of standpoint two interlocutors are discussing, and, consequently, what kind of reasons to look for. In *philosophical dialogue*, it can be a normative instrument for the facilitator to better handle any dialectical moves, to ask the right questions, to remove possible misunderstandings, etc.; over time this is also true for participants, as we will see later. To check if their statements, i.e., their arguments, are *uncontroversial* or rather *controversial*, they could transform the single speech acts that compose the argument, usually expressed in the form of *assertives*, into other types of

illocutionary acts, utilizing Searle's schema. For instance, we can transform the components of the next argument:

(16) Rome is an astonishing city.
      You've never been there.

      Therefore, it's a good idea for you to visit Rome.

in the linguistic form below:

(16a) *I ask you to believe*[49] *that* Rome is an astonishing city.
       You've never been there.

       Therefore, *I suggest you visit* Rome.

But, if we try to transform the second premise of argument (16) into a *directive*, as I did with the first premise, we will obtain an odd outcome:

(16b) *I ask you to assume that* you have never been there.

How can we explain this phenomenon? As explained above, if this conversion is allowed or not depends on the *epistemic context*, because the interlocutors' *epistemic background* and other factors (reciprocal expectations, mutual knowledge, etc.) make certain speech acts happy or not. Given the context, it is inappropriate to transform some *assertive* sentences into other speech acts, because their propositional content is evidently considered by both speakers true or false, namely USA. In (16), for instance, if the second premise, because of the context, is true for both interlocutors, then it would be meaningless and useless to ask someone to believe something she already knows – unless the speaker thinks that the listener could have forgotten her visit to Rome. Therefore, assuming a certain context, the second premise is a USA.

Let us analyse further examples belonging to other fields, such as scientific and philosophical ones, to check whether this instrument works or not:

(17) Coronavirus variants can modify the Spike protein.

      Therefore, Coronavirus variants are more contagious than the standard one.

If we tried to transform the premise, we would obtain the next sentence:

(17a) *I ask you to believe, for a moment*, that Coronavirus variants can modify the Spike protein.

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[49] *To believe*, but also *to assume*, *to accept*, etc.: what is important in this instrument, is that the speaker performs a request addressed to the listener (*directive*) to take her statement as true or acceptable.

As we can see, if the speakers are epistemic peers and if they both believe in the evidence provided so far about the effects of Coronavirus on our cellular system, (17a) will be an inappropriate sentence. But, if the listener is a negationist, then she will consider the premise of (17) as a CSA, rather than an USA.

In the empirical premises of philosophical arguments we do not get better outcomes either:

(18)   The human being is the only animal able to use verbal language consciously.

The human being is a species ontologically superior to all others.

If we try to transform the premise onto a *directive*, we will get the next sentence:

(18a)   *I ask you to believe, for a moment, that* human beings are the only animals able to consciously use verbal language.

Both in (16), in (17) and in (18), if we transformed *assertives* into *directives* then we would get meaningless sentences, because – as I mentioned earlier – the dialogical context involves a certain degree of evidence that is believed by both interlocutors: indeed, in such a situation, we cannot ask the interlocutor to suspend judgement about something that is already believed as true. Otherwise, if the context does not involve enough evidence for both interlocutors, as we have seen, the conversion of any statement may be perfectly acceptable. The experiment seems to confirm the heuristic usefulness of this instrument.

This phenomenon, the fact that USA cannot be transformed into a *non-assertive* speech act, whereas CSA can, is also explainable by the notion of *perlocutionary act*, that indicates the effects of a speech act on the interlocutor. In USA the speech act has a relationship just with reality: it does not engage, after that its content has been verified, the critical commitment of the interlocutor. When a USA is uttered, if it is true and well-formed, the understanding of its content (locutionary act) and of its intention (illocutionary act) is sufficient to automatically produce its effect: a description of the world. Indeed, the responsibility of the truth of the content of USA is totally under the speaker's control: if the interlocutors are epistemic peers and the context provides enough evidence, the listener cannot reject an USA. Adopting the Pragma-dialectical distinction between communicative and interactional aspects, in this case just the communicative ones are engaged. Instead, if a CSA is uttered, interactional aspects are engaged. Indeed, in CSA the speech act has a fundamental relationship with the listener, and the speaker asks her to cooperate in order to make communication work: if – e.g., in (16a) – the listener did not accept that Rome is an astonishing city, all communication would be prevented, hence, the argument would fail. In this case, the utterance of a sentence (locutionary act) and the understanding of its intention (illocutionary act) are not sufficient to automatically produce the desired effects (perlocutionary act). It is the reason why I

think, according to Labinaz (though he speaks about *verdictives*), that there is an inherent relationship between CSA and argumentation. The reason is that in a speech interaction, if the dialogue is not just data information, there are two actors, and the reaction/answer of the listener is totally under her responsibility: acceptance or rejection of the sentence uttered depends on her.

Observing this distinction from the perspective of Austin's notion of *happiness conditions* helps further clarify the point. In chapters 2, 3, and 4 (Austin, 1962), he proposes a new criterion to evaluate speech acts. If a speech act uses performative verbs, it cannot be evaluated using a true/false pair, like an assertion, but rather as *happy/unhappy*, because it is an action, and an action is assessable by the pair happy/unhappy rather than by the truth criterion. Among the happiness conditions, as we have seen, there are pragmatic factors, such as the sincerity of the speaker or the social role that she plays when she speaks. Using this criterion, we can conclude that an USA, if it just respects illocutionary happiness conditions, i.e., correctness and sincerity (i.e., it is correct and true), is *happy* and usually *successful*; instead, a CSA can fulfil the illocutionary happy conditions, but if it does not fulfil also the perlocutionary ones, i.e., acceptance by the listener, it is *unhappy*.

Finally, before concluding the reflection about the distinction proposed, it should be remembered how hard it is, in some cases, to draw a demarcation line between the two kinds of speech acts, *uncontroversial* and *controversial.* Indeed, between USA and CSA there is no discrete distinction, but, rather, a *continuum* in the range between extreme poles. The reason, as we said, is simply that we do not claim a metaphysical difference between the locutionary aspect of these two kinds of speech acts. In actual fact, the distinction relies only on their recognition by the speaker, which, in turns, relies on the epistemic context (her background, beliefs, knowledge, etc.). For instance, how can we evaluate a sentence like the next one?

(19)   Our sensory perceptions are a reduction of reality operated by the mind.

Assuming that this distinction as exhaustive, since a speech act is always recognized as *uncontroversial* or *controversial* and any possible uncertainty is always between these two poles, is (19) an *uncontroversial* or *controversial* speech act? If its content is possibly accepted by neuroscience and cognitive psychology, it may then give rise to a discussion of a philosophical kind, since for someone it could be uncontroversial, while someone else might find it controversial. But if we do not want to renounce this tool in a dialogical context, how can we solve the problem in the ambiguous cases? An interesting solution is proposed by Zecchinato (2006), who tries to challenge Putnam's arguments about the impossibility to establish the dichotomy fact/value:

> From the perspective of those who hold true Great Division and Hume's Law, the essential is not that a claim is in itself univocally readable either in a prescriptive sense or in a descriptive sense, but rather that it is always possible to challenge the speaker, by asking her in this regard, to specify in which of the

two senses she intends what she claims […]; it is sufficient that the speaker recognizes that the question is meaningful (in other words, that she recognises the relevance of the various alternatives) in order to make the distinction appear meaningful, regardless of the real intention of the claim. […]. (Zecchinato, 2006, pp. 7-8; my translation)

In accordance with the central thesis of Searle (1969) – the illocutionary force depends on the intention of a speech –, I argue that to *found the distinction between USA and CSA* is *the speaker's intention*. Indeed, although sometimes such a distinction is not so clear, we can always inquire into the deep intention of the speakers with further questions: does she want to objectively describe by the words the world as it is or, perhaps, does she ask us to believe in the correctness of her subjective judgment? As Zecchinato concludes, "Great Division and Hume's Law establish the possibility of a particular form of linguistic, or argumentative, therapy" (Zecchinato, 2006, p. 8; my translation).

2.4. What kind of speech act is 'arguing'?

Once clear about all the notions, the assumptions, the criteria and the tools adopted, I have to inquire specifically what kind of speech act 'arguing'[50] is. So far, I have analysed the single components of an argument, not yet 'arguing' as a whole speech act. But, since an argumentative speech act is a conjunction of several sentences, I think that the nature of 'arguing' is most likely impossible to find without considering this structured set of statements. Furthermore, looking at its locutionary, illocutionary and perlocutionary aspects, I will claim that 'arguing' has a force to be distinguished from the forces of the single elementary sentences of which it is formed.

Before analysing these three aspects, it is important to clarify two premises. The first is that I explicitly choose to term this speech act 'arguing', rather than 'argumentation', not only to distinguish my account from the Pragma-dialectical one, but also to preserve the core of SAT, that considers every unit of communicative language, in particular performative verbs, as human actions, inscribed within a contextual and temporal dimension. Argumentation is not only a notion too broad to be correctly analysed, but it also brings to mind just its logical feature, if considered from an external perspective. Therefore, it is less consistent than 'arguing' with SAT. The second premise is that this analysis is limited to the notion of 'arguing' within *dialogical dialogue*: given that, as Walton noticed, argumentation can be involved in different kinds of dialogue with different goals, if we did not limit its description to a specific kind of dialogue, we would not be able to grasp its specific locutionary, illocutionary and perlocutionary aspects that are evidently different

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[50] Though this speech act is never mentioned by Austin (1962), it appears in Searle (1969, p. 49; 1975, p. 102).

depending on typology and goal. As we will see, 'arguing' in *philosophical dialogue* does not necessarily serve the aim of solving a divergence of opinion, as in Pragma-Dialectics.

We are going to analyse the nature of this special compound speech act by trying to answer the next four questions:

1. Considering all the aspects of a speech act (locutionary, illocutionary, perlocutionary), which are the specific features of 'arguing'?

2. What does 'acting an argument' exactly mean from the temporal point of view?

3. Given that 'arguing' is a composition of more sentences and that it is always expressed without counting on a specific performative verb, where is its speech act essence hidden?

4. What are the happiness conditions for 'arguing'?

2.4.1. The features of the act of 'arguing'.

2.4.1.1. Locutionary act

Starting from the locutionary aspect, we have to consider the distinction between *phonetic*, *phatic* and *retic* proposed by Austin:

> To say anything is (A. a) always to perform the act of uttering certain noises (a 'phonetic' act) […]; (A. b) always to perform the act of uttering certain vocables or words, i.e., noises of certain types belonging to and as belonging to a certain vocabulary, in a certain construction […]. This act we may call a 'phatic' act, and the utterance which it is the act of uttering a 'pheme'; and (A. c) generally to perform the act of using that pheme or its constituents with a certain more or less definite 'sense' and a more or less definite 'reference' (which together are equivalent to 'meaning'). This act we may call a 'retic' act […]. (Austin, 1962, pp. 92-93)

For my purposes, I will leave aside the *phonetic act* (set of sounds) and the *retic act* (meaning and reference), to focus on the *phatic act*, that corresponds to the linguistic form of the speech act. In the case of 'arguing', the *phatic aspect* is the most interesting because of its specific syntactical structure. An argument is not just a set of sentences or the addition of the propositional content of each sentence: we can have some sentences with different propositional contents that are linked by the connective *and* (or by an asyndetic syntax), and we have no argument yet. We can even have sentences linked by the connective *because*, as in the case of explanation, without having an argument. Rather than the metaphor of *addition*, it is more appropriate to use that of *product*, because it describes the syntactical and content connection between premises and conclusion better: in a way, indeed, the conclusion is the product of the premisses. But the term does not resolve the problem, synthetized in this question: what kind of connection allows us to transfer the content of the premises to the content of the conclusion, with the specific intention to justify the latter thanks to the former? There must be something specifically *argumentative* in the structure of an argument

that lets the listener recognize it as the speech act of 'arguing' and not as other speech acts. The proposal by Bermejo-Luque (2011) tries to give an account in line with this view, since it is focused on the listener's recognition capacities. But, as we have seen, the deal is resolved not at the level of locution, but at the one of illocution. This issue forces us to move to illocutionary acts as well.

First, however, we need to add something about the *phatic* aspect. As Searle suggests, if a speech act must be semantically distinguished from any other, then it must have specific linguistic *marker devices* (Searle, 1969, p. 56). We can have two forms of the speech act of 'arguing', one explicit and one implicit: the former employs performative verbs, such as 'I argue', 'I hold', 'I conclude', etc. These verbs, as Austin had already observed (Austin, 1962, pp. 50-51), must be conjugated in the first person and in the present tense of the indicative mood: in the utterance 'I conclude that you made a mistake' we have an act, i.e., the act of getting a logical consequence; instead, in 'He argues that she made a mistake', we have an assertion, which describes a fact regarding another person. However, in natural dialogue, when we debate with someone else, it is not so common to use these performative verbs, that sound formal and artificial. We often prefer to delegate the same function to other marker devices, in a move from semantic level to the syntactical one: this more implicit form utilises specific linguistic connectives and a certain logical disposition of the clauses, whose link reflects the logical relationship that is established between them. Some linguistic connectives introduce premises ('because', 'since', 'indeed', 'given that', 'considering that', etc.), while the conclusion is introduced by other markers ('so', 'hence', 'therefore', 'it means that', 'consequently', 'for this reason', etc.).[51]

2.4.1.2. Illocutionary act

It is difficult to establish to which category 'arguing' belongs. Apparently, it belongs to that of *assertives*, because the performative verbs of the explicit form are similar to verbs such as 'I assert', 'I affirm', 'I deduce', 'I demonstrate', etc. That is van Eemeren and Gootendorst's interpretation. However, if we consider the specific intention of this speech act, then it is not just about asserting a belief. From a locutionary perspective, the speaker claims this belief (conclusion) by justifying it through other sentences (premises). From an illocutionary perspective, she builds this speech construction – this reasoning – with the goal of justifying a conclusion in front of other interlocutors, that is a goal totally different from that of asserting, consisting just in providing a description of the world. So, even when the premises justify the conclusion by means of *assertives* or when the conclusion itself is an *assertive*, this is not the specific force of 'arguing', which has a social function: justification. The goal of justification is the first need of the arguer in *philosophical*

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[51] For a possible, though not complete, list of the linguistic connectives, cf. Johnson & Blair (1977/1994), D'Agostini (2010), Fischer (2011),. Usually, every critical thinking handbook has a similar list of linguistic connectives used in arguments.

dialogue, but we will see that it does not correspond exactly to the main illocutionary intention: however, we could say that *justifying* is included in a higher goal.

In *philosophical dialogue*, the intention of the arguer is not necessarily *convincing* the listeners, because the goal is neither to persuade rhetorically the audience nor to play the right moves to resolve disagreements dialectically. In actual fact, among Walton's categories, its goal is similar to that of *inquiry*. To push participants to discuss about a philosophical problem, indeed, means *searching for the truth*, or, to be more exact, *getting a deeper knowledge* of the problem addressed. The limit of this word is its quantitative meaning: knowledge is commonly related to a certain amount of information that one has. However, when we refer to the domain of inquiry (whatever field is involved), we have to consider not only new information obtained, but also the organization of this information, the rules, the methods, the language. And, if we refer specifically to philosophical knowledge, in particular if knowledge is obtained through *philosophical dialogue* and not thanks to individual research effort, then information, rules, methods, language are no longer sufficient: what a facilitator aims to reach is, rather, a sort of *familiarity* or *closeness* with the problem addressed. To become familiar with a philosophical problem does not mean, though it is theoretically possible, finding a satisfactory answer, rather it means *finding the proper questions* and *the proper instruments to inquire into it*. Arguing is one of the best means to inquire into a problem, because it involves a series of actions, such as justifying, grounding, searching for, asking, challenging, questioning, listening, etc., a specific open and inquiring attitude. But no inquiry is possible without doubting established and entrenched beliefs. It is precisely for this reason that the illocutionary intention of 'arguing' is *leading oneself and the listeners to question one's own and their beliefs*, because it is the attitude suitable to investigate problems, i.e., to become *familiar* and *close* to them. Hence, *questioning*, that to be applied needs both to justify one's own claim and to evaluate the justification of others' claims, seems to be an inherit illocutionary force of the act of 'arguing' within *philosophical dialogue*.

This perspective is very close to the so-called *epistemological view*, proposed in argumentation theory by Lumer (2010). In the radical criticism addressed to Pragma-Dialectics, Lumer does not complain only about the univocity of the goal, claiming that argumentation can have different aims, but about the need to settle the divergence of opinion. What is wrong with keeping different opinions? For Lumer, the goal of argumentation is the truth, and to go towards the truth we need to justify our beliefs, that is his conception of the notion of argumentation. The risk that he points out in the goal of Pragma-Dialectics, indeed, is that if the discussion is just aimed at agreement, it does not necessarily mean that the truth will be found. Consensus is not sufficient, regardless it is

epistemologically qualified (but van Eemeren and Grootendorst do not do that), because the interlocutors can agree about a standpoint completely removed from the truth.

Nevertheless, *philosophical dialogue* is a social and conversational activity grounded in dialectical exchange, and if we do not consider that 'arguing' has addressees, we lose the dialectical dimension. When one argues with the goal to become familiar with a philosophical problem, one wishes also that the others become familiar with it; indeed, it is thanks to the dialectical role played by the others that one (and the whole CoI) become familiar with the problem. Consequently, besides the illocutionary intention of justifying her own claim, the arguer wish to make other participants *internally* convinced not only of the acceptability of the claim, but also, thanks to the fact that they have been following and accepting all the reasoning process, of the reasons and of their logical link between them and the claim. That is, she hopes that listeners do not only accept the claim, but also that they start believing it, based on the argument advanced.

If we adopt Roberts' taxonomy, then 'arguing' in a general meaning is not a description of the world: if the argument performed belongs to the category of CA, given that its conclusion is controversial, it is not about a description of the world, or, in any case, a description which is easily acceptable; if it belongs to the category of UA, even if both conclusion and premises are *uncontroversial*, by their link the speaker wants to *suggest* something new, that the single sentences alone cannot do. So, it would be easier to recognize in it the illocutionary force of *suggestion*, because its intention is rather to transform the world: namely, to convince the listener to do something or change her mind about a certain belief. But, considering now the illocutionary intentions of 'arguing' in *philosophical dialogue*, i.e., *leading oneself and the listeners to question one's own and their beliefs*, the illocutionary force of the intention to transform the world is undoubtedly weakened. Is 'arguing' still a *suggestion* in Roberts' meaning? Unfortunately, I think that this category, as well that of *assertives*, is inadequate. Indeed, rather than to transform the world, 'arguing', at least in *philosophical dialogue*, is intended to question the claims, standpoints, opinions, prejudices about the world that students have inherited in an unreflective way and that need to be questioned. As I argued in the first chapter, *questioning* is one of the four aspects of critical thinking (together with *autonomy*, *metacognition*, *directionality*). The same as other aspects, it is always present when one thinks critically, though it can find different means to employ its action: 'arguing' is one of these means, probably the most prominent.

Austin's category of *verdictives* captures the illocutionary force of *doubting*, *wondering*, *questioning* better, but it is acceptable only if we highlight two differences: 'arguing' is a *verdictive* uttered not by a speaker from an official and hierarchical position; 'arguing' is a *verdictive* founded on other elementary illocutionary acts, that, as we have seen, can belong to each one of Searle's

categories or, if we use the distinction USA/CSA, can belong to both categories. We are used to considering philosophical argument as a composition of philosophical statements, both in the premises and in the conclusion, but, in fact, it is common to build or listen to philosophical argument with one or all the premises of a factual kind, used to support a controversial conclusion: "Someone who argues usually uses a certain truth, […] scientific, historic, mathematical or logical, to justify less certain truths. This is the basic procedure, named *justification*." (D'Agostini, 2010, p. 88; my translation). In other words, we often use acceptable premises to make the listener accept the conclusion, that she did not believe before. In this case, we do not have an uncontroversial argument, because if one asks what the intention of the speech act is (that includes all the structure, from premises to conclusion), it is to request to believe that the subjective judgment of the speaker is acceptable. That is another manner of saying *doubting* or *challenging* her own beliefs.

2.4.1.3. *Perlocutionary act*

By virtue of the close link claimed by Austin and Searle between illocutionary and perlocutionary act, which in SAT indicates the effects produced on the beliefs, on the feelings, on the behaviour or on the actions of the listener, it should not be difficult to imply the perlocutionary aspect of 'arguing', performed within *philosophical dialogue*. If the intention of the speaker is *leading oneself and the listeners to question one's own and their beliefs* – i.e., to make the *community of inquiry closer* and more *familiar* with the problem addressed –, then the result desired will be an actual change of mind of the listener, namely that *the speaker and the listeners actually question their own and the other's beliefs*. This distinction is essential, because even if the speech act respects every happiness condition, that we will define later, it does not automatically mean that it is successful. In the case of 'arguing', indeed, it often happens that the speaker's attempt does not achieve any goal, for a variety of reasons that we will analyse in Chapter III. In this case, the happiness of the illocutionary act is reached, but not the happiness of the perlocutionary act; however, since the happiness of an action depends on its effectiveness, and since a speech act is an action, if the happiness conditions of the perlocutionary act are not fulfilled, 'arguing' in a philosophical dialogue is not fully happy.

I will add only a few general remarks. Argumentation is a dialogical and thinking practice characterized by uncertainty (Boniolo & Vidali, 2011, p. 99), for many reasons. The first is that it is an activity situated in a concrete context, which is intrinsically changeable: it is addressed to a specific interlocutor in specific circumstances, and, if the context changes, as we have seen introducing the notion of *epistemic context*, then a sentence considered *uncontroversial* can be interpreted as *controversial*, and so it can become questionable. The second is that argumentation, if we exclude the case of mathematical, logical, empirical or factual truths (expressed by USA), that

are not so common in a rational discussion, deals with questionable subjects (expressed by CSA). The last consideration is that in a democratic dialogue between epistemic peers, we cannot have any control over the reaction of the interlocutors, who can rebut our strongest arguments with stronger counterarguments, or for reasons different from those of the rational dimension. The paradox is that this epistemic fragility, that can be considered a weak point of argumentation, is precisely its most important feature, the condition of possibility of its functioning in a dialogue. If this condition is not guaranteed, namely if it is not always possible to question the claim taken into account, the possibility of arguing itself is undermined.

2.4.2. The meaning of 'acting an argument' from a temporal point of view

The evaluation of the temporal dimension can be an interesting criterion to understand the nature of the speech act of 'arguing', since it is not an elementary but a compound speech act. To make this evaluation, we can borrow the concepts utilized by Sbisà (1989), who, in the attempt to frame SAT inside an action theory, introduces an important distinction between 'act' and 'action' by using a category of narrative semiotics and linguistics, i.e., *verbal aspectuality*:

- – 'Act' has a *perfective* aspect: it has not any temporal duration and it can be represented as a point along a timeline (e.g., "She *met* her sister at the crossroads at 7 p.m.");
- – 'Action' has an *imperfective* aspect: it has a temporal duration and it can be represented as a segment along a timeline (e.g., "I *ran* for an hour").

If we consider the majority of performative verbs, such as 'I promise' or 'I declare', at the same time as the speaker pronounces the utterance, the act is already achieved. These speech acts have clearly a *perfective* aspect. Thus, if we considered the act of 'arguing' based on a performative verb like 'I argue', the speech act would have the same *perfective* aspect as other performative verbs: the act is already achieved.

On the contrary, perhaps, if we considered the process of arguing in the implicit form, based not on a performative verb but on grammatical marker, it would be unlike the other acts. This form expresses, rather, a linguistic *action*, based on a process, a movement from the premises to the conclusion, or, as happens more often in a dialogue, from the claim back to the reasons. In a dialogue, indeed, while *I am arguing*, I am concentrated on my reasoning, and I am looking for the right justifications that fit the claim. I am not perfectly aware at the same time of the link reasons-claim and, sometimes, neither of the claim itself, as in cases where the action of arguing is oriented to discover new solutions, e.g., in the context of a community of scientific inquiry. A completely different case is a rhetorical monologue addressed to an audience or a case in which there are two speakers oriented to take advantage of the opponent, as in a public debate. In both situations,

indeed, the arguer *is not arguing* (action), with the attitude open to search for new reasons and even for a new claim, but she argues (act), because she already has a set of available reasons and is not willing to change the claim. All that said, it is evident that the act of 'arguing' in *philosophical dialogue* should be (normatively) an *action*, although, if the CoI is not yet mature, it often risks being an *act*. Indeed, as can happen in the first dialogues, participants are more interested in stating their ideas than in testing whether they are well justified.

There is another remarkable distinction useful to evaluate time duration. If a speech act is in the present (if *I am arguing*), then I am producing a linguistic action, composed by individual acts (reasons and claims). On the contrary, if the action has been completed and I observe my reasoning from a metacognitive perspective *a posteriori*, then all the process is regarded as a product and I can also intend it as an *act*. However, observing this case more attentively, consistently with SAT, we probably no longer have a speech act, because a speech act can be only expressed in the present. The confirmation is that, looking at the process as an act achieved, I shifted the reasoning from the 1st to the 3rd person.

We can conclude that the argumentative speech act performed in *philosophical dialogue* is an *action* rather an *act*, except for cases in which a performative verb is expressed. Cases that, as we already said, are uncommon and cannot give an account of the process of arguing, but rather only of the statement that the speaker claims. Indeed, when one says 'I argue that *p*', she is just uttering the claim, *p*, but she is not also giving the reasons that provide, in an *imperfective* way, evidence for *p*. That means that she is not really arguing, but she is asserting, in a *perfective* way, *p*.

This conclusion entails an important consequence for argument assessment. The truth value of statements, which, together with their logical validity, are traditional criteria to evaluate the soundness of an argument, can be applied to the premises and to the conclusion only if we observe their propositional content in an atemporal dimension or if the utterances refer to past or future facts or states of affairs. But, in these cases, we have no speech act of 'arguing', but only an argument, because a speech act can be performed only in the present tense. Therefore, the action of arguing, which has a temporary duration, needs to be evaluated by a different criterion. This distinction can probably explain why it is so hard to evaluate argumentation while it is performed by oral speeches. Indeed, even in these cases, we are used to applying the standards employed to evaluate written arguments – e.g., the examples of critical thinking handbooks –, without understanding that they are unsuitable for the goal. The reason is not only that an oral argumentation proceeds faster than a written one (where the reader can read as fast as she needs to understand the inferential process), but also, and overall, because we are not used to considering an oral argumentation performed in the

present as the speech act of 'arguing'. Consequently, we do not apply the appropriate assessment criterion, namely *happiness*.

2.4.3. The happiness conditions of 'arguing'

To better frame my proposal within the scope of SAT, I will define the happiness conditions, both for the illocutionary and for the perlocutionary act of 'arguing', by following Searle's categories: *propositional content*, *essential*, *preparatory* and *sincerity conditions*. The only change that I suggest refers to the *propositional content* conditions: since 'arguing' is a higher-level act, I prefer the category of *locutionary conditions*, because it includes the syntactical aspect.

The illocutionary goal of 'arguing' is focused on the speaker. Within *philosophical dialogue –* not, as I mentioned, in general in whatever context –, it consists in *leading oneself and the listeners to question one's own and their beliefs.* As we have seen, this goal entails both the task of justifying, by means of reasons, one's own beliefs (that in the list I will term 'claims') and of evaluating the justification, by means of reasons, of the other's beliefs. Moreover, the argument is considered the minimal unit of the speech act of 'arguing': when a speaker performs the speech act of 'arguing', she is building an argument, and when she evaluates the listener's speech act of 'arguing', she is evaluating the listener's argument. Consider at the illocutionary happiness conditions, using the following key:

ILLOCUTIONARY HAPPINESS CONDITIONS OF 'ARGUING'

General items	Speaker's / listener's items
TA = theoretical argument	As = speaker's argument
US = uncontroversial sentence	Al = listener's argument
CS = controversial sentence	Cs = speaker's claim
S = speaker	Cl = listeners' claim
L = listeners	Rs = speaker's reasons that support Cs
C = claim	Rl = listener's reasons that supports Cl
R = reasons that supports C	RRs = speaker's reasons that support the reasons that support CS
RR = reasons that support the reasons that support C	RRl = listener's reasons that support the reasons that support Cl

- – RECOGNIZABILITY CONDITIONS:
    - ▪ Locutionary conditions:
        - ✓ *Every elementary sentence of the argument expresses a proposition.*
        - ✓ *Every elementary sentence of the argument can be performed with whatever illocutionary force.*
        - ✓ *Among the elementary sentences, exactly one C and no fewer than one R (and, if necessary, no less than one RR).*
        - ✓ *The elementary sentences are tied in a certain syntactical way, according to which R justifies C.*

- **Essential Conditions (the speech act purpose):**
  - A. *Uttering the set of sentences that compose A counts as an attempt by S to lead L to question Cl.*
  - B. *Uttering the set of sentences that compose A counts as an attempt by S to lead herself to question Cs.*

- CORRECTNESS CONDITIONS:
  - Preparatory conditions A (referring to essential conditions A)
    - ✓ *S believes that L considers Al as TA.*
    - ✓ *S believes that L may consider Cl as CS, so that it may be questionable.*
    - ✓ *S believes that L will search for Rl, if they are asked.*
    - ✓ *S believes that L will search for RRl, if one or more Rl are considered as CS by S, so they are questioned by S.*
    - ✓ *S believes that L will consider Rl as a justification of Cl (and RRl a justification of Rl).*
  - Preparatory conditions B (referring to essential conditions B)
    - ✓ *S believes that L considers As as TA.*
    - ✓ *S believes that L may consider Cs as CS, so that it is questionable.*
    - ✓ *S believes that L will consider Rs as an attempt to justify Cs (and RRs an attempt to justify Rs).*
  - Sincerity conditions
    - ✓ *S considers Al as TA.*
    - ✓ *S believes that Cl is CS, so that it is questionable.*
    - ✓ *S may consider Rl as Cs, so that they are questionable.*
    - ✓ *S consider Rl as an attempt to justify Cl (and RRl as an attempt to justify Rl).*
    - ✓ *S considers As as TA.*
    - ✓ *S believes that Cs is CS, so that it is questionable.*
    - ✓ *S will search for Rs, if she is asked.*
    - ✓ *S believes that Rs may be CS, so that they are questionable.*
    - ✓ *S will search for RRS, if one or more Rs are considered as Cs by L, so they are questioned by L.*
    - ✓ *S believes that Rs are a justification of Cs (and that RRs are a justification of Rs).*

The schema above is undoubtedly more complex than that one provided by van Eemeren and Grootendorst. The reason is quite simple. The essential condition of argumentation in the Pragma-dialectic approach is advancing a constellation of statements to convince the listener of the acceptability of the expressed opinion. This entails a move directed from the speaker to the listener, just in one direction. In my account, instead, the intention of the speaker, that is to question the beliefs, is directed both to the listener's arguments and to her own arguments. This is a crucial point, that captures the meaning of 'arguing' in a CoI: indeed, 'arguing' does not only mean doing an action with the perlocutionary effect to change the other's mind, but also to change one's own mind. This is possible thanks to an activity that is definitely not like a tennis match played by two adversaries (a protagonist and an antagonist), but that can be better compared to a journey taken

together, where participants cooperate to search for the truth, or, even better, to become more familiar with the problem addressed.

The *preparatory conditions*, indeed, have to guarantee both that the speaker can question the listener's argument and that her own argument can be questioned. If, for instance, she does not believe that the listeners may be willing to consider their claim and reasons questionable, the action of 'arguing' is pointless, because she would know that any attempt to question the listeners' beliefs would be met with psychological rigidity. The same can be said about the speaker's claim and reasons: if she did not believe that the component of her argument could be considered questionable by herself and the listeners, she would not be really willing to question them, and then to change her mind. This point is strictly connected with the *sincerity conditions*, that must guarantee that the speaker considers her claims and reasons questionable. But it is also necessary for a speaker to believe that the reasons provided by the listeners are considered as a justification of their claim; and, by the same token, if the listeners did not consider the reasons provided by the speaker an attempt to justify her claim, they would not consider the speech context suitable to guarantee a dialectical exchange.

I cannot analyse all individual conditions, presuming that, given some premises about the context and the goal of the speech act of 'arguing' within *philosophical dialogue*, they do not need many explanations. I prefer to underline one point, regarding the nature of the reasons. As the list shows, it is often not sufficient to provide reasons to justify a claim, because, although sometimes we can employ *uncontroversial sentences* (US), it can occur that even the reasons provided may be *controversial sentences* (CS), especially in philosophical inquiry. Indeed, as we will see more clearly in Chapter IV, many arguments are grounded on important philosophical presuppositions, that the listeners can question at any time. In this case, it is necessary to provide a rational justification to accept these statements, that are, in turn, the reasons for the main claim. Obviously, the need to justify the reasons risks leading us to the so-called *epistemic regress problem*, that is when it is impossible to find a justificative starting point shared by the interlocutors, with the consequence that the argument turns out to be weak. To avoid this risk, it is important that the speakers develop the pragmatic skill of looking for some shareable presuppositions, that, though they can be considered as CS, can be accepted by all the interlocutors. As we will see in Chapter IV, Toulmin tried to solve this problem by proposing the notion of *backing*.

To conclude, if we look at the perlocutionary act of 'arguing' – focused on the listeners – in *philosophical dialogue*, it is fulfilled when *the speaker and the listeners actually question their own and the other's beliefs.* As the intention of the speech act is intended to change both the listeners' and the speaker's mind, to guarantee this result it is necessary that both subjects – i.e., all the CoI –

meet all the conditions. In the case of *locutionary conditions*, the CoI recognizes that *Every elementary sentence of the argument consists in a proposition*, accepts that *Every elementary sentence of the argument can be performed in whatever illocutionary force*, etc. In the case of *essential conditions*, the CoI recognizes the attempt by the speaker to lead herself to question her own claims and to lead the others to question their own claim. The *preparatory conditions* consist in believing that the one who is arguing is seriously engaged in questioning her own and others' claims, in searching for reasons, etc. Finally, the *sincerity conditions* consist in believing that the one who argues sincerely believes that her claim is questionable, etc.

2.4.4. The hidden essence of an argumentative speech act

In the description of the happiness conditions and of the properties of the locutionary, illocutionary and perlocutionary aspects of the speech act of 'arguing', I have probably not yet captured its essential feature, the necessary and sufficient condition of its identity, assuming that they exist and that it is not just about *family resemblances* (Wittgenstein, 1953). I said that 'arguing', a set of other speech acts organized in a certain structure, consists of the shift from the content of the reasons to the content of the claims, but, until now, I have not yet defined the nature of the 'glue' able to connect these elementary speech acts. To say that the reasons justify the claim or that the claim is grounded on the reason is not sufficient to understand the nature of this glue. Fortunately, IAT (Inference Anchoring Theory) comes to our aid, namely the argumentative model proposed by Budzynska and Reed (2011), one of the most interesting attempts to give an account of argumentative dialogue through the categories of SAT. A significant advantage of this theory is that it tries to describe the arguments embedded within dialogical dynamics, even the cases of *arguments2*, those that result from putting together the utterances of two interlocutors. The only limit of this theory, considering my aims, is that it is a description of argumentative speech acts and that it does not offer prescriptions about the success of argumentation. Consequently, it does not illustrate the argumentative fallacies that transgress the rules either. This means that I will have to make further steps to understand how deriving some normative – and practical – indications from this model.

The authors start with the admission of an inherent weak point of SAT, i.e., the impossibility of deciding which speech act is performed if someone utters a locution *p*, but they declare to be "reasonably confident about a rather complex and heuristic assessment of the verb phrase in *p*" (2011, p. 4). For the speech act of 'arguing', this ambiguity increases, because it is "*epiphenomenal* on the brute speech acts which are assertive and directive" (2011, p. 4; my italics). They argue the choice of this word as follows: while, by the Austin's device of conjunction *hereby* (1962, p. 57), we usually do not need the context to understand the illocutionary force of the locution, in the case

of 'arguing' we still need it, because this particular speech act *can arise* (not necessarily) from the possible functional relationship between two or more sentences. This approach seems consistent with Bermejo Luque's (2011), that entrusts to the listener the choice to interpret a set of sentences as an argument. Indeed, it does not occur at the sentence level, but at a higher-textual level. For the authors, the essence of the speech act of arguing is precisely this intrinsic function of *anchoring* the sentences, in which they find its illocutionary force. Moving away from Searle's principle, according to which the illocutionary act consists of the intention of the utterance, Budzynska and Reed see in this implicit functional connection the deep identity of the act of 'arguing'.

This illocutionary force, nevertheless, is not unique and universal for every occurrence of the act of 'arguing', but it can be turned around in different ways, depending on the different kinds of relationship established between the utterances: *supporting*, *challenging*, *substantiating*, *rebutting*, etc. But, in consequence of it, another problem arises: i.e., the risk of a multiplication of these illocutionary forces. To manage the issue, it needs a model:

> In order to tackle this challenge, we need a structure which defines the set of ways in which utterances in a dialogue can be related, laying out which types of utterance can follow which others, and how making one sort of utterance can license or demand the making of another. (Budzynska & Reed, 2011, p. 5)

Unlike other argumentative models – such as those of Lorenzen (Lorenzen, 1987), Hamblin (Hamblin, 1970), Walton and Krabbe (Walton & Krabbe, 1995) – which try to give an account of all the functional relationship in the dialogue games, the authors suggest that it is the dialogue itself that establishes the connection rules between utterances: for instance, if an assertion pronounced by Speaker1 is challenged by Speaker2, who asks her to justify it, it is required by the structure of that dialogue to answer with another assertion. This dialectical passage Speaker1-Speaker2-Speaker1 "is precisely where the act of arguing (for something) lies" (Budzynska & Reed, 2011, p. 6). In this sense, the speech act of 'arguing' is implicit, because it emerges, especially in *arguments2*, from the connection of the single speech acts, or rather from the precise reaction that every component of this structure requests. To indicate these passages, where the illocutionary act of 'arguing' is hidden, a word has been coined: *transitions*, i.e., implicit and non-propositional functions with a non-propositional content. However, transitions are not completely implicit, because they are often expressed by linguistic cues, such as linguistic connectives, as we have seen above.

Moreover, IAT tries to give an account of all these transitions, describing both the inferential structure (the inferential links, that in *Figure 1* are denoted by RA) and the dialogical structure (the communication rules, that in *Figure 1* are denoted by TA), with the mediation of the types of illocutionary forces (IF), that are represented as bridges from the level of communicative acts to that

of the propositions composing the inference. Below is an example of a brief fragment of a public debate (2011, p. 7), represented in IAT schema[52]:

(A)   Bob says: "The government will inevitably lower the tax rate."
(B)   Wilma says: "Why?"
(A)   Bob says: "Because lower taxes stimulate the economy."

Figure 1: Basic inference anchoring
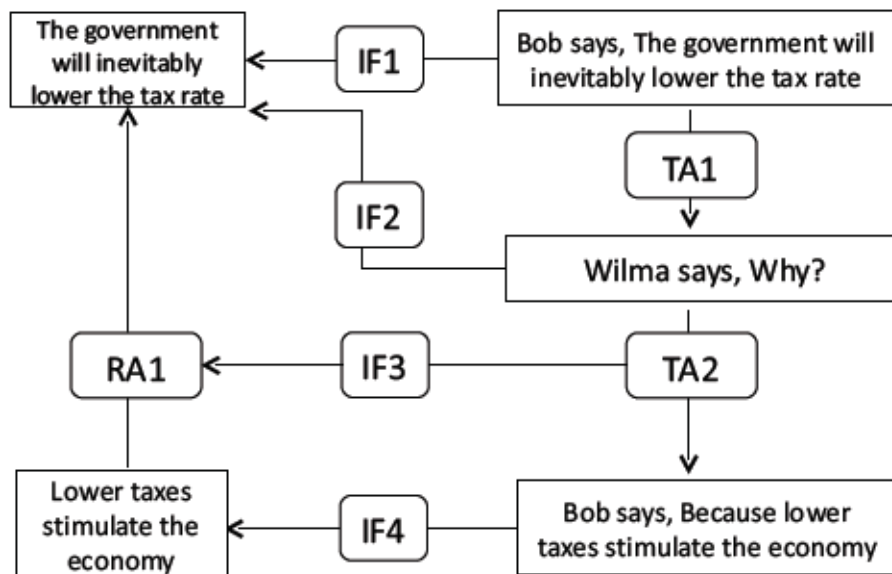
The attempt to represent the speech act's dimension – with its own rules – together with the inferential one – with its own rules – is without a doubt laudable, and the simplicity of the result is surprising. However, the most successful aspect of the model is that it displays the function of the single transitions (in *Figure 1*, TA1 and TA2), that reminds the set of speech acts (on the right) of their propositions, that constitute the inferential structure (on the left). Every speech act has its illocutionary force (IF1: *asserting*; IF 2: *challenging*; IF4: *substantiating*), but only IF3 catches the essential force – where the authors discovered the act of 'arguing' – according to which an utterance requests another utterance, demand that would have been unjustified without the relationship with the deeper and abstract dimension of inference (RA1).

Observing this schema, one might object that in IAT approach the dialogue is considered as a mechanism that works irrespective of the person who performs it. This objection is unfounded, because obviously the choice of the content of the single speech acts – and the evaluation of their *acceptability*, *relevance*, *sufficiency*[53] – depends on the speaker. On the other hand, the

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[52] For other examples of argumentation in debates represented by IAT schema, cf. Budzynska, Janier, Reed, Saint-Dizier, Stede & Yaskorska (2014).

[53] I postpone the discussion on these criteria, conceived by Johnson and Blair (1977/1994), to Chapter III (§ 3.6.2.1)

accomplishment of dialogue relies on the performance of the illocutionary force that must fit the previous illocutionary force performed and that limits the following one. We can rather consider it as a chain, that works in a smart and smooth way only if the move of one speaker is followed exactly by the move requested, and so on.

The core idea of IAT is fairly close to the proposal by Labinaz (2021). He thinks that the Searle's intention-based framework is inadequate to understand the speech act of 'arguing', because its happiness is completely dependent on the capacity of the addressee to recognize the right illocutionary force. Instead, he suggests reconceptualising 'arguing' within a *deontic* framework, according to which "an illocutionary act consists in the achievement of its characteristic conventional effect, which can be described in terms of deontic modal attributes (e.g. rights or authority, obligations or needs and so on) […]" (Labinaz, 2021, p. 369). In other words, 'arguing' is looked at as a sequence of elementary speech acts, whereby each of them involves the following one – in terms of 'can'/'must' – and aims to changes the deontic status of the addressee: indeed, every move limits the following moves, that are forced to perform only a specific move:

> […] any speech act involved in such a sequence may be thought of as bringing about a change in the deontic statuses of the participants in a communicative situation, thereby establishing what can or must (or cannot or must not) be done in the next stage of the sequence. (Labinaz, 2021, p. 369)

It could seem that the first speaker has an advantage over the addressee, but, in fact, as soon as she performs the first speech act, she is already committed to performing a specific reaction if someone challenges it.

Therefore, argumentation is seen as a sequence of different moves made by different players. The opening move, as we have seen, consists of the performance of a *verdictive*, that can correspond, in a language that I have already used, to the claim. In the second move, the addressee has two possibilities, agreement or disagreement, but both of them entail different commitments (or obligations): if she agrees, she can use the received *verdictive* to perform further judgments or decisions, i.e., to performs further *verdictives* grounded on the received one; if she disagrees, she asks the speaker to justify her *verdictive*, expressing doubts, advancing a rebuttal, etc. At this point, the third move is required, because the speaker is expected to provide further justifications.

Except for the interpretation of every elementary speech act and, also, of the higher-textual level speech act of 'arguing' as *verdictives*, that I do not agree with, I think that the account by Labinaz perfectly captures, just like IAT, the deep nature of 'arguing'. In both proposals there are at least two elements particularly suitable to full understanding of this speech act. The first is that argumentation is not seen as an individual search for reasons, as in Pragma-Dialectics, but as a dialectical and dynamic exchange that involves a variety of different moves (claiming, requesting,

answering, doubting, supporting, grounding, etc.), all synergically oriented to find evidence for the statements at stake, i.e., the claim. This aspect is not so distant from my interpretation of the illocutionary nature of 'arguing', that is *questioning*. The second element, perfectly in line with the first one, is the focus on the *anchoring* between moves, on the basis of which every performance of every illocutionary force is constrained by the previous one and, in turn, it limits the following one. The appeal to the deontic logic made by Labinaz strengthens this view so much that its account could be considered as normative. However, it is a very recent proposal and, probably, not sufficiently developed.

IAT has the capacity to capture the essential condition of 'arguing' and, differently from the Pragma-dialectic approach that tries to outline universal rules, has an entirely pluralistic nature, since it admits that each dialogue game has rules embedded in its own functioning. For these two reasons, I can conclude that the IAT model is the best description, conducted within the scope of SAT, of the speech act of 'arguing' within *philosophical dialogue*. Now, the issue is to find the way to turn this satisfactory description into normative and practical tools.

2.4. Towards a normative model based on Speech Act Theory

In this section, I try to collect a set of practical proposals aimed at outlining the properties of a theoretical educational framework within which the instruments and norms of the argumentative model proposed in Chapter III (WRAT – WEAK REASONING ARGUMENTATIVE THEORY) can be activated. The framework proposed is inscribed within the scope of SAT and, as such, it uses as tools and criteria its categories, notions and, in general, its theoretical apparatus. As its functioning is designed to be working on several levels, and since each of these levels includes inside it a deeper level, like a series of concentric rings, I will name this educational framework CONCENTRIC SPEECH ACT ARGUMENTATIVE THEORY (CSAAT).

Since I decided to adopt the apparatus of SAT, first of all it is necessary to clarify that I do not use the notions of *soundness*, *correctness* or *validity* to evaluate argumentation, but that of *happiness*. If 'arguing' in *philosophical dialogue* is considered as a speech act with a specific goal, we need to adopt the *happiness conditions* described in § 2.4.3. The advantage of this choice is evident for at least two reasons. First, since the act of 'arguing' in this precise context is not a single argument performed by one speaker, but a *multilogue*[54] composed of a variety of speech acts (assertions, questions, doubts, requests, clarifications, definitions, etc.) linked by the illocutionary force of *anchoring*, the classic criteria to evaluate a single argument would be unsuitable to evaluate the whole argumentation. For instance, we can consider a request for clarification happy, if, given

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[54] This notion, recently introduced in educational studies (Schwab, 2011) and now also used in media studies, refers to a kind of conversation described as many-to-many, like *philosophical dialogue*.

the context, the reasons provided by the speaker are ambiguous; the assumption that the listener is asked to accept is unhappy if it entails acceptance of an impossible scenario; etc. Nonetheless, an individual argument, intended as a unit of reasoning performed just by one speaker, can be evaluated following more traditional criteria.[55] Second, the analysis of 'arguing' in *philosophical dialogue* relies on the consistency between intention (*essential conditions*) and *locutionary*, *preparatory* and *sincerity* conditions. Indeed, if one of these conditions is not fulfilled – for instance, if the speaker does not believe that her claim is questionable –, then it is quite easy for the facilitator to understand that the act of 'arguing' is not oriented to lead the CoI to question its belief.

That being stated, I hypothesize that 'arguing' is inscribed in a pluralistic framework, where pluralism has a dual meaning, that is associated with two different orders of actions:

1. following a contextualist perspective, it indicates the plurality of occurrences (in the sense of *token*) of argumentative speech acts, depending on the variety of contexts in which they are performed: different topics, backgrounds, relationships, time, etc.;

2. it indicates the plurality of levels of critical thinking *tools*, and consequently of *criteria*, to be adopted to build and to evaluate argumentative speech acts.

These two orders of action are not mutually exclusive; indeed, on every level that we adopt, we can consider the differences of the speech contexts. We may represent this model as a double-entry table, where, horizontally, the levels are indicated and, vertically, the infinite variety of contexts. Or, in a form visually sharper than a table, as a figure composed by concentric circles, where the rings indicate the different levels, and inside every ring are all the possible speech contexts considered (C1, C2, … Cn in *Figure 2*). We must not to forget that in the move from one ring to another, not only do the tools to build an argumentative speech act change, but so do the criteria to evaluate its happiness. Tools and criteria, that are step by step more refined and complex, are designed to a slow critical thinking education: students, driven by the facilitator, at the beginning of their learning process start to handle the rougher and more general tools and criteria, and with time and practice, they become more expert, until they are able to use the categories of the smallest ring. To fulfil all the happiness conditions, it is not necessary to use the categories of the smaller ring: argumentation can work perfectly well, although tools and criteria are less defined and less known. Once students are skilled enough to use the more refined categories, however, they continue to use the tools of the wider levels, that are included in the smaller one, and that are always valid to tackle some problems or to look at the issue from a more general perspective. The employment of the items of smaller ring, indeed, entails knowledge of the items of the wider one. Here below are the four levels hypothesized:

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[55] Cf. the criteria discussed in § 3.6.2.1.

1. on the first level, the widest circle, tools and criteria are based on the distinction *practical/theoretical* (PA and TA in *Figure 2*);

2. on the second level, inscribed inside the first one, tools and criteria are based on the heuristic distinction between the two illocutionary forces of the taxonomy that I proposed, *uncontroversial / controversial speech acts* (USA and CSA in *Figure 2*);

3. on the third level, more analytic and detailed than the former rings, tools and criteria are based on the distinction between the illocutionary forces of both Roberts' and Searle's taxonomy;

4. on the fourth level, the most sophisticated, tools and criteria are based on the illocutionary forces described in Buszynska and Reed's IAT model.
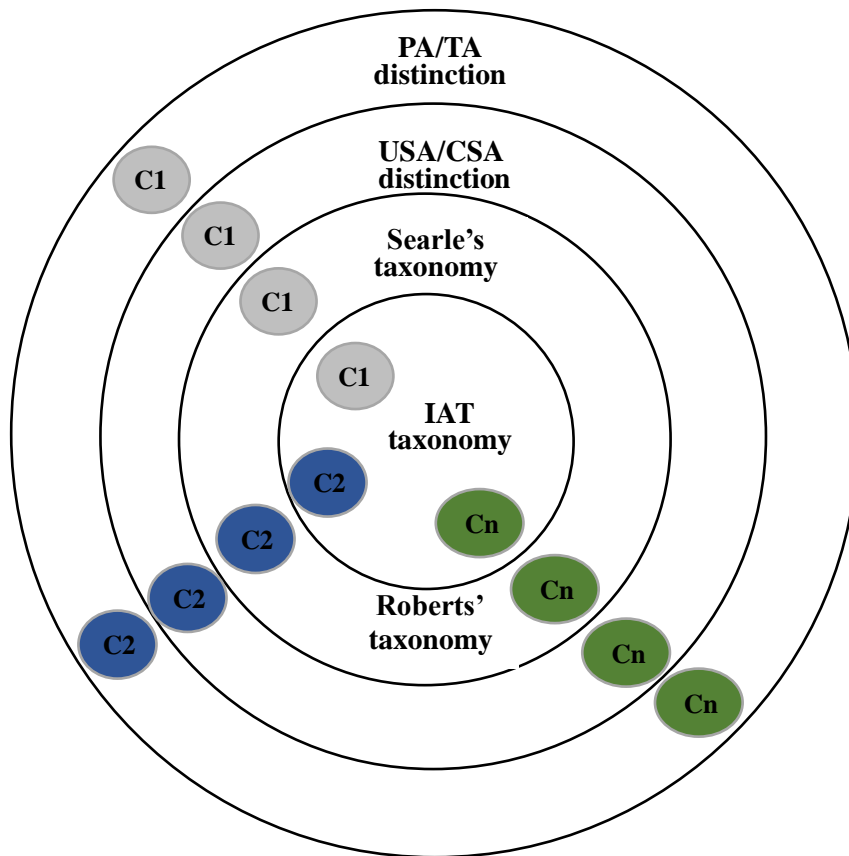
Figure 2: Concentric Rings Argumentative Theory

Before being able to evaluate arguments, of course, students must be able to evaluate individual sentences. As the same sentence can hide different intentions according to the context, a facilitator can help students to correctly analyse the utterances by tracing them back to the intentional principles of the speech acts performed. On the first level, they adopt the *practical/theoretical* taxonomy, which helps to distinguish two different illocutionary forces that lie behind two different

kinds of sentence.[56] This tool, though simple, is really useful, in particular when we move to the level of arguments, because practical reasoning must respect norms different from those of theoretical ones: for instance, some speech acts in TA, like questions, are allowed, whereas others, like orders, would sound unhappy. Consider the next examples:

(A) in a practical context, a manager orders an employee to do a certain task, because, if she does not comply, the company may lose a big client;

(B) in a theoretical context, the full professor orders the assistant professor to embrace a realistic position, because, as she argues, a minimal ontology could not explain the complexity of social phenomena.

First of all, it should be clear that we cannot evaluate by the true/false criterion the decision made in (A) by the manager (to issue a certain order) and the decision made in (B) by the full professor (to issue a certain order). Second, if we can evaluate the manager's decision as happy, we cannot evaluate at the same the full professor's decision, because it is totally inappropriate to order someone to believe something.

I add one last remark about the first ring. As we will see in Chapter III, in *philosophical dialogue* it is much more probable to deal with theoretical than with practical problems, that means that it is more probable to construct and evaluate TAs than PAs. Nevertheless, in some stages of a session, engaging with a PA can be preparatory to addressing a TA, or, even, it is possible that within some practical decisions (e.g., which question to answer among a series of different questions) there are theoretical arguments. This does not mean that the line between PA and TA is blurred, but that a certain kind of argumentation can be embedded in the other, and vice versa; or that one is a previous step of the other. This problem is explicitly addressed by Walton (2019), when he discussed the difficulty to understand, sometimes, whether what is performed is a *deliberation* or a *persuasion* dialogue:

> The solution to the problem is to recognize that there can be persuasion over action, so just because in a given instance argumentation is about a course of action, is does not follow that the context has to be that of a deliberation dialogue. (Walton, 2019, p. 215)

After highlighting these difficulties, we can conclude that awareness of this distinction is crucial not only, to critical thinking education in general, but even to critical thinking education by means of the method of *philosophical dialogue*.

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[56] In § 2.3.1, I did not explicitly talk about this distinction applied to the sentences, but, of course, we can consider just the conclusions of a PA and a TA: respectively, a practical sentence (PS) (e.g., 'I leave the university') and a theoretical sentence (TS) (e.g., 'The Italian population amounts to 58,983 million citizens').

On the second level, students should be able to distinguish USA from CSA. Within the educational context of *philosophical dialogue*, this classification seems particularly useful, because participants often cannot recognize a philosophical problem (and a philosophical question). Sometimes, indeed, they mistakenly discuss statements that have already been empirically verified as if they were philosophical problems, or they grapple with problems that are not philosophical, trying to use philosophical categories. Hence, if participants become aware of it, they can take back, autonomously, discussion on philosophical issues, without the intervention of the facilitator. Of course, an interlocutor can question the *uncontroversial* premises used for CA at any time: not so much their content, but rather the reasons thanks to which we can judge it as *uncontroversial*. By doing so, they open meta-theoretical issues, such as the way to get truth, evidence reliability, the ground of proofs, etc. In these cases, discussion, entering the field of philosophy of science, becomes philosophical and controversial.

As I argued, in order to find out if an argument is *controversial* or *uncontroversial*, students can take advantage of the analysis proposed above, consisting in verifying the possibility of transforming their *assertive* conclusions into *directives*, by means of the formula 'I ask you to assume that'. Nevertheless, if students are not yet skilled enough to handle Robert's and Searle's taxonomy, because they have not learned the tools of the third ring, they may ask themselves whether the content of the conclusion is factually demonstrated or not in an intuitive way. Anyway, we cannot renounce this taxonomy, because the happiness criteria of an argument are completely different whether it is *uncontroversial* or *controversial*. Moreover, believing that the claim discussed is controversial is one of the preparatory conditions for 'arguing'. When we want to evaluate the happiness of an USA – once accepted some philosophical assumptions about the reliability of our perceptions, the goodness of the proofs, etc. –, as it is truth-apt, we can attribute to it a truth value (true/false). On the contrary, when we want to evaluate the happiness of CSA, also in the cases in which it is truth-apt as well, we cannot have enough evidence to judge its truth or falsity. At that point, we need other sentences able to justify USA, transforming the sentence evaluated in the claim of an argument, and, in so doing, making the game of argumentation start.

On the third level, tools and criteria become more refined and allow students to better evaluate an argument and to make new argumentative moves. First of all, as we have just seen, the new taxonomies let students make the criteria of level 1 and level 2 sharper. Furthermore, assuming Searle's principle according to which, in order to distinguish the illocutionary force of speech acts, we need an insight into the *intention*, the facilitator – after or during a dialogue – can challenge participants by asking them to recognize the force of the components of the argument analysed, beyond the superficial form of an utterance. Once students have the skills suitable for analysing the

speech acts uttered to argue by means of Searle's taxonomy, distinguishing the different illocutionary forces, they will understand what kind of argument it is (*uncontroversial* or *controversial*), what kind of premises it has (the illocutionary force), etc. Otherwise, if the facilitator prefers using Roberts' taxonomy, they could understand whether the utterances analysed are *assertions* or *suggestions*; in other words, if they want to adjust the mind to the world or to imprint a change onto it. The third level is not strictly necessary for critical thinking training, that is one of the main goals of *philosophical dialogue*. It provides more developed instruments and allows students to make a more precise analysis and to better understand how the pragmatic dimension of language is influential in argumentation. Nonetheless, the categories of the previous levels should be sufficient to get an adequate understanding of the dynamics involved by the speech act of 'arguing'. Even the uptake of the happiness conditions is the same on level 2 and 3.

On the fourth and last level, students learn two argumentative tools, different but connected. The first, usable after discussion, consists in transforming an argument advanced, considered significant in the economy of the dialectical exchange just finished, into IAT semantics. In particular, the facilitator leads students to identify the *transitions* that anchor the single speech acts in the natural communicative dimension, and then she can bring them to go back to the abstract inferential structure. This task must be mediated by identifying the illocutionary force of the speech acts, that is oriented to another speech act. This exercise allows one to understand whether, in the argumentative speech act analysed, the illocutionary force adopted is precisely that requested by the dialogical game, making students aware of happy and unhappy moves.

Thanks to the second tool, useful while students are actively engaged in a dialogue, they can recognize more consciously which are the happy moves requested by circumstances, and, consequently, which are the unhappy ones: for instance, if a participant responds to a request of justification for one reason by providing an alternative reason, she does not respect the internal rules of the dialogue. For this task – but even for the first exercise – it can be useful to build a taxonomy of all possible illocutionary forces. I do not mean, of course, a universal taxonomy applicable to all the dialogues – that would betray IAT –, but a taxonomy built step by step by students, who collect the illocutionary forces found in the dialogues performed.

Before concluding, it is worth remembering that SAT provides us, beyond the characteristic criteria of each ring, an assessment criterion that cuts across all levels: the happiness of perlocutionary effect. On every level, as a matter of fact, after arguing, the student can evaluate the effectiveness of her argumentative action. The argumentative speech act, indeed, beyond the fulfilment of the illocutionary happiness conditions, is successful only if the goal of the speaker is achieved, that means that participants of the CoI have questioned their beliefs, through the happy

activity of asking and giving reasons. If this goal is not achieved, the speaker should ask herself, entering a metacognitive dimension, about the reasons for the failure. It can occur that she does not respect some happiness conditions. But it also can occur that she made only happy moves, but other pragmatic factors were decisive, such as the reputation which she enjoys – that refers to the Aristotelian notion of *ethos* (*Rhet.* I 2, 1356a 3) –, the emotional state of the interlocutor – that refers to the Aristotelian notion of *pathos* (*Rhet.* I 2, 1346a 5) –, the fear to change one's mind renouncing a series of beliefs, etc. It is not a coincidence that I mentioned Aristotle's *Rhetoric* (*Rhet.*), because beyond the logical, dialectical and, referring to Lumer's view, epistemological aspect that characterize argumentation in a *philosophical dialogue*, rhetorical factors play a critical role. 'Arguing' in *philosophical dialogue*, indeed, is a complex and multidimensional speech act: it is not just an analysis or a construction of a series of arguments; it is not only a dialectical match between two players who try to make the best move; nor is it only the search for truth by justifying the beliefs; indeed it is also a social activity embedded in a context and played by flesh-and-blood people, with their views, their problems, their emotions, their desires.[57] The choice of SAT, that can detect these pragmatic factors in the language and that is perfectly consistent with a rhetorical perspective, should be now explained better. The centrality of these factors will be addressed in Chapter III, where I will specifically deal with the role of intuition in argumentation.

2.5. An overall balance of the Concentric Speech Act Argumentative Theory

I would like to make a conclusive assessment of CSAAT. I have, first of all, underlined its main weak points. I think that the main theoretical problem in this proposal is the potential incompatibility with one of the most important features of SAT. As much as Austin and Searle try to classify *illocutionary forces*, the set of these typologies of acts is open, as well as in the IAT model. Consequently, it becomes difficult to write a normative argumentative model, that by nature needs a limited set of norms, on the basis of this feature. For now, I can just answer this challenge by saying that if the aims of this project were exclusively theoretical, the objection would be difficult to overcome. However, since its aim is also practical – i.e., developing a model able to drive the experts to educate students to think and argue well –, this incompatibility is not a real obstacle, because many of the categories used – such as that of illocutionary forces in all the levels – are not constitutive, but just heuristic: indeed, from a practical perspective, they do not intend to provide a description of the metaphysical properties of 'arguing', but rather some strategies to make it work, towards a certain goal, in a given context. Even when, in the *Conclusion*, I will mention

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[57] The distinction between logical, dialectical, epistemic and rhetorical aspect of the argument is suggested by Moruzzi (in press).

constitutive norms, I will just refer to rules essential to guarantee the development of reasoning and argumentative skills, by thinking about philosophical issues.

On the other hand, CSAAT shows a significant strength: it is simple and complex at the same time. Its concentric ring-shaped structure, indeed, allows for it to be seen as a whole or from the perspective of each level. If we consider the whole structure, it is without a doubt complex and articulated. On the contrary, if we assume the point of view of the single level, even considering the progressive complexity of the skills requested, it is characterized by a certain simplicity of tools and criteria. We must not forget that these critical thinking skills are designed to be conducted, according to the *Inventio Syllabus*, for five years in high school and it is founded on a great quantity of dialogue sessions: that means that there is plenty of time to become familiar with the categories involved. From a quick comparison with the analysis of fallacies and of reasoning schemes proposed by critical thinking literature – that are definitely inapplicable to a dialogical and situated dynamics, if not *a posteriori* –, the elements of CSAAT seem easily usable even while the dialogue occurs. That is what I was looking for.

Let me add two final remarks. The Weak Reasoning Argumentative Model (WRAT) has its rationale in a significant finding of cognitive psychological research, namely the biased and flawed nature of human reasoning when it is involved in theoretical tasks. It is a domain, and a set of issues, really far from those of linguistic and pragmatic nature addressed in this chapter. More precisely, I will deal with psychological facts and specifically with intuition, with the aim to turn out these facts into norms to be followed in a *philosophical dialogue*. Now, if we considered SAT from a psychological perspective, we could look at illocutionary intention as an *intrapersonal*[58] state of mind – i.e., factors operating within the person, such as attitudes, thoughts, intentions, etc. –, whereas we could look at perlocutionary act as an *interpersonal* effect – i.e., the consequences of one's own acts on social interactions. What I try to do is precisely to turn what happens at the intrapersonal level of reasoning and intuition into the interpersonal level of the norms of the dialogue. In this sense, and considering the practical purpose of this work, SAT and cognitive psychology are not as inconsistent as they look.[59]

Finally, it is worth saying something about another topic, that has remained silent during all the discussion on argumentation as a speech act, though it is deeply relevant to it: metacognition. As we have seen in the previous chapter on critical thinking – and we also will see in the next chapter – metacognition plays a crucial role in argumentation in general and in this theory in particular, since

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[58] According to APA Dictionary Psychology (APA), 'intrapersonal' describes "factors operating or constructs occurring within the person, such as attitudes, decisions, self-concept, self-esteem, or self-regulation".
[59] I am grateful to Marcello Guarini, Professor at the Centre for Research in Reasoning, Argumentation, and Rhetoric (CRRAR) of the University of Windsor (Ontario, Canada), who suggested this interpretation during a seminar organized by the Centre.

only specific metacognitive skills enable students to manage the pluralism of the argumentative level outlined by CSAAT. Indeed, the *thinker*[60], to successfully manage the levels of the theory, and to choose from which perspective to analyse and build arguments, needs to choose among her linguistic and argumentative toolbox: this capacity of movement and choice entails metacognitive skills. Moreover, metacognition is inherently related to the notion of *intention*: to understand which kind of illocutionary force to adopt – or, to use IAT language, which move – the thinker needs to do an attentive metacognitive selection. For these reasons, although I do not directly address metacognition in a specific section, it is an underlying issue of the whole dissertation, that occurs in all the crucial passages.

Appendix - Table of abbreviations

SAT = Speech Act Theory
IAT = Inference Anchoring Theory
CSAAT = Concentric Speech Act Argumentative Theory
PS = practical sentence
TS = theoretical sentence
PA = practical argument
TA = theoretical argument
US = uncontroversial sentence
CS = controversial sentence
USA = uncontroversial speech acts
CSA = controversial speech acts
UA = uncontroversial arguments
CA = controversial arguments

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[60] The choice of the term is due to the shift, at the end of this part, from the dimension of language, deepened in Chapter II, to that of cognition, addressed in Chapters III and IV. From now on, I will use the term 'thinker' instead of 'speaker' to indicate the subject (or interlocutor, or participant) involved in argumentation within *philosophical dialogue*.

CHAPTER III

A Weak Reasoning Account
The Role of Intuition in Argumentation

3.1. Cognitive Sciences' contribution to interpreting argumentative practice

Most argumentation theories, both the first that questioned the supremacy of formal logic (Toulmin, 1958/2003) and those that later planted their theoretical roots in the pragmatics of language (Walton & Krabbe, 1995; van Eemeren & Grootendorst, 2004), assume that any individual who takes part in a rational discussion is a reasonable critic. According to them, the arguer is an ideal individual who is able to argue correctly, to listen to every sentence in a reflective way and to change her mind if the conclusions of other speakers are better warranted than her own opinion. The proposal of Van Eemeren and Gooterdorst, the Pragma-Dialectical approach, is based on a set of pragmatic and informal rules that are effective in an ideal situation, such as a prototypical discussion between rational thinkers who not only respect each other, but who also set aside psychological prejudices, concern for their social role and unfair behaviours towards interlocutors.[61] On the other hand, in Walton's account, the New Dialectic, the so-called *commitment* plays a crucial role. A commitment establishes that if someone decides to be involved in a dialogue, then she has some public duties which she must not avoid fulfilling: to defend her own thesis if someone challenges it, to be consistent with the uttered claim, to accept conclusions drawn from her own premises even if they are unwelcome, etc. The concept of c*ommitment* also has a central empowering function in dialectical exchange, since if one takes into account the interlocutor's commitments, those can turn into the starting point for argumentation. Thus, all interlocutors are asked to be aware of their own and the other's commitments, and to act consistently with them.

On the contrary, the majority of people are probably far from the ideal model of rationality assumed by these two models. Individuals, when they are immersed and engaged in the dynamics of a discussion and are trying to persuade others of their opinion, often are not consistent with their

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[61] I am referring here to the notion of *epistemic injustice* (Fricker, 2007), coined to indicate a set of wrongs done to the other knowers in epistemic interactions: misinterpretations of one's words, unwarranted mistrust, indifference towards one's contribution, silencing, etc.

previous claims and refuse to accept any conclusion different from their beliefs, that sometimes they defend stubbornly even if they are confronted with the evidence that they are mistaken.

There are many reasons why people have this kind of reaction. First, there is a social cause: to admit being mistaken, it is a common opinion, means being incoherent and inadequate to the dynamics of public speech. The immediate effect is to 'lose face' (Goffman, 1967) in front of others, and, consequently, to lose reliability in the rest of dialogue and in those that follow. Second, there is a form of psychological resistance. Changing one's mind often means renouncing a set of cultural and familiar values that, until then, have structured one's personal growth and that are embedded and rooted so deeply that no argument, no matter how solid and rational, could eradicate them. It is an ancient issue in the history of philosophy, abundantly discussed in Plato's dialogues, when he describes the effects of Socrates' questioning, namely when his interlocutors are victims of the technique of *elenchus* (Scott, 2004).

Even if the two reasons illustrated above are sufficient to explain the complexity of the problem, there is a deeper reason that concerns our mental structure, such as it is described by cognitive psychology. With the notion of *bias*, cognitive sciences describe an automatic and innate mental mechanism, belonging to human biological heritage, that leads the unaware subject to unavoidable cognitive mistakes. These prejudices of the system, which have an evolutionary explanation, lead the subject to trust her intuitive heuristics, that – as has been demonstrated – were useful, for instance, in a survival context, where our ancestors needed to escape dangers, though jumping to a conclusion. But they may lead us to errors when we have to tackle more abstract tasks.

From the first articles which reported these psychological discoveries (Tversky & Kahneman, 1973; Kahneman, Slovic & Tversky, 1982; Evans, Barston & Pollard, 1983), launching the so-called *heuristic and biases research programme*, to the most recent ones, all these studies demonstrate that the assumption according to which human beings are rational thinkers able to have full control and awareness of their judgements and decisions is a myth. A myth inscribed inside all Western logocentric culture and reinforced in the modern rationalist period. Nevertheless, even if in cognitive psychology there is widespread agreement on the fallibility of reason, that has been proved to be biased and flawed in many reasoning tasks, the debate on the structure and functioning of reasoning is still open, especially about the role of emotions and intuition in the deliberation process.

In the following paragraphs (§ 3.2), I am going to compare two opposite theories, both based on important findings in the study of reasoning: *Dual Process Theory* (Wason & Evans, 1974; Evans, 2007; Kahneman, 2011) and *Evolutionary Approach* (Gigerenzer, 2007; Mercier & Sperber, 2017). More precisely, I will focus on Kahneman's and Mercier and Sperber's theories. This

comparison will be carried out in order to find a theoretical point of reference grounded on empirical evidence, suitable to support a new normative argumentative model. The research work is based precisely on the assumption that to build a model suitable to the real capacities of reason we need to set aside the classical and rationalistic conception of thinking and take into account the perspective of a *weak rationality*. The choice of one cognitive theory or the other, indeed, entails two different argumentative models, since they seem grounded in two opposite descriptions of reasoning. The research question of this chapter is whether or not we should accept, as good argumentative moves and strategies, inferential heuristics or not, many of them based on intuition. The project, inscribed in the educational framework of CSAAT (Concentric Speech Act Argumentative Theory), has multiple aims: first, to reach a better understanding of the human activity of arguing (§ 3.2-3.3), second, to establish the norms of dialogical argumentation (§ 3.6.2), third, to sharpen the didactical instruments of experts in leading-a *philosophical dialogue* (§ 3.6.3). Before that, however, I need to outline an overview of the debate about the notion of intuition in analytic philosophy (§ 3.4), in a way that allows me to clarify which meanings of intuition the psychological domain uses (§ 3.5) and that will serve for argumentative model construction.

For the reasons set out above, relying on a new conception of reasoning ability provided by cognitive psychology in the last decades, grounded on relevant empirical evidence, it is not surprising that this chapter is for the most part dedicated to the findings of this discipline. Its outcomes had – and, to some extent, still have – an extraordinary impact on philosophy, at least on all those branches that are involved in the study of the human mind, among them are argumentation studies.

3.2. Social origins of reasoning skills

Our thinking is weak and biased, as I mentioned. If reason has been selected during evolution and is commonly considered the main gift that we have inherited, why is it so flawed, as numerous psychological experiments have demonstrated? A possible answer, proposed by Mercier and Sperber (2011; 2017) is that what is weak is not reason as such, but solitary reasoning facing logical tasks, because it finds itself in an unnatural context. Reason is first and foremost a social competence, which achieves findings by means of interactions with others: among these findings there is argumentation.

By investigating the main function of human reason, as we have seen in § 1.5.1, Mercier and Sperber elaborated their Argumentative Theory of Reasoning (2011), a hypothesis which intends to provide an explanation of the evolutionary genesis of reasoning. They essentially contend that reasoning has not evolved to solve logic problems, as shown by the fact that rarely, in everyday life,

do people need to tackle this kind of problems and exploit logical reasoning[62] for practical decisions. Logical reasoning is slow and ineffective in most personal and social situations, whereas intuition is fast and successful. The main reason that, instead, has determined the phylogenetic evolution of reasoning is the need for people to argue in social contexts:

> Reasoning contributes to the effectiveness and reliability of communication by allowing communicators to argue for their claim and by allowing addresses to assess these arguments. It thus increases both in quantity and in epistemic quality the information humans are able to share (Mercier & Sperber, 2011, pp. 71-72).

The authors use as an example the seller/receiver relationship: just as the seller needs to make her arguments more refined if she wants to sell a product, so the receiver needs to develop some vigilance skills to distinguish good and bad arguments. Consequently, moving now to ontogenetical evolution, argumentative competences must be enhanced at the beginning of the developmental age, since they are necessary in every kind of discussion. As we have seen above[63], the phenomenon is shown by various research studies referred to by Mercier in a paper dedicated to argumentative skills in childhood (Mercier, 2011).

Reasoning, therefore, seems to have an argumentative genesis and function. As soon as the risk of a conflict emerges, we need to solve disagreements, especially in peer groups: argumentation is the best tool available to the human beings. This account explains why "reasoning should produce its best results when used in argumentative contexts, most notably in group discussions" (Mercier & Sperber, 2011, p. 80). The presence of other subjects, bringers of verbal obstacles to the accomplishment of our desires and to our self-affirmation, seems to be the driving force underlying the development of argumentative skills, which, outside a social dimension, have no reason to improve.

The attempt carried out by Mercier and Sperber to reconstruct the origin of humans' argumentative competence is grounded on the principle that the main reason for the development of every function of the human system, in particular the cognitive one, is the interaction with others in a social environment. A principle introduced in the psychological debate by Vygotskij (1934/1978), who claimed that every function in the cultural development of the child emerges first as inter-psychological event, later as intra-psychological.

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[62] In this context, the term is used in its more general meaning, that is a reasoning which makes use of rules and schemas.
[63] Cf. § 1.5.1.

3.3. Reasoning models in comparison

3.3.1. *Dual Process Theory*

The account of two different kinds of thinking, born with William James (Evans, 1990), has had great success both in social and in cognitive psychology. The general idea is that, to perform the task of forming judgements and making decisions, our cognitive system exploits two qualitatively different inferential mechanisms: the first is fast, easy, automatic, unconscious and based on intuitive heuristics; the second is slow, effortful, ruled-based, controlled and conscious. Hence, while the first processing mode tends spontaneously to operate in every domain, also when its operations are detrimental for certain tasks, the second one operates just under our will, because it consumes many cognitive resources.

In *Thinking, Fast and Slow* (2011), Kahneman summarizes the main findings which he and his colleague Tversky had previously achieved through psychological experiments, outcomes that they published in different essays. The focus of his work, which is in line with the general theory, is the natural human tendency to be mistaken in reasoning. In this domain, Kahneman provides an important contribution to explaining the hard obstacles for people to reasoning critically and their more common mistakes.[64] This inferential habit (typical of System 1) is often economical and useful, because it allows the mind to save time and effort for routine tasks. But, in the case of ambiguity and uncertainty, it could fall into traps, because it jumps to the conclusion most consistent with its experience. The issue is that System 1 needs to find an output as soon as possible, since it cannot bear the effort to lie in an uncertain state. It is not inclined to doubting, it represses ambiguity and creates coherent narratives. Kahneman identifies a specific bias (*certainty bias*), according to which we tend to exaggerate the congruence of what we have experienced, especially in probabilistic reasoning. System 1 is always in search of models and has the propension to believe in a world characterised by regularity and to swich randomness with causality: "[…] we are far too willing to reject the belief that much of what we see in life is random" (Kahneman, 2011, p.156). On the contrary, System 2 is capable of tolerating doubt, because it can keep more than one possibility simultaneously open, also if it means hard and painful work.

To report all the experimental discoveries of Kahneman and Tversky is beyond the scope of this work. Nevertheless, it may be useful to mention and describe the main intuitive heuristics employed by System 1, which leads the thinker to be biased, especially if she is required to make probabilistic assessments.[65]

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[64] For a philosophical overview of *biases* in the inferences, cf. Frixione (2007) and Evans (2007).

[65] A useful selection of these heuristics is suggested by Piro in his critical thinking handbook (2016, pp. 163-164).

– *Representativeness heuristic*. The unconscious tendency to identify some elements as representative of the sample influencing our capacity to identify correct answers (for instance, attributing certain jobs to people with certain behavioural features), since we find this consistent with the 'typical' element.[66]

– *Availability heuristics*. It is about the process to assess the frequency of an event (hence to make predictions) depending on the ease with which examples come to mind. The problem is that we often remember not the most probable cases, but the most striking (for instance, if interviewees are asked to evaluate the risk of a plane crashing, they tend to exaggerate it, in particular after a real crash). As in other heuristics, System 1 substitutes a challenging question with an easier one: the objective frequency with the emotional impression:

> The world in our heads is not a precise replica of reality; our expectations about the frequency of events are distorted by the prevalence and emotional intensity of the messages to which we are exposed. (Kahneman, 2011, p. 185)

Conversely to this tendency, when System 2 is active, we are more attentive to the content of the task, and we are less frequently victim of this very common bias.

– *Anchoring and adjustment*. Generally speaking, in problem solving situations, we resort to a model that we know, and we latch on to it, possibly adjusting the result to the original question. For instance, when we must assign a value to something unknown, we have the tendency to anchor this evaluation to another available value, even if there is no correlation between this and the problem to solve. The effect that this bias has on people's life is astonishing, for example when certain marketing campaigns take advantage of this bias to determine one's buying habits. This is a good example of how we have no control over our deliberations, yet we assume that they are the output of conscious and transparent reasoning.

The knowledge of these cognitive mechanisms may be important for a critical thinker. The problem is that any distinction between the two systems is not so sharp, since, in Kahneman's account, they are two functions of the same mind[67] and they establish relationships that are hard to predict. This is the case when lazy System 2, if it needs information, for instance for an argumentative task, resorts to what has been gathered by System 1, which appears compatible with previous beliefs, without analysing them. In such a situation, System 1 "generates impressions,

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[66] This finding is confirmed by the experiments of Eleanor Rosh (1975) on the ability of conceptualizing. When experimental testers are asked to recognize the meaning of a word, they do not do so by means of its definition, but rather, through its correspondence with a mental prototype, a representation of the object that they automatically create in their mind by means of an inductive inference from all the individuals of the same category that they experienced.

[67] It is worth noting that other theorists of *Dual Process Theory*, like Seymour Epstein, Arthur Reber, Keith Stanovich, David Over, and Johnathan St B.T. Evans, hypothesize that human beings have two different minds (Evans 2007, pp. 112-114).

feelings, and inclinations; when endorsed by System 2 these become beliefs, attitudes, and intentions" (Kahneman, 2011, p. 141).

To sum up, Kahneman's account seems able to explain a broad variety of mental phenomena, first and foremost biases. Furthermore, although he definitely brings down the classical idea of rationality, he seems to suggest that there is a way to improve our capacity of thinking correctly. This turns out to be a very convincing theory, well supported by empirical evidence. One possible challenge to this approach, as we will see later, might be that it in all the experiments carried out the test subjects were submitted to very abstract tasks, specifically of a statistical kind, where the benefits that heuristics bring in the problem-solving and decision-making domain could not be checked.

3.3.2. *Evolutionary Approach*

3.3.2.1. *Mercier and Sperber's account of inferential reasoning*

In *The Enigma of Reason* (2017), Mercier and Sperber challenge what they refer to as 'dogma of reason', that is to say the belief that its main function is "to help individuals beings achieve greater knowledge and make better decisions" (2017, p. 4). If one accepts this dogma, she must handle a paradox that is insoluble with the classical conception of rationality: reason is the superpower that both marks the difference between humans and other living beings and is also subject to failures. Actually, for the two cognitivists, there is no substantial difference between human and animal reasoning:

> Humans are like other animals: instead of one general inferential ability, they use a variety of specialized mechanisms. In humans, however, many of these mechanisms are not "instincts" but are acquired through interactions with other people during the child's development. (2017, p. 6)

Hume, unlike Descartes, recognized that the way inferences are drawn by animals and humans are very similar, because for the majority of ordinary tasks they do not employ reasoning at all. Hence, he came to a radical conclusion:

> Nature must have provided some other principle, of more ready, and more general use and application; nor can an operation of such immense consequence in life, as that of inferring effects from causes, be trusted to the uncertain process of reasoning and argumentation. (EHU 9.5.106)

In this passage, Hume openly claims that reasoning is only one of several possible inferences, and not the most reliable. Indeed, in the following pages he shows that all our reasonings are grounded on an analogy: facing similar causes, we expect the same effects.[68] This association turns into habits. Animals, like humans, learn many things by experience, and infer the same events from the

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[68] For the wider discussion on the 'Problem of Induction', cf. § 4.3.2.1.

same causes. According to this principle, they acquire knowledge of the most common properties of external objects and their effects. Hence, they have the capability to infer, thanks to past experience, some facts through what immediately touches their senses. It is habit that leads animals to infer from certain objects what usually comes together with them: this is the way by which they formulate a belief. For the Scottish philosopher, we share with animals this way of drawing inferences, considered to be an instinct or a mechanism of which we are for the most part unaware.

Mercier and Sperber, in line with Hume's insight, hypothesize that our brain draws numerous kinds of inferences, from those that are unconscious and automatic – as in perception – to those that are conscious and deliberated by reason. Between these two ends, there is a wide range of inferential processes. Reasoning is of only one type. This has its own particular features. Every category of inference is performed by specialized mechanisms (modules), each of which deals with just one kind of task. In the perceptual system, for instance, the inferential process plays an important role. Although we intuitively trust its capacity to provide us true sensations, because it seems to guarantee a direct and immediate access to reality, inferential processes continuously work to give meaning to our sensations – that are fragmentated and disconnected – and to interpret reality. Our sensations are not the first contact that we establish with the world, but they are informed by previous experience which influences it. In most cases they are reliable, but sometimes they fall victim of optical illusions, that can be explained by incorrect inferences that automatically draw wrong conclusions from some elements of the picture.[69]

After describing the modular structure of the cognitive system, the two researchers focus on intuitions, a subset of the inference set, in which awareness plays a more active role than in other inferential processes of the organism. Intuitions are defined as "judgments that we make and take to be justified without knowledge of the reasons that justifies them" (Mercier & Sperber, 1917, p. 64). They are mental operations produced by the mind, where awareness has access to the content of the conclusion (the final judgment), but not to the process: "Intuitions are like mental icebergs: we may only see the tip but we know that, below the surface, there is much more to them, which we don't see" (1917, p. 7). Through intuitions we can immediately reach the conclusion, although we are not aware of the processes below the surface.

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[69] In this respect, it is worth mentioning the pioneering experimental work carried out, in the domain of *Gestalt* psychology, by Gaetano Kanisza (1955), which demonstrated that the perceptual system has an innate propensity to fall victim to error. His experiments with geometric pictures revealed that our view cannot avoid being deceived by optical illusions, even after we know what is actually represented. It seems that this tendency has an evolutionary explanation: in a wild environment, humans need to quickly identify objects present in their field of view, because often they have no time to establish if the object is a potential threat or not. Hence, their senses have organized themselves in such a manner that a limited number of clues is sufficient to provide them an immediate reaction which, driving them to jump to the conclusions before having rationally evaluated the reasons, guarantees survival. Visual data processing is intrinsic to our perceptual structure, and it seems that we cannot perceive phenomena without these inferential mechanisms, which remain opaque and impenetrable to consciousness.

What is the difference between intuition and reasoning? Surprisingly, Mercier and Sperber claim that reasoning is a subset of intuition. Both handle mental representations (images of the things projected in the mind) as both belonging to second-order thinking (thinking about thinking). The only difference is about the kind of representations: intuition can have any kind of content, whereas the content of reasoning are the *reasons* which support a conclusion, thus it is an *intuition about reasons*. In other words, "reasoning is not an alternative to intuitive inference; reasoning is a use of intuitive inferences about reasons" (2017, p. 133) that use the same cognitive module as intuitions.

To argue that reasoning belongs to the wider set of intuitions, the authors, on the basis of empirical evidence, suggest that usually people reach their beliefs or decisions intuitively paying little or no attention to reasons. It seems, indeed, that in every reasoning, at first, intuitive inferences lead us directly to the conclusion, without any awareness of the reasons that justify that conclusion. It is not about implicit reasons, since they are neither represented unconsciously nor represented at all: in other words, they are not located in the mind, whereas implicit reasons are simply not uttered (for instance, in the case of rhetorical aims), but the speaker is aware of their existence.

If this description is plausible, how can we explain the role of reasons in the process of reasoning, which in a common-sense account serves to guide people to reach conclusions (actions or beliefs)? The problem, as the authors argue, is not that we are mistaken in identifying true reasons, but in assuming that our inferences are originally guided by reasons. In actual fact, it is only after the judgment or the decision we have reached that we reconstruct the inferential process *a-posteriori*, searching for the reasons that we suppose support that conclusion. The reasons that we give are not collected step by step to reach a conclusion by respecting logical norms, in fact they are just "rationalizations after the fact" (Mercier & Sperber, 2017, p. 115). Through this explanatory move, Mercier and Sperber upset the traditional paradigm of reason, the so-called 'dogma of reason', according to which reason looks for the most relevant and acceptable reasons in order to reach conclusions by means of valid inferences.

After having argued that reasons do not have the function to guide our decisions and judgments, the authors ask themselves what they are for. For an answer they appeal to social justification. Reasons "play a central role in after-the-fact explanation and justifications, not in the process of intuitive inference itself" (2017, p. 117): when others (or, sometimes, further experiences) challenge our statements, we have to justify them by finding good reasons. This practice contributes to being more highly regarded by other people and to saving our reputation. However, the same reasons not only serve the *retrospective* function of justification, but can also be employed *prospectively* in order to convince others of a certain belief. Although these goals seem

different, justifying and arguing belong to the same unified framework, because a reason can be used, at the same time, both as justification and to produce arguments to convince someone else.[70]

According to this account, reasons are not true or false, because they are mental representations and, as such, are not discovered, but reconstructed by reasoning for its goals. We can, hence, consider them as social constructs: "they are constructed by distorting and simplifying our understanding of mental states and of their causal role and by injecting into it a strong dose of normativity" (2017, p.127).

If we consider as the main function of reason its capacity to help individuals increase their knowledge and make better decisions, instead of its capacity to improve cooperation in social activities, we should conclude that reason is weak and badly designed, because it is a victim of biases and fails to solve unfamiliar problems. Its natural selection would remain incomprehensible. But, if we embrace an evolutionary approach, we can explain why human beings have inherited reason. The hypothesis is that, beyond its weakness, it provides advantages in social contexts, which compensate for the cognitive costs of disappointing findings. This is the case when, for instance, we infer the state of mind of a friend just from a few elements of her face. In similar situations, cognitive costs are usually reduced by heuristics, which are generally reliable. Empirical evidence, indeed, demonstrates that these shortcuts, in some cases and situations, are not only less expensive, but also even more successful.

Focusing on the main contribution that the two authors give for the understanding of reasoning, we can summarize that, when we reason, we automatically and intuitively select a conclusion and, after that, we give reasons to justify it or to argue. Moreover, not only do we reach the conclusion in an intuitive way, but we even select our reasons by using intuition: reason, indeed, is intuition about reasons. The *Evolutionary Approach* seems able to explain the important role that intuition plays in many deliberations, specifically personal and social ones, because it can choose the best solution among many choices without spending too many cognitive resources. In a way, this theory attributes a new significant and positive role within the reasoning process to Kahneman's System 1, although it denies the existence of any dualism.

Nevertheless, it has some weak points not to be underestimated. An important challenge to it has been made by Catarina Dutilh Novaes (2018). Among the numerous disagreements with Mercier and Sperber's theory, which she still recognizes as an original piece of work that will play a role in the debate about reasoning, she highlights in several passages of her paper that they do not provide sufficient evidence in support of their theory. A relevant instance of this is the assumption that reason is the result of phylogenetical *adaptation* to social needs: "Reason is an adaptation to the

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[70] When I want to convince someone about *p* (e.g., 'no one should smoke'), at the same time I'm justifying the claim *p*.

hypersocial niche humans have built for themselves" (Mercier & Sperber 2017, p. 330). Deductively, indeed, first, they point out that reason cannot have the function of leading the thinker in solitary cognitive tasks – where it appears to be subject to biases; but, second, reason must have an adaptive function; therefore, it must have a different function, i.e., a social one. An adaptationist account, after observing a trait in an organism that distinguishes it from the others, postulates that it *must be* an adaptation and, consequently, an "*optimal solution* (not only a satisfying one) to the function(s) it is supposed to be a response to […]" (Dutilh Novaes, 2018, p. 516). The issue here is that this hypothesis is not sufficiently demonstrated, while, instead, other hypotheses – for instance, that it is about an exaptation, i.e., when some biological function takes novel advantage of another function – are not taken into account at all. Mentioning Lloyd, indeed, Dutilh Novaes asks the reader "why an evolutionary explanation should not start with "what is the function of this trait?" as a research question but instead should start with "does this trait have a function?" (Dutilh Novaes, 2018, p. 516). In the first question, indeed, it is assumed that there *must be* some sort of function.

Furthermore, I would add, it remains to be seen which factors drive our initial selection, since we are not aware of the inferential process. A compelling answer can be found in Damasio's neuroscientific work.

3.3.2.2. *Damasio's neuroscientific hypothesis: the function of 'somatic markers' in the deliberative process*

For the neuroscientist Antonio Damasio, quoting previous work by Johnson-Laird (Johnson-Laird & Shafir, 1993), the main objective of reasoning is decision-making, that is to say choosing a possible answer (verbal or not) among those available in a certain context. Those who make decisions need both logical strategies to draw effective inferences and the two mind functions in charge of all this laborious activity: memory and attention. The modern rationalistic perspective, which is commonly considered to start from Descartes, claims that in decision-making it is the logic that drives to a better solution, as long as it excludes the bad influence of emotions and feelings.[71]
In line with the main cognitive psychologists' view – i.e., in decision making it is not logic that drives to a better solution –, how is it possible that many times our brain can make sound decisions in a split second, thus without the time necessary for reasoning?

Through the observation of many cases of patients with brain damage to the ventromedial prefrontal cortex, which has the function of integrating representations of body status […] with available options (Campeggiani, 2021, p. 125), they turn out to have a reduced capacity for decision, although they achieved brilliant results in all the cognitive tests (perception, memory,

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[71] In Damasio's language, *emotions* and *feelings* indicate two different biological processes, also if they are closely connected: *emotion* is the body reaction faced with a stimulus (i.e., the fear), whereas *feeling* is the awareness of a connection between the stimulus (and similar entities belonging to the same category) and the emotional body status.

probabilistic computation, etc.). Speaking about the case of Elliot, Damasio comes to this conclusion:

> I began to think that the cold-bloodedness of Elliot's reasoning prevented him from assigning different values to different options and made his decision-making landscape hopelessly flat (Damasio, 1994, p. 51).

To explain this phenomenon, Damasio formulated the *somatic-marker hypothesis*, which provided scientific evidence against the high-rationality Cartesian paradigm. Before conducting a rational cost-benefits analysis on any decision, something occurs to the brain, namely it receives from the body clues which are linked to the available options. *Somatic-markers* are body signals (e.g., face pallor, change of body temperature, goose bumps, etc.) which mark a value: positive or negative. These devices automatically drive attention to the outcome of a decision, giving the signal 'stop' or 'go-ahead'. They can operate on a conscious level, leading the awareness to deliberation, or under the consciousness: in this case, they contribute to create a picture linked with the possible outcomes, but without perceptible changes in the body.

In other words, Damasio claims that the mind, at the time of a decision, can count on a preselection mechanism that automatically suggests what is more relevant for the subject, excluding those options whose value is negative for her cognitive system:

> The point I want to stress is that your mind is not a blank at the start of the reasoning process. Rather it is replete with a diverse repertoire of images, generated to the tune of the situation you are facing, entering and exiting your consciousness in a show too rich for you to encompass fully. (1994, p. 170)

The discovery of *somatic-markers* explains another psychological phenomenon, intuition, the "mysterious mechanism by which we arrive at the solution of a problem without reasoning toward it" (1994, p. 188). How it can be that among all the possibilities, that are potentially infinite, we often find the best one? Probably, since many decisions impact on our future, the criteria are deeply rooted in our biological drivers and we have evolutionarily developed an intuitive way to reach good answers in face of problems. The causal chain is easily explainable: when we have multiple options, order is required; but, to realize it, we need to classify the options according to criteria; criteria are provided by *somatic-markers*, which help to orient the decision.

In conclusion, emotions, that can be considered the output of the biological mechanism of *somatic-markers*, play a central role in decision making tasks. These mechanisms work well if facing personal and social decisions and they seem perfectly compatible with the function of intuitive inferences that Mercier and Sperber hypothesize to explain human reasoning. By appealing to Damasio's hypothesis, it seems possible to find a powerful neurobiological explanation for the functioning of intuition in the *Evolutionary account*, an empirical explanation that the two authors

have failed to fully provide to the reader. In § 3.6.2.2, when I present some dialectical heuristics, we will try to understand whether also in the domain of theoretical judgments, as a distinct sphere from that of practical-deliberative reasonings[72], the same mechanisms play a significant role and, in that case, whether intuition driven by them is reliable.

3.4. The debate over the concept of intuition in contemporary analytic philosophy

The notion of intuition plays a central role in the Western philosophical tradition. It has been so important and successful that it is not possible to provide a definition whose extension is able to include all the uses of the concept that philosophers have employed and developed in their theories. Before coming to contemporary analytic philosophy, it is worth mentioning at least Descartes and Mill, for the influence that their concept of intuition had in the following centuries. Briefly, Descartes (R.) thinks that there are just two ways to reach knowledge: *intuition*, an intellectual seeing or perception in which things are directly present to the mind, and *necessary deduction*. Using Kantian categories, all things intuited can be both contingent *a posteriori* entities, for example the fact that I exist, and necessary *a priori* entities, for example the fact that a triangle has three lines. Similarly, Mill (1874/2009) claims that there are two ways to know the truth: some truths are directly known, more specifically they are propositions immediately available to consciousness, other truths can be known inferentially, namely only by the intermediation of truths already held. At this point, we can give a starting basic definition of the concept that is widely shared in philosophical tradition, at least in the Modern Age:

(D1)　Intuition (I) is a *non-inferential* way of knowing.

This first definition, which stresses the *inferential / intuitive* macro-dichotomy, should be useful to introduce us to the contemporary debate, that has developed and sharpened, also by means of formal instruments, the main topics in this tradition. It is important to focus on it in order to better understand what I mean exactly when, in the following sections, I will refer to intuition in *philosophical dialogue*. Among the protagonists of this large and complex debate, I selected just three contemporary philosophers (Timothy Williamson, Hermann Cappelen, Carrie Jenkins) whose contribution is relevant to the purposes of this dissertation, because they provide clear definitions and sharp categories of the notion. Thus, I will not refer to all their views on intuition, but only to these conceptual distinctions, underlying analogies and differences.

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[72] For this distinction in reasoning theory, essential in this dissertation, cf. § 2.3.1.

3.4.1. Williamson's description

Let us start from one of the protagonists of the debate in epistemology, Timothy Williamson. In *Philosophical Method. A Very Short Introduction* (2020), he dedicates a section, brief but significant, to the notion of intuition, that is included in a chapter about thought experiments. He starts his reflection by asking whether all judgments rely on intuition. Indeed, some philosophers think that intuitive judgments, i.e., those based on intuition, are not inferred from evidence. Another possible answer, more promising according to Williamson, is that "intuitive thinking is not based on a *conscious process* of inference" (Williamson, 2020, p. 55), hence, even if there is an inferential process, the subject is not aware of it. He immediately compares this way of thinking with the reasoning employed when a subject makes a long mathematical calculation, which, on the contrary, needs a certain degree of awareness. It is not difficult to see the close similarity between this couple of distinctive thinking processes and the two reasoning systems hypothesized by Kahneman: the last one, as well, often describes System 1 as intuitive. We can summarize Williamson's conception of intuition in the following definition, close to (D1):

(D2)   An intuition (I) is a judgment not based on a conscious process of inference.

However, beyond this classical distinction, it is interesting to see what Williamson says right after:

> […] *all non-intuitive thinking relies on intuitive thinking.* For if non-intuitive thinking is traced back through the conscious processes of inference on which it was based, sooner or later one always comes to one thinking not himself based on a conscious process of inference, which therefore counts as intuitive thinking. Consequently, philosophy's reliance on intuitive thinking shows nothing special about philosophy, because all thinking relies on intuitive thinking. […] That does not make their thinking irrational; it just means that at least some intuitive thinking is part of rational thinking. (Williamson, 2020, p. 55)

He answers the starting question about whether all judgements rely on intuition affirmatively. Nevertheless, what is remarkable in this passage, is that we cannot avoid a certain degree of intuition in the act of producing thoughts, even those more inferential, complex, and demanding (in other words, worked out by System 2). From this brief description, it seems that this intuitive thinking, since it lies at the basis of any other non-intuitive thinking, is like a *presupposition* – considered here as a belief (i.e., a judgement) that may never have been justified, but rather works as a starting point for (*presupposes*) conscious inferences. This does not mean that it is a self-justified belief, but that its justification is only unconscious: indeed, if one intends to discover it, it is possible. We can summarize Williamson's view through the following definition:

(D3)   An intuition (I) is a presupposition not based on a conscious process of inference, working as a starting point for conscious inferences.

In *Philosophy of Philosophy* (2007), Williamson's interpretation of intuition in philosophy, that is inscribed within a wider reflection on the issue of evidence in the discipline, seems to anticipate what he will claim in Williamson (2020) and we have just analysed:

> When contemporary analytic philosophers run out of arguments, they appeal to intuitions. It can seem, and is sometimes said, that any philosophical dispute, when pushed back far enough, turns into a conflict of intuitions about ultimate premises: "In the end, all we have to go on is our intuitions." Thus intuitions are presented as our evidence in philosophy. (Williamson, 2007, pp. 214)

In this essay, he deals with an important issue: is the appeal to intuition of many contemporary analytic philosophers justified as a special knowledge capable to give evidence to philosophical arguments, or, rather, is it a useless notion for philosophical inquiry? Though I cannot deal with the issue here, it is interesting to point out that he clearly asserts that intuitive judgments do not have a philosophical nature, because they are just judgments or dispositions to judgments (Williamson, 2007, p. 3).

This notion, however, when employed in philosophical debate, is problematic. One of the main difficulties in the appeal to intuition, for instance, is that it is often used as psychological premise of the arguments. Indeed, with the aim of finding what he calls 'Evidence Neutrality' (propositions recognized as true by both parties in a debate, namely an uncontroversial common ground from which an argument can start), philosophers often do not appeal directly to empirical facts, but to psychological events, that, as such, are not challengeable by the interlocutor: for instance, to say '*I have the intuition that* here is one hand'[73] is different from saying 'Here is one hand', because the former is a proposition that describes a psychological state of mind, i.e. the propositional attitude of *intuiting*. What is, for Williamson, the problem with this dialectical move? If I want to gain a sort of Evidence Neutrality, it will be necessary to come back to the level of the subject matter, whatever this may be; but from a psychological premise (a state of mind) we cannot infer a conclusion belonging, as in the example, to the ontological level (a state of affairs). In fact, on closer inspection, even the dialectical value of this move is problematic: what guarantees the truth of intuition just from its occurrence in the mind?

In the wide reflection of Williamson about the status of intuitions, especially in philosophy, I selected just two points, which I consider significant. The first is his general view about the notion of non-inferential conscious judgments, that lies at the root of every kind of thinking; the second,

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[73] It is the first premise of the so-called 'One hand argument', proposed by Moore in the famous essay *A Defense of Common Sense* (Moore, 1925/1959), written to refute the absolute sceptical view of reality.

instead, is a strong criticism of the tendence to psychologizing the premises of arguments, one of the most common usages of intuition within analytic philosophical debate.

3.4.2. Cappelen's description

Herman Cappelen, in *Philosophy without Intuitions* (2012), believing that intuition does not add a real contribution to philosophical activity, radically challenges the centrality the concept has in analytic philosophy. Basically, based on some features of the notion that he outlines, he argues that this alleged centrality is due either to the linguistic presence of words that clearly refer to intuitions ('intuition', 'intuitive', 'intuitively', 'seem', etc.) or to the role illegitimately attributed by philosophers to intuition in philosophical practices, such as the 'Method of Cases'.[74] Cappelen lists three main traits of the notion:

- – F1: Seem true/special phenomenology;
- – F2: Rock bottom status;
- – F3: Based solely on conceptual competence.

By feature F1, first described by philosophers like Bealer and Pust, he refers to a special state of mind, different from *to believe* that *p*, to *incline to believe* that *p*, *to guess* that *p*, etc. It is a *sui generis* and irreducible propositional attitude that can sometimes occur, and can be better captured by the verb *to seem*, as in the following definition:

(D4) "If S has an intuition that *p*, then it seems to S that p." (Cappelen 2012, p. 101)

In other words, it is about a special phenomenology according to which one 'sees' that the proposition that she intuits is true. Bealer strengthens this *sui generis* phenomenology by adding that intuitions are *necessary*. Unlike 'physical intuitions' (e.g., 'If I were to drop this computer it would crash on the floor'), indeed, that are *a posteriori*, 'a priori intuitions' present themselves as necessary, thus if a subject has an intuition she must believe in the truth of that proposition:

(D4a) "At *t*, S [rationally] intuits that *p* if and only if at *t*, it intellectually seems to S that necessarily, *p*." (Cappelen, 2012, p. 8).

For this reason, Bealer uses the term 'rational intuition', which apparently captures the phenomenology of *intellectual seeming*.

By feature F2, Cappelen refers to the alleged *special epistemic status* of intuitive judgments, that consists of the capacity of justifying other judgments, without needing any justification. These are propositions which lie at the root of any inference, because it is impossible to go any further down, in a logical sense. That means, in other words, that they are powerful instruments in

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[74] The 'Method of Cases' is going to be described later (§ 3.6.3.2).

philosophical argumentation, because they serve as a starting – and justificatory – point in philosophical arguments: indeed, they "provide evidence for other claims without themselves requiring evidence". (Cappelen, 2012, p. 7). At first glance, F2 seems to define what Williamson means by *intuitive* judgments, expressed by (D3) ('An intuition (I) is a presupposition not based on a conscious process of inference, working as a starting point for conscious inferences'). In actual fact, there is a subtle but crucial difference: while it is always possible to find further justifications for intuition interpreted as (D3), intuition according to Cappelen's F2 does not need any further justification. That is what Cappelen means by *rock bottom status.* We can summarize this view through the following definition:

>   (D5)   An intuition (I) is a grounding presupposition, that is not itself grounded on something else, at the basis of every kind of judgment, even inferential ones.

Cappelen points out that, for those philosophers who believe in the existence of these special propositions, it is not clear how to identify them. Therefore, he identifies two diagnostics:

–   F2.1: *Non-inferential* and *Non-experiential*: *p* seems to S justified even though she needs no appeal to experience (perception, memory) or any inference from other premises;
–   F2.2: *Evidence recalcitrant*: even if S has not good argument to believe that *p*, she however keeps on being inclined to believe that *p.*

It is worth noting that, whereas the fact that in logical or mathematical systems there are some propositions that are postulated – possibly because they are intuited – is commonly accepted, it is much more complicated to postulate these kinds of intuitive axioms in philosophical arguments, because their premises often do not refer to abstract objects like triangles, parallels lines, etc., but to objects whose concepts are extremely controversial such as justice, good, knowledge, truth, etc.

Finally, F3 indicates those propositions the truth of which is discovered *a priori* by conceptual analysis, consequently they are necessary true: 'The triangle has three sides', 'If Mary hates pears and apples, then she hates apples', 'Red things are coloured', 'A bachelor is an unmarried male', etc. They are conceptual intuitive truths, because their truth is justified by the conceptual analysis itself, without any *a posteriori* experience. We could summarize this feature in the following definition:

>   (D6)   An intuition (I) is an *a priori* true proposition.

If the first two features (*Seem true* and *Rock bottom status*), as they are used and intended in the debate, are extremely controversial, the third one (*Based solely on conceptual analysis*) is more widely accepted by philosophers who believe in the epistemic worth of intuition. Cappelen, however, does not provide three different definitions of the notion, but rather three distinct features;

this means that the absence of F1 or F2 or F3 in a philosophical argument is proof that it does not rely on any intuition:

> Thought proponents of Centrality [the central role of intuition in philosophy] disagree among themselves about just what intuitive is, they agree that if all of F1-F3 are absent, that is evidence of an absence of the intuitive. (Cappelen 2012: 114)

By analysing different philosophical cases, i.e., famous thought experiments, and observing that their arguments do not rely on F1 or F2 or F3, he intends to demonstrate the lack of soundness of Centrality.

3.4.3. Jenkins' description

I shall now proceed to the last description of the notion of intuition, the one outlined by C. S. I. Jenkins (2014). Also in this case, I am not going to enter into the whole philosophical account of intuition by the philosopher, though interesting and fascinating, which is focused just on one of the different types of the usages of this notion in the debate. On the contrary, I am going to see how she distinguishes and describes all these types. Basically, she identifies four *bundles of symptoms* associated with the concept of intuition, namely four different interpretations, each of them including specific features: a *commonsensically* bundle, an *a prioricity* bundle, an *immediacy* bundle, and a *metaphilosophical* bundle.

The first bundle refers to everyday opinions of the folk, i.e., beliefs that people hold in an unreflective and spontaneous way, since they are not the result of any theoretical, or, at least, cognitive, activity. This meaning of intuition emerges, in the debate, connoted by two opposite spins. One, definitely negative, describes these opinions as folk prejudices that lie in the network of people's beliefs, but are never questioned or rationally argued. In philosophical debate, these judgments are usually considered just as a starting point for a further inquiry aimed at checking their reliability. In this sense, intuitions are beliefs that can have a dialectical role. Parsons, who is quoted by Cappelen (2012, p. 11), recognizes this function:

> When a philosopher talks of his or others' intuitions, that usually means what the person concerned takes to be true at the outset of an inquiry, or as a matter of common sense; intuitions in this sense are not knowledge, since they need not to be true and can be very fallible guides to the truth.

The other spin (the second symptom of the first bundle), instead, is associated with a positive view, precisely due to the lack of theoretical contamination. We could summarize the *commonsensical* meaning of intuition in the following definition:

(D7)   An intuition (I) is an unreflective, spontaneous and never justified judgment, which has been inherited from the social context of the subject and is largely accepted by it.

The second bundle includes rational and intuitive judgments that we can produce through conceptual *a priori* analysis. This bundle is characterized by necessity and is associated with some sort of conceptual and linguistic competence, required to draw these kinds of intuitions. It is worth noting the perfect overlapping with Cappelen's F2. Mentioning Williamson, Jenkins highlights another symptom, that is that intuitions, according to this second meaning, is considered as the upshot of a special human faculty.

The third symptom-bundle is *immediacy*, associated with two different symptoms: the label 'immediacy$_1$' serves to denote the feature of *directness* "in the sense of non-inferential, or at least of no obvious inferential provenance" (Jenkins, 2015, p. 94); the label 'immediacy$_2$' is used to say that intuitions seem to the subject obvious, spontaneous, natural, a belief phenomenologically present to the consciousness. A further interesting distinction about immediacy$_1$ is that this special non-inferential status can be of an *epistemic* kind, when an intuition does not rely on previous propositions, and of a *psychological* kind, when the state of mind of intuition does not rely on premises to which the subject was already committed. It is also worth mentioning the similarity with (D2) (my synthesis of Williamson's view: 'An intuition (I) is a judgment not based on a conscious process of inference') and with (D4), namely Cappelen's F1 (*Seem truth/special phenomenology*).

The fourth and last symptoms-bundle is the meta-philosophical one. The notion of intuition is often used by philosophers to reflect about the nature of philosophy. The first symptom tries to describe the account, in meta-philosophical debate, according to which intuition plays the role of starting point – or foundation – for philosophical inquiry. This feature, obviously, is related to the bundle of *immediacy*, since something that is foundational is, by nature, not inferred from other premises. Another symptom relevant to this overview is the function of warrant that intuition performs to provide evidence in philosophical arguments: if a proposition is considered intuitive, then it provides evidence in favour of a position; vice versa, if it is counterintuitive, then it provides evidence against a position. These features are very close to (D5) ('An intuition (I) is a grounding presupposition, that is not itself grounded on something else, at the basis of every kind of judgments, even those inferential.'), namely to Cappelen's F2 (*Rock bottom status*).

As can be easily noted, most of the bundle of symptoms described by Jenkins have a conceptual extension very similar – in certain cases even corresponding – to that of the descriptions given by Williamson and Cappelen. Compared to them, she provides one more definition, possibly the most obvious, that is (D7), the *commonsensical* one: 'An intuition (I) is an unreflective, spontaneous and never justified judgment, which has been inherited from the social context of the subject and is largely accepted by it.' A definition that – together with the other ones – will play a crucial role, in

the next sections, to analyse, first, which account of intuition is considered by *Dual Process Theory* and by *Evolutionary Approach* and, second, to develop the norms, and the related pedagogical devices, of the argumentative model.

3.5. An operational distinction: intuitions as *contents* / intuitions as *methods*

The previous overview of the notion of intuition in contemporary analytic philosophy should let us understand which definition of intuition Kahneman on the one hand and Mercier and Sperber on the other hand make use of.

Starting from Kahneman's perspective, the notion of intuition is constantly associated with that of heuristics. In cognitive scientific debate, heuristics are commonly considered as mental strategies, i.e., cognitive shortcuts, used to find a solution to a problem, or reach a decision, in a fast and not cognitively expensive way. These strategies, worked out by Kahneman's System 1, are alternative to a more systematic, analytic, and controlled process in the search for a solution. For instance, faced with the mathematical problem to calculate 20% of 120, we should use the following proportion:

(1)   x:120 = 20:100

To find x, we should multiply the two central values (120*20 = 2400) and divide the result by the external available value (2400/100 = 24). That is the traditional way to proceed, but with simple numbers like those of (2), we may follow another path: we immediately know that to calculate 10% of a number it is enough to take off the last figure (120 → 12); after that, since two times 10 is 20, we can easily multiply by two (12*2 = 24). This strategy is, undoubtedly, less expensive in term of cognitive energies and faster than the classical way. It can be applied to simple numbers like 120, but if we have to apply it to more complex numbers (e.g., 2043), the possibility of a mistake increases, and it probably becomes no longer useful.

Kahneman does not verify mental heuristics in examples such as (2), rather in statistical and probabilistic tasks, where he can widely point out that the use of heuristics usually leads the test subject to bad solutions. That is the reasons why, in his account, heuristics are often associated with the notion of bias, and, in general, if System 1 employs effective instruments to orient oneself in daily problems, it is much less reliable for tasks that require a more abstract reasoning. A good example is the phenomenon of *framing*, according to which the solution to a problem is heavily influenced by the way we ask the question.[75]

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[75] In one of the experiments conducted by Kahneman and Tversky, the test subjects were asked which alternative they would choose, faced with the following scenario: The US Government is preparing for an Asian disease, that could kill 600 people: 72 per cent of the first group preferred programme A (200 people will be saved) to B (one-third probability to save 600 people and one-third probability to save nobody), whereas 78 per cent of the second group preferred

Intuitive heuristics are similar to what Cappelen calls 'Seem true' feature, or Jenkins calls 'immediacy'. We feel, without the need for any other justification, that certain answers are more correct or sounder than others, because there is something like a *seeming true* feeling that makes us inclined to prefer one answer to another. If someone asked us to justify the choice, most likely we wouldn't be able to do so, or, after few seconds of reflection, we would find a justification to confirm the correctness of our answer, falling into a classical *confirmation bias*, , i.e., the tendency to test our hypothesis trying to make it true, by choosing more evidence that confirms it than evidence that could falsify it. As Evans ironically says observing the outcomes of the experiments of Peter Wason, his master and one of the first psychologist who theorizes that we are biased in reasoning, "people […] were bad Popperians" (2017, p. 35). What is remarkable is that the use of the notion of intuition in Kahneman does not seem to refer to the content of our belief, but rather to the process that leads people to their beliefs: in other words, intuitions are considered by him as *methods*, not as *contents*. This also applies to Cappelen's and Jenkin's categories, according to which the property of *seeming* does not refer to the content of the answer reached in a given experiment, but to the methods employed to reach that answer.

If we turn now to Mercier and Sperber's account, many of the same heuristics described by Kahneman have a completely different value. Indeed, as we have seen, they claim that to follow these judgments (or intuitions) is the best thing to do for us in personal and social issues, not only in a survival environment, but also in culturally evolved social contexts. Most of the processes are worked out by the brain automatically, without any awareness, in an effective way, leaving us to achieve our goals. This means that, instead of considering them merely as biased forms of reasoning, they are considered by the *Evolutionary Approach* extremely useful in daily life, because they can lead our choices without any cognitive effort. Analysing the cognitive processes employed by the experimental tests in Kahneman's experiments about the bias of *availability*, the *Evolutionary Approach* upset the perspective:

> While the heuristic can be made to look bad, we would be much more worried about a participant who would engage in this painstaking process just to answer a psychology quiz. Moreover, the psychologist Gerd Gigerenzer and his colleagues have shown that in many cases using such heuristics not only is less effortful but also gives better results than using more complex strategies. Heuristics, Gigerenzer argues, are not "quick-and-dirty"; they are "fast-and-frugal" ways of thinking that are remarkably reliable. (Mercier & Sperber, 2017, p. 208).

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programme D (one-third probability that nobody will die and two-thirds that 600 people will die) to C (400 people will die). Programme A and C are evidently identical, but the answers are influenced by the way the question is asked, i.e., the *framing* effect.

Gerd Gigerenzer is one of the earliest critics of the description of the cognitive system in the *Dual Process Theory*. His theory, more focused on ecological than evolutionary rationality, claimed that we should usually rely on intuitive mechanisms ('gut feelings'), because they are the result of an adaptation to the environment in which they operate, hence they must be relatively undemanding. An example of these mechanisms is *recognition heuristic*, consisting of the benefit that our ignorance provides us in facing multiple choices. Indeed, as he and his school demonstrated by means of many experiments, if our mind recognizes one object as more familiar among many others, then the recognized one has the highest value, thus it can be chosen as the correct answer. An illustration of this mechanism is reported by Evans (2017, p. 94): when both Americans and Germans were asked to evaluate the size of American cities, such as San Diego and San Antonio, 100 per cent of Germans answered correctly that San Diego is bigger than San Antonio, compared with 62 per cent of Americans. For Gigerenzer, the reason is that foreigners had heard more often the name San Diego than San Antonio, so the limited field of possibilities led them to the correct choice.

Another interesting confirmation of the positive value of intuitive heuristic is the *expert problem solving*. In some cases, the bias called *anchoring* by Kahneman turns into a specific problem-solving skill. As some problems present too many possibilities, experts rely on *pattern recognition*: "From experience, they recognize situations that are similar to those seen before and can rapidly propose potential solutions that have worked in the past" (Evans, 2007, p. 30). This intuitive and spontaneous pattern, in other words, reduces the range of possibilities on the basis of experience and it precisely marks what distinguishes, for instance, an experienced doctor from one who has knowledge just from books. To explain this phenomenon, Evans also uses the notion of *experiential learning*, i.e., learning we acquire continuously by experience without being aware of this process.

Although the same heuristics are interpreted in two opposite ways by Kahneman and Mercier and Sperber, it is clear that we can also include the notion of intuition employed in the *Evolutionaruy account* in the philosophical category of *seeming true / immediacy*. However, in this case as well, we should consider that we are talking about *methods* of reasoning, not about *contents*. An important confirmation of this distinction is provided by Mercier and Sperber themselves. Indeed, as we have seen above, they describe reasoning as *intuition about reasons* (2017, p. 133), which suggests that being intuitive is the process guiding the subject to find the best reasons in argumentative contexts. According to them, when we are immersed in a dialectical exchange with other people, as we need to find strong reasons for our judgements – in order to convince others to believe or to do what we would want them to believe or do – we intuitively find the best reasons

useful for this purpose. Our cognitive system, in other words, has developed in human evolutionary history specific devices to carry out this function in the fastest, least expensive, and most effective way. In other words, the classical rhetorical move of *inventio*[76], that is to say the search for the best reasons in a given rhetorical context, would be more effective if it were implemented by intuition. This is an appealing hypothesis, which even seems more compelling viewed in the light of Damasio's *somatic markers*, which, faced with a decision-making task, mark a value that can be positive or negative. Damasio's solution, indeed, is able to overcome a classical criticism addressed by the defenders of *Dual Process Theory* to the accounts that adopt an adaptive perspective – such as the Mercier and Sperber's or Gigerenzer's (2007): "what mechanism in the mind is responsible for selecting the right heuristic from the toolbox for a particular job?" (Evans, 2017, p. 94).

Beyond the interpretation of intuition, within the *Evolutionary Approach*, as a method, it is worth pointing out another reading, that has to do more with the tier of contents than with that of methods, connected with Jenkins' definition of *common sense*. Given that reasoning is considered just as the argumentative activity of giving and asking for reasons for our own judgments, the issue is not to change judgment or not based on good or bad reasons, rather to find the best reasons to confirm it. That means that, for Mercier and Sperber, a good reasoner – and arguer – is one who finds the best reasons for her own ideas, just to *produce* an argument, not one who is able to listen to the other's reasons to *receive* an argument, and, consequently, to change idea after considering all the reasons at stake. After all, they claim that human reason is biased and lazy:

> Biased because it overwhelmingly finds justifications and arguments that support the reasoner's point of view, lazy because reason makes little effort to assess the quality of the justifications and arguments it produces. (Mercier & Sperber, 2017, p. 9)

However, instead of being two weak points of reasoning, they turn them into strengths, because, according to an interactionist perspective, these features strengthen the attitude of the reasoner to produce reasons for her side and, thus, to convince others of her own opinion. This is known as *myside bias*, a slight variant of the *confirmation bias*:

> […] when defending a point of view, the myside bias is a good thing. It is a feature, not a bug. If the function of reasoning, when it produces reasons, is to justify one's actions or to convince others, then it should have a myside bias. (Mercier & Sperber, 2017, p. 219)

Such features have an undeniable adaptive value, but they do not have any epistemic value: indeed, the fact that they are undoubtedly helpful to convince others does not mean that they produce

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[76] *Inventio* (in Greek *èuresis,* research), consisting in the search for the schemata (*topoi*) relevant to the thesis to argue, is the first of the five moves established by classical rhetoric. The other four are *dispositio* (the organization of arguments), *elocutio* (the care about stylistic expression and the choice of rhetorical devices), *memoria* (the memory of the moves of the speech), and *action* (the actual performing of the speech act, caring about voice and gesturality).

knowledge. Besides, knowledge is not the goal of argumentation in *Evolutionary Approach*; the goal is, instead, to allow the arguer to acquire social consideration in her community.

Mercier and Sperber, hence, have a static view of human reason, since it prefers not to change decisions or beliefs, but rather to consider the reasons aimed at confirming them. That is a fascinating view. The problems arise when they argue that their being biased and lazy serves to develop argumentative skills. As Dutilh Novaes remarks (2018, p. 519), indeed, it would be at odds with a tradition which acknowledges the capacity to consider the one's own and the others' points of view as a valuable tool in the hand of the arguer, simply since she can anticipate the interlocutor's arguments.

All these considerations confirm that the second notion of intuition employed in the *Evolutionary Approach* is close to that of *common sense*, according to the meaning used by Jenkins. But it is important to point out that it is not about the set of beliefs that we have unconsciously inherited from our social environment. Rather, Mercier and Sperber talk about an individual and a static network of personal beliefs, that, even if they are justified by the subject, they have not been really questioned, but just confirmed. They are something very similar to the prejudices that lie in our mind. The difference is that a *pre*-judice, as the etymology suggests, is a judgment expressed before any reasoning (or search for reasons); instead, the judgments described in the *Evolutionary account* are supported by reasons, even if these reasons have been sought by a thinker driven by an effective *myside bias*. Although there are significant differences, they are in both cases judgements or decisions accepted because they are useful, not because of having been honestly analysed and assessed.

To summarize, I needed to make an operational distinction, for my purposes, between the concept of intuition employed in the two psychological theories described in the first sections:

1. Intuitions as propositional *contents*, namely commonsensical beliefs;
2. Intuitions as reasoning *methods*, namely cognitive heuristics.

Once this distinction is introduced, it can be said that both *Dual Process Theory* and *Evolutionary Approach* explicitly appeal to the notion of intuition, and that this notion can be considered similar, if not exactly identical, to some of the definitions used in analytic philosophical debate. The former refers just to the category of *seeming true/immediacy*, but in terms of method; the latter refers both to the category of *common sense*, considered as contents of judgements, and to that of *seeming true/immediacy* considered as methods.

3.6.   Towards a pluralistic Weak Reasoning Argumentative Theory (WRAT)

In the previous pages, two opposite perspectives have been analysed: *Dual Process Theory* and *Evolutionary Approach*. They essentially agree about a weak paradigm of rationality, because they both recognize, on an empirical basis, that reasoning has a natural tendency to become a victim of biases and fallacies. Nevertheless, they provide totally different interpretations of the functioning of reasoning. To summarize, the *Dual Process Theory*, first developed more than one century ago by William James and further by Kahneman, claims that the mind produces two distinct forms of inference: intuitive heuristics, that are fast, effortless and automatic, and reasonings, that are slow, accurate, cognitively expensive and aware. On the other hand, the *Evolutionary Approach*, elaborated by Mercier and Sperber and, as I argued, scientifically funded on Damasio's theory, claims that there is no difference between intuitive inferences and reasoning, since reasoning itself is a kind of intuitive inference.

As stated in § 3.1, the aim of this comparison is to assess the possibility of anchoring a normative argumentative model onto scientific ground, starting from the claim that the classical account of thinking is not able to explain the failures of its procedures, especially in the activity of argumentation. If the assumption of some classical theories is that the arguer is a reasonable critic, the assumption of the model that I am constructing will be that the arguer is a 'weak' thinker, with all the complex nuances that this term tries to describe. The tasks, now, are different and they depend on each other: first, to evaluate, among the reasoning features of the theories, those that are relevant for the purposes of this dissertation (§ 3.6.1); second, to turn these descriptive features in norms belonging to a normative model (§ 3.6.2); third, once some norms have been defined, to elaborate pedagogical devices that can be employed in the context of dialogical dialogues (§ 3.6.3).

3.6.1.   For an evaluation of the two theories

Kahneman's approach is undoubtedly able to account for numerous cognitive aspects that occupy an important place in the construction of a normative model. If we consider, for instance, metacognition, it perfectly fits *Dual Process Theory*.[77] Metacognition is a self-reflective act on the phenomenon of thinking, a high order thinking, that allows us to observe both our thoughts (*what*) and their way to take shape, to apply, to proceed, etc. (*how*). This competence, useful, for instance, to facilitate and orient our learning processes[78], obviously belongs to System 2, which takes advantage of awareness for its tasks. When we reason about our reasoning, we have to detach the

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[77] That is confirmed by studies on metacognition. For instance, Proust (2013) holds that metacognition "sheds new light on the distinction between personal and subpersonal processes, and its relation between system-1 and system-2 types of metacognition and reasoning." (2013, p. 295).

[78] There is a considerable body of literature about the role of metacognition in learning. For an overview, cf. Cornoldi (1995, pp. 329-360). Among the numerous attempts to apply metacognitive skills to learning, Borkiwski & Muthukrishma (1992) deserves to be mentioned.

mind from ordinary tasks and focus on more abstract objects, such as mental processes, events, means, limits, etc. in order to reach a deep awareness of our mental schemata and to lead them, in the future, towards better accomplishments. Only System 2 might make such an effort of abstraction and orientation to new goals. On the other hand, System 1 enables us just to handle low order thinking, which thinks about things outside our thoughts.

Another interesting point about the *Dual Process Theory* is its capacity to explain some of the trouble that people usually encounter in solving deductive problems. Since the beginning of the Eighties of the last century, many experiments have been conducted to discover the logical skills of the interviewees. One of the first findings discovered was that people can easily solve a *modus ponens*, but they show some difficulties in solving a *modus tollens* or to figure out that some deductions are fallacious. The reason for these difficulties has not been discovered yet after decades of research. However, an important finding has been made about deductive reasoning by Jonathan St B. Evans, a result that contributed to founding the modern *Dual Process Theory*: our beliefs about the sentences of an argument, especially of the conclusion, interfere with the assessment of their validity, although in formal logic the actual meaning of the sentence is irrelevant. Let us take an example, suggested by Evans (2017, p. 70):

(2) No addictive things are inexpensive.
Some cigarettes are inexpensive.

Therefore, some addictive things are not cigarettes.

The translation of the first universal negative premise into a conditional ('If a thing is not addictive, then it is not expensive) shows us that the argument is not deductively valid, since it falls into the so-called *affirming the consequence*. Nevertheless, 71 per cent of university students interviewed said that it is a valid argument. On the contrary, faced with the following example:

(3) No millionaires are hard workers.
Some rich people are hard workers.

Therefore, some millionaires are not rich people.

only 10 per cent of interviewees said that it was valid. Why? Whereas the content of the conclusion of (2) is true and, consequently, believed by most people, the content the conclusion of (3) is absurd: "Even with clear logical reasoning instructions, people are strongly inclined to say that believable conclusions follow and unbelievable ones do not. This is known as the *belief bias* effect" (Evans, 2017, p. 70). These and other similar experiments demonstrate that belief-based reasoning is the way by means of which human beings reason naturally, in the sense that they do not tend to

accept counterintuitive conclusions. In other words, it is a reasoning worked out by System 1.[79] They can also set aside their belief and reason in a more abstract way, beyond the meaning of the sentences, but, as it is not a natural manner of thinking, it requires both a high IQ and a conscious effort, belonging to System 2. After all, it is not strange that the capacity to set aside our actual belief allows us to reason more objectively, since we are no longer anchored to the factual world, but we can consider other not factual possibilities: the same capacity, indeed, required by hypothetical thinking (still belonging to System 2). What is important, here, is to remark that a good training in System 2 is potentially able to turn off the spontaneous and unreliable responses provided by System 1 – at least in deductive tasks –, and to let System 2 handle the problems without dangerous interferences.

What has just been described is strictly connected with the next point. If we consider reasoning forms such as deduction, induction, abduction, it seems that the intervention of System 2 is needed just to solve deductive inferences – except for simple cases like *modus ponens.* On the other hand, the other two forms seem more natural for the human mind, because they employ System 1 by default, which is sufficient in most cases. For instance, if we have observed that people with red hair always have a fair skin, it is natural to draw the inductive conclusion that every person with red hair has a fair skin. It is an inference based on concrete experience, and that assumes the uniformity of nature: since, so far, such a phenomenon (or feature) has been correlated with another phenomenon (or feature), we inductively conclude that this correlation will be permanent also in the future. Unfortunately, not all phenomena are repeated regularly and for some of those the assumption of regularity – questioned by Hume in the famous 'Problem of Induction'[80] – can lead the subject to mistaken generalizations. That is the case of Russell's turkey (2012): for the British philosopher, an 'inductive turkey' takes a great risk, because it would reason in the following way: so far, every time humans move close to me, they give me food, therefore it will occur even in the future. But, of course, this reasoning does not take into account the crucial exception, when humans move to it to murder and cook it. If most of the time instances of inductive reasoning – that from experienced premises draw general and probable conclusions, such as in some forecasts – are successfully processed by System 1, in certain scenarios only the intervention of System 2, due to its capacity to be sceptical about regularities and to stand in the state of uncertainty, allows us to avoid false generalizations. It is especially worth mentioning probability problems, considered cousins of induction. Indeed, as widely demonstrated by Kahneman, if the experimental subject is

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[79] The analysis of *belief bias* is particularly relevant to the *Inventio* project, since, as Experimentation data report, it is a widespread tendency of students when they are asked to argue for beliefs with which they disagree (cf. *Introduction*, § 2). It is not by chance, thus, that a whole bundle of norms of DPT Model are devoted to this central epistemic attitude (cf. § 3.6.2.1).
[80] Cf. § 4.3.2.1

asked to assign a probability degree to a statistical problem, the use of System 1 leads her to err systematically, due to the numerous biases automatically activated by the cognitive system (*availability*, *representativeness*, etc.) to reduce the difficulty of the task. In these cases, only unnatural and demanding reasoning can help us give the right answer.

Quite similar to induction is the case of abduction, which is traditionally considered as the *inference to the best explanation*.[81] Abduction, a non-monotonic inference which adapts the conclusion to changing available information, tries to provide a consistent explanation (conclusion) of unusual phenomena by gathering all and only the available elements (premises). Finding an explanation for phenomena is a natural human need and we obviously tend to embrace the one that better fits the situation and that let the subject reconstruct a consistent picture of the world through as few moves as possible. If, for instance, I realize that the light in the kitchen does not turn on (and I have no other information), on the basis that we implicitly know that any lights that are burned out do not turn on, I conclude that the light must have burnt out. We can turn this reasoning into the following logical schema:

(4)   The light of the kitchen does not turn on.
       (If a light burns out, then it does not turn on.)

       The light has burnt out.

It is easy to point out that it is exactly about an *affirmation of the consequent*: it is a fallacious inference from the perspective of deductive validity, but it is natural and heuristically successful – of course, not in all cases: a blackout in the neighbour can also occur – to try to follow this explanation. Falling in this deductive fallacy by using System 1, as it has been demonstrated, is natural and spontaneous; that means that using abductive inference to solve other kinds of problems is likewise natural and spontaneous. This confirms that abduction – at least in a first level of complexity – is an inference processed by System 1. [82] Obviously, the awareness (System 2) about the fallibility of these kinds of conclusions helps the thinker to reckon when it is no longer reliable, when she has new relevant information, etc.: what should be done by an expert doctor when inferring a diagnosis.

The last remarkable point in Kahneman's account, deeply linked with the previous one, is what we can call the issue of *uncertainty*: if System 1 needs to eliminate any uncertain state by constructing consistent pictures of the world, and by rejecting irregularities or elements not explained, instead System 2 can dwell on the state of uncertainty for a relatively long time, keeping

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[81] This definition, actually, has been challenged by some scholars, such as Woods (2021). I will come back to the notion of abduction in Ch. IV.
[82] For a deepening of this interpretation of the differences between the inferential types relating to the two Kahneman's systems, cf. § 4.3.3.

simultaneously open more than one possibility. This specific skill, as we will see later, has potentially a strategic role in *philosophical dialogues*. Indeed, in philosophical terms, it can be said that System 2 is able to tackle aporetic problems and the consequent effort for the mind.

Let us move now to the *Evolutionary Approach*. The first strength that emerges from its analysis is its capability to explain, in a simple and fascinating way, the role of intuition as a *method* in argumentation – the first meaning of the notion in Mercier and Sperber's account –, especially within a dialogical dimension. When we communicate with the intention to persuade an interlocutor to think or to do what we want her to think or do, we go searching for 'reasons' to justify a certain claim. The problem of dialogical contexts – every dialogical context, not only of a philosophical kind – is that we do not have time to construct arguments with all the premises and the conclusion put in a sound and ordered manner; rather, we need to find good reasons that intuitively fit that specific context and that specific addressee in order to justify our belief or decision, or to convince her about its soundness. There is no time to calmly reason, to arrange all our knowledge towards a sound conclusion, and, let alone, to reflect about the grounds of all these premises. Thus, either we recover arguments already heard or constructed for previous situations, or we need to resort to intuitive guidance in the search for relevant reasons. What seems compelling in the *Evolutionary Approach* is that *inventio*'s skill is not considered as the result of a hard learning work which includes the acquaintance with argumentative techniques, schemata, and rules. Instead, it is considered as a completely natural skill that consists of a set of pragmatical competences: understanding the context, connecting oneself with it, figuring out the beliefs of the listener, her emotions, etc. All these competences are learned by social experience and belong to human common ground, or, even, to human inheritance. This central skill in argumentation – i.e., finding the best reasons – would be completely different in an argumentative writing task, but that issue is not at stake here.

The second remarkable point – connected with intuition as a *content* – is the issue of the starting point in argumentation. Probably the most relevant insight of this approach is that we start reasoning (and arguing) not from premises to conclusion, but from claim to reasons. Only after having this reference point, as an unquestioned and intuitive judgment already held and represented in the mind, does our rational work of giving reasons start. This starting point function works both when we are in an interaction with other human beings and when we need to make decisions or to solve problems on our own, because in both situations we anchor our reasoning to deeply rooted judgments. This description of the search for reasons is able to explain some important psychological and argumentative phenomena. The first is the fact that it is simpler for someone to say what she thinks about something than to answer the question about the reasons why she thinks

so and so. It can seems a trivial finding, but the classical view of reason, the dogma according to which it helps "individual beings achieve greater knowledge and make better decisions" (Mercier & Sperber, 2017, p. 4) cannot explain this psychological reality: we all know fairly clearly what we think about many issues – if we do not check the rational ground of our beliefs; what seems less clear is on what basis we have those beliefs. In Kahneman's terms, we could say that the former belongs to System 1, and the latter to System 2. The second, that follows from the first, is a phenomenon which emerges in argumentative performing: the widespread tendency to start from the claim, overall, in dialogical contexts, would not be considered just as a rhetorical strategy which upset the logical order of an argument, able to catch the audience's attention before expressing all its own argumentative firepower. Actually it is, Mercier and Sperber say, the natural way to draw inferences, hence the natural way to utter arguments.

The third strong point of the *Evolutionary account*, connected with the previous one, is the choice of the term 'reason', central in the work of the two researchers, instead of 'premise'. The use of the word 'premise' entails a certain order of elements in a logical structure: a first premise which, added to a second premise, draws a conclusion, following certain logical norms. Instead, the word 'reason' is more general and less technical than 'premise', because it includes a wide variety of heterogeneous elements which are collected with the sole objective to support a claim. When we give reasons in a dialectical exchange, we do not care about collecting them in a sound way to guarantee the conclusion, but we take data, examples, counterexamples, general warrants, authoritative and reliable opinions, claims which are the output of other reasonings, etc. The choice to renounce the abstract notion of 'premise' allows us to look at argumentative dialogue not as an abstract diagram with all the ordered elements of an argument, but in its real dynamic and temporal dimension, i.e., as we have seen in Chapter 2, as a speech act. That is linguistic proof that it is about a pragmatic approach which tries to capture speakers in the natural dimension of dialogue, overcoming abstract logic normativity.

It is no coincidence that I mentioned the dimension of rhetoric by analysing the *Evolutionary Approach* rather than the *Dual Process Theory*. Indeed, whereas, in the latter, argumentation is considered just as a solitary task of the thinker faced with problems to solve, in the former, argumentation is regarded as a social phenomenon embedded in dialogical contexts. Consequently, it should not be surprising that, in identifying the argumentative norms according to Mercier and Sperber's model, effectiveness will be a standard to be considered.

3.6.2. Two complementary normative models: goals, norms, and fallacies

At the end of this comparison, we can conclude that both approaches are compatible with some of the central ideas of my argumentative model. The theoretical insights of both understandings of

reason can provide excellent and effective dialectical tools, primarily useful to teach students to argue well. But the two theories seem suitable for different aims that can likely be integrated.

Thanks to the contribution from Mercier and Sperber (supported by Damasio's hypothesis), we know that faced with deliberative and practical issues, it may be advantageous to trust inferential mechanisms inherited by evolutionary selection, because they make us naturally skilled. In actual fact, faced with theoretical and more impersonal problems, intuition and its mechanisms may be an obstacle that should be overcome: this is the case, for instance, in scientific domains, such as physics, where formal logic instruments are often the best to solve problems and where correct conclusions are often counterintuitive.

Damasio hypothesizes that the two kinds of reasoning (the practical one, which leads to deliberations, and the theoretical one, which leads to beliefs) are both crossed by a common thread, something like the same neurobiological core (Damasio, 1994, p. 168). However, scientific evidence confirms that a damaged deliberative capacity of the patient is not associated with a reduced capacity to soundly judge in non-personal domains. Otherwise, as Damasio spells out, certain people have excellent skills in decision making, showing uncommon social competencies, but they are not able to deal with theoretical problems at all.

To take into account both theories means elaborating a pluralistic argumentative model, which can adapt its norms and tools to the two different kinds of problem. Indeed, coming back to the educational domain – which is, it should be remembered, the field of application of the model – we can, for now, summarize the central idea as follows: when students argue about practical problems, namely decisions, the facilitator might encourage the use of heuristics to find solutions (*methods*) and, also, to give intuitive judgments (*contents*); quite the opposite, when they are faced with theoretical problems, the facilitator might discourage intuitions and brings students to keep it under the control of System 2 (*methods*). I might add that, as underlined in § 2.3.1, practical-deliberative reasonings are performed in the 1st-person, whereas theoretical reasonings in the 3rd-person: this is a key distinction, largely justified both by the differences between the two cognitive accounts and by the reasoning theory in the domain of philosophy (Wallace, 2020), which in turn justifies the pluralism of the model.

Hence, an attempt is to make the two cognitive approaches, although they are so different, distinctive empirical reference points for an integrated model, that I will call the WEAK REASONING ARGUMENTATIVE THEORY (WRAT). Despite this integration, however, for the clarity of description, it seems worthwhile to define separately the norms that, following one or the other, should be respected in *philosophical dialogue*, therefore the legitimate moves and strategies we can use. To work in an orderly manner, I will proceed as follows: first, I will try to define, for

each theory, the general purposes of learning critical thinking; then, the main argumentative goals, grounded on the strengths identified in each of the two theories (§ 3.6.1); after that, I will define, based on these goals, the rules – or strategies – that a thinker (namely a student involved in *philosophical dialogue*) should follow. Once the norms are defined, we easily understand what the fallacious moves will be.[83] In the next tables, it is important not to confuse norms with means: means are used by the facilitator to achieve a goal; on the contrary, norms must be followed by participants to guarantee the quality of dialogical argumentation.

3.6.2.1. The DPT Model (based on Dual Process Theory)

To take into account the *Dual Process Theory* means drafting a model designed to make students conscious of the fragility of reason and of the two different ways to process information. Its main purpose should be to educate students to avoid, as far as possible, intuitive conclusions, since they lead them astray. Consequently, it would teach them to be aware of their own and other people's prejudices, fallacies and biases, towards which System 1 automatically leads human beings. To achieve these goals, training is required aimed at strengthening System 2 and making us attentive with regard to the blandishments of System 1.

DPT Model (based on *Dual Process Theory*)	
GENERAL PURPOSES	
– **To be conscious of the weakness of reason and of the two different cognitive systems;** – **To avoid intuitive conclusions (System 1);** – **To become aware of one's own and other people's prejudices, biases, etc.;** – **To strengthen System 2.**	
GOALS	NORMS
A. To develop metacognitive skills	1. The thinker, if asked, shall summarize her and others' interventions in one sentence; 2. The thinker, if asked, shall rephrase what she and others said; 3. The thinker, if asked, shall say at which point of the dialogue participants stand; 4. The thinker, if asked, shall reconstruct the main directions that the dialogue has taken; 5. The thinker, if asked, shall distinguish if she is arguing about 1st-person deliberative problems or about 3rd-person theoretical problems; 6. The thinker, if asked, shall say whether she activated System 1 or System 2 for a given problem; 7. The thinker, if asked, shall say what kind of argument she is making or she made, and whether it is sound, given the context and the aim.
B. To set aside one's own beliefs	1. The thinker shall take into account beliefs different from hers, finding reasons to support them; 2. The thinker shall be open to construct arguments to support her or others' claims; 3. The thinker shall create experimental thought relevant to the context;

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[83] For this meaning of fallacy, definitely far from the classical notion established in argumentation, I took inspiration from the Pragma-Dialectics model (van Eemeren & Grootendorst, 2004), where, starting from a simple system of dialectal rules, the authors consider fallacious all moves that do not respect them.

	4. The thinker shall be willing to accept other's experimental thoughts; 5. The thinker shall state the hypothetical consequences of a claim, an argument, a theory.
C. To respect deductive criteria	1. The thinker shall use valid deductions; 2. The thinker shall use relevant reasons to draw the conclusion; 3. The thinker shall use sufficient reasons to draw the conclusion; 4. The thinker shall use acceptable reasons to draw the conclusion.
D. To accept the mental state of uncertainty	1. The thinker may not draw rushed conclusions from her own and others' claims, arguments, or theories; 2. The thinker may not express agreement or disagreement with a claim or theory (or preference for one or the other theory) before finding and evaluating all the possible reasons; 3. The thinker may not propose a claim or a theory (or a solution for the problem) before listening and evaluating all the arguments and counterarguments.

Given the close relationship established, as we have seen, between metacognition and *Dual Process Theory*, the first goal is 'to develop metacognitive skills'. First of all, the metacognitive awareness of her own mental processes would allow the thinker to understand which of the two systems is operating during a task. For instance, knowing the substitution mechanism (when System 1 replaces a hard question which would require the activation of System 2 with an easier one) would be useful to the thinker, because she could recognize if she actually is using the right system.

Connected to that are many norms, all aimed at assuring others that every participant is aware of what is happening both in the dialogue and in her own mind. If a certain degree of awareness is guaranteed, then also the commitment of participants about the dialogue, their claim and their argument is guaranteed as well.[84] To guarantee both awareness and commitment, the thinker must be able to perform a series of metacognitive micro-operations, from the less to the more complex, but all of those require the thinker to detach from the topic of discussion and, rather, to focus on what and how she and the group think about the matter. Firstly, she shall summarize in one sentence (goal A / norm No. 1) and rephrase (No. 2) what she or others have said: those actions have a crucial function not only for the thinker, who demonstrates full awareness of her and others' statements and the ability to translate the same propositional content in many utterances, but also for the group, that can in every moment check what has actually been said. Hence, compliance with these norms avoids classical pragmatic fallacies, related to the criterion of relevance (e.g., *strawman*).

The third and the fourth norms of goal A, instead, allow the group to have full awareness, respectively, of the exact place in which the dialogue took place and of the main directions that it took. For instance, if the group is discussing a challenge that someone addressed to someone else, and maybe this discussion needs to stop for a moment to analyse the definition of a central concept, it will be important for participants to know that they stand two levels under the main discussion,

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[84] The importance of this commitment is stressed even by van Eemeren and Grootendorst (1984) and Walton and Krabbe (1995).

otherwise some of them would get lost. Moreover, the reconstruction of the path taken by dialogical inquiry – that can also be graphically represented – lets participants know where they are going exactly and which alternative paths they could have taken, so they can take them later: awareness of counterfactual and hypothetical possibilities allows the inquiry not to remain stuck in its factual path, but rather to be open to alternatives.

The fifth metacognitive norm (i.e., to distinguish if one is arguing about 1st- or 3rd-person) lets the thinker and the group know exactly which kind of problem one is discussing: if it is a deliberative one, indeed, also if hypothetical ('if I were in that situation, then I would do *so and so*'), participants must know that they cannot challenge personal decisions, because the truth is not at stake; rather, they can help the thinker with a better cost-benefits analysis. The same goes, of course, also for the thinker, who has greater clarity of her argumentative goal. Related to the previous rule are the sixth and the seventh norms. Indeed, on the one hand, self-awareness of which system the thinker is using allows both her to not fall into unsound arguments and the group to recognize them. On the other hand, awareness of the system employed helps the thinker know more precisely whether the type of argument (deduction, induction, or abduction) she is carrying out fits the task: indeed, I underlined above the close link between, respectively, System 2 and deduction, and between System 1 and induction and abduction. It is worth adding, here, that, if the focus is not on a single argument but on the whole argumentation, consistently with the tools and criteria provided in CSAAT (Chapter 2), the thinker shall understand which type of argumentative speech act she is performing (or has performed) according to the taxonomies proposed and, overall, she shall figure out whether her move is the move required by that precise dialogue and that precise context, according to the principle of *anchoring* between speech acts. Moreover, beyond the respect of the illocutionary happiness conditions, she should evaluate the perlocutionary effects of her 'arguing'.

The second bundle of norms are of service to the goal to set aside one's own beliefs. I have already stressed the importance of this goal in dialectical argumentation, as a long tradition from Aristotle onwards has highlighted. A good thinker is not only one who can argue for her beliefs, but also for opposing views. That allows her to analyse impartially the reasons of both views and, starting from them, to decide impartially which of them is better grounded. It is worth noting that this is exactly the movement opposed to the one stated in arguing by the *Evolutionary Approach*. Such a hard task requires a good deal of System 2, because only if the thinker renounces her intuitive (*commonsensical*) beliefs, can she then analyse an issue objectively.

The first of these norms (goal B / norm No. 1) consists in the willingness to take into account beliefs different from hers. To fulfil this task, the thinker shall find reasons both for her view and for

opposing ones. Obviously, a reason can be also constituted by a whole argument. In this case, she may not focus exclusively on the content of individual sentences, but even on the syntactic structure of the whole argument (norm No. 2). That means, on the one hand, that even if the conclusion is counterintuitive, or far from the beliefs of the thinker, she shall accept it, once the validity of the inference is verified. On the other hand, if the premises are not shared by her, she shall suspend judgment and try to consider them as acceptable. In so doing, she not only lets the interlocutor carry out the reasoning, but even – and more importantly – takes seriously into account that the acceptability of the conclusion may shed light on the premises. In this case, the thinker can discover new reasons in support of or against her opinion, reasons that she has never thought of, possibly because they are intuitively far from her network of beliefs.

It is worth mentioning separately hypothetical (or creative) thinking, channelled into norms No. 3-5. This has to do with thinking that can be triggered only if the thinker is willing to set aside her usual opinions and open to other possible ones. A standard way to think hypothetically in philosophy is the use of thought experiments, that I will deal with more extensively later. To follow a thought experiment, it is necessary to suspend judgment. Indeed, they usually describe possible scenarios (either counterfactual or hypothetical, usually very striking), where one or more commonsensical presuppositions are suspended and things go in unexpected ways. These powerful devices allow philosophers to check the validity of their theory – or to challenge other theories – by testing it in all possible scenarios, not only factual ones. In the hands of a thinker within *philosophical dialogue*, thought experiments can be used as arguments both to support her claim and to challenge other's claims; but if she cannot set aside, for a moment, her usual opinion, the creation of these unreal scenarios would be blocked. To make the device work, it is necessary also for listeners to be willing to suspend their judgment and follow the thinker in this mental journey (norm No. 4).

The fifth norm stresses the important role, in philosophy (as in the other domains, say scientific ones), to draw the consequences of what is stated, by the thinker or by her interlocutors. One of the most creative ways to challenge a claim (or an argument or a whole theory) is to check its possible consequences assuming that it is true, or at least factual. By seeing that some consequences – for instance of a law – might be dangerous, the thinker can realize that the claim is not acceptable. In the example, for *practical reasons* – i.e., by considering the practical costs and benefits of the claim –, but, in other frameworks, the consequences might not be accepted for *epistemic* reasons, as in the following Cartesian *modus tollens* argument: 'If it were true that nothing exists, I would not be thinking now; but I am thinking; therefore, the claim that nothing exists is false'.

The third bundle of norms is related to deduction, the best argumentative schema according to *Dual Process Theory*, since it requires the thinker to set aside System 1 and to activate System 2. Indeed, as we know, the logical validity of deductive reasoning (norm No. 1) is independent of the propositional content of its sentences and, beyond the rule connected to setting aside one's own beliefs, it must be guaranteed in the active construction of new arguments. Actually, the notion of deductive validity and the connected one of soundness (formal validity plus true premises) have been challenged by *Informal Logic*, since it is not considered a sufficient criterion to evaluate everyday arguments. An example of this challenge is provided by Hitchcock:

> We can see that some arguments which we take to be good are not sound by reflecting on examples of perfectly acceptable arguments whose premisses are not all true, or whose inferential step is not deductively valid. For example, quantitative reasoning about the real world often relies on estimates or assumptions which are conceded to be idealizations or mere guesses; (Hitchcock, 2000a, p. 134).

Toulmin (1958/2003), after all, was the first to realise that good natural-language arguments are not featured exclusively by formal validity and the truth of premises, but also by a sort of *enthymematically validity* (or *material validity*), i.e., validity based also on the content of premises. That does not mean, however, that formal validity is considered an unnecessary condition, but an insufficient one. Though I agree with the general informal logicians' interpretation of the limit of deductive validity, considering the relevance of deductive validity to *Dual Process Theory*, this criterion is to be taken into account besides other ones, also in the context of philosophical argumentation performed in a dialogue.

All the following three norms (i.e., to argue by using relevant, sufficient and acceptable reasons) refer to general criteria for argument evaluation, even in this case, to be considered besides fulfilment of happiness conditions of the whole argumentation. Among various proposals, I have chosen the triad *relevance-sufficiency-acceptability* (RSA criterion), elaborated by Johnson and Blair in *Logical Self-Defense* (1977, pp. 54-55), one of the pioneering books of the *Informal Logic* tradition, which contributed to the birth of this discipline. A synthetic account is provided by Hitchcock (2000a, p. 135): "Each premiss must be acceptable. Each premiss must be relevant to the conclusion. And the premises must be jointly sufficient". Rather than venturing into an analytical description of the three criteria, given the wide literature produced by *Informal Logic* and critical thinking debate, I prefer to underline that the RSA criterion has been subject, in the last decades, to many criticisms. Woods (1994), for instance, maintains that the criteria for relevance, if considered as a semantic relation (as "contributing to the truth for") cannot sufficiently warrant the passage of acceptability from premises to the conclusion. Rather, he proposes a pragmatic concept of relevance, intended as "contributing to the (assumed) goals in the context". Govier proposes a set of

criteria (ARG conditions) that improves the previous one: the premises must be *acceptable* (A), *relevant* (R) to the conclusion, and "provide adequate or good *grounds* [G] for the conclusion" (Govier, 2010. p. 87), substituting the notion of adequate *grounding* to that of *sufficiency*.

The same rules applied to premises can obviously be applied, in general, to every reason, even if it is not brought by the thinker as a premise for a structured argument, but as a single claim that supports the main claim. For instance, a thinker shall not bring a reason unfit for a given problem, and, if others do it, then they must be challenged by the thinker that has to point out the irrelevance of these reasons. What I want to underline by this example is that the three norms, if applied to *philosophical dialogue*, lead participants to mutual commitment that guarantees the quality of argumentative exchange.

The last group of argumentative rules are related to the issue of uncertainty. As we have seen above, thanks to the action of System 2, the thinker learns to accept the state of cognitive uncertainty presented by deep problems, such as philosophical ones, preventing the risk that System 1 runs to reinstate a coherent and comforting picture of the issue addressed.

Uncertainty is a special state of mind, that could be more aptly termed *theoretical uncertainty* in order to remove any possible ambiguity with the notion of *psychological uncertainty* and its negative meanings. The philosophical tradition has usually talked about *doubt* to indicate the following propositional attitude:

(5) S doubts whether *p*

As I argued in Chapter 2, that is not only a crucial propositional attitude in philosophical inquiry, but also the illocutionary goal of 'arguing' in *philosophical dialogue*, because it allows the thinker to question both her own and the interlocutors' beliefs. Thanks to this attitude, indeed, she does not rush suddenly to a conclusion, she does not accept a theory, she does not judge a reason sound, etc. without an attentive and scrupulous examination of all the arguments and an open predisposition to changing her mind. There are, however, two kinds of doubt. The first, described by (5) is focused on one claim, argument or theory; the second, instead, is a doubt between two distinctive claims, arguments, theories, and it is described by the following propositional attitude:

(6)   S doubts whether *p* or *r*

Unfortunately, we cannot turn (5) and (6) into argumentative rules, since they are states of mind, and, as such, no one can verify if the thinker is actually in these states. Nevertheless, we can judge her dialectical moves, and one of them (norm No. 1), easy to recognize, consists in avoiding drawing rushed conclusions from a claim or a theory.

It should be evident that there is a close bond between the goal of uncertainty and that of detachment from one's own beliefs. On the one hand, indeed, the first norm of goal B presupposes that the thinker stands in the state of uncertainty between two distinct claims as long as she is finding and evaluating all possible reasons supporting both claims. On the other hand, norms No. 2 and No. 3 of *uncertainty* express roughly the same attitude, with the only difference that they are channelled into two distinctive roles that the thinker can play in a dialectical exchange: according with the second norm, which deals with the distinction between (5) and (6), she is a judge of other's theories; instead, according to the third one, she is an active arguer who proposes new theories. In both cases, she shall be warned against the dangers of rushing.

In conclusion, the activation of System 2, as Kahneman never tires of repeating, entails high cognitive costs. But, in certain cases, it is possible to reach the so-called 'cognitive flow' (Csikszentmihalyi, 1975/2000), a state of deep concentration that makes a subject feel as one with the activity she is carrying out. It is easy to imagine an athlete during a competition being in this special state. But, when the activity task is thinking, we should imagine this flow as the capacity to reason about challenging issues without any effort. With adequate training, possibly by means of *philosophical dialogues* and, potentially, some critical thinking activities aimed at strengthening the main skills of System 2, this may be not only possible, but even desirable, as the illocutionary force of 'arguing' in this kind of context requires.

3.6.2.2. The EA Model (based on Evolutionary Approach)

If we take into account the *Evolutionary Approach*, we should build a model which encourages students to use intuitions and heuristics that lead them to making decisions and formulating judgments. More precisely, using the distinction 'intuition as a method' / 'intuition as a content', the model should encourage them both to follow their intuition to find the best reasons in a dialogical context and to start arguing (finding/giving reasons) from their intuitive judgements.

According to the first purpose, instead of considering intuitive heuristics as enemies, as in the *Dual Process Theory*, these spontaneous inferential devices which lead us to finding the best reasons fitting the context could be seen as special assistants which help our weak rationality, faced with the complexity, ambiguity and uncertainty of certain problems, in particular those of a philosophical nature. Students should be made aware of these devices – that I will call *dialectical heuristics* – and, consequently, hear the emotions from which they are originated, since emotional responses can guide them to follow intuition in order to find the best reasons.

According to the second purpose, intuitive judgments are to be considered reliable reference points to start searching for reasons to support it, a search useful both for justifying one's own judgment, if requested, and for convincing others to believe them. It is definitely crucial to remark

that, within this normative model, based on Mercier and Sperber's account, confidence in our own intuitive judgments is related just to personal and social issues. The issue of deliberative and theoretical problems reintroduces the distinction proposed in § 2.3.1, where I have argued that the classical distinction between 1st-person practical and 3rd-person theoretical arguments can be interpreted as different illocutionary forces, in the conversational framework of Speech Act Theory. It is actually the same distinction, only observed from another perspective.

Before proceeding, a thorny issue should be clarified: the role of the 1st-person problem in philosophy. Philosophers usually deal with theoretical problems, not with practical ones. The issues inquired by philosophy – and then, by all its instruments, such as dialogue – are theoretical, because they are concerned with the truth of claims, arguments, and theories analysed, not with decisions. Indeed, we cannot technically agree or disagree – i.e., discuss – with a personal decision, but only with what others think about certain matters: their truth or, in the case of normative statements, their acceptability.[85] The disagreement comes only when we switch to the normative tier. We could, of course, argue about the decision that someone wants to make, but if we do that, we have already switched from a 1st-person to a 3rd-person problem, since we do not answer the question 'What do I have to do?', but rather 'What is it better (right, fair, good, etc.) to do (for you, for her, etc.)?': in other words, we have switched from a personal deliberative tier to a normative one. Agreement or disagreement is applied only on the normative tier: it is on this tier that philosophical issues lie. Consequently, questions like 'What decision will I make?', 'What decision would I make if…?', 'What decision would have I made if…?' are not strictly speaking philosophical; instead, questions like 'What is it right to do?' or 'What is it good to do?' are intrinsically philosophical, as the use of present tense suggests: we are, indeed, interested to know what is right, good, etc. universally, not in a particular case.

A classic example of this issue, reported also by Mercier and Sperber (2017, p. 134), is what is known as 'Moore's paradox': it is intuitively absurd to assert a statement together with the claim that I disbelieve it:

(7) *P*, but I do not believe that *p*

Though the intuitive absurdity, the sentence is not self-contradictory, since I can be in a state of mind to not believe something, even if it is actually true (or to believe something that is false). The problem is neither the logical form of the sentence nor its propositional content. The problem is that it is uttered in the first person and in the present tense, both elements that, as we have seen in Chapter II, make it a speech act. As such, it is not a sentence listened to or read in the third person

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[85] I am referring, here, to the notion of propositional disagreement, but in literature other notions of disagreement trying to capture the practical aspects are theorized. Cf. MacFarlane (2014), who uses different types of doxastic disagreement.

by someone else, but actually uttered by somebody in a certain concrete context. This is the case of a philosophically acceptable paradoxical statement[86], but, although the content seems clear, it is absurd for intuition, which tends to avoid and overcome every contradiction. In philosophical terms, we cannot have a discussion if (7) is interpreted as a speech act; on the contrary, if it is interpreted as a sentence in the 3rd person, we can have a deep and interesting philosophical discussion, which deals with the classical epistemological problem of the relationship between belief and truth; even if it appears semantically counterintuitive.

At this juncture, one might think that the 1st-person deliberative dimension, within which, according to the EA Model, intuitive heuristics usually lead us to the best decision, does not fit philosophical inquiry. In fact, for the reasons just explained, it does not. But that does not exclude automatically that 1st-person questions and problems can play a key role in *philosophical dialogue*. Indeed, even the confidence in our judgments related to theoretical issues – though epistemically illicit – can be heuristically useful for the functioning of specific pedagogical devices that make use both of 1st-person practical and 3rd-person theoretical arguments.[87]

EA MODEL (based on *Evolutionary Approach)*	
GENERAL PURPOSES	
– **To direct arguments from claim to reasons;** – **To rely on intuitive heuristics in the search for reasons.**	
GOALS	NORMS
A. To develop metacognitive skills	1. The thinker, if asked, shall distinguish whether she is arguing about 1st-person deliberative problems or about 3rd-person theoretical problems;
B. To understand the dialogical context pragmatically	1. The thinker shall understand if she and her interlocutors are epistemic peers; 2. The thinker shall understand the emotional state of the interlocutors.
C. To focus on deliberative judgements	1. The thinker, if asked, shall publicly state her claim at the beginning of the dialogue; 2. The thinker, if asked, may not refuse to clarify her claim; 3. The thinker may not state and justify counterintuitive claims.
D. To respect criteria to satisfy inductive, abductive and conductive arguments	1. The thinker shall use strong inductive, abductive and conductive arguments; 2. The thinker shall use relevant reasons to draw the conclusion; 3. The thinker shall use sufficient reasons to draw the conclusion; 4. The thinker shall use acceptable reasons to draw the conclusion.
E. To choose the best reasons (*inventio*), depending on the context	1. The thinker shall use dialectical heuristics to search for reasons;. 2. The thinker shall hear her emotional responses in searching for reasons; 3. The thinker may not necessarily focus on the order and organization of her arguments.

Metacognitive skills are not directly related to the *Evolutionary Approach*, since, as we know, they would demand a second-order reasoning, not consistent with an adaptationist description of human reason. Nonetheless, at least one norm is necessary for the functioning of the model: it is

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[86] There is actually a wide debate on 'Moore's paradox'. For an overview, cf. Green & Willimas (2007).
[87] Cf. § 3.6.3.

crucial, indeed, that the thinker can recognize if she is taking advantage of intuition to solve only 1st-person deliberative problems – a licit move – or even 3rd-person theoretical problems – an illicit move. This awareness is a requirement for the norms connected with goal C ('To focus on deliberative judgements'), relevant only to deliberative problems. Thus, if someone has the suspicion that the thinker provides intuitive judgements to theoretical problems, she can ask her what kind of problems she is thinking about: the thinker should be enabled to answer.

The second goal is understanding the context. It requires specific pragmatic skills, that guarantee that the thinker is anchored to the real situation in which she is immersed. These skills, indeed, are essential to properly understand the meaning of an argument, that, as a speech act, depends not only on its semantics and its syntax, but also on the actual use and, as we have seen in Chapter 2, a set of contextual factors (i.e., pragmatics): who is the person who speaks? Who is the person who listens? What is her background? What kind of relationship is there between them? What is the role of the audience? What is the goal of the speech? What is the intention of the speaker? What about time and space? etc. Evidently, in an account like the *Evolutionary* one that describes the development of reasoning and argumentative competences as adaptation to social context, pragmatic skills play a basic role.

The first thing that should be in the toolbox of the thinker, before any argumentative knowledge or strategy, is the capacity to figure out the dialogical context. More specifically, she shall firstly understand the cultural background of the interlocutors, because it can determine not only what kind of argument they could bring, but also the choice of the most suitable argument to defend her position and to convince them. For instance, if they have no philosophical knowledge at all, whereas the thinker has a pretty good idea of it, it will possibly be useless to mention important philosophers to argue (i.e., using *arguments from authority*) or to bring complex deductive arguments (such as those that employ negative propositions); on the other hand, if her interlocutors have some basic knowledge of philosophy, it will be useless to bring, as a reason, common sense opinions. Moreover, the understanding of the others' background allows the thinker to consider the classification of statements, by the interlocutors, as *uncontroversial* or *controversial* sentence, one of the happiness conditions for 'arguing'. In other words, the thinker needs to know if she and her interlocutors are *epistemic peers* (norm No. 1). It is true that normally, in the social environments that one frequents, this is a not always feasible task. But in the context of a class, students have access to much information about their classmates: indeed, they share for years the same educational track, that means the same subjects, the same teachers, spaces, etc.

The understanding of interlocutors' emotions (norm No. 2) is slightly different. Though emotions depend on the cultural background, it is not sufficient to understand it while they are

actually manifested. The pragmatic sensitivity of the thinker allows her to catch quite distinctly which emotion, and to what degree, the interlocutor is feeling; consequently, to choose the best reasons to bring and to avoid, for the purpose of being rhetorically effective. It is, evidently, the Aristotelian rhetorical notion of *pathos*, that together with *logos* and *ethos,* constitutes one of the three principles where a good rhetorician shall find her arguments (*Rhet.* I 2, 1356a 3-6). Nothing more than sensitivity towards other's emotions has an evolutionary explanation, not only in Mercier and Sperber's account, but, at least, from Darwin onwards.

The third bundle of norms are related to the goal of focusing on one's own beliefs. It is clearly a goal antithetic to the second of the DPT Model, that recommends exactly the opposite, that is to set aside one's own beliefs in reasoning. According to Damasio's hypothesis of *somatic markers*, when we need to make a decision, our cognitive system has already selected the best one. The idea of the Model is that, assuming that the hypothesis is true, the thinker shall trust her intuitive judgements. Once they are sufficiently clear in her mind, she can start her argumentation, i.e., her searching for reasons. To guarantee this clearness to her and to the interlocutors, it is necessary that her decision (claim) be stated at the beginning of the discussion (norm No. 1), in such a way that all the efforts of the group are focused on giving reasons *pro* and *contra* the claim, assumed as true for the reliability of human intuition. It is also important that the thinker, if asked, clarifies her claim (norm No.2) to prevent the group from discussing standpoints that have not really been intuitively reached. Sometimes, it can occur that a claim is not clear due to the ambiguity or vagueness of certain words, with the consequent misunderstanding of all the following reasons.

The third norm warns the thinker about stating or justifying counterintuitive claims. The reasons are quite simple to figure out. First, if the thinker is recommended to start her argumentative activity from the claim, a counterintuitive statement risks pushing away the listeners before that reasons are pronounced, making argumentation ineffective. Second, it would be proof that the thinker did not trust her intuitive decisions, thus not respecting the general theory of the *Evolutionary Approach* about the reliability of intuition. What is said about claims also applies to reasons: if they were counterintuitive, they would not be believable by others and they would not be reached in an intuitive way. These norms, like the other two of the third set, are valid – as I mentioned – only for deliberative judgments, that is the specific domain of the EA Model. Instead, if we move to the domain of theoretical judgements, the challenge of intuitive conclusion plays a crucial role in the investigation of problems, as many counterintuitive scientific theories confirm.

Looking quickly at the third group of norms, referring to the goal of the criteria that an argument shall satisfy, we can point out that they are to be applied to inductive and abductive schemata, as we have seen, more fitting the EA Model than the deductive one. Although induction

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or abduction is constructed by the mind intuitively, and, unlike deduction, the premises lead to a probable conclusion, not necessary, they shall follow the same universal standard, in this case, Blair and Johnson's RSA criteria. Otherwise, they cannot be accepted by the interlocutors. Nonetheless, there are two differences that it is worth mentioning. The first is that, for the standard of acceptability, in this model counterintuitive reasons would not be accepted, consistently with what has been said about the claims in the previous paragraph. The second is that the standard of validity is not strictly required by non-deductive arguments, where it is more appropriate to refer to the notion of *strength*.[88] I added to these natural reasoning types the *conductive argument*[89], which consists in a list of independent reasons that all converge to support the same claim. Though it is not a structured argument formed by two premises, one of which *warrants* (to mention the Toulmin's category) the tie with the conclusion, in dialogical dynamics the thinker usually appeals to *relevant* and *acceptable* independent reasons, without having enough time to also find the warrant. It is a very common and helpful strategy, that, of course, could be challenged by the interlocutors, through the request to make explicit all the missing premises to verify whether also the criterion of *sufficiency* is fulfilled.

Let us move on, now, to the final set of norms, related to the essential goal of the search and choice of the best reasons (*inventio*). The most effective way to search and find proper reasons, as we have discovered, is to follow one's own intuitions. But, to make this precept less general, we need specific *dialectical heuristics* that the thinker may recognize and select through experience. To be driven by those heuristics can guarantee to find quickly, during dialogue, reasons that fit the context properly. What I propose, here, is the hypothesis that this heuristic *inventio* method is effective not only for deliberative problems, but also for theoretical ones. I underline the word 'hypothesis' because, although we have empirical evidence that deliberative judgments are successfully led by intuition (i.e., Damasio's theory), there is no structured theory yet that can prove the same for theoretical judgments.[90] It is worth recalling that I do not suggest, here, that the best theoretical judgements are intuitive, which would be in contradiction with the whole DPT Model, but that *the cognitive process* that leads the thinker to find the best reasons within the specific context of dialogue is intuitive. Obviously, a guarantee that a reason found by the thinker is not only rhetorically effective but also epistemically reliable, are the norms displayed by the DPT Model –

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e.g., those belonging to the goal B ('To set aside one's own belief') or to the goal C ('To respect deductive criteria'). It is precisely in this sense that WRAT can be considered a pluralistic model: indeed, the two approaches are not juxtaposed to accomplish distinguished stages of dialogue – unless a specific device needs these two steps for its goals (e.g., *1st/3rd Person Switch Device*[91]) –, but, rather, their norms usually operate seamlessly.

Which heuristics are suitable for this task? I suggest four strategies: *pattern recognition, belief consistency*, *emotion sensitivity*, *topic sensitivity.* I borrowed the first two from cognitive science, the third from Aristotle, and the fourth, simply, from personal experience with the debate on current issues:

- *Pattern recognition.* I have already mentioned this notion to describe the superior intuitions worked on by experts based on their experience in their field: the master chess player, sometimes, while the adversary is doing her move, does not reason about what she has to do, but just *sees* the best chess move. She recognizes the same pattern of the past and successfully applies it to the new situation. The presence of this pattern has been confirmed, always within the cognitive psychology domain, not only by decision-making theoreticians (Klein, 1998), but also by problem-solving ones (Davidson, Deuser & Sternberg, 1994). The model of Davidson et al., indeed, which articulates the problem-solving strategies in four moves (problem identification, problem representation, planning, final assessment), underlines that to represent a problem correctly it is necessary to determine which are the known and unknown elements, because the understanding of it is helped by the recovery of memory patterns referring to the *type* of problem; a strategy that allows the problem solver to recognize the analogy between new and past problems. In the case of the argumentation domain as well – more precisely in the search for reasons, a different task from problem solving – the thinker can take advantage of certain patterns, once she has recognized them. Suppose that the topic of discussion is the right of authorities to apply force on citizens in order to guarantee their health or safety. Someone claims that such a decision by the government would reduce citizens' freedom, but that freedom cannot be reduced – since it is an absolutely binding principle –, therefore the authorities may not reduce citizens' freedom. Someone else could answer that, though freedom is indubitably an essential principle, without safety even freedom is at stake, whereas, without freedom, safety is not at stake: therefore, safety is more binding than freedom. The last argument has the following structure:

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[91] Cf. 3.6.3.1

(8)   Safety guarantees freedom.
But freedom does not guarantee safety.

Therefore, safety is superior to freedom.

If this dialectical move worked in the past, it is probable that it will work also in new situations and also if we apply this pattern (*what guarantees other things is more important than the things themselves*) to other matters or kinds of problem. The advantage is that, thanks to expertise, it is easy to recognize when these patterns can be used. If we look carefully, they are possibly the same as the *topics* (argument schemes, or lines of argument) of the classical rhetorical tradition, from Aristotle onwards (*Rhet.*; *Top*): (8), indeed, is an instance of the topic *reduction to superior.* As the recognition of a pattern lets the thinker argue successfully in a new context, the memory of topics lets the rhetorician persuade the audience. The difference, beyond the purposes, of course, consists in the methods by which these patterns are learned: it is not about hard memorization work, as in the traditional approach to learning topics; in fact, it is about a personal discovery of the effectiveness of certain patterns, only of those that the thinker can actually encounter in *philosophical dialogues*. This personal discovery allows her to remember and recognize them when the situation requires it.

– *Belief consistency.* [92] During a discussion, listening carefully to others' claims and arguments allows the thinker to infer, with a good degree of probability, a whole network of beliefs of the speaker, not only about the issue they are discussing, but even about other connected issues. Indeed, usually, following certain experienced patterns learned simply by living in a community, certain beliefs are consistent with other ones, creating a consistent network; consequently, if one is attentive to others' argument, then she can easily infer quite clearly the whole belief network. For instance, if someone is arguing that Muslim women have the right to wear a veil also in a Western country, because it is a Muslim tradition and a democratic country must respect every tradition and minority, then the thinker, based on her experience, can easily infer the whole system of values (at least social and political) of the speaker: she probably has left-wing views, she is probably a non-believer or agnostic, she is one who questions the idea of Western-centrism, etc. Obviously, these inferences may be wrong, or lead the thinker to build stereotypes; nonetheless, if their conclusions are correct, they help her to significantly reduce the choice of counterarguments she can find. Indeed,

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[92] This term does not refer to logic consistency: a theory is logically consistent when it does not entail logical contradiction, i.e., all the statements of the theory are true. Here, I use the term to stress that in our belief system some different beliefs can coexist, whereas others do not.

through this heuristic approach, she can choose those reasons that convince her and avoid those which, otherwise, would contribute to making the interlocutor more stubborn. In this example, it is probable that if the thinker rebuts by arguing that the Muslim veil is a symbol of women submission to men in a sexist and archaic society and that it cannot be tolerated in Western countries, the argument will not be effective; on the other hand, if she argues that if we allow this habit in Western countries, then we should let also Western men force their wives to wear certain clothes, it is probable that the interlocutor, even if she will not change her view, at least she will reckon this hypothetical consequence. Indeed, the consequence would be inconsistent with her other beliefs, such as those related to women's rights, values that she would not be easily willing to change: the effort required to find a counterargument thus becomes harder. This heuristic approach is not distant from what Kahneman calls *representativeness*, a bias based on the unconscious tendency to identify some features as representative of a type. There are, however, at least two differences: *belief consistency* is a conscious cognitive process, and it is applied not in order to simplify our picture of the world, but to argue during a discussion.

– *Emotion sensitivity.* Another effective strategy, a practical heuristic approach based on more general attention to the emotions of the interlocutor (goal B, norm No. 2), is *emotion sensitivity*, closely linked, as we have seen, to the Aristotelian notion of *pathos*. If the thinker is mindful of the emotions of others while they discuss, it will be easy for her to avoid arguments that do not fit their emotions and to propose arguments that fit. For instance, if they are engaged in a discussion on the death penalty and someone claims that it is right, expressing anger against the current justice system, for it has just allowed a famous violent murderer to obtain a reduced sentence, then it will be fairly certain that the reason 'It is right to give another possibility to every human being' would not be effective. Instead, probably, an argument such as 'In the event of a mistake, the court cannot restore life to an innocent person' might better achieve her argumentative goal. In this case, it would be better for the thinker to choose a *practical reason* instead of an *epistemic reason*, because, probably, it would be much easier to convince someone who is angry by reflecting on the practical consequences of her claim, rather than by discussing ethical values.

– *Topic sensitivity.* Finally, there is another similar heuristic, that also has been developed through pragmatic skills (goal B), consisting in the care for the discussion topic. The choice of a fitting argument depends on the topic and can be completely different if the discussion is on the same topic, but perceived in a different way by people. Indeed, in every social context (from the narrow community that we join to global communities), there are 'hot'

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topics which tend to be polarized for various reasons, among which the focus by actual public debate. In these cases, the thinker needs to be particularly careful, because if she says something that can be recognized as belonging to one of the two poles, the discussion will be immediately polarized. For instance, with regard to the topic of vaccination, currently remarkably hot, if she expressed doubts about the denial of some rights to people who are not vaccinated, she would be put under the label 'anti-vax', even if she were not 'anti-vax' and if she had excellent arguments. Every dialectical effort would become unsuccessful. That is evidently a drift of the current public debate, but it is a phenomenon the thinker has to deal with. I am not claiming that the thinker has to self-censor, avoiding touching upon certain topics, but that, when she discusses on them, if she wants to be effective and to lead the interlocutors to considering her arguments, she has to avoid adopting specific arguments, though they can be good in themselves.

All these heuristics are tools that allow the thinker to reduce the *problem space*, i.e., the possible reasons that she needs to find in order to achieve the goal of her 'arguing' in *philosophical dialogue*, namely to question the beliefs of the CoI, including her own.[93] These heuristics have been selected according to a clear contextualist approach, consistent with a theory of human reason based on adaptation to the social context. By means of the contribution from Damasio, I have argued that intuitive heuristics work successfully thanks to emotions, that play the role of guidance of our judgments in general, and of the choice of the best reasons in particular. It is important, here, to underline the word 'choice', perfectly consistent with the whole EA Model. 'Choice', indeed, indicates that the cognitive process that guides us in the assessments of possible reasons, is a personal and subjective decision; hence, it is about a 1st-person deliberative judgment, where intuition plays a key role. For all these reasons, the thinker must respect norm No. 3, that recommends her to trust her emotions, following the responses that they give her in the task of *inventio*. Indeed, it is probable that the choice for an attractive reason has more possibilities of being successful. Usually, what is exciting for one is exciting for others as well.

The last norm, in line with the previous one, suggests that the thinker does not care about the order and organization of the arguments, that is the reason why I included *conductive arguments* as a licit and effective dialectical strategy. The thinker does not have to give a public speech, where the disposition of the arguments (*dispositio*) is essential to obtain her own goals, but she is immersed in a dynamic dialogue, made of quick dialectical moves such as claims, questions, challenges, answers, counterexamples, request for reasons, etc. A back and forth where the capacity to follow the flow of the dialogue and to connect herself with the context matters more than any attempt to

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[93] Cf. § 2.4.1.2.

give order and organization to her arguments, whose slowness can compromise their effectiveness. This aspect must not prevent, however, the participants' metacognitive attitude to be aware of what is happening during the process and, if asked, to say at which point of the discussion they are and the main passages that led them to that point (as required by norms No. 3 and 4, Goal A, of the DPT Model). Moreover, if the dialogical inquiry has been particularly complex, it is always possible to put back in order the main directions taken and clarify the main concepts dealt with: this task is suggested to be accomplished by participants, under the guidance of the facilitator.

3.6.3   Pedagogical devices for *philosophical dialogues*: the contribution of intuition

In § 3.6.2, I tried to define both the purposes and the goals that students should achieve and the norms that they should respect to achieve those purposes and goals. I have not yet described the means by which they could move in this direction. I preferred to distinguish, on the one hand, goals and norms and, on the other hand, means, since the former depend on students' attitudes, whereas the latter on the facilitator's didactical choices. In this section I will describe three pedagogical devices, suitable within the framework of the method of *philosophical dialogue*, based on the essential role of intuition in philosophical inquiry, as I hope has been sufficiently argued.

Let us consider the pedagogical devices based on intuition: the first two are explicitly inspired by Peter Worley (2011; 2016), whose methodology is one of the most interesting to facilitate a *philosophical dialogue*; the third is my own proposal. I add just a methodological consideration before presenting the three devices. All of them could not be designed without previous theoretical work focusing on the Speech Act Theory and on two cognitive models for reasoning (*Dual Processes Theory* and *Evolutionary Approach*, the latter grounded on a *somatic markers* hypothesis), theories that I tried to integrate in WRAT. Just to give an example, the main distinction between 1st and 3rd person, that plays a crucial role in WRAT and in the first two devices presented below, is the result of applying both SAT (in particular, Austin's insight about the features of speech acts) and the categories of practical and theoretical reasoning to argumentation theory. Obviously, all these proposals are not the only possible workshops that one can adopt according to WRAT, but they are just three possible ones: what I hope is that this model can provide facilitators with new theoretical categories to design new original devices. In conclusion, what I am trying to claim is that the theoretical research that I conducted on the applications of some established theories to argumentation was crucial to elaborate specific devices that aim to apply in a practical context, i.e., in education, the findings of theoretical activity. The same reflection is valid for the workshop proposed in § 4.6, where research on the three Peircean inferential forms led me to design a specific pedagogical device.

3.6.3.1 1st/3rd *Person Switch Device*

As we have seen, every *philosophical dialogue* starts with a stimulus, followed by (at least) one question and the inquiry, driven by the dialogue itself. This is the essential structure. Among the various and creative stimuli that can be proposed to students, one of the most powerful is the tale or reading of thought experiments. Philosophical tradition, from Plato onwards, has provided many thought experiments (*Ring of Gyges*, *Trolley Problem*, *Perry's Case*, *Gettier's Case*, *Brains in a vat, Twin Earth, Zombie Argument*, *Thomson's Violinist*, etc.) dealing with a variety of philosophical domains: metaphysics, epistemology, politics, morals, etc. Thought experiments have the power to create a hypothetical scenario, very far from the actual world, but possible, forcing people to take into account every possibility. Usually they are tales, in which a character must tackle problems unrelated to common sense: it can be a moral dilemma, where she is obliged to choose one line or the other, or, more simply, odd scenarios where she follows the course of events, raising in her mind (and in the listener's) growing doubts on her beliefs.

The strong point of these philosophical tales – and the aspect that better matches WRAT – consists of their capability to make the listener live the imaginative situation. Once they have listened to the story and felt the same emotions that the character felt, the facilitator can start the dialogue with a simple question:

(1st-pQ) What would you do if you were the character?

Although it is a conditional question, it is in the 2nd person, which means that the answer will be in the 1st person: what participants are asked to do is to make a decision, hypothetical, but still a decision. Students, indeed, are invited to imagine themselves at the heart of the situation and to make a decision – i.e., to draw a practical judgment – consistent with their emotional reactions. To allow this, they shall follow the set of norms belonging to the EA Model: to state their claim publicly, to find intuitive reasons, to follow their emotions, etc. (1st-pQ) launches the first step of the dialogue, opening a field of discussion about an intuitive 1st-person deliberative problem. While everyone – or someone who wants to play an active role in the dialogue – expresses her claims, and argues it by following proper heuristics, the facilitator takes notes, also using a blackboard: she will write the claims, and relative reasons, most recurring. Once everyone has done this, the time comes to address another question, apparently similar to the first one, but significantly different:

(3rd-pQ) What should one do if she were the character?

When the facilitator asks students (3rd-pQ), if they are not sufficiently skilled in *philosophical dialogue*, they usually assert that they have just answered the question. Indeed, usually they do not notice the difference. But what they are asked now is what it is right (good, fair, best: it depends on

the topic of the issue) to do: a switch occurred from a practical to a theoretical tier. (3rd-pQ) is about the best decision to make universally, from a 3rd-person perspective. They have been driven to the normative level, where they are invited to reflect on the just and the unjust, the best and the worst, the good and the bad; not as if they had to make a decision embedded in the situation, with all the relevant contextual and emotional factors, but as if they were a legislator who must define the better rules. Students are now in the 3rd-person theoretical dimension, from within which they should abandon the norms belonging to EA Model and follow those belonging to DPT Model; all this can be summed up in one sentence: to activate System 2.

To better understand this device, let's bring in a practical example. The first stimulus that the facilitator proposes to students is the famous *Thomson Violinist* case, designed by Judith Jarvis Thomson in the famous paper *A Defense of Abortion* (1971):

> You wake up in the morning and find yourself back to back in bed with an unconscious violinist. A famous unconscious violinist. He has been found to have a fatal kidney ailment, and the Society of Music Lovers has canvassed all the available medical records and found that you alone have the right blood type to help. They have therefore kidnapped you, and last night the violinist's circulatory system was plugged into yours, so that your kidneys can be used to extract poisons from his blood as well as your own. The director of the hospital now tells you, "Look, we're sorry the Society of Music Lovers did this to you – we would never have permitted it if we had known. But still, they did it, and the violinist now is plugged into you. To unplug you would be to kill him. But never mind, it's only for nine months. By then he will have recovered from his ailment, and can safely be unplugged from you. (Thomson, 1971, pp. 48-49)

After telling the story, the facilitator asks the question 'What would you do if you were the kidnapped person?'. After a discussion that compares the reasons of those who would prefer to be unplugged with those who would prefer, for the violinist's sake, to sacrifice themselves to safe him, the facilitator will ask the following question: "Is it right to force anyone, against her will, to sacrifice part of her life to save someone else?'. From then on, the philosophical inquiry on the moral issue of the relationship freedom/life will start and go on thanks to a series of questions that gradually lead students to delve into the general problem: 'It is right that a woman keeps another life in her belly against her will?', 'It is right, in general, to sacrifice anyone's freedom to save other lives?', 'Generally, does life always matter more than individual freedom?'. In so doing, the dialogical inquiry progressively detaches from the first specific case and deals with more complex and general issues. To be properly conducted, it needs to abandon intuitive judgments and to be analysed following the norms of the DPT Model.

The 1st/3rd person switch allows dialogue to gain various benefits. First, the discussion can proceed from a starting point to a clear direction, respecting, in so doing, one of the main criteria to

assess the quality of *philosophical dialogue*[94]; second, the change of perspective lets students see the philosophical grounds of the problem, and, hence, engage with a philosophical inquiry; third, they can practice and improve both EA Model skills – i.e., to trust intuition – and DPT Model skills – to trust high-reasoning. Finally, if the facilitator wants to inquire into the functioning of human cognition addressing moral issues, what could be interesting is to reflect on the reasons why the answers to (1st-pQ) and to (3rd-pQ) are so different: indeed, it usually happens that those who would help the violinist actually think that it is definitely wrong to take away someone's freedom to save someone else. In this case, dialogue would shift towards topics such as empathy, gut feelings, relationship between empathy and moral, emotions and rules, etc. – namely, between two different mindsets: 1st-person deliberative and 3rd -person theoretical dimension.

3.6.3.2 Intuition Clash Device

Suppose now that the facilitator wants to inquire, with students, into the essence of human beings. The first move that she does is to ask, simply, the metaphysical question par excellence:

(1st iQ) 'What is a human being?'

Alternatively, she could ask questions such as: "What characterizes a human being?', 'What is the essential property of a human being?', 'What makes a human being precisely a human being?', 'What is the property without which a human being would no longer be a human being?'. These are of course questions entailing different meanings and that would lead the ensuing discussion in slightly different directions. However, they are all interested in conducting a conceptual analysis (definition) of the notion of human being. Usually, one of the main answers that participants might give intuitively revolves around the notion of rationality. One instance could be:

(9)   A human being is a living being endowed with rationality

Obviously, there will be other interesting answers, focusing on other properties: body, abilities, experiences, memory, relationship, etc. What can be said for sure, however, is that a *commonsensical* intuition of the concept of human being, at least in the Western tradition, is essentially related to that of rationality: this is the reason why I called it *First Intuition Question* (1st iQ). Intuitively, indeed, before a philosophical analysis of the concept, the majority of people could not imagine that a human being without rationality is still completely a human being: everybody would state that a quadriplegic person whose mind is perfectly working is a human being, whereas a zombie, with a perfectly working body, but without any form of mental activity, is no longer a human being.

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[94] Cf. footnote No. 17 of *Introduction.*

After a discussion to understand the degree of agreement about the notion of rationality, the facilitator proposes an experimental thought, borrowed by *Brains in a Vat* of Hillary Putnam:

> [...] imagine that a human being (you can imagine this to be yourself) has been subjected to an operation by an evil scientist. The person's brain (your brain) has been removed from the body and placed in a vat of nutrients which keeps the brain alive. The nerve endings have been connected to a super-scientific computer which causes the person whose brain it is to have the illusion that everything is perfectly normal. There seem to be people, objects, the sky, etc; but really all the person (you) is experiencing is the result of electronic impulses travelling from the computer to the nerve endings. The computer is so clever that if the person tries to raise his hand, the feedback from the computer will cause him to 'see' and 'feel' the hand being raised. (Putnam, 1999, pp. 5-6)

This famous thought experiment continues, but the following description serves to better figure out a sceptical scenario[95], therefore it does not match the aims of this philosophical inquiry. Rather, the facilitator can now ask students another question:

(2nd iQ) 'In this case, is the brain in the vat still a human being?'.

Students, most likely, would no longer be willing to claim that it is still a human being, even if most of them answered (9) to the question (1st iQ). Our intuition tells us that a brain in a vat is no longer a human being. Among the main arguments, one will be that, although it is still endowed with rationality, it cannot move, speak, touch other human beings, maybe love, etc. What happened? Simply, our first intuitive theory, the definition (9) of human being, has been challenged by another intuition: as Zanetti (2020) argues, it is thanks to a specific *strategy of clash*, consisting of a clash between intuitions, that dialogue works and that students begin to "appreciate the clash and stay in it to explore it" (Zanetti, 2020, p. 132; my translation).

From then on, philosophical inquiry into the metaphysical issue of the definition of human being will start and move on thanks to a series of questions that, by examples and counterexamples, gradually lead students to delve into the general problem: 'So, it is correct to claim that to be a human being one needs a body?', 'But a quadriplegic person does not have a working body: is she not a human being?, 'Is a person without parts of her body, such as arms and legs, still a human being?', 'Is a person without a memory or with an impaired memory, such as a person affected by Alzheimer, still a human being'? 'So, what makes a human being a human being?', etc. Probably, the group will slowly discover that most of them are necessary conditions, but, if taken alone, none of them are even sufficient for the definition of human being. The inquiry will continue, at this

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[95] *Brains in a Vat* was invented by Putnam to discuss radical scepticism, i.e., the claim that the world outside our mind does not exist.

juncture, to try to point out the properties that, taken together, can be considered necessary and sufficient.

This device borrows the so-called 'Method of Cases', widely used in analytic philosophy[96], especially by Experimental Philosophy.[97] The idea is that after sketching a theorical starting from our truisms (*commonsensical* intuitions), we check these truisms by means of cases (factual or hypothetical) useful in raising our intuitive judgments about the cases analysed: if also these judgments match the theory proposed before, it is a good theory, otherwise, it means that it is not a good theory, for it cannot include all the cases. In more general terms, we can follow Cappelen's definition of 'Method of Cases':

> Let *X* be some philosophically important point. *T* is a good theory of *X* only if it correctly predicts our intuitions about *X*-relevant cases (whether actual or hypothetical). (Cappelen, 2012, p. 6)

In our instance, when the facilitator asks a student 'What is x?', she answers with the first definition available in her mind, usually belonging her *commonsensical* beliefs, i.e., beliefs not yet questioned. But if she challenges this answer by means of counterexamples (as in the case of *Brains in a Vat*), she will suddenly discover that the first definition is not able to include them; therefore, that is not a proper definition and it must be rejected. That happens because the first intuition is at odds with other background beliefs, that are other *commonsensical* intuitions.

How does this device, usable in *philosophical dialogue*, match WRAT? As I stated at the beginning of the section, this is not a completely original instrument, as it has been partly turned from philosophical academic inquiry into a pedagogical device by Peter Worley. Nevertheless, to be applied properly to *philosophical dialogue*, all participants need to respect the same norms defined by WRAT. I cannot go through all the norms one by one here, because it would take too long. Let us just consider the main ones.

When students answer (1stiQ), they trust their intuitive judgment, without casting aside their own beliefs (not respecting the norms belonging to DPT Model – goal B); moreover, they draw rushed conclusions (not respecting the DPT Model – goal D/norm No.1), showing that they are unaware that, in order to answer, they have activated System 1 instead of System 2: if the facilitator asked them for information about their cognition, they probably could not say how they provided the answer: thus, they do not fit the DPT Model – goal A/norm No.6. Hence, what happens after (1stiQ) is a series of fallacies, since students do not follow the norms defined by the DPT Model; on

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[96] For an overview of the history of the method, cf. Baz (2017).

[97] Experimental Philosophy (X-Phi), a branch of analytic philosophy born at the beginning of the 21st century, tries to apply the proper methods of experimental psychology to philosophical problems, especially those belonging to philosophy of the mind. X-Phi refutes *a priori* explanations and, in general, the idea that philosophy is an *armchair discipline*, that deals just with a priori inquiry. For an overview, cf. Knobe & Nichols (2008).

the contrary, they trust intuitive judgments for 3rd-person theoretical problems. In actual fact, what happens after (2^{nd}iQ), if the dialogue works, is full compliance with DPT Model norms: students become aware both of how they thought before and of how they are thinking now (DPT Model – goal A/norm No.6) and, possibly, of the distinction between 1st and 3rd-person problems; they begin to take into account beliefs different from theirs (DPT Model – goal 2/norm No. 1), they are willing to accept thought experiments (goal 2/norms No. 4), drawing the hypothetical consequences of a claim, an argument or a whole theory (goal 2/norms No. 5); and, possibly, after discovering the complexity of the definition of human being, they do not propose other theories before listening to and evaluating all the arguments and counterarguments (goal D/norms No. 3), showing that they stand in the fruitful state of mind of uncertainty.

What about the EA Model norms? First, students should slowly understand – not through just one dialogue, but through a didactical path that includes a series of workshops – that, although it is not licit to trust their intuitive judgments (as *contents*) for a theoretical problem like that, instead to follow their intuitions in the dynamic of a dialogue in the sense of *method* is successfully applicable across different fields, even when one deals with theoretical problems. In particular, the norms related to goal B ('To understand the dialogical context pragmatically') and goal E ('To choose the best reasons (*inventio*), depending on the context'), guarantee that dialogue evolves and, more importantly, do not prevent intuitive methods, such as heuristics (goal E/norm No. 1), from conducting a philosophical inquiry. Second, although in theoretical dimension to start from one's own beliefs is considered as a fallacy, this move allows the device to work, since it is by giving an intuitive answer – as if the question were deliberative – that the answer can be challenged. To do that, it is necessary for students not to give counterintuitive answers (goal C/norm No. 3), to publicly state their claim at the beginning of the dialogue (goal C/norm No.1), and of course, to clarify their position (goal C/norm No.2).

To summarize, it is precisely the continuous switch between the norms of the two integrated models that allows dialogue to work and students to delve gradually into the depth of the problem: indeed, although the goal of the workshop is to encourage students to use System 2, this goal was not achieved without the employment of intuitive answers, and the surprising clash that emerges once they have met counterexamples.

3.6.3.3 *Rock Bottom Device*

The last device proposed, in line with WRAT, is connected to one of the meanings of the notion of intuition present in analytic philosophical debate, i.e., the *Rock bottom status*. We encountered this phrase both in Cappelen's description of intuition and in Jenkins', even if in the latter it is strictly included within meta-philosophy. A proposition has *rock bottom status* when it justifies other

propositions, but it does not need to be justified, as its truth is self-evident. In philosophical argumentation it serves the function of a rock bottom premise, the starting point from which one can draw arguments. This is a problematic concept, because for some philosophers, such as Cappelen, propositions with this special status do not exist, or, at least, they are not actually employed in philosophical inquiries. The issue of their existence is particularly interesting for the purposes of this dissertation, because it can be turned into a topic dealt with in *philosophical dialogues*. The philosophical research question could be the following:

(Q1a) Do self-evident propositions exist?

that can be formulated in other ways, such as:

(Q1b) Do propositions that are true, without need for any evidence, exist?

This is a crucial topic not only, I would say, in meta-philosophy, but for epistemology in general: it has to do with the issue of justifying our beliefs. Obviously, if a facilitator intends to submit this issue to students through *philosophical dialogue*, she certainly cannot ask questions such as (Q1a) or (Q1b) or their variants without any previous stimulus to pave the way for them. On the other hand, once her learning goal is clear, she can build a workshop that lets students empirically discover the problem by themselves, following an inductive approach. I will describe this by means of an instance.

First of all, the facilitator has to find a stimulus able to elicit doubts, questions, reflections. Stimuli can be different and original, and they depend on the creativity of the facilitator. One of the possible strategies may be to ask each participant to reflect on her own about a strong belief, philosophical or not, that for her is necessarily true: a statement (that we call MP, main proposition) that they are not willing to question, or since it is a driving belief of their life or since, if they doubted its truth, they would doubt many other certainties. After some minutes, once everyone has thought of her MP, the facilitator gathers each one, writing them on the blackboard, also reporting the name of the author (as Lipman recommends). After reading all the MPs, she asks the group to select the proposition that, for them, is the least controversial – this does not necessarily mean that is an *uncontroversial sentence* –, because most of them find it true as does its author. Now, it is possible to start the collective dialectical task: to find arguments that ground the MP and to find counterarguments that challenge its truth. A discussion will follow to understand how those arguments are sound and compelling, until finally the best one will be selected. Every argument found, of course, is composed of some premises, among which some are more controversial, others more acceptable. Now, all energy will be directed towards challenging the most acceptable among them in order to find the evidence that justifies its acceptability. The activity goes on: for each

uncontroversial premise, its premises are traced all the way back and discussed, also by means of well-established tools such as argument mapping.[98] This requires a large amount of effort, so it cannot be conducted for long time, even if resistance depends on the argumentative skills and involvement of the class. Anyway, the facilitator has to understand when it is time to stop: probably, when she thinks that the CoI is starting to figure out the difficulty of finding rock-bottom propositions.

The activity related to the stimulus is finished: now she can propose, since participants have experienced the problem, one of the variants of the question about the epistemological issue:

(Q1b) Do propositions that are true, without the need for any other evidence, exist?

The actual dialogue will follow, that can be driven and gradually delved into through other possible questions:

(Q2) If they exist, what kind of proposition are they?

(Q3) What are intuitions?

(Q4)   If they do not exist, and every proposition can be challenged, how can we find basic evidence for our beliefs?

(Q5) Which are the basic presuppositions that allow us to have other beliefs?

(Qn) …

How does the *Rock bottom device* fit within WRAT? All the workshop is structured on a basic dialectic process between *propositions that seem true (intuitions)* and *their questioning*, that, translated into the language of argumentation, is the one *claim / reasons to give.* What exactly happens under the guidance of the facilitator is that participants move continuously between these two poles: every time that they honestly believe to have found something certain, they are forced to renounce it, potentially *ad infinitum*, possibly without ever finding – but this is my personal philosophical opinion – a rock bottom point. Every norm related to goal D of the DPT Model, those about uncertainty, needs to be respected, otherwise the exercise cannot work. This point has an extraordinary educational relevance: by joining the workshop, students gain hands-on experience on the state of uncertainty, not on one or more beliefs, but on every belief stated, even the most intuitive. It is a hard philosophical exercise, painstaking and frustrating, because it does not lead students to an output, a fixed and comforting goal; it serves, however, as a form of training for students not to 'stand in the answer', but rather to 'stand in the question': probably the main attitude of philosopher.

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[98] Cf. footnote no. 14, Ch. II.

Technically, it seems that the workshop involves all DPT Model norms and this means that System 2 must be continuously triggered to guarantee the success of the workshop. That is the case of the norms that recommend being open to other claims and arguments (goal B/norms No.1-2); but it is also the case of norms that require participants to construct sound deductive arguments (goal C/norms 1-4), otherwise their proposals will be rejected by others – if they were sufficiently well trained to apply the evaluating criteria. With regard to metacognition, finally, the thinker should be able to say what kind of argument she is making and if her arguments are sound (goal A/norm No. 7).

Beyond the methodological norms of EA Model (goal B and E), that, as we have confirmed, are applicable to every *philosophical dialogue*, the norms belonging to the EA Model seem irrelevant to this device, because all the exercise is based on the challenging of intuitions; but that is the point. How do participants get to those judgments? Once they find structured arguments to support or to challenge a claim, they unconsciously consider the premises of their argument as claims, intuitively obtained; and the search for reasons to support these premises/claims can start only after their statement, as the first norm of goal C of EA Model recommends. After all, how might we actually argue for or against a claim that it is not present in our mind? This means that the *Rock bottom device*, beyond appearances, is intrinsically conceived within the normative framework both of the DPT and EA Model; hence, within the theoretical framework of the *Dual Process Theory* and of the *Evolutionary Approach*, entirely – I hope – integrated for the educational purposes of this project.

3.7 Philosophical argumentation: the unavoidable work of intuition

Through this inquiry into the role of intuition in argumentation, we have discovered that, possibly even in 3rd-person theoretical problems, such as philosophical ones, the thinker is naturally driven by intuitions to certain beliefs, rather than building reasoning step by step, reason by reason, keeping the possibility of reaching different conclusions really open. When the mind is involved in philosophical reasoning (but, maybe, in all sorts of theoretical reasonings), it probably works exactly like other inferences, i.e., by following intuitive judgments: it seems that it cannot prevent intuition from working. It can happen, it is true, that we are faced with an aporia and, *philosophically* speaking, we cannot make a choice, because whatever horn we choose, the costs in terms of beliefs will be too high. But it does not mean that we actually stay, *psychologically* speaking, in the midst of the problem, without keeping a spontaneous belief in our pocket. Probably, we are not really able to live without philosophical claims, even about specific issues, because philosophical problems usually have an impact on our life, more or less directly. The fact is that we cannot be without beliefs for every issue. Probably, to be able to actually reason step by

step, according to the Cartesian project, we should unnaturally empty the mind of all basic intuitions in order to leave the field open to System 2. However, I doubt that it is possible.

Although the goal is possibly unachievable, I think that proper critical thinking training, conducted through philosophical practices, may be fruitful for full personal development: the worth of the proposal is not in the outcome, but in the process itself. By submitting philosophical issues to students, we can train them to enhance impersonal and theoretical thinking, making them, at least, aware about the misleading role of intuition (considered as a content). In other words, to become aware, by developing System 2, of the weakness of human reasoning.

What I cannot predict, unfortunately, are the consequences that a theory like WRAT, which does not believe, according to the findings of cognitive sciences, in the classic idea of rationality, can have on the idea itself of human being. In some respects, indeed, it can be interpreted as an anti-humanistic theory, since it denies the free exercise of rationality, which has lost full control of its inferential processes, and, in general, of many mental events. Actually, I think that an argumentative theory that tries to deal with the limits of human mind is not by definition anti-humanistic; on the contrary, it can be considered, in a wider sense, fully humanistic. In any case, this philosophical issue is too large to be dealt with as part of this dissertation.

CHAPTER IV

What is the form of reasoning involved in *philosophical dialogue*?

4.1. An inclusive model: the coexistence of different inference types

The aim of this chapter is to explore and understand what kind of collective form of reasoning is carried out and involved in *philosophical dialogue* within the context of high school classes. The meaning of *collective reasoning* has already been clarified in § 1.5.2 through the contribution of the *Distributed Cognition Theory*. By *reasoning form*, I mean the type of inferential process in line with the main distinction outlined, in the argumentation and logic tradition, between *deductive* and *inductive* reasoning; a tradition that, thanks to Peirce's contribution (W I, pp. 175-188), has been clarified and enriched by a new type, i.e., the hypothetical or *abductive* reasoning.

Since I am interested in finding norms and conditions for the functioning of *philosophical dialogue*, what is relevant for this inquiry is not exactly the reasoning dimension, but rather the argumentative aspect, namely the reasoning as it is actual uttered in discourse. Though, as we have seen above[99], the logical structure of reasonings and arguments is the same, I am stressing this distinction because, according to van Eemeren and Grootendorst (1984) and to Walton and Krabbe (1995), in the dynamics of argumentation a thinker – that is also a speaker –, is just committed to what she states, not to what she believes.

To figure out the reasoning forms involved in *philosophical dialogue* is particularly helpful to develop a crucial aspect of WRAT, which, in the previous chapter, has barely been discussed. In both the DPT Model and the EA Model, indeed, among the goals there is the fulfilling of inferential criteria: respectively, of deductive ones in the former[100] and of inductive, abductive and conductive ones in the latter.[101] The understanding of reasoning forms is not only useful to know, descriptively, how they work in *philosophical dialogue*, but also because it is aimed at defining, normatively, what a facilitator should do in order to train students' specific argumentative skills. Indeed, once we have recognized some effective argumentative patterns in the dynamics of dialogue, we could consciously recreate the conditions for students' performance of certain types of reasoning that we

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[99] Cf. § 2.3.1, in particular footnote No. 16.
[100] Cf. § 3.6.2.2.
[101] Cf. § 3.6.2.3.

may judge proper for a certain type of inquiry. In this investigation, I will put aside conductive reasoning, because it does not require specific training, except for the general ability to search for good reasons, an aspect that has been developed by means of the proposal of *intuitive heuristics.*[102]

In the first section, I will try to define the different forms of reasoning, as they have been traditionally established. More specifically, I will focus on the main distinction between deductive and inductive reasoning – defined by Aristotle and rediscovered in the Positivist environment – and on the clarification proposed by Peirce. In the second section, I will report an interesting proposal developed in mathematics educational studies (Conner, Singletary, Smith, Wagner & Francisco, 2014), which intends to catch the three Peirce's reasoning forms in the light of Toulmin's categories: *data*, *claim*, *warrant* (Toulmin, 1958/2003). Their analysis is the theoretical presupposition to design a methodology through which the teacher leads students to reasoning in different ways faced with mathematical problems. In § 4.3, I will focus on the importance of Toulmin's notion of *warrant*, on which the interpretation of *data* and of their tie with the *claim* depends. After that, I will proceed by analysing both the warrant and the *backing* – the grounds of the warrant itself – in deduction, induction and abduction, when they are employed in philosophy. By underlying their interdependence, I will suggest (§ 4.4) an account that describes a hypothetical path of inferential knowledge. In the fifth section, I propose a pedagogical device, the 'AID questions device' that I designed to lead students to put forward all the forms of argument within the activity of *philosophical dialogue*: the main idea is that the facilitator, depending on the questions she asks them, leads them to perform – and to learn by active practice – different ways of reasoning. To test the functioning of this tool, and to reckon whether its features fit the issues that may be addressed in philosophical dialogues, I will apply it to a classic problem, the definition of happiness. Finally, I will try to draw some conclusions about the advantages of this proposal.

4.2. Deduction, induction, abduction: an established distinction from Pierce onwards

4.2.1. An Aristotelian classification

Aristotle was the first to pose the question of distinct kinds of reasoning; in different works later collected in the *Organon* (Migliori, 2016) he outlined a substantial distinction between demonstrative syllogisms and other arguments, which guarantee conclusions with a lower degree of certainty: if the former are the proper form of reasoning of *episteme*, science or certain knowledge, the latter is admitted in fields where we cannot rely on certainty, rather on *doxa* (accepted and shared opinions), like politics, law, ethics, etc. Nevertheless, the need for this weaker argumentative

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[102] Cf. 3.6.2.3.

type arises when, in *Posterior Analytics*, planning to construct a demonstrative science, he searches for its fundamentals, that we can reach only by means of induction (*epagoge*), a reasoning form distinct from demonstrative knowledge (*APo* II 19, 99b20-33). Within the issue of the grounds of knowledge, Aristotle includes the inductive procedure – i.e., an inference that draws a general conclusion from particular cases – in a knowledge system, making "an attempt […] to dialogize a procedure able to supply to science presuppositions from which one can move" (Marcacci, 2005, p. 35; my translation). Indeed, if demonstrative syllogism is grounded on first principles, he recognizes that "it is plain that we must get to know the primitives by induction" (*APo* II 19, 100b3-4) and he admits that "whoever gives an induction [does not] demonstrate anything – but he nevertheless shows something" (*APo* II 5, 91b35-36).

The idea of a procedure that from particular cases leads to general statements is present also in *Categories* (*Cat.* 11, 13b36-14a1), where Aristotle states that the fact that a good is necessarily opposed to a bad is inferred by *epagoge* from singular examples (illness is opposed to health, justice to injustice, etc.), and in *Topics*, where he explicitly poses the distinction between the two modes of reasoning, now employed in dialectical argumentation, but not in scientific demonstration:

> There is on the one hand Induction, on the other Reasoning [syllogism]. Now what reasoning is has been said before: induction is a passage from individuals to universals […]. Induction is the more convincing and clearer: it is more readily learnt by the use of the senses, and is applicable generally to the mass of men, though Reasoning is more forcible and effective against contradictious people. (*Top.* I, 12, 105a11).

Another important reference to *epagoge* in *Topics* is the following:

> Induction should proceed from individual cases to the universal and from the known to the unknown; and the objects of perception are better known, to most people if not invariably. (*Top.* VIII 1, 156a4ss)

As we can notice from these quotes, in Aristotelian argumentation and knowledge theory, inductive reasoning is strictly linked to perception: it is a way through which we can know the unknown, inferring the latter by means of what our senses let us know. In other words, from some occurrences of a certain correlation between two properties, we can draw the general conclusion that the correlation of every occurrence is predictable. It is a less reliable knowledge mode than deduction, for, given the truth of the premises, the truth of the conclusion is not necessary, as in the demonstrative syllogism.

4.2.2. The Great Divide[103]

The Aristotelian distinction between deduction and induction has been revived in the Modern Age, from Hume onwards, and, in particular, by the Positivist debate[104], becoming an established way to theorize two different forms of knowledge: one necessary, applied in fields such as logic and mathematics, the other probable, applied in empirical sciences. The second one, in a period when new instruments allow scientists to manage more and more empirical data, starts to be recognized as a method suitable for scientific inquiry, since, although it does not guarantee standards of truth, it guarantees standards of trustworthiness. In other words, the positivist theory states a dualistic epistemological view, that includes both mathematics-logic and empirical scientific sources of knowledge, stressing the idea that there are two kinds of connection premises-conclusion: one necessary and one non-deductive – i.e., probable –, but nonetheless reliable.

The Positivist 'great divide' has continued to be popular among logicians and informal logicians, who, between the 60s and 80s, have theorized different versions of this distinction. Trudy Govier (1987/2018) gives a comprehensive account of this debate[105], raising some criticisms to the Positivist theory that, I would argue, has not found fitting answers yet.

Considering the Aristotelian distinction between deductive reasoning as syllogistic and inductive reasoning as an argument that draws a general conclusion from particular premises excessively narrow, contemporary debate has focused on the degree of necessity that ties premises to conclusion. Among the names mentioned by Govier, there is Wesley Salmon, who underlines that whereas in deductive arguments the premises entail the conclusion – i.e., the truth of the conclusion is necessary if the premises are true –, in inductive arguments the truth of the premises makes the truth of conclusion probable. Another version of this distinction (Rescher; Brody) considers deductive arguments as those where the truth of premises entails the truth of the conclusion and inductive ones as all other non-deductive (or 'non-conclusive') arguments: in order to fulfil the request for *exhaustiveness,* that is to say to formulate a theory able to embrace all possible schemes, this account includes in the set of induction both poor and good arguments. However, by hypothesising such a broad and heterogeneous category, Govier argues, it is hard to find any positive common feature – except for that of 'non-conclusive'. The most successful and standard distinction is proposed by Irving Copi, who considers deductive arguments as "those in which it is claimed that the premises entail or necessitate the conclusion" (Govier, 1987/2018, p.

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[103] I entitled this section like the third Chapter of *Problems in Argument Analysis and Evaluation* by Trudy Govier (Govier,
1987/2018). This section, indeed, can be considered a sum of her account on deduction and induction.
[104] Despite the variety of this debate, the one who clearly established the distinction induction / deduction can be considered Mill (1874/2009).
[105] For all the references of these contributions, cf. Govier (1987/2018).

60) and inductive arguments as "those in which it is claimed that the premises make the conclusion likely or probable (Govier, 1987/2018, p. 60). The problem of these definitions is their applicability to real arguments: indeed, neither contexts, nor clear linguistic clues, nor the arguer's intentions are often sufficient to establish what is actually claimed in terms of connection premises / conclusion. The issue of arguer's intention has been at the core of an alternative proposal (advocated by Samuel Fohr), according to which if the arguer intends the conclusion to be necessarily drawn from premises, she gives a deductive argument; on the other hand, if she intends the premises to make the conclusion probable, then she gives an inductive argument. The weakness of this account is quite evident when we observe everyday and real argumentation. Indeed, in many cases the arguer does not know whether she wants to provide necessary or probable grounds, for she just wants to justify a claim. Given the undecidability of this distinction, a definitive assessment of the two reasoning types becomes impossible.

A more convincing account, proposed by Skyrms and defended by Hitchcock (1980/2017), admits that there are many diverse kinds of arguments, hence positivist dualism cannot provide an exhaustive classification. Rather than hypothesizing a dichotomy of arguments, it is better to hypothesize a dichotomy of standards of appraisal: by adopting the criterion of *validity*, we can assess arguments where the premises entail the conclusion, whereas, by adopting the criterion of *strength*, we can assess arguments where the premises make the conclusion probable. Through this shift, and proposing to consider a third category, conductive arguments, Hitchcock tries to fulfil the demand of *exhaustiveness*:

> I would argue, classifying arguments as deductive or inductive (or conductive) is at best a tentative matter, one which does not produce a neat division of arguments into mutually exclusive and jointly exhaustive kinds. We do, however, have a mutually exclusive and jointly exhaustive division into kinds of standards for appraising the link in an argument between premisses and conclusion. It is this division which justifies reference to deduction, induction and perhaps conduction as distinct types of reasoning. (Hitchcock,1980/2017, pp. 19-20)

Skyrms' and Hitchcock's proposal has obtained a certain agreement among informal logicians, probably because it is easy to be applied to 'actual arguments', in other words simply an actual piece of argumentative discourse or writing (Govier, 1987/2018, p. 7) that contains all the elements that compose an argument, although all the needs of real speech are there (missing premises, different illocutionary forces, inversion reason/claim, etc.). Nonetheless, still remaining within the *Informal Logic* debate, Govier does not fail to challenge this account. First, considering the heterogeneity of the arguments included under the two standards, in particular under the inductive one (confirmation of hypothesis, analogical arguments, statistical inferences, etc.), she wonders why

Hitchcock postulates just a dichotomy, rather than a plurality of standards. Indeed, one should assume a parallelism between the level of assessment standards and that of arguments to which the standards are applied: in other words, we can hypothesize certain standards only if they are based on the existence of certain arguments. If the arguments are many and different, what justifies the usage of just two standards?

> Again, the great divide can be questioned. It is reasonable to suppose that we develop standards of one kind or another because there is a substantial group of arguments to which they are appropriately applied. (Govier, 1987/2018, p. 68; my italics)

In Skyrm's and Hitchcock's account, the argument types behind the standards still lack any clear definition. The label 'inductive', indeed, denotes every non-deductive argument, without any way of distinguishing all the different types of argument included in this broad family. What do inductive arguments have in common? If the dichotomy were exhaustive, then we would need a clear definition of both kinds of connection premises-conclusion (Govier, 1987/2018, p. 76), but evidently there is not just one kind of connection under the label 'inductive.

The solution for a clear definition of induction is missing. Moreover, by trying to figure it out by focusing on the notion of probable, the difficulties remain. If the category is applicable to quantitative and empirical statements, outside contexts where the conclusions are measurable, such as those of a normative kind, the criterion of probable is not really helpful, or, at least, is not naturally understood: can we consider, for instance, as probable the conclusion that everybody should try to be wise on the basis of the observation that virtue makes wise people happy? It evidently does not sound natural.

Finally, Govier advances another challenge to Positivist dualism. This tradition, even if we consider the inductive family as broadly as possible, ignores several argument schemes that are neither deductive nor inductive, but that are really common and even considered as good and effective arguments in ethics, law, philosophy and many other domains: *conductive arguments*, *arguments from authority*, *ad hominem*, *from analogy*, etc. This provides further evidence to claim that the great divide is insufficient and unsuitable to cover all possible argument schemes, whenever an exhaustive description of all the schemes is possible:

> The great divide between deductive and inductive arguments is spurious and theoretically dangerous, because it makes it too easy to ignore the many non-deductive arguments which are not classically inductive. Confidence in this spurious dichotomy leads one to false simplicity in classificatory categories and falsely founded problems of justification in philosophy and elsewhere. Acknowledging the existence and epistemic legitimacy of other types of argument would alter approaches to such

problems as the justification of normative and interpretive statements while at the same time enhancing our understanding of natural argumentation. (Govier, 1987/2018, p. 80).

According to Govier's criticism to the dualism deduction / induction, founded specifically on the impossibility to find coherence among arguments considered under the label 'inductive', I also reject this interpretation of the different reasoning forms. Probably, the Aristotelian account of the distinction may be considered too narrow, but at least the category of induction in his knowledge system – i.e., an inference that draws a general conclusion from particular cases – has a clear and sharp meaning and, as I will argue later and Aristotle himself recognizes, it is one of the most widespread arguments in philosophical argumentation. Beyond deduction and induction, however, according to the Peircean tradition, I will consider also abductive reasoning, since all three of them can play a crucial role in *philosophical dialogue*. By this choice, anyway, I do not definitely intend to claim that these three categories cover all possible forms of argument.

4.2.3. The logical triad: an established distinction from Peirce onwards

In the *Harvard Lectures II*, Charles Sanders Peirce proposed for the first time the triad deduction / induction / abduction, attempting to handle and systematize complex and muddled materials that, as we saw, had received many and authoritative dissertations in the course of philosophical tradition. The project was to reconceptualize into a new logical framework all possible reasoning modes in order to found a logic of science. To fulfil this plan, he restores the Aristotelian distinction between syllogism and inductive arguments, arguing that there is another non-deductive argument: between *a priori* inference (deduction) and *a particularis* inference (induction), a third position is occupied by *a posteriori* inference (abduction[106]) (W I, pp. 175-188). In the same year, he published *An Unpsychological View of Logic* (W I, p. 316), where he developed his study of reasoning forms, introducing a new categorization: instead of the Aristotelian major premise, minor premise and conclusion, he proposed, respectively, the notions *rule*, *case*, *result*, better fitting his logical account and, in particular, his need to combine the argument components to discover all possible inferential modes.

I am going to describe these components by adopting Pierce's famous *beans-in-the-bag* example (W I, 430f.; 437f.). *Rule* is a general proposition that states that if one property (being in the bag) occurs, then another one will also occur (whiteness): 'All beans in this bag are white'. *Case* indicates a particular individual or a sample of individuals (these beans) of which a property (whiteness) is predicated: 'These beans are white'. *Result* refers to an observation that a property

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[106] This is the first expression used by Peirce (W I, pp. 175-188) to term this inference, that in his following works he called also *retroduction*, *hypothesis* or *explanatory hypothesis*. The word *abduction* appears for the first time in 1893, in *How to Reason* (NEM IV, pp. 353-358).

(whiteness) of an individual or a sample of individuals is predicated, where this property is related to another property (being in the bag) by a *rule*: 'These beans are white'. According to these notions, he discovers that moving *rule*, *case* and *result* in all the different positions of the argument, he can give a logical description of the three inference types, as reported by Kraus (2003, pp. 241-242):

Deduction:

| RULE | All beans in this bag are white. |
CASE	These beans are from this bag.
RESULT	These beans are white.

Induction:

| RESULT | These beans are white. |
CASE	These beans are from this bag.
RULE	All beans in this bag are white.

Abduction:

| RULE | All beans in this bag are white. |
RESULT	These beans [out of the bag] are white.
CASE	These beans are from this bag.

In deduction, through the general rule 'All beans in this bag are white', one can draw a statement about particular cases (these beans). This means that knowledge of general rules allows the arguer to predicate a certain property for every singular case that falls under the rule. In induction, knowledge of a property (whiteness) of a sample of elements belonging to the same category (to be from this bag) allows the arguer to move from what is predicable of the sample to a general statement ('All beans in this bag are white'). In abduction, finally, the arguer plays a move from observed evidence ('These beans [out of the bag] are white') to its hypothetical explanation ('These beans are from this bag'); hence, in case of abduction, the argument goes backward from effects to the possible cause[107] able to explain these effects:

"The surprising fact, C, is observed.

But if A were true, C would be a matter of course.

Hence, there is reason to suspect that A is true." (Peirce, CP 5.189)

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[107] Within philosophy of science there is an important difference between the notions of explanation and the one of cause, though they are obviously related. Nonetheless, as I cannot deal with this debate in this chapter, I will use the two notions as synonymous. For an overview on the debate, cf. Woodward & Ross (2021).

The influence of Aristotle and of the Medieval mediation on the understanding of syllogism is evident. First, and particularly interesting for my purposes, Peirce's interpretation of induction follows the Aristotelian definition, indeed he considers it as an inference that from particular cases draws general conclusions. Second, as Kraus points out (Kraus, 2003), Peirce tries to discover the logical structure of his three schemes following the first three figures of syllogism.[108]

The success of Peirce's systematization, nowadays accepted and established among scholars of logic, critical thinking and argumentation theory, relies on the discovery of abduction, considered one of the most influential findings by the American philosopher. Through the notion of abduction, Peirce thought he had found the inference of discovery, which has its proper place in the first stage of scientific inquiry, when scientists heuristically try to engender theories to explain observed phenomena, before they are tested: "abduction is the process of forming explanatory hypotheses. It is the only logical operation which introduces any new idea" (CP 5.172). What Peirce intends to do by introducing this inference is to provide a new instrument for natural scientific inquiry, which is able to adopt the best hypothesis (the best candidate) among a plurality of candidates, and to limit in so doing the range of possibilities:

> It would work as a kind of selection function, or filter, determining which of the hypotheses that have been conceived in the stage of discovery are to pass to the next stage and be subjected to empirical testing. (Douven, 2021)

In other words, it is about a hypothesis that needs to be confirmed by further investigations. These investigations can make use of the other two inferences, deduction and induction, which play a role of assessment on the later stage of theory check:

> […] deduction helps to derive testable consequences from the explanatory hypotheses that abduction has helped us to conceive, and induction finally helps us to reach a verdict on the hypotheses, where the nature of the verdict is dependent on the number of testable consequences that have been verified. (Douven, 2021)

As we are going to see later, these stages of inquiry, related to the three reasoning types, have a specific function for the workshop activity proposed here, but they are rooted in the issue of the fundamentals of deductive and inductive knowledge.

I need to add just another element, useful to clarify any possible ambiguity about abduction. The notion of abduction that I employ here is the Peircean one, i.e., the inference that generates (or, better, proposes) hypotheses. This meaning is slightly different from that adopted in current debate

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[108] It is worth noticing that if the attempt to find an overlap between the three reasoning types and the first three syllogistic figures works for deduction (first figure) and induction (third figure), it is weaker for abduction: the second figure, indeed, contains only negative conclusions, no positive ones, like in abduction. For a detailed analysis of the issue, cf. Kraus (2003).

by logicians and epistemologists, i.e., the so-called 'Inference of the Best Explanation'. If the Peircean meaning refers to the stage of searching for possible hypotheses, the modern meaning refers to stage of justification, where inquiry is concerned with the evaluation of theories.[109] Despite this difference, it will be interesting to consider, for a comparison at least, Williamson's philosophical inquiry program.[110]

4.3. Toulmin's key to reading Peirce's reasoning forms: a proposal from mathematics education

In this section, I would like to inquire into the possibility of employing all three forms of reasoning in philosophical education, specifically through the *philosophical dialogue* methodology. In the mathematics education field, an interesting proposal (Conner et al., 2014) has been advanced, designed to enhance students' reasoning skills. The idea of that study is to challenge the widespread prejudice that mathematics requires only deductive argumentation, and to show how also inductive and abductive inferences play a key role in mathematics education, if these forms of reasoning are regarded within an active and inductive learning framework. Indeed, all the problems are worked out by a *collective argumentation*, where students discuss hypotheses and the teacher facilitates the discovery of any missed elements. To do that, Conner et al. read three Peirce's inference types[111] in the light of the main components of Toulmin's model, demonstrating how this combination can be turned into a powerful tool in the hands of a teacher:

> We demonstrate how combining the two perspectives into a single diagram provides insight into the kind of reasoning (deductive, inductive, abductive […]) present in an argument, and we provide examples from one teacher's class to show how the combination of perspectives works in practice. (Conner et al., 2014, p. 183)

Toulmin intended his pioneering normative theory to regulate the everyday argumentation in different fields without adopting formal logic notions, rules, and categories. For this purpose, he presented his model, in its most general form, as depicted in the following diagram (1958/2003, p. 92):

Figure 1


```
D  ───────────▶  C
          │
        Since
          W
```

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[109] For an overview on this meaning of abduction, cf. Douven (2021). Among the most authoritative voices of this debate, cf. Harman (1965), Putnam (1981) and Williamson (2016; 2017).
[110] Cf. § 4.4.
[111] This study also includes argument *from analogy*, that for space reasons I am being forced to cut.

D indicates available *data* on the basis of which C, the *claim*, is grounded; W indicates the *warrant* through which the passage from D to C is licit: it refers to rules or general principles that operate as bridge able to guarantee that D is relevant and sufficient to draw C. Actually, the model consists of three other elements (*backing*, *qualifiers* and *rebuttals*), but Conner et al. select only those that they term 'core components' of Toulmin's model, arguing that the others are not strictly necessary in determining whether the reasoning is deductive, inductive or abductive. The match between Peirce's three elements of an argument (*rule*, *case*, *result*) and Toulmin's three categories (*data*, *claim*, *warrant*) is the following:

Figure 2[112]
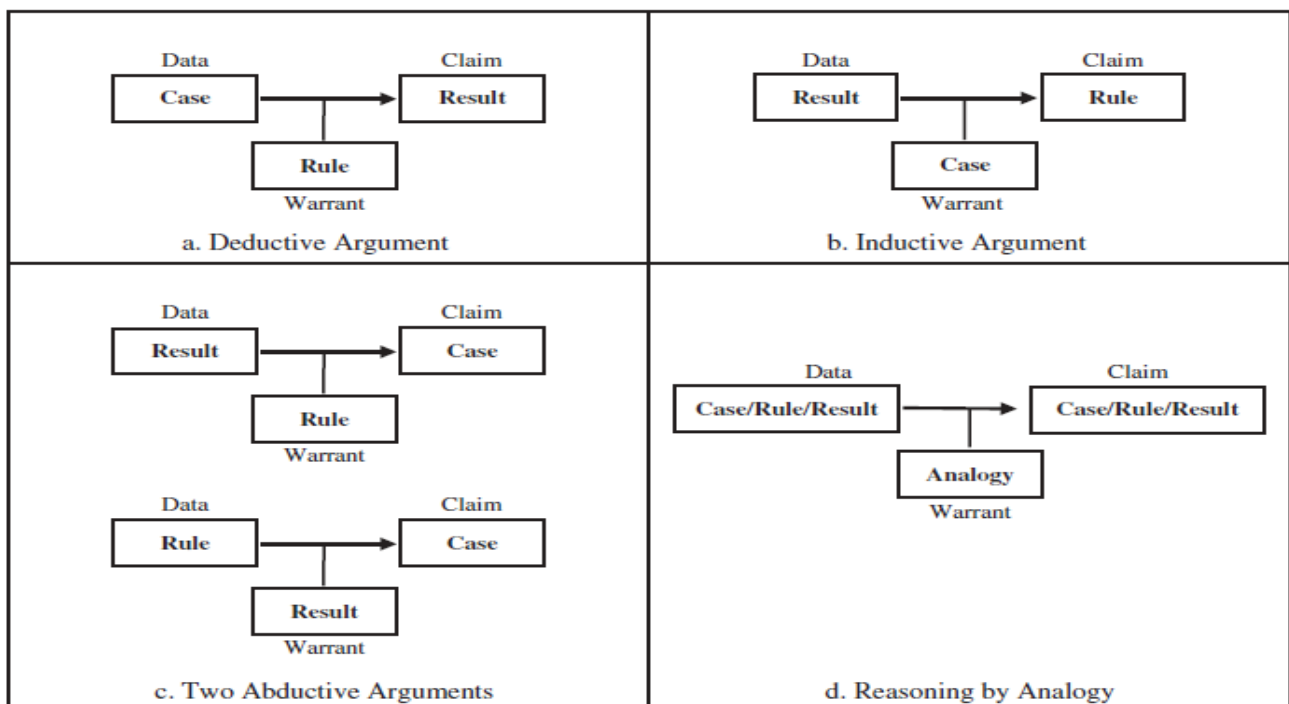
As Conner et al. point out, the sentences that form the argument have no specific ontological status, since the same utterance may be interpreted, in a different situation, as a different part of the argument. Translated into educational terms, it means that the same bits of information might play a different role in mathematical reasoning tasks. By means of this combinatory instrument, indeed, scholars have developed a pedagogical technique, concretely experimented by a trained teacher in a ninth-grade integrated mathematics course, consisting in leading students to adopt all the reasoning types, depending on available information (*data*) and goals (*claim*). Students, indeed, are asked to solve an array of different algebraic and geometric problems by actively employing different kinds of inferences, with the enhancement of different reasoning skills as output.

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[112] Cf. Conner et al. (2014, p. 186).

Now, the challenge is whether it is possible to turn this pedagogical instrument from the field of mathematics into that of philosophy. Before that, I need to analyze, for each of Peirce's three reasoning modes, the *warrant* and its grounds, the *backing*, i.e., the reason that, in turn, supports the warrant. By letting us discover the fundamental relations among reasoning forms, this inquiry should provide a compelling theoretical argument to propose the educational device that I have designed.

4.4. Warrant and backing: an inquiry to discover the grounds of the three reasoning forms

Recent research in management and organization studies, conducted by Ketocivi and Mantere (2021), intends to demonstrate how the understanding of argument structure, specifically the role of Toulminian *warrant*, is crucial to avoid drawing different plausible theories (*claims*) from the same available information (*data*): this, in philosophy of science, is known as the problem of *underdetermination of theories by data*. To assess if the claim of a scientific argument is well justified, we need to be aware of the warrant. Indeed, the authors argue that the assumption that data alone are ultimately sufficient to support the claim, which relies on the fact that in scientific arguments the warrant is often implicit, is a methodological fallacy: "facts do not speak, the researcher does" (Ketocivi & Mantere, 2021, p. 772). For this reason, it is essential, for a full grasp of the argument, to discover its structure, which often means explicating its implicit warrant. Indeed, disagreement often depends on different interpretations of the same data, due to different underlying warrants. Hence, they conclude that an evaluator of a scientific argument must not observe just the acceptability of the claim, but the *whole argument* (specifically, the data and the warrant). Moreover, drafting a methodological program, they argue that the explication of the warrant is an antidote against *conservatism* (i.e., the tendence of scientists to resist discoveries that challenge their own theory) and *confirmation bias* (i.e., the tendence of scientists to take into account more arguments supporting their theory than counterarguments).[113]

Ketovici and Mantere's reasons on the importance of understanding of the warrant are a good argument to justify the following analysis, that, by making use of Toulmin's and Peirce's tools, intends to identify what plays the role of warrant and of backing in the three inference forms considered. To conduct this analysis, I will use a philosophical example regarding the ethics involving the relationship between richness and happiness.

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[113] For a discussion on the *confirmation bias*, cf. § 3.5.

4.4.1. The fundamentals of deduction

According to the scheme provided by Conner et al., in a deduction such as (1)

(1)   Rich people are happy.
        The Swiss are rich.

        Therefore, the Swiss are happy.

the function of the warrant 'Rich people are happy' is embedded by the Peircean *rule*[114], or the Aristotelian major premise, namely, a general accepted rule applicable to every case, which is usually uttered by conditionals ('If *p*…then *q*') or universal quantifiers ($\forall$) ('Every…is…', 'No…is…'). Once we agree on the acceptability of the *rule*, if there is a *case* that falls under that *rule* for it shares the same property (the Aristotelian *middle term*, i.e., 'richness'), we cannot deny that the *case* has the property stated by the *rule*. Indeed, the reliability of a deduction rests on the universality of the *rule*.

What is the *warrant* grounded on? Except for statements that are *a priori* true (e.g., 'A bachelor is an unmarried male'), generally, at least in philosophy, the backing of a deductive argument can be of two kinds: one *a priori* and one *a posteriori.* In the first case, to support the sentence 'Rich people are happy', one can argue that in the definition of richness there are some features that are inherently sufficient to entail happiness: satisfaction, confidence, absence of economic concerns, etc. In so doing, she supports the warrant (indicated by *w*) by means of another deduction (indicated by *d*):

(1wd) Richness is being confident.
        To be confident means being happy.

        Therefore, to be rich means being happy.

Nonetheless, as Williamson points out (2016, p. 268), it is not certain that another deduction solves the problem: indeed, even if a philosophical deductive argument like (1wd) is valid, an opponent can reject one of the premises by considering it unacceptable or irrelevant (e.g., 'To be confident means being happy'). Consequently, the proponent is forced to find another deduction to justify the rejected premise, but, in this way, until the opponent considers all the premises as acceptable or as intuitions that do not need any justification – for instance, an intuition according to the *rock bottom* meaning –, the argument turns into a so-called *epistemic regress problem*.

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[114] We must not confuse the meaning of 'rule': here it is used just according to the Peircean meaning of premise that guarantees the link between the other premise and the conclusion, i.e., *major premise*; another thing is the rule of the *modus ponens* schema – like (1) –, that consists of the whole structure, not only of an individual premise.

Otherwise, in the case of an *a posteriori* argument, we can justify our warrant through a generalization from experience: by seeing that all particular rich people that we know are happy, we draw the general conclusion that rich people are happy. That is, we employ an inductive argument (indicated by *i*) to support the warrant of a deduction (indicated by *w*):

(1wi)   I know a sample of rich people.
        All the people in that sample are happy.

        Therefore, rich people are happy.

This move should not surprise us, because, if we recall *Posterior Analytics,* Aristotle theorizes that to ground demonstrative inferences we need induction.[115] This view, in some respects, seems close to Toulmin's definition of *backing*: in contrast to the *warrant*, this element consists of a factual content:

> In what ways does the backing of warrants differ from the other elements in our arguments? To begin with the differences between B and W: statements of warrants, we saw, are hypothetical, bridge like statements, but the backing for warrants can be expressed in the form of *categorical statements of fact* quite as well as can the data appealed to in direct support of our conclusions. (Toulmin, 1958/2003, pp. 97-98; my italics)

It is precisely this aspect, that warrants are grounded on backings with field-depending factual contents (scientific laws, facts, statistical data, etc.), that makes an argument *substantial*, since its soundness is based not only on logical validity – such as *analytic arguments*[116] –, but also on new information provided by anchoring the warrant to the world.

4.4.2.   The fundamentals of induction

In an induction such as

(2)   The Swiss are happy.
        The Swiss are rich.

        Therefore, rich people are happy.

the role of warrant is played by the Peircean *case* ('The Swiss are rich')*.* Naturally, just a single case would form a very bad argument, which would turn into a fallacy of the *unrepresentative sample* (Johnson & Blair, 1977/1994, p. 71): from a correlation observed in just one or few instances between two properties ('richness' and 'happiness'), indeed, I am not legitimated to imply that this correlation is valid for every instance of the whole category (*population*). The reliability of

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[115] Cf. § 4.1.1.
[116] The difference between the two types of arguments is addressed in Toulmin (1958/2003, p. 116).

induction relies precisely on the quality of the sample, which is *representative* if it is able to represent, in the population, roughly the same proportion of the relevant features observed (Johnson & Blair, 1977/1994, p. 71).

In Aristotelian terms, the warrant-*case* corresponds to the minor premise, and it is usually uttered by *existential quantifiers* (∃) by means of which one states that a sample (the Swiss) with a certain property (being rich) exits. In inductive arguments, the connection between the data 'The Swiss are happy' and the general claim 'Rich people are happy' is warranted by a sample: 'The Swiss are rich'. In the domain of philosophy, induction can be considered a method that, by using a bundle of examples, lets the arguer infer a philosophical universal theory (such as 'Rich people are happy'). However, as the warrant is just a sample, the connection between premises and conclusion loses the status of necessity to enter the space of probability, which can have different degrees of strength. In Toulmin's model, they are described by Q (*qualifiers*): from a particular sample (*case*), I can imply a general rule as long as I predict a certain degree of error. If new information turns out to be available, I need to be willing to change the claim.

As regards the issue of the *backing* of induction, this is related to the so-called 'problem of induction', launched by Hume's *Treatise* (T.) and which is still topical in scientific philosophical debate. Before addressing abduction, we need to present this issue in order to better figure out the backing of induction.

4.4.2.1. The 'Problem of induction'

Hume's inquiry into the fundamentals of induction is addressed within the analysis of the principle of cause, that occupies a prominent position in his theory of knowledge. In his view, all our knowledge relies on our senses and memory, that gather impressions, which are turned into ideas. Nevertheless, he wonders how we go beyond the limits of our senses, for instance: how can we guess the future? The relation between cause and effect lets us predict the future, since, given a certain cause, we can infer a certain effect connected with that cause: "The causal relation links our past and present experience to our expectations about the future" (EHU 4.1.4/26). This causal inference is not grounded on *a priori* knowledge, but rather on our past "experience, and specifically experience of constant conjunction." (Henderson, 2022). Once we have had the experience of a constant conjunction between two properties of an object (e.g., 'a glass object falling' and 'its breaking'), or between a property of an object and a property of another object (e.g., 'sunlight' and 'grass growth'), I can draw the conclusion that if the cause occurs, then the conjunct effect will occur:

> I have found that such an object has always been attended with such an effect, and I foresee, that other
>
> objects, which are, in appearance, similar, will be attended with similar effects. (EHU 4.2.16)

According to Aristotle and Hume himself, this inference is an induction, because from an instance (or, better, the occurrence of some instances) of a phenomenon, we draw the general conclusion that it will always be connected to another phenomenon. The problem for Hume, now, is to establish on what basis we can draw this inference, a problem that, in Toulminian terms, can be rephrased in the following question: what is the *backing* on the ground of which the warrant 'I make some glass objects fall' justifies the shift to the general rule 'If I make a glass fall, then it will break'? In *Treatise*, Hume hypothesizes a Uniformity Principle (UP), according to which we assume that there is a similarity between observed and unobserved conjunct phenomena:

> [Reason] would proceed upon that principle that instances, of which we have had no experience, must resemble those, of which we have had experience, and that the course of nature continues always uniformly the same. (T. 1.3.6.4)

This assumption rests on our experience of regularity of nature, thanks to which we believe in a world order. Hume's question, now, is: how can we demonstrate UP? He tries to investigate the problem by means of demonstrative and probable reasoning (according to him, the only two possible human inferences), reaching the conclusion that neither deduction nor induction are useful to find a solution. Indeed, following the first horn of the problem, we have to consider that deductive reasoning has a necessary conclusion, whose negation would be a contradiction; but there is nothing that can guarantee that, in accordance with UP, the course of nature will be forever the same – i.e., the negation of UP is possible; therefore, a deductive demonstration of this principle is impossible. Instead, following the second horn, we suddenly realize that every inductive argument whose conclusion is UP would rely on UP itself. In so doing, the argument falls into a *begging the question* fallacy (*petitio principii*), since it needs to postulate UP, that is to say what we have to demonstrate. In conclusion, UP remains an unproven assumption.

Hume wonders whether this basic transition from the idea of an object (and its properties) to another (and its properties) is worked out by reason or by other human capacities. He argues that to hold up inductive inference is imagination, able to create regular correlations between perceptions of different objects (T. 1.3.6.12). Thus, inductive reasoning is grounded not on reason, which through reasonings tries to draw unknown conclusions from known premises, but on imagination, another human ability that, in turn, is based on an ultimate natural principle, i.e., *habit* or *custom*:

> Suppose, again, that he [a person] has acquired more experience, and has lived so long in the world as to have observed familiar objects or events to be constantly conjoined together; what is the consequence of this experience? He immediately infers the existence of one object from the appearance of the other. Yet he has not, by all his experience, acquired any idea or knowledge of the secret power by which the one object produces the other; nor is it, by any process of reasoning, he is

engaged to draw this inference. […] There is some other principle which determines him to form such a conclusion. This principle is Custom or Habit. For wherever the repetition of any particular act or operation produces a propensity to renew the same act or operation, without being impelled by any reasoning or process of the understanding, we always say, that this propensity is the effect of Custom. By employing that word, we pretend not to have given the ultimate reason of such a propensity. We only point out a principle of human nature, which is universally acknowledged, and which is well known by its effects. (EHU 5.1.2)

Some paragraphs later, he defines this propensity as a 'natural instinct', a sort of natural inferential capacity, that makes sure human beings (and other animal species) are effective in the challenges of the world and "which no reasoning or process of the thought and understanding is able either to produce or to prevent" (EHU 5.1.8).

4.4.2.2. *The backing of induction*

Let us come back to our goal, namely to establish the backing of induction. According to Hume, we could claim that the warrant is grounded on another general implicit assumption. To stress the transition from some actual correlations to the general correlation between all individuals in the population, I formulate this 'inductive assumption' (IA) in the following way:

(IA)   If we can predicate a correlation between two or more properties of the individuals of a sample, then we can predicate the same correlation between all the individuals of the population.

This assumption, which rests on our experience of regularities in the world – thanks to which we have the belief (or, possibly, the faith) in a world order –, relies on another induction: when we notice a correlation between the properties of two objects (or two properties of the same object), we instinctively draw the conclusion that the same pattern is generalizable to other phenomena of the same kind. This argument, in turn, relies on IA, and, in so doing, we are destined to fall into a circularity, which finds a precise explanation by adopting Toulmin's categories. Indeed, IA demands to play the role of *backing*, but, in order to be a backing, it should be a factual statement. Nonetheless, IA – i.e., the assumed regularity of nature – is not a fact, but rather a postulated law that needs, in turn, a backing.

To conclude, it seems that inductive arguments cannot find a backing. The consequences are significant. Indeed, bearing in mind that the scientific method is traditionally considered as based on inductive process[117], which, in turn, relies on the unproven assumption that nature is regular, ordered and non-chaotic, we are forced to admit that scientific knowledge is grounded on a specific

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[117] That is the traditional Positivist account, not Popper's (1959/1992), whose criticism to inductivism will be analysed below (cf. § 4.4).

metaphysical view of reality. If we are not willing to assume this, the whole structure will collapse.[118]

4.4.3. The fundamentals of abduction

In an abduction such as

(3)   Rich people are happy.
      The Swiss are happy.

      Therefore, the Swiss are rich.

the warrant would be either a general *rule* ('Rich people are happy') that includes every *case* or a Peircean *result* ('The Swiss are happy'), that should result from a cause (being rich). In the first case, as in deduction, it is a universal statement. In the second case, instead, the state of affairs 'The Swiss are happy' is considered an effect that must be produced by a cause (the conclusion), or, adopting Aristotelian language[119], a *sign* that indicates the plausible cause connected to it. We are again within Hume's problem, but now from another perspective: in induction, we make a transition from cause to effects, while abduction goes backwards from the effects to cause, that is a move that leads Peirce to use the term 'retroduction' (CP 5.580) before inventing the word 'abduction'.

In Aristotelian syllogism, the warrant would play the role, respectively, of the *conclusion* or of the *major premise*: in the first case, as in deduction, it is usually uttered by conditional clauses or universal quantifiers; in the second case, it is usually uttered by *existential quantifiers* (∃) by means of which one states that one sample exists (the Swiss) with a certain property (being happy). The reliability of an abductive hypothesis depends on criteria "such as simplicity, informativeness (i.e., the capacity to explain the phenomenon), generality, unifying power, and fit the evidence" (Williamson, 2020, p. 70).

As regards backing, if we interpret the warrant as the *rule*, then it is the same general assumption of deductive reasoning, namely an inductive generalization from experience.[120] On the contrary, if we interpret the warrant as the *result*, it is not difficult to notice that abduction, being related to Hume's issue of induction, is grounded on the same assumption about the regularity of nature. Nevertheless, I think that there is a slight difference that I will try to bring out. In this case, indeed, we do not only assume that nature is uniform and that its cause-effects correlation does not change, but we also assume that an unexpected state of affairs *must* have a cause due to the fact

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[118] It is true that some solutions have been proposed for Hume's problem. For an overview, cf. Henderson (2022).

[119] Kraus (2003) proposes an interesting interpretation of Aristotelian *enthymemes* in *Rhetoric* (*Rhet.* I 2, 1357a32), considering the *argument by signs* as a Peircean abduction, although Peirce did not recognized it.

[120] Cf. § 4.3.1.

itself that it happens. I will term this assumption 'abductive assumption' (AA), that can be formulated in the following way:

(AA)   If there is a phenomenon, then it *must* be explained by a cause linked with it.

Just as we need to imagine a correlation between similar causes and similar effects, we cannot avoid imagining that behind every phenomenon there is a cause, although we do not have the means to grasp it. (AA) is a reformulation of the *Principle of Sufficient Reason*, that, in its unrestricted form, can be written as follows:

(PSR)   "For every fact *F*, there must be a sufficient reason why *F* is the case." (Melamed & Lin, 2021).

If you believe (PSR), then "you will require an explanation for *any* fact, or in other words, you will reject the possibility of any *brute*, or unexplainable, *facts*." (Melamed & Lin, 2021). Likely, since this assumption is related to the Uniformity Principle too, it also seems to rest on the principle of *habit* theorized by Hume. Nonetheless, there is a slight difference, based on an element that makes this assumption slightly more grounded than the inductive one (IA). I will try to argue this claim by means of a thought experiment.

Suppose you wake up, tomorrow morning, without memory: any kind of memory, also short-term. Whatever occurs to you after waking up is thus destined to be continuously lost: you wash your teeth, and in few seconds you forget you have just done it; so you come back to wash your teeth, but you forget that you have just done it, and so on, *ad infinitum.* Your life would turn into an eternal present in which you always repeat, unaware, the same action.[121] Now, what could make you aware of having already performed that action? What can get you out of this loop? The only element you can rely on are *signs*. You feel the toothbrush is wet, and you draw the abductive inference, in those few seconds available before losing memory again, that you have already brushed your teeth; after that, you probably try to get dressed and, after putting one sock on, you suddenly lose memory again; nevertheless, your new odd world has been enriched by another sign, the sock on your right foot; and so on. In this scenario, the few signs that your actions leave are a sort of semantic map that only your abductive natural ability is able to read in order to find a meaning – a thread – to guide your actions.

Now, without any inductive correlation we could not predict either future facts or imagine similar effects from similar causes, with the probable consequence that, as children or inhabitants of an always new universe, we would be surprised every time to see certain effects produced by

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[121] A brain injury like that is described in the cinematic masterpiece *Memento* by Christopher Nolan (1999), where a puzzled protagonist, to orient himself in an adverse environment where he cannot trust anyone, writes every important information, even by tattooing his own body.

certain causes. But, in a way, life would go on, although we would be prevented from learning anything. Instead, without any abductive correlation – i.e., without the possibility itself to advance hypotheses to explains signs – we would be stuck in a foolish eternal present. Thus, adopting an evolutionary perspective, I hypothesize, first, that abduction and induction are both natural forms of reasoning; second, that the former is a more fundamental need for human evolution than the latter. Probably, these natural inferential skills are embedded in specific features of our cognitive system, but in different forms: (IA) is grounded on the instinct of habit, whereas (AA) could be grounded on the instinct of making sense of the world.

This interpretation seems to find confirmation in the *Dual Process Theory*. Indeed, as we have seen[122], while System 2 is able to suspend judgment for a relatively long time, as demonstrated by its capacity to set aside one's own beliefs in reasoning (Evans, 2017, pp. 64-71), System 1 needs to dispel any doubts by constructing coherent pictures of the world, and by rejecting irregularities or unexplained elements. To give an account of this tendency, as we have seen, cognitive psychology introduces the so-called *certainty bias*[123], but it also points out another more specific tendency connected with storytelling: the notion of *narrative fallacy* describes human inclination to reconstruct stories of the past consistent with our present view, however simplified or flawed: "Narrative fallacies arise inevitably from our continuous attempt to make sense of the world" (Kahneman, 2011, p. 195).

Induction responds to the natural human need to predict the future based on an assumed regularity in nature; likewise, abduction responds to the need to find explanations to phenomena by reconstructing a coherent picture of the world, also when we are faced with unexpected facts. While deductive inferences are correctly processed only by System 2 (Evans, 2017, pp. 64-71), abduction and induction are beyond the dimension of pure and abstract reasoning and they seem to belong to the more natural System 1, that is similar to what Hume claims to explain the origin of induction.

Hence, we can conclude that induction and abduction belong to the same domain of *natural inferences*, although they are oriented towards different directions: induction aims to predict the future from knowledge of the past (and, in general, to draw general correlations from the experience of past correlations), whereas abduction aspires to know the cause of a phenomenon. Nonetheless, abduction is probably an inferential need which is more essential than induction. This hypothesis is confirmed both by the thought experiment, that should have shown that a life without abductive ability is more meaningless than a life without inductive ability, and by the findings of cognitive psychology, which demonstrated that the need to make sense of the world leads the cognitive

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[122] In § 3.6.1 I sketched the present interpretation, that in this section is deepened through new elements provided by the analysis of inference forms.
[123] Cf. § 3.3.1.

system to unavailable biases. The consequence is that the problems dealt with, and the questions addressed by, the abductive mindset are more basic than those of inductive; and, as deductive is less useful in natural environment than inductive reasoning, then abduction is more basic also of deduction. In other terms, the hypothesis is that abduction is *antecedent* to induction – that is, in turn, *antecedent* to deduction – both from a phylogenetical and ontogenetical perspective. If this were true, also the inquiry into abstract problems, such as the philosophical ones, could start from abductive inferences, consistently with the inductive learning approach, and step by step rises, via induction, to deductive analysis.

4.5. A hypothetical account of the philosophical inferential knowledge process

The analysis of Peirce's three forms of reasoning conducted in § 4.4 should serve as theoretical ground for a general reflection on their possible relations, in the domain of philosophy. So far, we have seen, by means of the example about richness and happiness, that all types of inference can serve different functions in philosophical inquiry, that we may summarize in the following description:

- *Abduction*, through the observation of reality, allows the philosopher to put forward hypotheses able to explain unexpected phenomena; it answers the question 'Why *p*?' or 'What could be the explanation of *p*?', where *p* can be a sentence such as 'The Swiss are happy', 'Nowadays children do not obey their parents', 'Laura and her generation are disappointed about future job opportunities', etc.; namely, facts or states of affairs that need a sort of explanation. To explain *p*, one should bring out all *plausible* hypotheses, considering that, since she has to consider their plausibility before checking their truth, she needs a good deal of insight to select the best candidates: in this respect, the abductive methodology is a driver able to reduce the space of possibilities, ruling out hypotheses that are unable to explain the phenomenon or theories so weird that their explanatory power is questionable.

- *Induction* allows the philosopher to infer general statements from the observation of particular facts or states of affairs, where 'particular' means a specific sample; it answers the question 'Is it possible to claim, in general, *q* from *p*?', where *p* is a statement which refers to a particular correlation (e.g., 'The Swiss are happy because they are rich') and *q* is a generalization of *p* (e.g., 'Rich people are happy'); if a plausible explanation for the lack of obedience of today's children to their parents is that they own too many objects, I generalize by saying 'Children owning too many objects do not obey their parents', etc. From this perspective, induction has the function of making particular statements, such as abductive conclusions, universal. However, as we have seen, it also has the function of providing

grounds to the warrant of deductive arguments, i.e., to its major premise, which is usually controversial and not necessarily accepted by the interlocutors.

- *Deduction*, unlike the other two forms, is an *a priori* argument[124], since it does not need to conduct any observation of reality: it allows the philosopher to understand the world and its particular entities by means of definitions.[125] It answers at least two different questions. The first, that meets the need of classification, is 'Is *A* under *p*?', where A indicates an individual or a set of individuals (e.g., 'The Swiss') and *p* indicates the *rule* (or warrant) of the deductive argument ('Rich people are happy'): if *A* shares the middle term ('richness') with *p*, then it necessarily falls under *p*. The second question – the most metaphysical one – is focused on searching for definitions: 'What is *X*?', that can be channelled into another more specific question: 'What are the necessary and sufficient conditions of *X*?', where *X* is a category or a class of individuals (e.g., 'Human beings'). Thus, deduction serves the function of inquiring, through the analysis of necessary and sufficient conditions, into the metaphysical nature of the notions discussed. However, in philosophy, it also plays another crucial role, that of testing ground for other statements. This task is accomplished through two methods:

  - by way of the so-called 'Method of Cases'[126]: for instance, by observing that just one counterexample (factual or hypothetical) of a person who is rich but unhappy, I must conclude that the definition of happiness hidden under the statement 'Rich people are happy' – namely 'Happiness consists in being rich' or 'Richness is a sufficient condition of happiness' – is contradicted, then it is false. In this case, what is tested is the *rule* of another deduction, but, considering that, as we have just stated, it can be from the conclusion of an inductive generalization, deduction is at once the testing ground for inductions or, in some cases, for abductions too;

  - by way of the so-called *reductio ad absurdum*, i.e., by drawing possible consequences from the abductive theories advanced or from deductive rules, and, then observing whether they are acceptable or not. For instance, if the theory summarized in the sentence 'Rich people are happy' were accepted, then we should accept also the normative consequence that one could be happy also without cultivating other human

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[124] I am referring, here, just to cogency of a deductive argument (i.e., the syntactical level), not to the contents of the premises (i.e., the semantic level): obviously, if the premises of a deductive argument are *a posteriori*, knowledge produced in the conclusion is still *a posteriori*.

[125] The thesis according to which philosophical inquiry proceeds by means of conceptual analysis has been supported by British philosophy (e.g., Moore and Strawson), but, as we will see later, has been challenged by Williamson, who thinks that abduction allows philosopher to proceed in the inquiry without committing themself to *a priori* conceptual justifications.

[126] Cf. § 3.6.3.2.

values, like relationships, to the objective of being happy; but, if it were true, how could it be explained that so many people devote time and energy to relationships? Does the whole of humanity behave in a senseless way?

Finally, once the theory under discussion is confirmed, deduction can be an instrument to draw further consequences, i.e., to answer the question: "Does *q* follow from *p*?". To sum up, deduction has the function of confirming or disconfirming deductive *rules* (or major premises), inductive generalizations and, in general, theories, and of outlining new consequences from the theory contained in the *rule.*

As I tried to show in this description, the three forms of reasoning are connected to each other in a specific way, where each of them may occupy a specific role in an ideal and pluralistic process of *inferential knowledge*[127] acquisition, considered in the domain of philosophy. What about the role of these three inferences in natural sciences and in philosophy?

Although induction has been considered for a long time – especially in the Positivist period – the main method of natural sciences, Popper has rejected inductivism, considered naïve and old-fashioned, by substituting it with the *principle of falsifiability*: scientist cannot come to general conclusions such as 'all swans are white', because her observations can cover just a little portion of the world; nevertheless, as long as a theory is not falsified by a counterexample (such as a black swan), it is corroborated. In this account, abductive hypotheses are assessed by means of deductive analyses:

[…] the method of critically testing theories, and selecting them according to the results of tests, always proceeds on the following lines. From a new idea, put up tentatively, and not yet justified in any way – an anticipation, a hypothesis, a theoretical system, or what you will – conclusions are drawn by means of logical deduction. These conclusions are then compared with one another and with other relevant statements, so as to find what logical relations (such as equivalence, derivability, compatibility, or incompatibility) exist between them. (Popper, 1959, p. 9)

Moving to the domain of philosophical inquiry, Williamson (2016) proposes an epistemic process similar to the one I described above: whereas the use of abductive arguments in philosophy struggles to be recognized as a reliable methodology, he has launched a methodological program that has its core precisely in abduction. Without trying to turn philosophy into a sort of natural science, he claims that it ought to adopt the abductive methodology as well, given the unquestionable outcomes that abduction has guaranteed in scientific fields. For philosophers, the problem is to understand to which evidence they should apply abductive arguments:

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[127] As we have seen in § 3.4, according to a classic tradition established at least from Descartes onwards (R), an epistemological dichotomy is claimed to distinguish *inferential* (or *discursive*) and *intuitive* way of knowledge.

> As always, the answer is in principle: our total evidence. […] It includes whatever knowledge the natural and social sciences, philosophy, and common sense have already gained. (Williamson, 2016, p. 268)

Based on this openness, he encourages philosophers to generate new evidence in order to choose between rival philosophical theories, for instance by testing the consequences of these candidates, and to take advantage of data gathered by empirical sciences.

Moreover, considering the role of deduction in philosophy, he challenges the claim that its standards, validity and soundness can be applied directly to philosophical issues, as is the case with mathematical problems, due – as we have seen above – to the non-obvious acceptability of the premises of philosophical arguments. Nonetheless, within an abductive program, deduction still has a significant function in philosophy. Even, as it assumes another goal – that of testing abductive proposals by drawing consequences from them, and, thereby, letting the arguer keep only deductively strong hypotheses –, it acquires a new meaning.

The inferential knowledge process that I propose is close to Williamson's program, because both give full value to the role of abduction and interpret deduction as a litmus test to check the plausibility of abductive hypotheses. The main difference is that he does not attribute a specific function to induction. The reason, he argues, is that it is unsuitable for philosophical theorizing that works with notions and categories incompatible with the level of data: indeed, philosophy theories are not properly evaluable in term of probability.[128] Although I agree with the substance of his argument, I think that inductive inference can, however, work as a bridge between abductive hypotheses and deductive testing, yet in philosophy it cannot be a test for abductive theories. Indeed, when the advanced hypothesis consists of the explanation of a single case or of a sample of similar cases, in order to turn an inquiry into a specific phenomenon into a philosophical investigation, we need to make an inference that lets us transit from particular to universal dimension. To come back to our example, induction allows us to turn the sociological question 'Why are the Swiss happy?' into the philosophical question 'Is every rich person happy?'.

To summarize, I put forward a pluralistic account, in which all three argument forms have equal dignity, but different roles: an abductive argument works as a starting point for the knowledge process which, from an evidence base, aims at providing a heuristic explanation; an inductive argument works as a generalization of the abductive proposal, which is able to make the particular problem addressed by abduction of a universal kind; finally, a deductive argument works as testing

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[128] Ketikivi and Mantere (2021, p. 771) suggest that the qualifier of abductive conclusions is *plausible*, whereas that of deductive conclusions is *necessary* and that of inductive conclusions is *probable*. This distinction may fit the scientific domain, as we have seen, but we have seen that Govier argues that the qualifier *probable* is more problematic in philosophy, for instance when it is applied to normative inductive statements (Govier, 1987/2018, pp. 77-78).

ground where inductive generalizations (or, directly, abductive claims) are assessed, namely, if they can be considered as *rules* for deductions: to do that, in turn, they need to be grounded either by other deductions or by inductions. Finally, once the *rule* is accepted, deduction can be a means to draw further consequences from the confirmed theory. This is a round trip that from a particular problem comes up to universal issues, to come back to deal with other particular problems, now observed through a new lens.

4.6. 'AID questions device': a pluralistic educational proposal

How can we turn the inferential knowledge account described above into a philosophical educational proposal? I suggest that the best way to discover and learn how to apply Peirce's three forms of reasoning is through *philosophical dialogue*, where students are actively engaged in using different argument forms to successfully join the dialectical game of discussion. In such a context, ideally, students may personally re-experience the inferential knowledge process that from the investigation of reality leads them to the investigation of universal philosophical problems, exactly as the adventure of philosophy began with Thales and other early Greek naturalists. As I hypothesize thanks to cognitive psychological findings on the difference between forms of reasoning, and assuming an evolutionary perspective, it is about a process that may find empirical evidence. If so, the path of knowledge described can be considered, ontogenetically, the actual way of reasoning when, from an inquiry of reality, human beings are encouraged to inquire into the universal dimension of existence. Moreover, it could remind us of the phylogenetical evolution of human inferential competence – from more natural and fundamental forms of reasoning, like abduction, to the more artificial and abstract inference, like deduction. Assuming that this account is realistic, *philosophical dialogue* should be designed to let students travel and explore the steps of this inferential knowledge path, and, thereby, they could live the same questions, difficulties, contradictions, discoveries, frustration, and rewards of philosophers – and, in some respects, of scientists – during their inquiry: a thinking adventure that gains more value thanks to the social and cooperative dimension of *philosophical dialogue.*

I think that this normative proposal can become a useful instrument that enriches the facilitator's toolbox when she chooses to deal with the topic of argument forms. The idea is quite simple: drawing inspiration from the device created by Conner et al. (2014) for mathematics education, I designed a similar instrument able to elicit abductive, inductive and deductive arguments by discussing about philosophical issues: in other words, depending on the questions the facilitator asks students, she drives them to carry out different way of reasoning. I have chosen the name 'AID questions device' – where AID is an acronym for abductive, inductive and deductive –

because of its focus on questions of different types. Let us look at it in detail, by means of our example about happiness, to test its applicability.

4.6.1. What is happiness? An instance of application of 'AID questions device'

As the method of *philosophical dialogue* requires, the first stage of a workshop consists of a stimulus. The ability of the facilitator is to find a stimulus that fits the problem exactly and the related questions that she wants to submit to students. As the first questions that she intends to address to them is an *abductive question*, it should be able to provoke abductive reasonings; the facilitator will thus have to envisage a stimulus (a story, a picture, a video, a movie, a thought experiment, an activity, etc.) that presents a non-obvious phenomenon, that needs to be explained. For instance, an article from a reliable source such as the last World Happiness Report (WHR) – including data collected by the Gallup World Poll for 2022 – can provide interesting information. After clarifying the criteria used to evaluate the degree of happiness of the different countries (gross domestic product per capita, social support, healthy life expectancy, freedom to make life choices, generosity, and perceptions of corruption), the participants read the ranking: in order, Finland, Denmark, Iceland, Switzerland, the Netherlands, Luxembourg, and Sweden. Before analysing the reasons behind each score, the facilitator asks a question that is aimed at gathering the first impressions after a stimulus:

(Q1)   Did you expect the results? Is there something that strikes you or not?

Suppose that someone notices that she did not expect such a high position in the case of Switzerland, arguing that she has been always considered the cost of living in this country extremely high. Suppose also that someone else agrees with her. At this point, the facilitator may ask the CoI the following *abductive question*:

(aQ1) Why do you think the Swiss are so happy?

Several answers could be advanced: there are those who think the reason is their richness, those who maintain that the low level of corruption makes the difference, and those who deem that the explanation lies in social support. Then, there follows a discussion aimed at evaluating the arguments for and against all these hypotheses, which will rely either on other evidence known by students or on other reasonings. The arguments put forward by students are still naïve means used to compare the different hypotheses considered and to choose the one that the CoI assesses as the best explanation: suppose it is richness. Therefore, faced with the fact that the Swiss are among the happiest people in the world and assuming that richness is a plausible explanation for happiness (i.e., 'Rich people are happy'), participants reach the abductive conclusion that the Swiss are happy

because they are – on average – wealthy. The facilitator, in the discussion phase, should help them to see all the components of this abduction, that will have this form:

(3)   Rich people are happy.
       The Swiss are happy.

       Therefore, the Swiss are rich.

To make the argument form more understandable, she could ask someone to write it on the blackboard, as a reference point for further investigations. The first stage is thus complete.

So far, students have not been involved in a philosophical inquiry, since they have explored just plausible explanations for a fact. Now, the facilitator will lead them to see if this hypothesis can be generalizable to all human beings. The *inductive question* might be the following:

(iQ1)   Given that the Swiss are happy plausibly because they are rich, can one claim, in general, that rich people are happy (or that those who are rich are also happy)?

The question may potentially be answered by a statistical analysis, conducted on a sample of people all over the world, outside the borders of Switzerland. Beyond the difficulties of such an analysis, students in our class certainly do not have access to these data. Consequently, they must employ other instruments, like those provided by philosophy. The hypothetical argument that now needs to be analysed will be written on the blackboard:

(2)   The Swiss are happy.
       The Swiss are rich.

       Therefore, rich people are happy.[129]

If the conclusion, formulated as a universal utterance – 'rich people' means 'all rich people' –, is not clear enough, it can be turned into a conditional:

(4)   If a person is rich, then she is happy.

Faced with such an argument, most participants will possibly reject it intuitively. This rejection, however, is still not justified, and the facilitator should suspect that what participants reject is not the whole inductive argument, but only the conclusion, since it does not fit common sense, according to which richness does not make us happy. To avoid this risk, and to bring attention on

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[129] The two premises of (2) could lead also to another conclusion, i.e., 'Happy people are rich'. I formulate the conclusion 'Rich people are happy' for two reasons. The first, more technical, is why I applied Peirce's schema of induction (cf. § 4.1.3), according to which the middle term is the subject of both premises ('The Swiss') and the conclusion – i.e., the *rule* – is composed of the predicate of the *case* ('rich') in the position of subject and of the predicate of *result* ('happy') in the position of predicate. The second, more contextual, is why this argument was originated by an abduction that concludes that the Swiss are happy because they are rich. What we are interested in, here, is inquiring whether richness is a sufficient condition not only of Swiss people's happiness, but also, in general, of all human beings.

the whole argument – as advocated by Ketokivi and Mantere (2021) – the facilitator will focus on the *warrant* (i.e., as we have seen in § 4.3.2, 'The Swiss are rich'), asking a further inductive question:

> (iQ1a) If the reason of Swiss' happiness is their richness, as we are hypothesizing, why should richness not be the reason for human beings' happiness?

Or, in a more philosophical formula:

> (iQ1b) Given that the Swiss are happy plausibly because they are rich, can one claim, in general, that everyone who is rich is also happy?

This new phrasing stresses that if we accept the conclusion of (1), then we shall accept the conclusion of (2): the question is aimed at provoking students to consider whether we are legitimated to transit from the sample to all the human beings (population). (iQ1a) or (iQ1b) should challenge the first intuitive answers to (iQ1), driving students to focus on the matter of the argument. If the rephrased questions work, now it is time for CoI to compare the different views. If CoI is not sufficiently trained[130], so that it is not obvious that every claim needs to be justified, it is the facilitator's responsibility to ask:

> (Q2)   Why?

or, better:

> (Q2a)   By means of what reasons do you claim (4) or you refuse (4)?

The question – that is transversally used in argumentation and does not encourage specific forms of reasoning – makes students committed to their claim and forces them to argue their answers. On the one hand, those who answer 'yes' could inductively argue that all rich people that they know, including celebrities, seem happy, and, by generalizing, it is probable that it will be the same for all rich people. On the other hand, those who answered 'no' could reject this induction, by pointing out that the sample is not representative and that, as happiness is an intimate state of mind, we cannot know if people who seem happy, e.g., celebrities, are actually happy. I assumed the use of an inductive argument, but other forms of arguments are not ruled out, though put forward inadvertently.

Soon, participants will realize that the tools applied so far, abduction and induction, are insufficient to satisfactorily justify (2) as well as (3), that still need to be tested. Indeed, if they remain within the scope of the inductive methodology, their arguments will soon be over, and,

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[130] According to the *Inventio Syllabus*, a workshop of this kind, considering the critical thinking contents dealt with, would be addressed to fourth-year students. Cf. (CI, 2022, pp. 17-18). Naturally, it can also be proposed in earlier years, but the facilitator should check that students have the requisite knowledge.

consequently, dialogue will not be able to proceed. To compare the two opposite views, as well as the theories that will be advanced later, (Q2) – "Why?" – needs more accurate and reliable method, able to provide solid answers for they are grounded on sound arguments. To gradually lead students towards deductive reasoning, the facilitator must leave the second stage to enter the third one: indeed, she could address to them a *deductive question* that elicits arguments of a metaphysical nature:

(dQ1) What, about richness, would make human beings happy?

Faced with a question such as (dQ1), students are forced to definitely leave every evaluation of empirical evidence to come up into a conceptual dimension: now, dialogue will focus not on available data and possible generalizations from data, but on the meaning of the concepts of *richness* and *happiness*. In other words, what students are led to do is to *argue* and *discover*[131] whether, in the meaning itself of richness, there is something that *a priori* implies happiness, without any need to check this correlation in reality. Following (dQ1), the burden of proof is obviously on the defender of the thesis (4) ('If a person is rich, she is happy'), since she claims a view explicitly in contradiction with the common sense.[132] For instance, they could argue that richness implies other concepts that are, they say, inherently part of that of happiness, such as satisfaction, social appreciation, confidence, absence of economic concerns, etc. Hence, they will construct deductions such as the following:

(5)   Richness means satisfaction.
        To be satisfied means being happy.

        Therefore, to be rich means being happy.

(5) is a valid deduction, but, evidently, the problem is acceptance of the premises. Indeed, at least one premise (e.g., 'To be satisfied means being happy') is controversial (CS). If the opponents do not notice this weakness, it is the facilitator's responsibility to point it out, then encouraging defendants to search for evidence able to support these premises – i.e., to construct 'multi-layer arguments' (ter Berg et al., 2013).[133] For instance:

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[131] By these two words, I intend to stress the overlap between argumentation and inquiry in this workshop. For a discussion on the illocutionary act of 'arguing', cf. 2.4.1.2.

[132] The reference, here, is Whately (1828/2009), who argues that, in a discussion, the burden of proof is on the person who challenge the so called *presumption*: "According to the most correct use of the term, a 'Presumption' in favour of any supposition, means, not (as has been sometimes erroneously imagined) a preponderance of probability in its favour, but, such a *pre-occupation* of the ground, as implies that it must stand good till some sufficient reason is adduced against it; in short, that the *Burden of proof* lies on the side of him who would dispute it." (Whately, 1828/2009, p. 112).

[133] Cf. footnote 12, Ch. II.

(6)   Satisfaction occurs when one fulfils oneself.
        To fulfil oneself is synonymous with happiness.

        Therefore, to be satisfied means being happy.

Williamson's problem – i.e., *epistemic regress* – has not been solved yet. Nevertheless, by means of (6), (5) seems more acceptable. If CoI accepted (4) thanks to argumentation provided by its defenders, then (4) could turn into the *rule-warrant* of an abductive argument that intends to come back to the starting problem:

(3)   *Rich people are happy.*
        The Swiss are happy.

        Therefore, the Swiss are rich.

By means of a deduction, whose controversial premises were previously justified by other deductions (since, in this case, induction was not accepted by interlocutors), we can come back to the starting abductive question (aQ1) after reaching a judgment: our abductive hypothesis (richness explains the Swiss' happiness) would be confirmed by the procedural rigor of deduction.

On the other side, opponents will be encouraged to find compelling counterarguments to challenge (4). As we have seen, the 'Method of Cases' is an excellent tool for this objective: students must search for counter-examples able to make (4) fall. It can occur that, if they are not sufficiently trained, they need to first observe how the facilitator utilizes it, for instance by addressing to the proponent the following *deductive question*:

(dQ2)   If everyone who is rich is happy, then why do some rich people (e.g., the famous actor Robin Williams) kill themselves?

The question can be easily transformed into the following deduction:

(7)   If a person is rich, then she is happy.
        Robin Williams was rich.
        Robin Williams killed himself.
        If one kills oneself, then one is not happy.

        Therefore, it is not true that if a person is rich, then she is happy.

Students can find many other counterexamples to make (4) lose its universal value.

Dialogue could stop here: CoI has reached an end point, since it found a justified answer to (iQ1) ('[…] who is rich is also happy?'): richness does not necessarily imply happiness. Nonetheless, a full inquiry is not limited to rejecting, through argumentation, weak beliefs, but it should also try to propose positive solutions. Indeed, (aQ1) is still without an adequate answer, and,

by questioning (4), also the first *abductive question* of the whole inquiry (namely, the explanation of Swiss's happiness), is still unanswered. After testing that the first hypothesis is not plausible, if we hope to propose positive answers for the problem, we might travel the same track by answering differently to the (aQ1) and by checking the new hypotheses made by means of the same criteria.

Nonetheless, our educational interest is not in the Swiss's happiness, but in the classical philosophical issue of happiness. So, we can remain on a deductive stage and go further, by implicitly adopting the notions of *necessary* and *sufficient conditions*. If students are already familiar with these categories[134], the inquiry will go more smoothly; if not, it is recommended to introduce the notions by following the method of questions, avoiding any previous theoretical presentation, consistently with the whole workshop, and, in general, with the whole inductive approach suggested here. After clarifying, by means of the 'Method of Cases', that richness does not imply happiness (i.e., that it is not a sufficient condition of happiness), since one can be rich but unhappy, the facilitator can ask the following question:

(dQ3)   If a person is happy, then is she rich?

Looking carefully at this question, participants are encouraged to notice the inversion of the terms in respect of (iQ1), which asked them whether if a person is rich, then she is happy. In this way, the technical notion of *necessary condition* does not need to be theoretically explained. Nonetheless, after hearing (dQ3), they will be able to figure out the same question in a more technical form:

(dQ3a)   Is richness a necessary condition of happiness?

Also from this perspective, the facilitator can urge participants to adopt the 'Method of Cases'. By means of a good counterexample, according to deductive standards, we would conclude that richness is not a necessary condition of happiness; and, since we have already demonstrated that it is not even sufficient, the exploration of the relation between richness and happiness is completed. Now, we should explore, by means of the same scheme involving questions that elicit necessary and sufficient conditions (dQ2x/dQ3x, where *x* indicates the conditions analysed), other potential features of happiness (love, friendship, freedom, etc.) in order to reach its definition.[135]

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[134] According to the *Inventio Syllabus*, these notions would be addressed to third-year students. Cf. (CI, 2022, p. 17).

[135] For the sake of clarity, I add in the footnotes a strategy to find the best candidates to analyse. It is worth to be mentioned, since it is consistent to the pluralistic approach of this workshop and to the Lipman's pragmatist approach, which suggests starting the dialogue from the students' actual interests and experience (cf. § 1.4). The first question aimed to explore the necessary features of the notion of happiness should be the following:

(aidQ1) What are the necessary conditions of happiness?

This is clearly a deductive question, since it leads students to formulate deductions to test various hypotheses, fitting their experience and their age. In high school, we can suppose more probable answers such as love, friendship, freedom than wisdom, generosity, knowledge. Anyway, since they will advance more than one hypothesis, to avoid an

Once CoI has found and tested plausible candidates, i.e., reached its own definition of happiness, it can apply one of them as warrant of further deductions aimed to discover other philosophical outcomes. Again, this additional inquiry can be opened through a further facilitator's *deductive question*, that depends on which issue CoI wants to delve into. Here below, I suggest just an example, assuming that one of the features considered as sufficient condition of happiness is love:

(dQ4)   What are the implications of love on human optimism?

That can be answered by the following deduction:

(8)   If one is in love, then one is happy.
        Those who are happy tend to be optimistic about the future.

        Therefore, those who are in love are optimistic about the future.

The workshop is finished. As it is quite long and engaging, it can be split into two different sessions, for instance, the first that comes just to negative conclusions and the second that explores necessary and sufficient conditions of the concept investigated. Between the two sections, as well as at the end of the second one, it can be useful to reflect on the notions encountered, and, possibly, to reinforce their use through some exercises. For instance, after analysing the formal differences between the arguments put forward in the workshop, students could be encouraged to practice the different uses and argumentative functions through the context where these arguments were

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excessively lengthy analysis, we may take advantage of an abductive inference to reduce the space of plausibility, however abduction will be formulated if the facilitator asks an abductive question:

(aQ2)   Why are happy people happy?

Based on their experience, thus, inductively, students will choose the best explanation, that is not still tested, but it is plausibly the best to test, since it originated in the student's life. Suppose that, by means of the following inductive argument, they reach this conclusion:

(aid1)   I know few people who are really happy.
           All of them are in love.

           If one is in love, then one is happy.

Now they have got a rule, that we can consider just heuristic, since the sample is certainly not representative. Nonetheless, it still cannot be the answer, because the conclusion of (aid1) would consider love as a sufficient, not as a necessary, condition. However, it is a starting point for further abduction towards CoI through the guidance of the facilitator:

(aid2)   If one is in love, then one is happy.
           Someone is happy.

           Who is happy, then is in love.

At last, through a process that has employed both inductive and abductive reasonings, CoI has come to a candidate, which still needs to be tested through deductive questions and arguments. This is a pluralistic process, that gives a reason for the term of the question (aidQ1). The sentence that participants will analyse is the following:

(aid3)   If one is happy, then one is in love.

performed. In this way, the forms of reasoning and the other argumentative tools involved during the animated and sometimes messy dynamics of dialogue can be displayed, clarified, and learned also from a theoretical perspective: the participants' focus, in so doing, would be shifted from the contents to the reasoning means employed. What is important is that these activities are considered as a corollary to the workshop and, in line with an inductive learning approach, try to put the contents in order starting from actual experience with the use of arguments. The aim is to lead students to move from the unaware use of certain argumentative methods to their meta-awareness. Hence, the 'AID questions device' allows the CoI to inquire into a specific philosophical problem and to train the student's critical thinking at the same time.

4.7. To experience philosophical questions

After this analysis and application of Peirce's forms of reasoning, reviewed in the light of Toulmin's model, many conclusions can be drawn. Some of them are of a meta-philosophical order, others of a pedagogical order. I will make just a couple of remarks about the former, but I prefer to focus on the latter, since the theoretical inquiry into deduction, induction and abduction is carried out to justify their educational application, that is the first aim of this chapter.

I tried to argue, also supported by a tradition born with Aristotle and nowadays more alive than ever (from *Informal Logic* to analytic philosophy), that other forms of reasoning, beyond the acknowledged rigour of deduction, are to be included in a modern philosophical inquiry program. The reason is that all three forms of reasoning addressed play different roles, ask different questions, and deal with different issues in philosophy. Indeed, the involvement of abduction and induction not only provides to a philosopher specific instruments to observe the world, but also allows her to move from the investigation of reality towards universal questions; and to look at the world again through a new lens, by means of this round-trip journey.

Moreover, I tried to suggest a hypothetical description of how reasoning works within the discipline in order to reach inferential knowledge, by considering the relations of interdependence between the different forms of inference. We can conclude, also supported by cognitive psychology, that the most abstract type of reasoning, i.e., deduction, originates in a process that leads human beings from abduction to deduction via induction. This inferential process could be both ontogenetic and phylogenetic: from the most natural way of reasoning, that emerges from the need to understand signs observed in the environment, we need to generalize our discoveries, in such a way as to predict, according to Hume, events every time we see the same causes. Once the generalization is confirmed by experience, we are allowed to use it for high order tasks, such as categorizations, definitions, classifications, etc., without needing to check these conclusions (or deductive findings) in the world. If this description is realistic, we have to recognize that the less

abstract inference, like abduction and induction, play a crucial role not only in scientific but also in philosophical inquiry.

From a pedagogical point of view, what I tried to design is an instrument at the service of the *philosophical dialogue* methodology, in order to train students to think critically. More precisely, adopting Peirce's reasoning forms, interpreted through Toulmin's structure, allows them to directly practice, in a context of collective argumentation and dialectical exchange, the different argument types within an exploration of a philosophical issue. The triggers able to make students think according to different forms of reasoning are the facilitator's questions. Indeed, they urge them to explore the same issue in different ways, to test every conclusion they reach and to proceed to further investigations once they come to some findings. The scheme of the "AID questions device", considering the following key, can be displayed in the diagram of *Figure 3*:

Question type	Reasoning form encouraged
Q1 = general, to collect first impressions	Spontaneous observations of something unexpected
aQ1…aQn = abductive ('Why p?')	Abduction
iQ1 = inductive ('Is it possible to claim, in general, q from p?')	Induction
iQ1a/iQ1b = inductive, that stresses the warrant ('If p, how is possible that non-q?' / 'Given p, who is B also is A?)	Induction
Q2 = request of reasons ('By means of what reasons you claim or refuse q?')	Different possible arguments: e.g., inductions (arguing by a sample / counter-arguing by rejecting the sample);
dQ1 = deductive ('What, about A, implies B?')	Deductions to justify the *rule*
dQ2 = deductive ('Are all A B?') about suff. cond.	Deductions: *Method of Cases*
dQ3 = deductive ("If a person is B, then is she A?") about nec. cond.	Deduction: *Method of Cases*
dQ2x/dQ3x = deductive about nec./suff. cond.	Deductions towards the definition of the notion
aidQn = abd./induct./deduct. ('What are the nec./suff. cond. of A?')	Abductive / inductive / deductive questions to hypothesize the best candidate
dQ4 = Deductive ('Does q follow from p?')	Deduction
⟶	General reasoning fostered by general questions
⟶	Abductive reasoning fostered by abductive questions
⟶	Inductive reasoning fostered by inductive questions
⟶	Deductive reasoning fostered by deductive questions

Figure 3
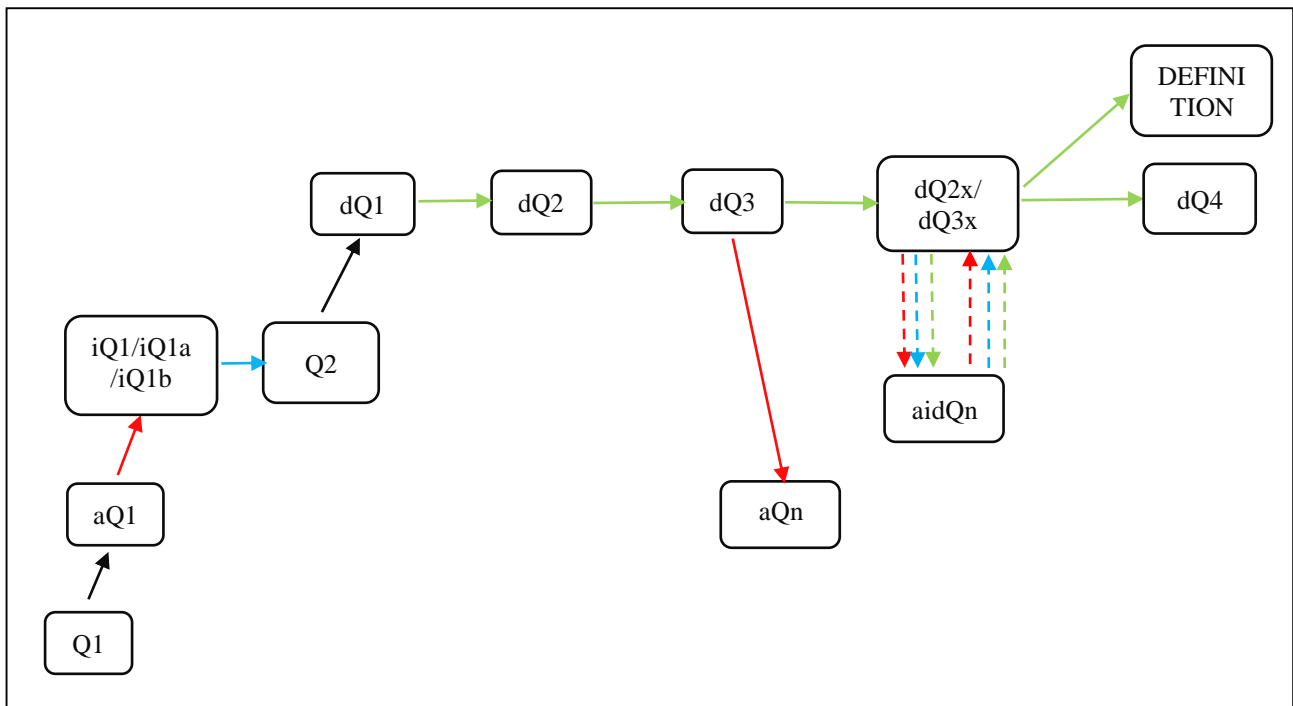
The lower line is that of data (namely, it represents reality as we know it through the means available to us) and the higher line is the level of definitions, that is to say the level of conceptual abstraction of reality. Abduction is considered as a first form of abstraction from data, since it aims to find, from what is observed, something unobserved; induction is a further form of abstraction, since it is a generalization from particular instances; deduction, as it is an *a priori* argument, does not need any contact with reality. Through the arrows, I intend to represent both the single steps of the track that CoI should follow by means of the facilitator's leading questions – from the starting stimulus to a definition of the notion investigated (or towards further investigations) – and the relations between the different forms of reasoning: every question, indeed, opens up to a certain form of reasoning, that, in turn, pushes towards further questions either *to justify* or *to develop* the problem raised by the previous question. Justification and development are, thus, the two meanings of the arrows.

This pluralistic device is based on the idea that, if students are guided by certain questions in a certain order, then they are conducted along a path that requires more and more sophisticated reasoning forms, while the standards to assess their arguments become more rigorous. This instrument should turn into a means to expose them to different forms of reasoning, whereby they can actively enhance critical thinking. This means that, instead of making an effort to mnemonically learn the schemes and rules of deduction, induction and abduction – that are rarely and hardly applicable both to everyday and to philosophical argumentation –, they learn these structures by

using them to solve a concrete, living and challenging philosophical problem. By this I mean problems that are so current, striking, and relevant to their life – such as the issue of happiness, but also the justification of evil, the knowledge limits, the personal identity, etc. –, that they require, if not to be solved, at least to be dealt with by adequate instruments. As I mentioned in § 1.4 – where I described the intersections between *philosophical dialogue* and inductive methodologies –, this proposal is close to that of *learning cycles*, for it aims to involve different types of thinking in a way which is more and more rigorous.

I would conclude that it is one way to achieve these goals, not that it is the only way. Indeed, although the structure proposed can seem too rigid, in fact, it does not definitely expect to be rigidly followed. The quality of a facilitator's ability does not consist in knowing and applying pedagogical procedures, but in making her proposals meet, on the one hand, educational aims, and, on the other hand, students' learning abilities and personal interests. Beyond this specific structure, what really matters is that the facilitator acquires the art of asking fitting questions: questions that need to be engaging, challenging, prospectively directed, relevant to the topic discussed, and able to trigger dialogue development.[136] The pedagogical art of *asking question* recognizes in Socrates its origin and archetype, and, precisely in his figure, it comes to overlap with the art of *questioning*, that, as I endeavoured to argue, is both one of the main aspects of critical thinking and the main purpose of argumentation (its illocutionary force) within *philosophical dialogue*: to ask good questions, indeed, turns out to be the ability to make interlocutors question their own beliefs.

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[136] In the last decades, many publications on this issue have been available: in education (Dillon, 1983), in several disciplinary educations, and, now, even in critical thinking literature (Paul & Elder, 2007).

CONCLUSION

A provisional balance of Weak Reasoning Argumentative Theory

I started this dissertation underlining its double nature, both practical and theoretical. The practical goal consists in providing the figure of the facilitator with instruments that can assist her in the conduction of *philosophical dialogue*, aimed to enhance students' critical thinking skills. The theoretical goal is to contribute to argumentation studies by proposing a normative model able to allow students engaged in *philosophical dialogue* to reason and argue in the best possible way. To make a full assessment of the theory, I would need to consider both these dimensions. Unfortunately, however, given that the proposal has never been implemented and tested in the specific context to which it is addressed, i.e., technical and professional high schools, to evaluate the first side we need at least two or three years, waiting for the outcome provided by future monitoring in a few dozen classes. Therefore, it is only possible to provide a preliminary report on the theoretical side, by considering some internal criteria, in particular related to the analysis of the relations between its elements. In order to accomplish this task, I need to consider both the general conditions of CSAAT (Concentric Speech Act Argumentative Theory), presented in Chapter II, and the argumentative norms of WRAT (Weak Reasoning Argumentative Theory), presented in Chapter III.

CSAAT and WRAT are not to be considered as two different argumentative models. Instead, the former is to be counted as the conversational theoretical framework of the latter, the actual normative model. The former theorizes the conditions of possibility for the specific speech act of 'arguing' performed in *philosophical dialogue*; the latter, given those speech conditions, theorizes the argumentative norms that shall be respected to guarantee a certain kind of argumentation in this pedagogical context. The reference point for the former is Speech Act Theory, one of the most influential theoretical perspectives in the domain of the philosophy of language and, in general, of language studies; the reference point for the latter is to be found both in *Dual Process Theory* and in *Evolutionary Approach*, two of the most original and successful accounts within the domain of cognitive psychology.

According to Speech Act Theory, in particular to Searle's view (1969; 1975), a speech act needs a set of conditions to be performed. Therefore, what I tried to do is to outline a set of specific conditions that are necessary to let the speech act of 'arguing' – considered in the context of *philosophical dialogue* – be performed by participants in this educational activity. All these conditions have been the outcome of previous reflection on the locutionary, illocutionary and perlocutionary act of 'arguing'. In particular, the whole set of speech conditions was determined by the identification of its illocutionary force: to *lead oneself and the listeners to question one's own and other's beliefs.* Once the deep intention of the speaker has been grasped, indeed, all the other conditions are pinpointed. All of them always need to be fulfilled, during each step of argumentation, otherwise 'arguing'– intended as aimed to questioning beliefs, not as putting forward certain judgments or as convincing others – loses the ground itself upon which it can be performed.

Furthermore, CSAAT is also an attempt to provide the facilitator with an educational instrument to develop argumentative skills in class. According to this tool, she is suggested to adopt different categories to figure out how the speech act of 'arguing' can be interpreted, or, in other words, to define its illocutionary force. These categories are proposed to be applied gradually, depending on their complexity, in an ideal path that starts form the simplest (i.e., the distinction between *theoretical* and *practical* arguments) to then reach the most complex (i.e., categories adopted by Inference Anchoring Theory, according to which the illocutionary force of collective 'arguing' consists of the function of anchoring the various moves necessary to carry out an argument). This pluralistic proposal, represented as concentric rings – from the largest to the smallest – should let the facilitator and the CoI proceed from the roughest tools and criteria of appraisal to the most refined ones.

Things change with regard to WRAT. The model, in an attempt to integrate two incompatible reasoning theories, introduces a set of norms – divided into different argumentative goals – that are specific for each of the two accounts. All these norms are the outcome of an inquiry into the features of argumentation (performed within *philosophical dialogue*) interpreted in the light of the scientific findings on reasoning reached by cognitive sciences: dualism of systems, cognitive biases, reasoning limits, need for adaptation, etc. Here, not only are the reference points of the model different from those of CSAAT, but different is also the topic on which I focused: in CSSAT it is the dimension of language, in WRAT the dimension of reasoning.

WRAT, just like CSAAT, is the result of a pluralistic view that tries to encompass a series of aspects that, although they may seem inconsistent in the *descriptive dimension of reasoning*, should be integrated in the *normative dimension of argumentation*. Indeed, the aspect to consider for the

functioning of argumentation within the dynamics of dialogue – in particular, of *philosophical dialogue* – are more and more complex than what happens in the mind of the thinker: participants are not simply asked to solve a reasoning problem, but to conduct a collective inquiry into a philosophical issue by means of the instruments of critical thinking, in particular by arguing. Hence, logic, epistemic, dialectical and rhetorical aspects are all involved together at the same moment in the same activity. It is for this reason that I needed to include the norms based on both approaches, because they capture different aspects of argumentation and they can regulate different argumentative behaviours: if the norms of the DPT (*Dual Process Theory*) Model are suitable to deal with 3rd-person theoretical problems, those of the EA (*Evolutionary Approach*) Model are suitable to deal with 1st-person practical problems. More specifically, the former encourages skills like deductive inference and attitudes like metacognition, detachment from one's own beliefs, acceptance of uncertain states of mind; whereas the latter encourages attitudes like the capacity to pragmatically understand the context and to come into contact with the interlocutors, and, consequently, the ability to find the best reasons for that context and to develop non-deductive forms of argumentation. To sum up, two perspectives that are undoubtedly incompatible from a theoretical point of view, manage to find a full integration in educational application, where attitudes and abilities on both accounts are required to reach *philosophical*, *critical* and *dialogical* education.[160]

These norms are, generally, not to be considered in a discrete way, namely, their conformity is never completely missed or, alternatively, completely fulfilled. Compliance with these norms is, in fact, to be intended as a *continuum*, namely in a gradual way: the better a *community of inquiry* is trained, the more are its members able to respect the norms. It is a graduality that is also consistent with the practical framework of WRAT, that is to say the *Inventio* project: indeed, the norms should be respected more and more with the progress of the *Syllabus*, year after year. Although one cannot precisely establish the degree of conformity, an expert facilitator should understand this progress, if it is ongoing. In any case, she easily recognizes the opposite poles, i.e., when they are not respected at all and when they are fully observed. One could hypothesize a direct proportionality between compliance with the norms and the levels of CSAAT: it is possible, indeed, that they are more and more understood and respected by participants as the argumentative categories used become more refined. However, it is also possible that the two aspects, norms and levels, are intertwined in different ways. It is important to bear in mind that the norms can be respected to different degrees, whereas the conditions need to be always fully fulfilled: to use a geometrical metaphor, norms are *vertical,* whereas condition are *horizontal.* The exchange of these two dimensions can cover an

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[160] By these three terms I expressly refer to the three macro-objectives of the *Inventio Syllabus* (CI, 2022, p. 12-13).

infinite range of possibilities, corresponding, after all, to the infinite possibilities of the ways argumentation in *philosophical dialogue* can be performed.

Despite the character of graduality of the norms, there is still a controversial point. If all the norms of WRAT are not respected at all, is argumentation in *philosophical dialogue* still guaranteed? This issue refers to the current debate about *regulative* and *constitutive* norms, the distinction between which can be summarized in the following words of Searle:

> There is an intuitive distinction between two kinds of rules: those that regulate antecedently existing behaviors and those that constitute new forms of behavior and thus regulate the very behavior that they constitute. It is natural to think of these types of rules as regulative and constitutive. (Searle, 2018, p. 51)

According to this definition and to the examples provided by Searle, if we imagine the rules of the road, they are *regulative*, since the "activity of driving exists independently of this rule; the rule regulates an antecedently existing activity" (Searle, 2018, p. 51). On the contrary, if we imagine the rules of chess, the activity of chess could not exist if these rules were not respected: in a way, the game of chess corresponds to its rules.

Returning to the original issue, in the light of this dichotomy, are the rules of WRAT constitutive or regulative? At first sight, it is obvious that the activity of argumentation in *philosophical dialogue* exists before and independently of these rules; indeed, from Lipman onwards, all *philosophical dialogue* has been focused, among other tasks, on argumentation. And even if 'arguing' is badly performed, it is still performed. However, if we do not focus on the main goal of arguing within this educational activity, we run the risk of losing sight of the depth of the issue. The whole model, indeed, is not designed to regulate students' argumentation, whatever the ways and the goals are, but to adjust argumentation considered as a privileged means to *lead herself and the listeners to question her own and their beliefs*. Now, are we sure that, if some norms are not respected at all, this way of arguing can be performed? For instance, norm No. 1, goal B of the *DBT Model* ('The thinker shall take into account beliefs different from hers…') undoubtedly serves to regulate argumentation, but is a real, open and deep dialectical argumentation possible, if the norm is not respected? In this case, argumentation is still argumentation, but it would turn into something completely different from the notion of 'arguing' as it has been conceived in this model. Moreover, if it were not respected, a whole set of elements fitting the model would be missing: the use, in general, of System 2, the invitation not to express agreement or disagreement with a claim or theory before evaluating all the possible reasons, the disposition to create experimental thoughts, etc. In other words, the whole system of WRAT probably would collapse. The same could be said for other norms, such as compliance with inferential criteria: it is true that even a bad argument is still an

argument, but it would fail to reach its goal, which is to effectively question the beliefs of the *community of inquiry*; and, before that, if the thinker is not willing to correct the mistakes of her arguments (e.g., unacceptable premises), that would likely prevent a real discussion with other participants.

To investigate, here, which norms in the model are constitutive and which ones are regulative would be too challenging a task for the space of the conclusive section of this dissertation. Indeed, it would require a deep inquiry into individual norms and, moreover, their connections with illocutionary and perlocutionary conditions. This task would require more time and specific research on literature on the subject, that in the last years has grown thanks to interesting contributions. I postpone this inquiry to a future publication.

As regards the analysis of all the weak points in the model, I refer to the conclusions of the individual chapters, where all the flaws or open issues related to the specific topics dealt with are highlighted. As mentioned above, to test the capacity of the model to be a really useful tool, we must wait for the data collected after monitoring the activity for two or three years: this test could reveal that some norms do not work, that some are redundant or, even, that they are insufficient. Only by applying the model on a large scale, indeed, can these possibilities emerge.

The brief analysis of the issue of constitutive norms should have provided evidence that WRAT has a certain internal consistency and makes a genuine attempt to integrate two incompatible theoretical perspectives. Indeed, as we have seen by means of some examples, these norms are not thought as being in a silos, as elements working on parallel and independent tracks: to disregard one norm entails the failure also of other related norms, or, even, in some cases, it could entail the collapse of the whole edifice. Moreover, the same move in *philosophical dialogue* usually requires us to respect different norms seamlessly, belonging both to the DPT and the EA Model. In this sense, pluralism is not only a juxtaposition of heterogeneous elements, or the adoption of one or the other approach, but rather it is designed to intertwine those elements in a consistent way, oriented to a specific goal.

To conclude the report on the work done, it is worth adding one final more conceptual point, related to the idea itself of argumentation that the model aims to promote. WRAT is probably the first argumentative theory designed to understand and regulate argumentation within the practice of *philosophical dialogue*, where the act of 'arguing' is not considered as a means to claim one's own opinion or to convince the interlocutors, but rather – to answer the research question posed in the *Introduction* (§ 4) – as a collective and cooperative adventure, namely an inquiry into philosophical issues. It is an adventure that finds in some specific attitudes its conditions of possibility (if they are

constitutive norms) and, at the same time, its educational final purposes: *autonomy*, *questioning*, *epistemic openness to other perspectives*, *acceptance of uncertainty*, *context sensitivity*, etc.

The topic of attitudes, that has been discussed in Chapter 1, but developed across the whole dissertation, leads us to an open issue, to which I would like to devote the last lines of this research work. By *epistemic attitudes*, I do not mean *propositional attitudes* that indicate the relationship between a subject and a knowledge content, namely a proposition (e.g., 'I believe that *p*', 'I doubt whether *p*', 'I know that *p*', etc.), but rather a higher-order attitude, namely an *epistemic virtue* (Hazlett, 2012; Croce, 2017) that can be halfway between the domain of epistemology and ethics. For instance, one is epistemically humble when one suspends judgment whether believing *p*, recognising that one does not have sufficient available evidence.

What I tried to do through WRAT is to focus attention on some of these attitudes. It is not by chance that I did not specifically focus on critical thinking techniques: not because they are not important, on the contrary, they are necessary in the toolbox of any good thinker, as, after all, is confirmed by the place that they occupy in *Inventio Syllabus*. The point is that they are not sufficient. What makes a difference for any good thinker, indeed, once the basic critical thinking skills are mastered, are the attitudes of entering problems, of posing questions, of accepting a state of uncertainty, of listening to others, of stopping to think without being in a rush to reach a solution, of internalizing the problem addressed, etc. This dimension is perfectly captured by Waksman and Kohan, prominent theorists of philosophical practices with children:

> Maybe thinking, like dancing or any other arts, demands something more than ability. Thus, a question raises immediately, which leads to wonder whether mastery of critical thinking abilities guarantees thinking in itself and whether autonomy of thinking consists of that. It would be hard to provide such a guarantee, since it seems holding a thinking key that is not directly teachable, that has to do with a disposition, with a practice, with an attitude, with a capacity to insert oneself in the problems, a capacity that is beyond the management of the abilities. […] thinking is not satisfied by means of an output, but only by thinking. But this modality of analysis – like that denoting a life that deserves to be lived according to the Socrates of the *Apology* – is another kind of *habitus*, that comes first whatever ability. (Waksman & Kohan, 2000/2013, p. 84; my translation)

The attempt that WRAT strives to make is precisely to provide norms directly connected with some of these *epistemic attitudes*, expressed by the goals: indeed, if the norms have been originated by the goals, the respect of the norms, in turn, should lead to those goals. In this way, these attitudes can be considered to be of a higher order, because they are not on the same level as norms, which are more easily observable and evaluable.

Nevertheless, the problem posed by Waksman and Kohan remains: *is it possible to teach these epistemic attitudes*? According to their suggestion, the argumentative model designed here and the whole edifice built by the *Inventio* project is an attempt to make students not only practice critical abilities, but also to let these epistemic attitudes emerge and develop.

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