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**Introduction**

Individual intentional action and intentions have been a focus of investigation in philosophy and psychology since their beginning. Recently, collective action and collective intentions are also increasingly coming to the fore. Throughout this history, the limits of intentions have been a central topic in two distinct, but still related respects. First, the boundaries of the concept of intention have shifted at various points in that history. Second, there has always been an interest in the limits of intentions in the sense of the limits of their efficacy in controlling behavior, and of course these limits will vary depending on how intentions are delineated. This interest in turn is at heart an interest in the limits of rationality in controlling behavior, since intentions are or at least can be the products of processes of practical rationality, of practical reasoning. In what follows, we trace part of the ancient as well as the more recent history of that debate, not for its own sake, but as a means of introducing various aspects of intentions and their control over behavior and of locating the contributions of this volume in the geography of this territory.

## **1 Historical Background**

It is a leading idea in Western thought, inherited both from the Greek and Judaeo-Christian tradition, that human beings are distinguished by their ability to rationally control and dominate large parts of the natural world as well as the cultural activities of individuals and societies. This in turn presupposes abilities for future-oriented rational deliberation, intention formation and goal directed intentional action. However, the capacity of humans to do this is limited and restricted by various inner and outer factors. This has been noted and reflected critically for long, beginning already in ancient literature (most prominent Sophocles: *Antigone*, 332–375).<sup>1</sup> Plato and Aristotle began to analyze, differentiate and clarify conceptually not only various forms of rational intentional action but also different kinds of “acratia” action, that is actions due to the rationally irritating inability to prefer and choose means or ends considered best (or better in compari-

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<sup>1</sup> Cf. Seebaß 2006, ch. 1, for the *Antigone* passage in particular pp. 7f. and 276ff. For other relevant texts including even the early Homeric epics see Lesky 1961, Snell 1986, and Schmitt 1990.

son) and to pursue them consequently.<sup>2</sup> Undeniable instances of “acrasia” were explained predominantly by general or temporary intellectual defects, epistemic as well as ratiocinative, but in part also (at least by Aristotle) with reference to long-standing defective mental or physiological habituation and automatization. Moreover, some of the later Stoics and early Christian thinkers drew attention to volitional and motivational defects resulting in a severe reduction or total loss of action control even in cases where the antecedent volitions and intentions are formed rationally and without ignorance.<sup>3</sup>

Both kinds of defects played an essential part in stimulating further inquiries into intentional action and its limitations. On the one hand, philosophers attempted to clarify the relations between mere intentions and the ensuing, distal as well as proximal, intentional acts. In this vein it is asked, e.g., whether there are (or should be in the defective case) relevant causal links.<sup>4</sup> Or it is asked whether the very concepts of willing or intending imply that the persons in question actually try to realize their volitional objectives (as has been argued by Hobbes and many others<sup>5</sup>) or, at the very least, that they are convinced personally that these objectives can be or will be directly or indirectly realized by their own actions.<sup>6</sup>

On the other hand, there have been continuous efforts to specify the conditions of forming the will and deciding to forbear or enter into a particular course of action. Although the strong and pervasive influence of irrational factors (viz. habits, moods, passions, and feelings) is not ignored, the main focus within philosophy is on the rational factors. Following Aristotle’s pioneer work various forms of deliberation and practical inference are studied, mainly forms suited to yield rational choices of means to given ends, which may include distant goals.

2 Cf. Plato: *Protagoras*, 351b–357e; *Leges*, 860c–872c; Aristotle: *Ethica Nicomachaea*, III, 1–7; V, 10; VI–VII; *Ethica Eudemica*, II, 7–10; *De anima*, III, 9–10; *Physica*, VIII, 2–5; *De motu animalium*, 4–8. For detailed analyses and discussions of Aristotle’s position see, e.g., Furley 1967, Kenny 1979, and Sorabji 1980. For a succinct survey of the philosophical discussions of “acrasia” see Seebaß 2005.

3 Cf. Epictetus: *Diatribai*, IV, 1; Paulus: *Romans* 7, 7–25; Augustine: *Confessiones*, VIII, 8, 20–9, 21. For a general historical overview and interpretation see Arendt 1978, vol. II, ch. II, Dihle 1982, and Kahn 1988.

4 An affirmative answer is quite common for nondefective cases. For a prominent defence of this answer even for various defective cases, see Kant 1902–1923, vol. V, 9, 15, 177f.; vol. VII, 251.

5 Cf. Hobbes: *Opera*, vol. II, 95f.; *English works*, vol. III, 48f.; IV, 68, 272f.; Locke 1975, bk. II, ch. 21, §§ 5, 28ff.; Hume 1975, 64f.; Hume 1978, 399, 632f., 655f.; Schopenhauer 1977, vol. VI, 56, 78; Mill 1963–1991, vol. X, 238f.; Kenny 1963, 236; Kenny 1975, 41f.; Frankfurt 1988, 14ff.

6 Many authors have argued for some such position. See, e.g., Locke 1975, bk. II, ch. 21, § 30; Reid 1969, Essay II, 1; Sigwart 1889, 120f., 149f.; Brentano 1971, vol. II, 103, 115; Russell 1921, 285, and for a classical text in psychology Ach 1910, 240ff., cf. Ach 1935, 201.

Later, beginning with Abelard, similar forms of reasoning are investigated and applied to consequences, effects and side-effects of intended ends or goals, too, leading to new, influential conceptions of “conditional” or “oblique” willing and intending suited especially well to the understanding of actions which appear to be unintentional, wholly or partly, at first glance.<sup>7</sup> Philosophical inquiries into intentional human action and its enabling or limiting conditions have been undertaken most often with the pronounced further intent to clarify the conditions of moral and legal responsibility. Therefore it is not astonishing that many philosophical conceptions and distinctions also reappear, directly or in modified form, in the law and in legal theory.<sup>8</sup>

In accordance with everyday usage, states or processes of willing and intending are traditionally taken by philosophers to be mental events to be identified subjectively by (actual or potential) conscious experience. Moreover, they are mainly conceived as a particular kind of (verbalized or verbalizable) propositional attitude, that is “willing/intending that p”. However, there is still a substantial number of philosophers, who claim that all kinds of volition can be reduced to simpler, nonpropositional phenomena such as elementary perceptions, representations or feelings. On either view, individual actions are taken to be intentional to the extent that they are controlled by their mental antecedents, whether these are taken to be propositional attitudes or not. Moreover, on either view it is taken for granted that the mental antecedents are conscious. This general view of action was not called into question for a long time. It was not even challenged by the pioneers of experimental psychology. Wundt and James were not only expert philosophers but also experienced physiologists and quite willing to look at intentional human action from this angle. But neither of them was tempted to stop thinking of intentions as conscious states when attempting to give an experimentally informed, strictly empirical account of volition and voluntary, intentional action.<sup>9</sup> And this was all the more true for Brentano, another philosopher taking turns as an empirical psychologist.<sup>10</sup>

For some time psychologists then tried to refine what – with a misleading visual metaphor – was called “introspection” into a technique of experimental

7 Cf. Abelard: *Ethica*, capp. 1–3; Saarinen 1994, chs. 2–3; Matthews 1998; Bentham 1948, chs. VIII, 6, and IX, 10; Sigwart 1889, 168–199; Anscombe 1957, 41f., 89; Goldman 1970, 59f.; Harman 1986, 89f., 106ff.; Bratman 1987, ch. 10.

8 A prominent and influential modern example is Pufendorf 1934, lib. I.

9 Wundt 1888; Wundt 1911, ch. 17; James 1950, ch. XXVI.

10 Brentano 1971, vol. II, ch. 8.

research.<sup>11</sup> When this introspectionist program, however, ran into trouble and produced diminishing returns, behaviorists proposed the radical expedient of trying to ignore consciousness altogether. Psychologists such as Watson, Tolman, Hull or Skinner started to analyze psychological states and processes, including even higher mental phenomena such as desiring, wanting, willing, and intending or having goals and purposes as behavioral causal dispositions.<sup>12</sup> Influenced by this zeitgeist various philosophers, most prominently Ryle and Wittgenstein, came up with different versions of a view often referred to as “logical behaviorism.”<sup>13</sup> While these philosophers, notably Wittgenstein, often distanced themselves from psychological behaviorism and tried to defend themselves against the charge of ignoring consciousness or even denying its reality,<sup>14</sup> they did in different ways emphasize behavior over the traditional focus on what Ryle disparagingly called “the ghost in the machine”.<sup>15</sup>

The analytical tools were sharpened substantially with the proposal to analyze intentional goal-directed behavior by applying concepts designed for nonintentional teleological processes such as self-regulating biological and technical processes.<sup>16</sup> Among the relevant criteria for “goal directedness” in this sense are features like the “persistence” or “perseverance” of an organism (or machine, e.g., a self-guided missile) in reaching a characteristic end state, the existence of a “directive correlation” (e.g., mechanical feedback) between relevant starting or intermediate positions and reactive activities necessary to reach the end state in question, and “plasticity” (i.e., behavioral flexibility) in reacting to a variety of intervening obstacles and spontaneous behavioral aberrations. As these concepts were gradually refined, some authors even developed complex, sophisticated dispositional analyses of propositional attitudes like believing, wanting or intending.<sup>17</sup>

<sup>11</sup> For a historical overview, see Boring 1953, Danzinger 1980, and Lyons 1986, and for the general significance of introspection to psychology Hatfield 2005.

<sup>12</sup> Cf. Watson 1962; Tolman 1932; Tolman 1966, chs. 1–6; Hull 1943; Skinner 1953, ch. VII; Skinner 1993, ch. 4.

<sup>13</sup> See, e.g., Chihara and Fodor 1965, and Fodor 1968.

<sup>14</sup> Ryle 1949, ch. X, 2; Wittgenstein 1953, §§ 307f.

<sup>15</sup> Ryle 1949, ch. I, 2 and passim. For his dispositionalism in general see Ryle 1949, chs. II, 7 and V, for his analysis of volition and willing 1949, ch. III.

<sup>16</sup> See, e.g., Braithwaite 1953, ch. X; Nagel 1961, ch. 12 I; Nagel 1979, ch. 12; Taylor 1964, pt. I; Wright 1971, chs. II, 6–III; Sorabji 1980, chs. 10–11; McLaughlin 2001, pt. II; Weber 2005, ch. 2.4. The view is prefigured in Russell 1921, lect. III. For a general survey and critical discussion, see Woodfield 1976 and Seebaß 1993, 176ff.

<sup>17</sup> An impressive example is Bennett 1976, chs. 2–4.

External behavioral criteria are indispensable anyway, if one wants to ascribe volitions and intentions (of some kind) to infants from the outside, or even to certain higher animals. So it might seem that a complete reductive behaviorist analysis of intentional concepts is indispensable, too. But this would be overhasty. It can be adequate as a technical label for a certain observed form of animal, or even machine, behavior (cf. below p. 29). But it would be wholly inadequate and highly misleading if this is meant to cover the entire range and the most central forms of human intentionality. It is one thing to rely on behavioral evidence in order to *ascribe* mental states or processes. It is quite another to maintain that mental events *are* nothing but behavioral dispositions. And despite the fact that the idea of a reductive dispositional analysis survives up to the present (viz. in the philosophy of mind under the name of “functionalism”) it has become more than doubtful that reductions of this kind are possible, at least if applied to higher mental phenomena such as propositional beliefs, volitions and intentions.<sup>18</sup> Accordingly, it is more than doubtful, too, that the intentional actions of human beings can be analyzed out completely into goal oriented (flexible, directionally correlated) activities causally dependent on behavioral dispositions.

## 2 Recent Developments in Psychology

For the behaviorists, referring to responses of an organism (animal or human) as intentional or goal-directed was simply an issue of labeling. Behaviors that showed the features of persistence, appropriateness, and searching were referred to as intentional or goal-directed. The concept of goal was used to describe the incentive the organism was trying to attain. So for the hungry organism, for instance, food qualified as a goal. A behaviorist researcher’s statement that food is a goal to the hungry organism meant according to B. F. Skinner nothing more than (1) that it is known that food is a powerful incentive to this organism, and (2) that the researcher has chosen to describe the behavior of the organism in relation to food rather than in relation to any object or event.<sup>19</sup>

With the emergence of cognitive social learning theory as promoted by Walter Mischel and Albert Bandura in the 1970s,<sup>20</sup> however, psychology started to analyze

<sup>18</sup> For a detailed critique of dispositionalist analyses see Seebaß 1993, ch. IV, 3. For critiques of functionalism and the general tendency to neglect consciousness, see e.g. Searle 1992, Strawson 1994, and Chalmers 1996.

<sup>19</sup> Cf. Skinner 1953.

<sup>20</sup> Cf. Bandura 1977.

intentions, interchangeably referred to as goals, as subjective mental states pertaining to personal resolutions (“I want to reach outcome x!” or “I want to show behavior x!”). By doing so the classic question raised by German will psychology as promoted by Kurt Lewin<sup>21</sup> returned to the foreground: What determines that some of the intentions/goals people come up with are fulfilled/attained, whereas others are not? And what can people do to enhance their chances of realizing them?

It is this problem of the intention-behavior gap that the recent psychology of motivation is obsessed with. Two ways of closing the intention-behavior gap are suggested: (a) one points to the necessity that people need to form strong intentions or goal commitments, and (b) the other points to the fact that people can enhance the effectiveness of striving for their goals. That goal attainment requires solving the two subsequent tasks of setting strong goals and the effective implementation of chosen goals has been pointed out by Heinz Heckhausen and Peter Gollwitzer in their Rubicon model of action phases (the resolution implied by forming an intention is referred to as crossing the Rubicon).<sup>22</sup> There it is argued that an important prerequisite for committing to goals effectively (i.e., setting strong binding goals) is a high felt desirability of having attained the goal that is accompanied by a high perceived feasibility of being in a position to ultimately reach the goal. In other words, low perceived desirability and feasibility of reaching the goal will lead to weak goal commitments.

In line with this reasoning, research on goal setting has searched for factors that determine whether a goal is perceived as desirable and feasible.<sup>23</sup> Such research discovered, for instance, that people whose achievement motives are based on a high hope for success do opt for setting themselves achievement goals of a medium difficulty, whereas people whose achievement motives are based on a strong fear of failure do set themselves achievement goals of either very low or very high difficulty (this way avoiding failure or having an excuse for it, respectively). Moreover, it was observed that people who construe their self in terms of ideals that are to be reached versus oughts that need to be fulfilled do select promotion goals (i.e., goals that target the presence or absence of positive outcomes) and prevention goals (i.e., goals that target the presence or absence of negative outcomes), respectively. Finally, it was found that people who construe their intelligence as something that is fixed prefer to set themselves performance goals (i.e., goals geared towards discovering the exact level of intelligence that

one possesses), whereas people who construe intelligence as something that is malleable prefer to set themselves learning goals (i.e., goals geared at finding out how to best solve the problems at hand).

With respect to effective goal implementation the Rubicon model of action phases proposes that people need to concern themselves with the questions of when, where, and how to strive for the goal at hand. In line with this reasoning, research on goal striving attempted to discover the determinants of such considerations.<sup>24</sup> For instance, Charles Carver and Michael Scheier in their control theory have argued that movement toward a goal reflects the functioning of a discrepancy-reducing feedback loop.<sup>25</sup> Such a loop involves the sensing of some present condition, which is compared to the intended condition (i.e., the goal standard). If the two are identical, nothing more happens, but if there is a discrepancy between the two, the discrepancy is countered by subsequent action to reduce it. The overall effect of such a feedback loop and of thus being controlled by feedback is to trigger goal striving when needed. In support of this theorizing, extensive research by Locke and Latham has shown that acting on specific goals (such goals are known to facilitate discrepancy detection) leads to more effective goal striving than acting on do-your-best goals (e.g., how many pages one wants to write over the weekend) rather than vague (e.g., to write as much as possible).<sup>26</sup> Carver and Scheier’s control theory also suggests that feedback on the speed of goal striving also affects a person’s goal striving efforts. This feedback is leading to positive affect (when moving fast enough) or negative affect (when moving too slow). Research shows that positive affect caused by moving too fast will in turn lead to coasting on the goal, whereas negative affect caused by moving too slow leads to enhanced goal striving.

More recently, research on goals has addressed the question of what way of thinking might facilitate committing to goals that are both attractive and feasible. One mental strategy for bolstering such wise goal setting is mental contrasting of future and reality as suggested by Gabriele Oettingen.<sup>27</sup> This strategy asks the agent to imagine achieving a desired future outcome (e.g., getting an A in an upcoming exam), and then to imagine the most critical obstacle of reality standing in the way of achieving this future (e.g., invitation to a party). The juxtaposing of the desired future and its obstacles highlights both the perceived valence and the perceived feasibility of goal attainment. Consequently, mental contrasting

<sup>21</sup> Cf. Lewin 1926.

<sup>22</sup> Cf. Heckhausen and Gollwitzer 1987.

<sup>23</sup> Summary by Bargh, Gollwitzer, and Oettingen 2010.

<sup>24</sup> Summary by Bargh, Gollwitzer, and Oettingen 2010.

<sup>25</sup> Carver and Scheier 1998.

<sup>26</sup> Locke and Latham 1990.

<sup>27</sup> Oettingen 2012.

strengthens commitment to and striving for goals that are perceived as attractive but also feasible, and it helps people to stay away from or disengage from (attractive) goals that cannot be reached.

Similarly, there is also recent research on what kind of thinking best prepares people for goal striving (i.e., moving towards the set goal). One such strategy suggested by Gollwitzer is furnishing the set goal with plans specifying the where, when and how of goal striving (i.e., form implementation intentions).<sup>28</sup> It is particularly effective to lay down these plans in the format of "If I encounter situation x, then I will show goal-directed response y!" For example, if a student has the goal to attain an A in the upcoming test, she might form the implementation intention, "If my friend invites me to her party, then I will immediately say no!" These plans derive their beneficial effects on goal striving from the strong associative links that are formed between the critical situation specified in the if-part of the plan and the respective goal-directed response specified in the then-part. People show a heightened perceptual readiness for the specified critical situational cues as well as a heightened behavioral readiness once the critical cue is encountered. Actually, the specified goal-directed response is performed immediately, efficiently, and without the need of a further conscious intent. Even if the critical specified situational cue is presented subliminally (i.e., the presentation time is so low that no conscious awareness of the presence of the cue is possible) the beneficial effects of implementation intentions on immediate and efficient action initiation can still be observed.<sup>29</sup>

Psychologists have referred to mental contrasting and forming implementation intentions as self-regulation strategies of goal pursuit. This label highlights that mental contrasting and forming implementation intentions are distinct cognitive procedures (strategies of reasoning) that can be engaged in by people on the basis of an instruction by others (teachers, experimenters) or a self-instruction. In any case, postulating and showing that such strategies of thinking can positively affect goal setting and goal striving respectively, is quite different to traditional research on goals that solely focused on the determinants of goal setting and goal striving.

Psychologists these days assume that goal striving cannot only be automated by forming implementation intentions (so-called strategic automaticity as action control is intentionally delegated to situational cues). According to John Bargh and colleagues, cues in the agent's environment can also instigate the non-con-

scious activation and pursuit of goals.<sup>30</sup> Take, for example, a person at a party where she does not know anyone and will never see the people there again. Even if she will walk into the party with no explicit goal to affiliate, the situational cues at the party (music, fancy clothes, etc.) will activate outside of conscious awareness the mental representations of the affiliation goals she has striven for in the past in such contexts. The partygoer will thus display goal-directed behaviors such as preferring to affiliate over other tasks, continuing to socialize when interrupted, and ceasing affiliation efforts once the goal is completed. While she will not be able to report on having had this affiliation goal, one can see from her behavioral efforts that she was striving for this goal. Experimental research on automatic goal pursuit has made a special effort to demonstrate that the observed behaviors indeed pertain to the implementation of goals rather than simply acting on habits, moods, or behavioral patterns activated by the situational context at hand (as has been suggested by some philosophers<sup>31</sup>), and most psychologists agree that this effort has been successful. This was done by assessing the classic features of goal striving as defined by the behaviorists. If one takes the feature of appropriateness (i.e., flexibly adjusting one's behaviors to the demands of the situation), for instance, this feature is more pronounced in goal-directed behavior than in habitual behavior; or if one takes the feature of persistence, this feature is hardly observed with conceptually (contextually) triggered behavior but quite pronounced in goal-directed behavior.

The experimental research on automatic goal pursuit has made intensive use of the priming technique. This technique was originally developed by cognitive psychologists studying semantic networks, that is, how certain concepts relate to each other (e.g., house to city) and what properties are seen as belonging to a certain concept (e.g., window to house).<sup>32</sup> In order to find out how closely other concepts and certain properties are related to a given concept (e.g., house), this critical concept is presented as a prime word (mostly subliminal) and then immediately thereafter (less than 600ms) the other concept or a property is presented as a target word (because of the subliminal presentation and/or the short stimulus onset asynchrony no conscious involvement is possible). Research participants are asked to pronounce the target word as fast as possible (reading speed is assessed) or to classify it as a word or nonword via pressing a button (lexical decision speed is assessed). High speed (in comparison to control pairings of a letter string as the prime) is taken as an indication that a strong associative link exists

<sup>28</sup> Cf. Gollwitzer 1999.

<sup>29</sup> Cf. Bayer et al. 2009.

<sup>30</sup> Cf. Bargh, Gollwitzer, et al. 2001.

<sup>31</sup> Cf. Schmitz 2011.

<sup>32</sup> Cf. Neely 1977.

between the prime word and the target word, because the prime word managed to increase the accessibility of the target word. Certainly, participants are aware of their task to read the target words or classify them; what stays outside of awareness however is the activation process itself and the consequent speed-up of responses.

Social psychologists have used the priming technique to find out which properties belong to certain stereotypes, for instance, the stereotypes we hold of men, women, or the elderly.<sup>33</sup> In such studies, words specifying men, women, or the elderly are used as primes and a variety of different properties as targets. If the accessibility of certain property-related words is observed to be heightened by the primes describing critical groups of individuals (e.g., men, women, etc.), these properties are assumed to belong to the stereotypes people hold with respect to the members of these groups. Bargh went one step further and extended this type of research to actual behavior as the target (concept-behavior priming).<sup>34</sup> He assumed that not only stereotypical beliefs are activated when prime words describing certain categories of people (e.g., men, women, the elderly) are used but also the respective behavior. In support of his assumption he observed that research participants who had been primed with the concept of the elderly showed a slower walking speed when leaving the experiment. This observation encouraged Bargh to also attempt goal priming.<sup>35</sup> He assumed that goals (like stereotypes) are mentally represented and thus can be primed as well. A goal that has been activated by priming should therefore also be in a position to instigate behavior that is directed towards goal attainment. Numerous studies supported this assumption. Subsequent research showed that goal-primed individuals still experience themselves as acting in a certain way and this is true no matter whether the goal prime was presented supra- or subliminally. What stays outside of the goal-primed person's conscious awareness however is the fact that the goal prime has affected her/his behavior in the direction of goal attainment. This can lead to feelings of irritation when the primed goal (e.g., wanting to be a winner) produces a type of behavior that is violating a given norm (e.g., being friendly and cooperative to strangers). This phenomenon, referred to as explanatory vacuum, nicely attests to what is at the center of nonconscious goal priming: The person does not know that a goal prime has influenced her behavior (i.e., it is not a lack of awareness of the goal prime or a lack of awareness of being involved with some kind of goal-directed actions).

<sup>33</sup> Cf. Moskowitz, Gollwitzer, Wasel, and Schaal 1999.

<sup>34</sup> Cf. Bargh, Chen, and Burrows 1996.

<sup>35</sup> Cf. Bargh 1990.

Moreover, psychologists have also asked the question of when are people in a better or worse position to act on their goals. One relevant theory, the so-called strength model of self-regulation promoted by Roy Baumeister<sup>36</sup>, argues that acts of self-regulation require energy, that the self-regulatory energy supply is limited, and that this energy supply is depleted to some degree with each act of self-control. It is assumed that the self-regulatory energy store operates analogously to the operation of a muscle. As one uses the muscle, it becomes fatigued. The metaphor further suggests that training should increase self-regulatory strength, stamina, and endurance, and that periods of rest should replenish the energy store. Evidence for the strength model has been found using self-regulatory tasks as diverse as controlling thoughts, managing emotions, overcoming unwanted impulses, breaking a bad habit, making choices, and switching mindsets. According to the strength model of self-regulation, therefore, people can be assumed to be in a better position to act on their intentions when their self-regulatory resources are high – either to begin with or not depleted by prior self-regulatory efforts.

Personality psychologists have attempted to answer the question of when are people in a better position to enact their intentions by pointing to a certain aspect of their temperament. This aspect is called effortful control, which has been defined by Mary Rothbart as the ability to inhibit a dominant response to perform a subdominant response or the efficiency of executive attention, including the ability to inhibit a dominant response and/or to activate a subdominant response, to plan, and to detect errors.<sup>37</sup> Nancy Eisenberg has argued that even though all children improve greatly in their effortful control (and hence self-regulation), there are large individual differences in effortful control development.<sup>38</sup> As is true for other aspects of temperament, individual differences in effortful control are believed to be due to both biological factors (hereditary and constitutional factors, such as the prenatal environment) and environmental influences (e.g., on prenatal care), and to be affected by social influences during early childhood. Accordingly, from the personality perspective, individuals who have successfully developed their potential for effortful control are in a chronically better position to enact their intentions than individuals who have failed to do so. All of this developmental research is informed by the findings of cognitive psychologists who study action control. Action control research makes a distinction between top-down control by goals versus bottom-up control by situational cues. The top-down control by goals is assumed to make use of a host of cognitive pro-

<sup>36</sup> Baumeister et al. 2007.

<sup>37</sup> Rothbart et al. 2007.

<sup>38</sup> Eisenberg and Sulik 2012.

cedures referred to as cognitive functions. According to Akira Miyake and Naomi Friedman, the most important of these are effective updating of needed information in working memory, the inhibition of unwanted distractions and responses, and the switching between working on an ongoing task to a subsequent task.<sup>39</sup>

In summary, recent research in psychology suggests that people do not always act on the intentions or goals they have, a problem referred to as intention-behavior gap. The self-regulation strategy of mental contrasting fosters goal attainment by causing people to set goals that are both desirable and feasible. Goal contents can be framed in different ways (promotion vs. prevention, learning vs. performance, specific vs. vague), and the type of framing will affect the likelihood that the goal will be achieved. Difficulties on the way to achieving goals can be overcome by forming implementation intentions (if-then plans), a self-regulation strategy that guarantees goal attainment particularly when used in combination with mental contrasting. Finally, goals may be activated outside of awareness; at the same time awareness of goals may give agents the feeling that they caused an action they did not, in fact, effect.

### 3 Intention and Action in Recent Philosophy

It is striking how long it has taken for a full-blown notion of intention to emerge in more recent philosophy of mind, at least in the tradition of analytic philosophy that we will restrict ourselves to here. Part of the reason for this certainly is the residual behaviorism still palpable in philosophy even in the second half of the 20th century (cf. p. 4f. above), before the rediscovery of the mind, of consciousness, began in the 70s and 80s. Another reason is that the philosophical theory of so-called “propositional attitudes” from its beginning in the works of Frege, Russell, the early Wittgenstein and others, has very much focused on the theoretical attitude of belief, with desire being a distant second and intention an also-ran. As recent data indicate, this theory bias continues to the present day.<sup>40</sup>

<sup>39</sup> Cf. Miyake et al. 2000.

<sup>40</sup> Eric Schwitzgebel (2012) has done statistical analyses of some popular philosophy resources like the *Philosopher's Index* and *The Stanford Encyclopedia of Philosophy* and found a very strong bias for belief over desire in the context of discussions of propositional attitudes. For example, the Stanford Encyclopedia entry on “Propositional Attitude Reports” (McKay and Nelson 2010) includes 183 occurrences of “belief”, 169 of “believe”, but only 2 of “desire”. Intentions were so rarely mentioned in this context that they were not even included in the statistical analyses (personal communication).

Similarly, while analytical philosophy has been obsessed with perceptual experience throughout most of its history, actional experience has only very recently become a focus of attention. In psychology, there also seems to have been much more interest in perception than in action.<sup>41</sup>

Elizabeth Anscombe's (1957) small, but seminal book “Intention” triggered a renewed philosophical interest in intention and action in the second half of the 20th century. Anscombe was very much aware of the theory bias of the tradition she was up against. Her goal was to regain a proper understanding not only of intentional action and intention, but also of practical knowledge against what she called the modern “incurably contemplative conception of knowledge” (§ 32) – which reduces all knowledge to theoretical knowledge of what is the case.

Anscombe's work made a number of notable contributions. First, she introduced into analytical philosophy the Aristotelian conception of intentional human action according to which actions are characterized by non-descriptive attitudes like commands and imperative (§ 2ff.), by plural answers to “why”-questions, including forward-looking teleological ones (§ 5ff.), and in most cases also by practical reasoning in a syllogistic form (§ 33ff.). This line of thought was continued by Anthony Kenny, who widened the historical scope and developed an “imperative theory” of will and intention as well as a logic of practical syllogisms of his own.<sup>42</sup> This general approach to intentions and intentional action is still discussed intensively in recent philosophy and developed further in various ways (cf. below, p. 17). Moreover, it is as highly relevant to jurisprudence as it has been from its beginning.<sup>43</sup>

Second, Anscombe defended a deflationary ontology of action and the corresponding notion of an “action under a description”. On Anscombe's view of action individuation, while there are indefinitely many true descriptions of basic actions such as moving one's arm in terms of their causal, normative or other consequences, still only one action was performed. This action in turn could be intentional under some descriptions – for example, pumping water into a house –, but unintentional under others – such as poisoning the inhabitants or committing murder (§ 23ff.). This conception was taken up and developed further

<sup>41</sup> Patrick Haggard (2001) describes this in detail for British psychology, but it seems unlikely to be restricted to it.

<sup>42</sup> See especially Kenny 1963, chs. X–XI, Kenny 1966, Kenny 1975, chs. II–V, and for the Aristotelian conception Kenny 1979, especially pt. III.

<sup>43</sup> Cf. the quotations from Plato, Aristotle and Pufendorf in notes 2 and 8 above, and for recent discussions, for example, Kenny 1978, chs. 3–4, and Seebaß 2006, ch. III.

by philosophers like Donald Davidson or Jennifer Hornsby,<sup>44</sup> but opposed by others such as Jaegwon Kim and Alvin I. Goldman, who favored a more fine-grained way of individuating actions and accordingly an inflationary ontology, according to which many actions would be performed in such a case.<sup>45</sup> Others such as Jonathan Bennett have suggested a middle course between “deflationism” and “inflationism”.<sup>46</sup>

Third, Anscombe introduced the notion of direction of fit, though not the terminology,<sup>47</sup> to explicate the difference between the practical and the theoretical relation to the world, between intentions and orders (commands, imperatives) on the one hand and statements and beliefs on the other. Consider her example of a list of shopping items (§ 32). If this list represents the items a man intends to buy or that his wife has told him to buy, the relation of the list to the world is different than if the list has been created by a detective who writes down what the man has bought because the wife has hired to shadow him. This difference is manifest in how we respond to a lack of agreement between the list and the items bought. In the first case, the mistake is in the execution of the list. When the wife complains that the man brought ham rather than bacon, he cannot fix things by crossing out the word “bacon” on the list and replacing it by “ham”. But the detective could do this if the wife complained that he had written down “bacon” even though the man had actually put ham in his cart. In the first case the relation between mind and world is practical, the direction of fit world-to-mind. Agreement, fit between mind and world, is achieved by fitting the world to the representational contents of the mind. In the second case, the relation between mind and world is theoretical and the direction of fit is mind-to-world. This means that agreement or fit between mind and world is achieved by fitting the representational contents of the mind to the world. This difference in direction of fit is also essentially connected to a corresponding difference in the direction of causation. Practical attitudes like intentions are the cause of their objects, while theoretical attitudes like beliefs are caused by them.

<sup>44</sup> See Davidson 1980, chs. 1, 3 and 5, and Hornsby 1980, chs. I–VI. Davidson even went so far as to summarize the deflationist view by the slogan “we never do more than move our bodies: the rest is up to nature” (1980, 59).

<sup>45</sup> See Brandt and Kim 1967, Kim 1969, Kim 1980 and Goldman 1970, chs. I–III.

<sup>46</sup> See in particular Bennett 1988, chs. VI, XII–XIV.

<sup>47</sup> Searle (1979, ch. 1; 1983, ch. 1) later brought together the notion and the terminology which before had been used by John L. Austin with a different meaning. For more recent discussions of direction of fit, see, for example, Humberstone 1992, Smith 1987, Seebaß 1993, chs. III, 4–5 and IV.

Anscombe’s Aristotelian idea that to understand an action as intentional is to place it in a logical space of practical reasons and her own, Wittgensteinian way of opposing reasons and causes, proved to be particularly influential. These ideas were also connected with a certain “antipsychologism”, because (in the Wittgensteinian vein, though not in the Aristotelian) actions are not causally explained through mental attitudes, and the “reasons” need not be mental attitudes either. On a perspective that came to be very widespread, to explain an action would mean to make sense of it by placing it in a context, but that context might, for example, consist of Wittgensteinian forms of life and practices rather than of mental states. There were two more widely accepted assumptions that made it difficult to make sense of the idea that reasons could also be causes. The first, generally known as the “Logical Connection Argument”, held that the connection between two entities could not be conceptual or logical and causal at the same time. Causal explanations, being empirical, require logically independent relations. But intentional actions and the reasons for them are not logically independent because actions logically require a relation to reasons in order to be actions at all. So that relation was conceptual and constitutive. Given the assumptions made, it could not be causal at the same time, and so reasons could not be causes. The second assumption was that every causal claim would need to be underwritten by an empirical law, that every singular causal relation would need to be an instance of such a universal law. But this idea that human action should be causally explainable by universal action laws of course raised worries about freedom, and even apart from such worries, it was not clear what such laws should be and if they existed at all. Certainly no uncontroversial examples of such laws that were both empirical and true were available. So for some time action theory was stuck in a debate between the “anticausalist” reason faction and “causalists” who tried to find a way around the logical connection argument and formulate a viable conception of action laws, until Davidson in an influential article and Georg Henrik von Wright in a widely received book tipped the balance in favor of “causalism” by arguing forcefully that causal explanations of actions and explanations in terms of reasons by no means exclude each other, if they are analyzed fully and in the right way.<sup>48</sup>

Davidson highlighted the distinction between the reasons a person has and the subclass of those reasons that are the reasons that the person actually acts

<sup>48</sup> Cf. Davidson 1980, ch. 1 (first published in 1963), and von Wright 1971, chs. II–III. To some extent their arguments merely renewed the insights of many classical thinkers since Aristotle (cf. p. 1ff., above), including authors outside philosophy such as the sociologist Max Weber (cf. Weber 1988, 65ff. 178ff., 436f., 550f.).

for or out of and argued convincingly that this distinction could naturally only be drawn in causal terms: the reason or reasons a person acts out of are those that actually cause his or her action. Moreover, Davidson cleverly used Anscombe's notion of actions under descriptions, which he also applied to mental events, to circumvent the two central problems of the causal theory. First, he pointed out that logical connections obtain between descriptions of events rather than those events themselves to disarm the logical connection argument: events could be described in different ways, but whether one caused another could not depend on how they are described. Second, while reaffirming what he called the "principle of the nomological character of causality", Davidson used the same basic idea to argue that the mental causes of actions did not need to instantiate those laws *under their mental descriptions*. In this way, he apparently was able to hold both onto causalism, onto a causal role for reasons, for the mental antecedents of actions, and to the notion of the nomological character of causality, while avoiding any commitment to the contentious idea of action laws, which would state that, given certain mental conditions, a person would always perform a certain action.

Some years later the debate took a new turn. For Davidson and many others (outside the Aristotelian tradition) to say that somebody had an intention was just a way of referring to a pair consisting of a desire and a belief specifying a means to satisfy that desire. Davidson later changed his mind and came to accept a conception of intentions as a separate, irreducible category of mental states.<sup>49</sup> But the most influential arguments for this conception were given by Michael Bratman in support of his planning theory of intentions.<sup>50</sup> Bratman pointed out that intentions are subject to coherence requirements such as means-ends coherence in a way in which desires are not. To have desires or wishes that, given other theoretical and practical attitudes, cannot be simultaneously fulfilled, is not generally considered to be irrational. For example, I may have a desire to finish my paper tomorrow and a desire to go on a mountain hike tomorrow, and a belief that I cannot do both. There is nothing wrong with this as such. It is normal to have conflicting desires, the job of practical reasoning is precisely to decide which of these desires to pursue and how. But this is also why it would be irrational to adopt both corresponding intentions. Our practical deliberation, our planning

<sup>49</sup> Cf. Davidson 1978.

<sup>50</sup> See in particular Bratman 1987, chs. 2–7. Of course, it was less Bratman's insistence on rational coherence and commitment as such that was new, but his claim that these features force us to conceive of intentions as an irreducible category of its own. For a thorough analysis and critique of Bratman's account, see Roughley 2013, chs. 7–9.

must be such that we adopt ends and means of achieving them that are coherent in the sense that they are all jointly fulfillable in the light of what we know and believe. A related point which is often considered to be the central point of Bratman's account is that intentions have a feature of commitment that desires arguably lack, a point that made his approach attractive also to various psychologists (cf. p. 6f. above). Once I settle on a course of action, I am committed to it, but I am not committed to anything merely by desiring something.

However, there is no reason to think that the requirements of rational coherence and commitment characteristic for intentions and intentional actions necessarily rule out the traditional conception of intentions as a species of other, more general mental attitudes. Another school of thought, developing the general approach of philosophers like Anscombe or Kenny,<sup>51</sup> treats intention as a species of a volitional state of either willing or wanting, but in any case as a sub-species of an optative state that can be glossed like "Let it be the case that p". According to different versions of this view, intentions would stand out from other optative states through their qualified rational and motivational status or by being the result of a specified process of practical deliberation.<sup>52</sup> Finally, it has been suggested that intention is a species of belief,<sup>53</sup> though this view is not very intuitive and under suspicion of being an instance of the theory bias.

Another more recent development is that philosophers have begun to distinguish between different kinds of intention, for example, between distal and proximal, or present- and future-directed intentions.<sup>54</sup> Probably the most influential distinction of this kind is Searle's distinction between prior intentions, formed before the initiation of an action, and what he calls intentions in action, a species of intention concomitant with the actual performance of an action. However, this distinction is not merely temporal. Searle furthermore relates the concept of an intention in action to what he calls "the experience of acting", for example, the experience of raising one's arm. The intention in action is the representational aspect of an experience of acting and shares its representational content. Moreover, its content is presentational, a species of representation characterized through its immediacy and directness, whereas that of prior intentions is not. The content of the intention in action presents a bodily movement, and it presents the

<sup>51</sup> Cf. p. 13, note 42, above and in addition Anscombe 1957, § 49.

<sup>52</sup> For the former position see, for example, Seebaß 1993, ch. IV, 6 and passim, for the latter Roughley 2013, part II.

<sup>53</sup> See for example Velleman 1989, and for various relevant references to other, earlier authors Seebaß 1993, 47, notes 61–67. For a thorough criticism of this position cf. Roughley 2013, ch. 10.

<sup>54</sup> Cf. Mele 2008 and Bratman 1987, 108. See also Holton 2009, ch. 9.

agent as the cause of this movement, or more precisely, it presents the experience as the cause of this movement. With this feature of his analysis, Searle wants to capture the active, practical character of the experience of acting, which distinguishes it from perceptual experience, which is also presentational, but passive and receptive. Accordingly, the intention in action has a world-to-mind “direction of fit” (cf. p. 14) like prior intentions, whereas perceptual states have a mind-to-world direction of fit like beliefs.

Searle’s reason for postulating the self-referential (or, as he now prefers to say, self-reflexive) feature of the intention in action – the fact that its content makes reference to the intention in action itself – can best be appreciated by first considering prior intentions, which share this feature. The basic thought here is that intentions determine the conditions under which they are satisfied, that is, executed. The next step is the claim that we should only say that an intention is satisfied if it is the cause of the intended action. Suppose you plan to go for a walk in the afternoon. You then completely forget about your intention, but nevertheless end up walking around with some friends. In this case, we would not want to say that you executed the original intention, because it did not cause your action. Analogously, Searle suggests, the intention in action would not be satisfied if it did not cause the relevant bodily movement. If the cause was different – say, a neuroscientist triggered the movement, bypassing the experience of acting – your experience would be illusory even if the bodily movement itself was correctly (re) presented.

If, however, the intention in action is satisfied, an action occurs, just like a perception occurs if a perceptual experience is satisfied, that is, veridical. In other words, in Searle’s view an action consists of two components, an intention in action and the bodily movement that it accurately (re)presents, and the first component causes the second. In this way, Searle extends the causal theory from the relation between prior intention and action to the relation between intention in action and bodily movement. He also goes beyond the kind of causal theory of Davidson and others by incorporating a representation of their causal relations to the world into the content of both prior intentions and intentions in action. And against the tendency to strongly oppose causal relations on the one hand and representational and rational relations on the other, Searle insists that our relation to the world in intention and action is causal and representational/intentional at the same time: it is an instance of intentional causation. At the same time, the bodily execution of action and its experience, which, with few exceptions,<sup>55</sup> had been neglected before Searle, becomes much more prominent.

<sup>55</sup> Cf. for example O’Shaughnessy 1980.

Searle’s account of intentions in action was very influential, not only in philosophy, but also outside of it, for example, in developmental psychology and neuroscience of action – showing that philosophy can still be an inspiration for science.<sup>56</sup> However, there are also various criticisms of it. For example, it has been objected that the idea that the content of actional and perceptual experience makes reference to itself overintellectualizes it.<sup>57</sup> Others have argued that actional experience is, after all, a form of perception and has mind-to-world rather than world-to-mind direction of fit, or that it has both directions of fit.<sup>58</sup> Some have proposed that the contents of intentions in action are not propositional and conceptual, as Searle supposes, but nonpropositional and nonconceptual, that is, their representational format is not sentence-like, but more continuous and “gestaltlike”.<sup>59</sup>

An emphasis on the bodily execution of action is also shared by recent philosophers who talk about the “embodiment of mind” and promote “enactivist” or “interactionist” accounts of various mental phenomena, for example of social cognition, or perception.<sup>60</sup> The basic idea is that these phenomena are not, or at least not only, manifest in disembodied thought, but in action. For example, my understanding of others is not only manifest in thought, but in how I interact with them in conversation or how I act jointly with them. This can also be seen, in a sense, as a thorough reversal of traditional, rationalistic action theory. Whereas traditional action theory tries to explain the action character of bodily movements completely through its relation to thought, enactivism conversely tries to explain thought and other mental phenomena in terms of action. While these approaches agree with Searle and others in emphasizing the bodily execution of action, an important difference is that they tend to reject representationalist accounts of action and perception.<sup>61</sup>

Since the 1980s the topic of collective action and intention, of the intentions and actions of groups and institutions has been discovered, respectively rediscovered, in analytic philosophy. Thanks to the pioneering work especially of Raimo Tuomela, but also of Margaret Gilbert, John Searle, Michael Bratman,

<sup>56</sup> Cf. for example Tomasello and Rakoczy 2003 and Haggard 2005.

<sup>57</sup> Cf. for example Armstrong 1991 and McDowell 1991.

<sup>58</sup> Cf. respectively Bayne 2011 and Millikan 1996.

<sup>59</sup> Cf. for example Proust 2003 and Pacherie 2011.

<sup>60</sup> Cf. Noë 2004, Hutto and Myin 2013 and Gallagher and Zahavi 2008.

<sup>61</sup> Cf. Hutto and Myin 2013.

Philip Pettit and others, the field is now burgeoning.<sup>62</sup> The pioneering work has also helped to trigger a renewed interest in collectivity in psychology. In turn, psychological interest in joint attention, especially from a developmental point of view, has gotten philosophers interested in this fundamental phenomenon of collectivity and the elementary forms of joint action and social cognition comprised by it. Moreover, there is a movement seeking to integrate concepts from the analytic tradition with insights from phenomenology and empirical findings from psychology, neuroscience, cognitive science, economics, political science and other relevant disciplines. Collective intentionality research is highly interdisciplinary. It is still somewhat dominated by philosophy, though, and there is still quite a bit of residual skepticism about the topic.

This skepticism was and is often motivated by the worry that a genuine, irreducible form of collective intentionality would have to be an intentionality “free-floating” with regard to the individual, the intentionality of a group that would be like a further person in addition to the members of the group. From such a notion of collective intentionality many rightly recoil. It is tempting then to think that when we ascribe intentions, actions, reasons, responsibilities, even feelings and emotions, both to informal groups as, say, two strangers jointly pushing a car, and to corporations, universities, or governments, this is just a picturesque way of talking that cannot be really taken seriously, and that in a scientific account of the mind, such talk would either need to be banished or reconstructed in strictly individualistic terms. In this vein, many accounts of collective intentionality are reductionist in the sense that they try to reconstruct the “we” in terms of the “I”. Perhaps the best-known account of this kind is Bratman’s account of what he refers to as the “shared cooperative activity” of smaller, informal groups, an account that has also been highly influential in psychology. Bratman proposes to analyze joint or shared intentions in the form of individual attitudes of the form “I intend that we j”, where “j” stands for some action such as painting a house. On Bratman’s view, if you and I share such an intention, and if certain further conditions are met, such as that our plans (or “implementation intentions”, cf. p. 8 above) for how to paint are compatible, and if all these conditions are mutually known among us, then everything that makes an intention joint has been captured. By contrast, Gilbert holds that people who commit themselves to a joint action such as taking a walk together form a plural subject, an irreducible “we”, that is the bearer of the joint intention. Searle has tried to steer a middle

<sup>62</sup> This is evidenced also by the recent founding of two new academic societies – the European Network on Social Ontology (ENSO) and the International Society for Social Ontology (ISO) – and of a new journal, the “Journal of Social Ontology” (DeGruyter).

course here, holding that while there is a special class of we-intentions that are conceptually irreducible to I-intentions, the subjects of these intentions are still individuals rather than groups.<sup>63</sup> As against this, various authors<sup>64</sup> have argued that we cannot do without collective subjects, and many even that, in keeping with common sense, we cannot only ascribe intentions to such subjects, but even affects and emotions. By this, of course, they do not mean that there is a further subject of collective attitudes in the sense described initially, but rather that individuals form such subjects in virtue of psychological connections between them, in virtue of being related in a we-mode.<sup>65</sup> Debates about reductionism still continue, but it seems fair to say that the notions of irreducible collective subjects and “we”-mental contents have been gaining ground in recent years.

While initially the field was almost exclusively focused on the joint intentions of small groups, this focus has since widened in at least two respects. First, similar to what we have described for the individual case, there has been an increased interest in the actual bodily execution of joint action and the underlying sensory-motor processes, both from a psychological and a philosophical point of view.<sup>66</sup> That is, there has been an interest in processes below the level of intentions. Relatedly, it has been asked what kind of understanding others, of social cognition, is associated with cooperative behavior, which occurs already very early in infancy, at around 18 months,<sup>67</sup> and thus long before a “theory of mind”, at least as traditionally conceived, is in place, that is, before infants are able to ascribe mental states to one another. What could this understanding look like if it does not consist in the ascription of mental states such as intention? Or does the ascription of mental states begin much earlier than traditionally thought, as nowadays many believe on the basis of new versions of the false-belief test, that children are able to pass much earlier, which is often considered to be criterial for possessing an understanding of mind. Is it perhaps even possible to perceive the mental states of others directly, as some suggest? Questions of this kind will presumably inspire a significant body of research into collective intentionality for some time to come.

Second, there is also a growing interest in large-scale groups and institutionalized forms of collectivity. How can we understand social institutions such

<sup>63</sup> Cf. respectively Bratman 1992, Gilbert 1989, and Searle 1995.

<sup>64</sup> For example, Schmid 2003 and Meijers 2003.

<sup>65</sup> The notion of a we-mode has been developed by Raimo Tuomela over many publications (see e.g. Tuomela 2007).

<sup>66</sup> For the psychological point of view see e.g., Obhi and Sebanz 2011, for the philosophical one Butterfill 2012, and for a joint philosophical/psychological perspective Butterfill and Sebanz 2011.

<sup>67</sup> Cf. Warneken, Chen, and Tomasello 2006.

as money and marriage? How can we make sense, if at all, of ascribing mental attitudes to organizations such as corporations? There seems to be a consensus that social roles or positions within organizations such as being prime minister or chairwoman are essential here.<sup>68</sup> Searle proposes to analyze roles and institutions more generally in terms of the rights and obligations conferred by collective acceptance.<sup>69</sup> For example, being prime minister is defined in terms of the rights or powers and the obligations the prime minister has in the context of the institutions of the state. Such social statuses are belief-dependent, or at least intentionality-dependent, because they obtain only in virtue of the intentional attitudes of people who confer these powers through speech acts that have the logical structure of declarations. Several authors have emphasized the importance of written language and documentation for social institutions. Barry Smith has sketched the beginnings of a theory of document acts inspired by Speech Act Theory; Maurizio Ferraris champions the notion of “documentality”, espousing the radical view that only social relations underwritten by documentation such as, say, marriage, are genuine.<sup>70</sup>

#### 4 Towards an Integrative Conceptual Perspective

As will be evident even from the abridged overview in the preceding sections, the approaches to the phenomena of intention and intentional action are heterogeneous, very widespread and variable. The theoretical conceptions as well as the concrete empirical findings vary, even within each discipline, depending on different interests and different levels of analysis as well as different methodological approaches and experimental settings. Moreover, there are substantial differences of terminology. Still, they all are concerned with the various ways human beings, taken individually, control their behavior in order to realize intended goals or ends as well as about the various ways humans coordinate and regulate intentional actions in groups, institutions or social contexts in general, in particular if there is some intended common goal to be realized.

Empirical research in psychology is inspired in part by the underlying practical motive to enhance the reliability and effectiveness of intentional actions or to close existing intention-behavior gaps (cf. p. 6ff. above). First of all, however, one

<sup>68</sup> Cf. e.g. Mathiesen 2006 and Tuomela 2007.

<sup>69</sup> Cf. Searle 1995 and 2010.

<sup>70</sup> Cf. Smith in press and Ferraris 2007.

needs a refined theoretical understanding of the phenomena of human intentionality. Therefore a good deal of empirical research addresses this task. On the one hand, psychologists have tried to specify the underlying conditions and processes of forming intentions of various strengths, including, for example, non-conscious instigation of intentions and intentional actions by “goal priming” (p. 9ff.) as well as conscious strategies for setting strong goals like mental contrasting or framing goal contents (pp. 7f., 12f.). On the other hand, much work is done with the aim of clarifying the various psychological and physiological factors and functions enabling, or limiting, the successful execution of formed intentions and ensuing intentional actions, such as the abilities to flexibly update one’s working memory or cognitive set, to control one’s own positive or aversive emotions, to follow a rule of conduct, as well as the related abilities to delay, inhibit or suppress completely inadequate, or counteracting, responses, impulses or distracting tendencies due to prior habituation or automation.<sup>71</sup> Although not all of these abilities rely on intentions and intentional actions, several of them certainly do, and they all are highly relevant to various kinds and manifestations of human intentionality. Still, what is the essential difference between those states or processes, mental as well as physical, which are “intentional” and those which are not? It is here where the conceptual and terminological differences between the disciplines concerned with human intentionality are most likely to produce misunderstanding and where they most urgently need to be overcome. Yet this is no easy task. Although it would be very desirable to have a unified conceptual and terminological framework cutting across all disciplinary boundaries, this is unrealistic at present. What we can do fruitfully instead is trying to prepare the ground for this general task by addressing some of the basic conceptual questions in order to pre-structure the relevant field and bring its most salient features into perspective.

To understand better how the field is structured and how the various disciplines and theories can treat the subject matter so differently, it is useful to distinguish two general paradigms for approaching intentionality, of both we have seen examples in our brief historical survey. For the first, the paradigm of intentionality is an intention conceived of as a mental state. From this perspective, the question whether somebody acted intentionally, is, at least primarily, a question about whether the relevant behavior was appropriately related to an intention in

<sup>71</sup> Many of the abilities relevant to goal-directed action are classified terminologically as “executive functions” or summarized outright under the inclusive label “self-regulation” (cf. pp. 8, 11f. above, and the opening passages of the articles by Blair, Davidov, and Heikamp et al., this volume). As these terms are very general and cover a wide, open range of different phenomena, we content ourselves with examples and do not try to define or categorize them systematically.

this sense. The relation might turn out to be rather complex, but those approaching the matter from this angle would be inclined to think that nothing but an intention could make an action intentional. The second paradigm approaches the topic from the phenomenon of intentional action in the sense of goal-directed behavior. It assumes that this phenomenon can be identified independently of any reference to intentions as mental states, through purely behavioral criteria. So on this kind of view it is not clear, at least not right away, that we need to appeal to intentions in the former sense at all to explain goal-directed behavior. The most extreme version of this approach of course was behaviorism, which indeed tries to do away with subjective mental states (cf. p 4ff. above). However, there are weaker versions, which show a primary orientation towards intentional action while avoiding behaviorism. An example for this in philosophy is enactivism (p. 19f.). In psychology in certain contexts, namely when forms of non-conscious activation and pursuit of goals are described (p. 9ff.), behavioral criteria such as the appropriateness and persistence of striving are still treated as sufficient for the presence of these goals/intentions, even though psychology has left a general behaviorism behind. Conversely, a weaker version of the first paradigm might allow that there are certain aspects of goal-directed and in that sense intentional behavior that cannot be fully explained through mental intentions of some highly specified, narrow kind. For example, certain fine-tuned and fast movements of, for example, musicians or table tennis players might be goal-directed and in that sense intentional even though there are no corresponding propositional intentions. Still, all of these weaker versions are likely to be more controversial. So it seems better to approach our topic from the point of view of some uncontroversial, though rather narrow instances of the first paradigm and to see how far we can get by dropping, step by step, various of the restricting criteria.

Accordingly, let us begin with explicit, full-blown human intentions. Here the term "intention" refers to qualified (mainly: motivationally and rationally qualified) states of volition, in particular conscious wanting or willing, fully verbalized (silently or loudly) in a propositional form and directed at some particular future goals or ends to be realized by means of relevant actions. Correspondingly, an action is called "intentional" in view of the fact, or to the extent, that it is carried out in accordance with a relevant antecedent intention. For example, prior to the next vote of my faculty board I enter into an extended process of deliberation which ends up with my two-part, settled intention, (1) to contribute to a particular, favored outcome by means of (2) raising my arm when the chairman calls up the proposition in question. This yields a paradigm case to start from, but it is clear that the relevant uses in science and ordinary life are not confined to cases fulfilling all of the various criteria mentioned. Rather, by dropping different

criteria the concepts of "intention" and "intentional action" are weakened and thereby widened in many ways.

*First*, we may try to drop the means-end-structure and the corresponding two-part, or multi-part, intentions without dropping future-directedness and temporal distance at the same time. Thus, while doing a prolonged piece of handwriting at my desk I may form the settled simple intention to stop writing precisely at 8 p.m. or to have a glass of wine later on. Clearly, there are voluntary actions carried out not for some separate end but for their own sake which we are ready to call "intentional", in addition to "voluntary", merely in view of the fact that they have been firmly intended (consciously and explicitly) at an earlier time. *Second*, we may go on and try to reduce the temporal distance gradually down to a point where an unreserved (conscious, propositional) will to act, cropping up spontaneously or in consequence of a deliberated final decision, instantly leads to action. In this case, we will normally only speak of a "voluntary", rather than an "intentional", action as long as it is not just a means to some further end or goal. Still, even here one may plausibly speak of an action produced by a "proximal intention", rather than by a "distal intention", if one wants to emphasize the fact that it is carried out unreservedly and for its own sake. And in case the action is directed to another end or goal, it seems natural to call this action "intentional", irrespective of its particular distance to the preceding volition.

Following this line of thought one may be inclined, *third*, to drop the criterion of temporal distance completely.<sup>72</sup> The possibility of temporal concurrence has to be acknowledged anyway. For, when carrying out an intended action instantly or within some smaller period of time human actors are still aware, normally, of their antecedent "guiding" intentions. Moreover, continued awareness (in "retentive memory"<sup>73</sup>) seems to be indispensable for monitoring and controlling effectively more complex, temporally extended actions (e.g., using a pair of scissors). But this task can be executed, apparently, even if there is just a concurrent "guiding" intention and no separate antecedent intention at all. This seems to be the case with many everyday practices (stretching one's arms, grasping, swerving to the left in walking, humming a tune loudly or silently, doing a piece of mental arithmetic, etc.). Many of these do not have any (relevant) mental antecedents at all and are called "voluntary" or "intentional" nevertheless merely because they are controlled somehow by concurrent volitions or intentions.

<sup>72</sup> Of course this does not anticipate the question of whether an intention occurring at a particular time  $t_x$  can have a *causal* influence on something *strictly* simultaneous.

<sup>73</sup> Cf. Husserl 2000, § 11ff.

Although the bare existence and phenomenology of such actions is indisputable, their theoretical interpretation is not. As we have seen, some authors argue that “intentions in action” are of some special kind different in principle from all sorts of “prior intentions” (cf. p. 17f. above). Others favor an analysis in terms of regular volitions or intentions connected in a specific way to the concurrent actions (cf. p. 16f.). Moreover, it is controversial to what extent concurrent intentions (of whatever kind) are verbalized or spelled out in an explicit propositional form. This seems questionable as there is phenomenological and experimental evidence suggesting that there are elementary forms of behavior, mainly bodily movements, consciously “guided” in an entirely nonpropositional or even non-conceptual form (cf. p. 19). So we might wonder after all if we could drop, *fourth*, the criteria of propositionality and conceptuality, too. But this seems overhasty. To the extent that the phenomenon of nonpropositional or nonconceptual guidance is confirmed it is certainly plausible to speak of “actions”, different in kind from mere behavior. However, independent of any (relevant) antecedent volition or intention it is doubtful whether it would be correct or rather misleading to speak of “voluntary” or even “intentional” actions.

Up to this point, then, it does not seem that it is possible to go so far as to drop the criterion of a conceptual, propositional form *completely*.<sup>74</sup> However, if there exist (relevant) antecedent intentions of this type, it is unproblematic, and common practice in fact, to call the ensuing actions “voluntary” or “intentional”, even if they are “guided” in an elementary, nonpropositional form, or even executed reactively in an automatic and passive manner. Certainly we will not hesitate, for example, to call the complete, sequential execution of a quick and difficult passage by a trained pianist an “intentional” action if, while being highly automatized in the sequel, its very beginning is triggered by the momentary conscious intention to play this passage and get through (by actualizing the automatized motor scheme). We also conceive the entire free jump of a parachutist as a voluntary or intentional action, although he cannot do anything but to go down to earth (as intended) once he has jumped off. Normally, the actor will be aware of what goes on during the automatic or passive parts of the action. However, some of these parts may stay outside of conscious awareness, or may be inaccessible to consciousness at all. As a limiting case one might even say that someone is “waking up intentionally” (i.e. “as intended by him earlier”) if he had wound up his alarm clock with the express intention that it will ring and stir him up at a specified time. Accordingly, it is not necessary for there to be an “inten-

<sup>74</sup> This emphasis is meant to indicate that it may still be possible to drop *verbalization* as a criterion, if conceptual and propositional thought is not strictly language *dependent*.

tional action” that the antecedent intention is memorized (“retentively”) all the time or is operative continuously in “guiding” the concrete activities.

What about the possible intentionality of the (factual, further) effects, or side effects, of actions which are intentional at first glance only with regard to a particular end? Generally, this will depend on the relevant epistemic states, as has long been recognized in philosophy and jurisprudence.<sup>75</sup> If an effect is unforeseen, or could not reasonably be expected, or required, to be foreseen, its production is unintentional and not even voluntary. Otherwise it is said to be intended “obliquely” or “collaterally” by some authors,<sup>76</sup> or to be the object of a “conditioned” intention or volition by others,<sup>77</sup> although the effect, or side-effect, in question is not willed for itself or intended directly. There may still be reservations concerning the use of “intention” or “intentionality” here, provoked by two critical considerations. On the one hand, it may be of crucial importance whether unforeseen effects, or side effects, are consented to readily or put up with reluctantly by the actor. On the other hand, there are questions of probability. Surely we would not hesitate to speak of an unintentional action, if someone convinced subjectively (though irrationally, e.g., based on superstition) that a certain effect will be, or is likely, to be produced by his action, succeeds by accident, given that this outcome is extremely improbable. Whether or not one should set precise upper or lower probabilistic limits, and in which way, may be subject to further discussion and decided on substantial grounds. But it may also turn out that this is no more than a terminological point to be decided arbitrarily. At any rate, it is obvious that the questions of intentionality, practical rationality, knowledge, and probability are closely and intricately related with one another, allowing for various, conceptually as well as terminologically different, theoretical frameworks.

Another difficult question, especially relevant to morality and criminal law, is whether consequences which should have been foreseen, but were in fact not foreseen and intended consciously, may be “intentional” or just “voluntary” nevertheless, in some weaker sense not depending on consciousness. This is doubtful indeed. Still, as we have seen before, it is not required for an intentional action that the actor has in mind an explicit, conscious intention to perform the relevant

<sup>75</sup> Early classic examples are Plato: *Nomoi*, IX, 5–11, 860c–872c, and Aristotle: *Ethica Nicomachea*, III, 2, 6–7; V, 10: 1135a27–31, 1135b11–1136a9, *Ethica Eudemica*, II, 9, and *Magna moralia*, I, 16.

<sup>76</sup> The classic example is Jeremy Bentham (cf. Bentham 1948, ch. VIII).

<sup>77</sup> Cf. Seebaß 2006, ch. 1, §§ 13–15. The general idea has been anticipated in part, for example, by Walter Burley in the Middle Ages (cf. Saarinen 1994, ch. 3.4.2), and Kant’s concept of an “hypothetical imperative” (cf. Kant 1902–1923, Bd. IV, 414–419; Bd. V, 172f.; cf. Seebaß 2006, ch. 4, § 7).

activity or give rise to the critical consequence all the time. In fact, at the very time when the activity or consequence happens, the relevant intentions may have been forgotten. So one may well ask, *fifth*, whether consciousness is necessary for having an intention at all or can be dropped as a criterion. The existence of volitions and intentions when they are not conscious has to be acknowledged anyway. Obviously, people do not bear in mind continually the objects (ends, goals) of their volitions or settled intentions, all the more if these are long-term and sufficiently stable (as, e.g., writing a book, becoming an Olympic champion, etc.). Yet this does not show that the criterion of consciousness is irrelevant. Quite to the contrary, the decisive evidence for the (continued, renewed or newly beginning) existence of unconscious volitions and intentions is still the fact that the person in question is able and disposed to actualize conscious states of that kind under certain conditions. This holds true not only for all forms of (“pre-conscious”) temporary unawareness but also for the ascriptions of “repressed” (“unconscious”) intentions and volitions by psychoanalysis.<sup>78</sup> If there really is no (present or prospective, virtual) possibility to verify the existence of a supposed unconscious (dispositional) intention by some form of conscious actualization, mainly by eliciting some relevant verbalized proposition, there is no reason to believe that there is such an intention at all. In real life, however, there are all sorts of opportunities to actualize, or renew, intentions that we don’t have in mind all time (e.g., to write a book).

Now, although we all know well enough from our own experience whether we have at present, or have had at an earlier time, a particular volition or intention, this is quite different when we try to do this from the outside. Psychologists, ethologists or social scientists who want to know the intentions of younger children or even higher animals cannot rely on any linguistic evidence. They have to look exclusively at relevant forms of behavior. Even a judge in a criminal court cannot know for sure whether someone accused of having killed either by intent, recklessness or mere negligence is telling the truth when he gives verbal reports now of his relevant intentional states then. Sometimes, due to semantic or factual mistake, a person’s expressed verbal intention does not coincide with the intention he or she really has in mind, an objective discrepancy which may be resolved in court, at least in certain parts of private law, by ascribing a specific “intention” independent of any psychological reality whatever merely as juridical fiction.<sup>79</sup> Moreover, a radical skeptic might even argue that it is not certain that the very sentences used by someone express the same types of conscious intentions for

<sup>78</sup> Cf. Seebaß 1993, 143, 274f. fn. 139, 297f. fn. 183.

<sup>79</sup> See for example Thiede, this volume, pp. 86, 101f., 118f.

every native speaker or have any specified meaning at all. Fortunately we need not subscribe to extreme linguistic skepticism. Yet it is clear that in ascribing intentions or volitions to other people we *do* rely in many cases, and need to rely in some, on nonlinguistic, behavioral criteria, too.

If we watch some person (or even some animal like one of Tolman’s maze rats<sup>80</sup>) struggling hard, flexibly and persistently until a certain end, for instance, applying a can opener to a sealed can until it is open, it is not very difficult for us, at least in our cultural context, to infer the underlying “intention”, independent of any verbal evidence. Equally, when we see (e.g., in one of Tomasello’s experiments<sup>81</sup>) a young child opening, and holding open continuously, the door of a cabinet when the experimenter comes in with an armful of books, we will naturally be inclined to take this as an instance of intentional cooperation. However, if we do not want to fall prey to naive behaviorism or functionalism (see above, p. 4f.), we cannot identify “goal-directed” behavior of this kind, however complex, with the ascribed conscious intention itself and not even with an ascribed unconscious dispositional intention actualized momentarily. And although some authors have been willing to do so (cf. above, p. 5), most people, scientists as well as ordinary men, will hesitate to call the “goal-directedness” of a refrigerator, self-guided missile or even a homeostatic biological system like Stable Lake in the Yukon<sup>82</sup> instances of “intentional action” in any literal, non-metaphorical sense.<sup>83</sup> If someone would like to widen the regular uses of “intentional”, “intention” and “intentionality” to cover all forms of goal-directedness and teleological structure, he could do so by way of terminological stipulation, if he is willing at the same time to introduce new, technical terms in order not to blur existing distinctions and subdivisions. Still it seems more appropriate to accept the fact that the term “intention” and its linguistic cognates have a more narrow sense bound up, directly or indirectly, with the criteria of being conscious as well as conceptual and propositional.

This holds true also of many psychological experiments designed to inquire into the various forms of unconscious intentional action. Typically, such experi-

<sup>80</sup> Cf. Tolman 1932, pt. II, and 1966, ch. 19, though it is more than doubtful, of course, that rats have “intentions” in any literal sense.

<sup>81</sup> Warneken and Tomasello 2006.

<sup>82</sup> Cf. Bennett 1976, § 22.

<sup>83</sup> Metaphorical forms of intentional speech are widespread. Many of these are mere anthropomorphisms, as in talking unreservedly of the volitions and intentions of pets. Others derive their metaphorical meaning also, at least in part, from the fact that the presumed “intentional actors” (refrigerators, missiles, etc.) are constructed and used by humans in order to reach some regular (conscious, verbalized) goals of their own.

ments rely on verbal instructions asking test persons to form and follow up intentions concerning actions to be carried out presently or in the future (e.g., pressing a button in reaction to a specific stimulus, suppressing negative emotions, dropping a letter into a postbox). Still, this experimental design involves consciousness in various ways. Contrary to the ideas of some behaviorists and computationalists it is illusory to assimilate meaningful verbal behavior to meaningless acoustic or visual stimuli and responses, irrespective of whether these are presented, or produced, supra- or subliminally.<sup>84</sup> Normally, as a first step the test persons will have to grasp the sense of the instructions consciously. As a second step, provided that they are willing to comply, they will have to form in mind a relevant conscious intention, normally in a verbalized, propositional form (e.g. “next time I will press the left button in reaction to a red spot” or “if I catch sight of a postbox, I will instantly drop the letter”). Concerning both of these steps, the experimenters must be confident, and can be confident in normal cases, that the test persons do within their minds what they are supposed to do, although this cannot be definitely proven from the outside. Otherwise experimenters would not be justified to infer that the resulting behavioral differences (e.g., temporal delay, error rate, rate of positive goal realization, etc.) will tell us anything about the full, limited or missing effectiveness of intentions. In principle, a relatively poor or successful performance at the behavioral level (as the dependent variable) can be a sign of at least three different things: (1) of the weaker or stronger influence of a given intention on the relevant motivational and executive sub-systems or (2) of the experimenter’s instruction (as a possible independent variable) on the readiness of the test persons to comply, or it can merely be a sign (3) of significant differences in the formation of conscious intentions (as another possible, interesting independent variable). Disentangling all of these alternatives and others is just one of the difficult methodological problems experimental psychologists are faced with.

At any rate, whether or not and to what extent an existing intention is effective in action will depend largely on the structure, general setup and actual programming of the relevant executive systems, in particular motor systems. Habituation and automation may be of help (as in the case of a trained pianist), but they

<sup>84</sup> John Searle’s well-known Chinese room example (cf. Searle 1980 and 1992, ch. 9) is a powerful argument to this effect, even under the (still utopian) assumption that the so-called Turing test is passed. For a similar argumentation to essentially the same conclusion see also Seebaß 1981, ch. V, 3. Psychological research on semantic priming (cf. p. 9f. above) is quite in line with this. For, although these experiments demonstrate the subliminal activation of associative links between words semantically related to each other, they do not show that these words are understood subliminally.

also may be a hindrance, depending on the specific task (vide a pianist trying to shift from the original version of a difficult passage to a modified, even more difficult version). Moreover, certain forms of intention may be sufficient in themselves to build up relevant states of habituation and automation. Thus, the fact that “implementation intentions” are in general more effective than mere “goal intentions” (cf. p. 8 above) can be explained in part by an automatized causal connection between an actual triggering stimulus and a conjoined reactive behavior. To what extent the actors know and are consciously aware of these processes is a further, highly interesting empirical question. Normally, a triggering stimulus will be perceived consciously and an underlying (dispositional) intention will be actualized, or revived, in its original conscious form. If a postbox shows up, for instance, and I drop my letter as intended by me an hour ago, I know what I do and certainly do not act like a “mental somnambulist”. Consciousness comes into play in most cases, at least in part, but need not do so in every case. If it doesn’t, one may well ask whether an activity that is triggered automatically and not even be noticed by the actor can be taken as an “intentional action” or as evidence of an underlying “intention” at all. Surely this would be inadequate when applied exclusively to the present performance. Still, as we have seen before (pp. 26f.), we can ascribe intentionality to any kind of behavior, including automatic reactions, in virtue of some relevant intention in the past. So if an “implementation intention” is carried out later without any conscious intention, or even without any perceptive consciousness at all, this can well be interpreted as an instance of “intentionality” nevertheless, just as the ringing of an alarm clock can be the intended result of a previous intentional action of the sleeper based on a conscious intention (cf. p. 26 above).

Now, many theorists think that the criterion of consciousness, while being indispensable to the approaches discussed so far, can be dropped completely after all, once we are willing to subscribe to a different, more radical approach to mental states like volitions and intentions. Instead of confining ourselves to the macro-level of ordinary actions, physical actions (like pressing a button or dropping a letter) and relevant mental actions as well (memorizing or visualizing actively, doing a piece of mental arithmetic, consciously forming a verbal propositional intention) we should move on, *sixth*, straight to the micro-level of neurophysiology. If neurologists would be able to identify (single out) precisely and unambiguously, mental states experienced by us as conscious volitions or intentions on a purely physiological basis, they would also be in a position, at least in principle, to differentiate between an unintentional, automatic effect of a relevant (conscious or unconscious) *earlier* intention and an intentional action “guided” *at present* by an underlying unconscious intention which had been there all time (as a physiological disposition) and is activated anew (as an occur-

rent physiological event). To be sure, scenarios of this kind are imaginable. Yet it takes but a moment's reflection to see that, at present and for the time being, they all are no more than speculative products of science fiction. Obviously, it will not do to refer to regional brain activities still measured in a highly unspecific way (as, e.g., "enhanced activity in frontal lobe area x", "significant peak of readiness potential 300 ms earlier", etc.). What is required are minute, differential accounts of particular neuronal states and processes specific enough to fit, precisely and unambiguously, to actual conscious events ("I intend to drop this letter if a postbox shows up", etc.). Moreover, one would need stable and powerful, nomic or law-like psycho-physical correlations, strong enough at least to enable the expected identification (singling out) of conscious events on a purely neurophysiological basis. And above all, one would need a definite and general, ontologically convincing solution of the mind-body-problem which fits to this highly demanding theoretical enterprise. As long as all of these requirements are unfulfilled we have no chance of substituting our established, regular approach to intention and intentional action by a purely neurophysiological one, whatever the auspices of this move might be, theoretically as well as practically.

Still we may want to move on conceptually in another direction and widen our concepts of "intentions" and "intentional actions" such as to apply, *seventh*, not only to individual forms but also to various forms of collective intentionality. It is quite common in different contexts, for example, to speak of "the will of the people" (or something similar) when referring to the results of general elections or parliamentary decisions. Yet it is highly controversial whether, or to what extent, this form of speech has any literal, non-metaphoric meaning. Many theorists, mainly within the social sciences and jurisprudence, are convinced that the answer is to the negative throughout, at least with regard to institutions.<sup>85</sup> Philosophers have been more sympathetic to these ideas in general, though very few would still subscribe to more radical forms of "collectivism".<sup>86</sup> Of course neither institutions nor groups have any reality independent of the actions and interactions of human individuals, and of course neither is an individual in the sense that it is just another person. Talking of institutions as "juridical persons" in the law is metaphorical (to a high degree<sup>87</sup>) no less than the explicit, picturesque

<sup>85</sup> See for example Röhl, this volume.

<sup>86</sup> The classic example is Rousseau's concept of "general will" (cf. Rousseau 2010, b. I, chs. 6–7; b. II, chs. 1, 3–4; b. IV, ch. 1).

<sup>87</sup> This qualification is meant to indicate that *some* legally relevant properties of normal individual persons (e.g., some of their rights and duties) may be ascribed, possibly, to "juridical persons" in the *same*, non-metaphorical sense.

metaphor for the state used in the well-known frontispiece of Hobbes' *Leviathan*. But this does not necessarily mean that no sense can be made of the idea of groups and institutions as subjects, including as subjects of intentions and other attitudes. Some philosophers have tried to make sense of it by proposing a notion of a (second order) "group will" or "joint intention" constituted by way of common discussion and some (formal or informal) final decision procedure for uniting the contributing (first order volitional) votes of the individual members. However, it is very unclear and controversial, not only how far this model can be applied and how it fits social reality, but also how it is to be analyzed best and conceived of in itself. Some authors have argued that we will need, and can accept readily, a special type of intentions, termed "we intentions" or the like, which is irreducible and distinct in principle from ordinary individual intentions (cf. p. 20ff. above). Others have suggested that, while all relevant forms of "collective intentions" have an ontological status of their own (i.e. of a higher order) and cannot be reduced to individual intentions outright, we will not need to introduce any other, irreducible type of intentions (cf. p. 20f.). Still others have claimed that the phenomena of social action and putative "collective intentions" can be analyzed completely into relevant, more or less complex interrelations between intentions of individuals (cf. p. 20). Yet others claim that we can accept the idea of plural subjects (Gilbert 1989), that there is nothing mysterious about them once we abandon the notion that a plural subject, an irreducible "we", would have to be just like another person rather than what it actually is: a group of individuals in a mode of connectedness.<sup>88</sup> These discussions go on. And it is fair to say that much work will have to be done in the future, empirically as well as theoretically, until we will be in a position to better understand processes within and outside groups and institutions and to what extent it is, or could be, justified to apply the concepts of intentionality, whether in a literal or in some metaphorical sense.

## 5 The Contributions to This Volume

This introduction has tried to give the reader an inkling how large the topic of intentionality is, and from how many different perspectives it can be approached. Of course the present volume cannot give a comprehensive account or even overview of this vast territory. Its aim is rather to show, by way of examples, that it is

<sup>88</sup> For example, see Schmid 2005 and Schmitz, this volume.

possible and highly desirable to look at the various forms of human intentionality from the complementary perspectives of a variety of disciplines. That is why it is very helpful to study this topic in a group—as we were able to in the context of the interdisciplinary research group “Limits of Intentionality” at the University of Konstanz, from which five articles in this volume (i.e., articles 2, 4, 5, 7 and 11) originated. And that is also why even an interdisciplinary group still needs fresh bursts of inspiration from outside, which we were lucky enough to get several times during the existence of the group from 2006 to 2012, and especially memorably at our final conference in the summer of 2011, participants of which provided the remaining papers for this volume.

In his contribution “Intentions, Actions and Explanations” John Searle adds a new chapter to the long-standing philosophical debate about actions, intentions and reasons, and the causal, explanatory and constitutive relations between them. He begins by addressing the claim of some philosophers like Thomas Nagel and Galen Strawson that an action explanation that is not deterministic does not really explain the action because it leaves open the possibility that the subject might have acted differently. Searle goes on to use his well-known accounts of action explanation and action to show why this claim misconceives action explanation and ultimately rests on a mistaken view of action itself. When we act on reasons, we make those reasons part of the content of our intentions in action. Since intentions in action are components of actions, there is thus an internal relation between the reasons people act on and the very identity of their actions. When I explain an action I do not describe a causal relation between two independent events, but rather “I *experience* the reason functioning as part of my action” (p. 53, Searle’s italics), and that is why citing a reason by its very nature explains an action, and why the fact that this explanation does not show why I did not act on a different reason does not make it incomplete in any sense. Searle then extends this account to collective actions, where people often cooperate on the same goal though they have different reasons for doing so. He concludes with some remarks on causation, arguing that in order to properly understand human action and its explanation, we need to reject the standard Humean account of causation based on universal regularities and adopt a notion of intentional causation which allows for non-deterministic explanations of action.

In his paper “Limits of Intention and the Representational Mind” Michael Schmitz outlines a representationalist framework for the study of intention conceived of as a cooperative effort. After delimiting intentions from closely related states like desires, value judgment and states of practical knowledge, he argues that to understand intentions in such a framework we need to overcome three biases in traditional thinking about the representational mind: the bias for theoretical states like belief over practical states like intention, for individual over

collective minds, and for conceptual over nonconceptual forms of representation. Nonconceptual representations are constitutive of action independently of conceptual level states like intention. Attitude mode – what distinguishes intention from belief – makes a contribution to representational content just as subject mode – whether an I, or a we is represented, or either in an institutional role such as being a policewoman or a committee. In intending something, an individual, collective, or institutional subject always represents its practical position vis-à-vis some state of affairs. Within this framework, different layers of the representational mind can be defined in terms of their representational format: the pre-conceptual, pre-linguistic level of basic action, the conceptual and linguistic level of intention, and the institutional level characterized through written language and other forms of documentation. These differences in representational format also help to explain limits of behavioral control through intentions.

Having long developed parallel to, and in contact with, philosophy (cf. pp. 1ff., 13, 27 and 32f. above) the modern notions of “intention” and “intentionality” in jurisprudence have gradually emancipated themselves from philosophical connotations in various ways within different fields and different legal traditions. The two papers from jurisprudence contained in this volume are both confined to the German legal tradition. However, each addresses a different field, and both go beyond the more familiar discussions of intentionality in criminal law (e.g., concerning criminal intent).

Felix Thiede focuses on civil law and contract law in particular. His essay “German Private Law’s Approach to Intentionality” is a comprehensive account of the various ways the German Civil Code handles and limits relevant kinds of intentions (e.g., the intention to conclude a purchase agreement or to draw up a will), with particular attention to the declaration of intent. Based on an impressive amount of juristic evidence Thiede argues for the general thesis that German private law tries to protect the individual’s exercise of free will while taking measures to prevent imbalances between the parties. To guarantee the realization of the private will there are different mechanisms limiting the effectiveness of declarations of intent in cases of defects (voidability for mistake, deceit or duress, etc.). On the other hand, to protect the addressee in his reliance on the validity of the declaration of intent, only certain types of mistakes entitle the declarer to void his declaration. The law knows various kinds of relevant intentions, ranging from motives to intentions of transaction, true and declared intentions and finally to special forms of collateral intentions (e.g., the intention to create legal relations). Still, whenever the law speaks of “intentions”, it envisages the judge trying to infer psychological intentions from objective facts that are brought into the trial. Although juristic “intentions” can generally be understood as methods to identify real intentions in the declarer’s mind, in some cases the judge knowingly imputes

fictitious intentions on the basis of the relevant facts to protect the addressee's confidence in legal relations. While this may occasionally lead to misjudgment, Thiede argues that the practically possible maximum of private autonomy is guaranteed in this way.

A different approach is taken by Hans Christian Röhl in his article "Legislator's Intent – Limits of a Concept". Focusing on public law, in particular German public law in the context of the European Union, he addresses the questions of whether formulas such as "the law-maker's intention" have any literal meaning and whether the figure of intention is applicable to collective or institutional action at all. Röhl's point of departure is the conventional model of democracy according to which the elected representative body expresses the will of the society by laying down the law which has to be respected by the institutions of the state, courts and administration likewise. He argues that this model is too simplistic and inadequate for understanding the existing international structures, as it does not face up to the ongoing change in the interplay between law-making, applying the law and the judicial control of the administration. While parliamentary representation can still play a vital role, the parliamentary and judicial bodies will have to devise new mechanisms to catch up to the leading role of the government. The necessity and urgency of such reforms is obscured by anthropomorphisms like "legislator's intent" and by conceiving the national law as an emanation of the will of the people.

In their article "Intentional Action Control in Individuals and Groups", Frank Wieber, Lukas Thürmer, and Peter Gollwitzer start out with explicating the approach of the psychology of action. They argue that this approach conceives of intentions as a facilitator of action control. More specifically, it is proposed that two types of intentions can be used by individuals to promote action control. One type is called goal intentions and the other implementation intentions. Based on research on implementation intentions,<sup>89</sup> the authors argue that in goal intentions people only specify what they want to achieve (i.e., a certain behavior or outcome in the format of *I want to achieve X!*). In implementation intentions, on the other hand, people specify when, where, and how they want to act on their goal intentions (*If situation X arises, then I will initiate the goal-directed response Y!*). The authors report in detail the vast experimental research supporting the claim that action control by goal intentions is less effective than action control by implementation intentions; implementation intentions commonly lead to a higher rate of goal attainment compared to mere goal intentions. The authors also discuss research that speaks to the mediating processes of implementation

intention effects (i.e., the automation of action control) as well as the moderating variables inside (e.g., self-efficacy) and outside the person (e.g., identifiability of the specified situational cue). In the second part of the chapter, the authors turn to issues of action control in social contexts. They present research showing that implementation intentions can facilitate a person's emancipation from social influences (e.g., standing up to social pressures caused by norms to self-disclose or pressures to spend one's money caused by being mimicked by the solicitor). Finally, the authors report recent research findings indicating that group members can use implementation intentions to improve group performance (e.g., to make more informed group decisions, to prevent the escalation of commitment with respect to group decisions that turn out to be faulty, and to promote cooperation in group tasks that require effective communication). The authors conclude that while goal intentions alone do facilitate goal attainment to some degree, implementation intentions help to further reduce remaining gaps between individual as well as group intentions and respective actions.

In her article "Foreseeing Obstacles: Mental Contrasting and Intention Formation", Gabriele Oettingen starts out with making a crucial distinction between two types of thinking about the future. One of these two forms of thinking about the future pertains to expectations, whereas the other entails free fantasies. Expectations are defined as beliefs that specify the probability with which a certain outcome will occur. Fantasies, on the other hand, are defined as free thoughts about the quality of future events. Importantly, the author reports extensive research showing that whereas positive expectations promote the striving for attaining the critical future event, positive fantasies undermine such striving. The author then switches gears and asks how a person's expectancies and fantasies can lead to strong intentions to attain the desired future. To answer this question, she refers to her theory of fantasy realization and argues that juxtaposing in one's thoughts the desired future with the present reality (i.e., a mode of thought called mental contrasting) will indicate to the individual that action is called for to realize the desired future. As a consequence, expectations of success are consulted and people then form a strong intention to attain the desired future when expectations are high, but only a weak intention when expectations are low (people may even completely leave the field and form no intention at all). The author reports extensive research showing that mental contrasting produces the postulated selective formation of intentions (i.e., intentions in line with expectations of success), whereas mere indulging in a positive future or ruminating about the present reality lead to moderate and expectancy-independent intentions to realize the desired future. Importantly, the author also reports the findings of experimental studies showing that the effects of mental contrasting on intention formation and subsequent enactment of the formed intention is based on mecha-

<sup>89</sup> Cf. Gollwitzer 1999, and Gollwitzer and Sheeran 2006.

nisms that relate to motivational energization on the one hand, and to changes in implicit cognition on the other (e.g., negative aspects of reality are now more readily perceived as obstacles to intention realization). Finally, the author reports most recent research testing interventions to teach people the strategy of mental contrasting, so that they can use it in everyday life to achieve wise intention formation (i.e., form expectancy-dependent intentions). In sum, Gabriele Oettingen discusses in her chapter how thinking about the future affects intention formation and subsequent intention realization.

In the article entitled “Development of Self-regulation in Context” by Tobias Heikamp, Gisela Trommsdorff, and Anika Fäsche, the concept of self-regulation is introduced to elucidate acting intentionally. More specifically, it is suggested that enacting an intention (or as the authors state, attaining one’s goals) implies that the individual effectively uses a number of self-regulation skills that in turn facilitate goal striving. In particular, the authors focus on the skill of emotion control and the skill of inhibitory control (i.e., shielding an ongoing goal striving from distractions and temptations). The authors then discuss in detail what factors affect the development of self-regulation skills. They target the early development of children and how they are socialized in the family context, the school context, and the broader context of the culture in which the person is placed. The authors also discuss how gender and temperamental differences interact with these social context determinants of the development of self-regulation skills. Importantly, the authors point out that the values and socialization goals that parents share in different cultural and socio-economic contexts strongly affect whether and how children develop self-regulation skills. In sum, the aim of this article (informed by empirical research in the area of developmental psychology) is to examine the limits of intentionality as they pertain to the refinement of a person’s self-regulation skills, and how contextual conditions (e.g., family, school, and culture) affect what kind of self-regulation skills individuals end up with and what levels of refinement they ultimately achieve. The authors conclude that future research might want to specify and disentangle the influence of personal (e.g., temperament) versus contextual factors underlying the development of self-regulation skills.

The next article by Maayan Davidov entitled “The Socialization of Self-regulation from a Domains Perspective” also targets the socialization of self-regulation, however, from a domains perspective. More specifically, the author distinguishes five different self-regulation skills: the regulation of negative emotions, the regulation of positive emotions, exercising self-control, following habits, and using reflective skills. She then differentiates five domains of socialization: protection, reciprocity, control, group participation, and guided learning. For each of these domains, the author attempts to find out how positive interactions between

the caregiver and the child facilitate the development of which kind of self-regulatory skills. For instance, she argues that in the protection domain children do have the opportunity (more than in any other interaction domain) to acquire the skill to cope with and self-regulate negative emotions. For the reciprocity domain (i.e., the child and the socialization agent interact as equal-status partners) she assumes that this domain is a particularly important arena for acquiring self-regulation skills that pertain to the children’s positive affect. Or with respect to the control domain where the child and socialization agents have conflicting goals, she assumes that this domain is crucial for supporting the acquisition of self-control (i.e., the ability or skill to do the right thing even when the child does not feel like doing it as it is very difficult or goes against the child’s desire or impulse). In general, the author assumes that children (and adults) form manifold intentions (i.e., goals in the author’s terminology). To successfully implement these diverse intentions, individuals need to utilize different forms of self-regulation skills. All of these skills are valuable and adaptive but they are quite different in nature. Therefore, the author proposes that different forms of self-regulation are fostered by different socialization experiences. Applying this domains framework of socialization, the acquisition of each of the different self-regulation skills is seen as preferentially promoted by effective interactions in the respective domain.

In the article by Clancy Blair and Rachel McKinnon “Experiential Canalization Model of Executive Function Development: Implications for the Origins and Limits of Intentionality in Children” the question is raised how the development of executive functions affects the individual’s self-regulation skills. With respect to executive functions, the authors consider the following three: working memory defined as the ability to hold information in mind and operate on it, inhibitory control defined as the ability to inhibit a highly automated pre-potent response tendency, and attention shifting or mental flexibility defined as the ability to shift the focus of attention. The authors argue that these cognitive capabilities are crucial to self-regulation skills. Most importantly, they suggest a theoretical model describing the ways in which the environmental shaping of emotion, attention, and physiological response systems influences the development of the named executive functions. In doing so, the authors examine the influence of early childhood experiences on the development of executive functions by presenting data from a longitudinal sample of children and families in low-income and predominantly rural communities in the United States. The authors argue that in harsh, uncertain, and unpredictable environments the individual’s stress physiology is shaped in ways that promote reactive and impulsive responses, whereas in more supportive environments the stress physiology is shaped in ways that allow more reflective and effortful responses. Moreover, the experience of prolonged stress that is characteristic of low resource environments seems to negatively affect

the ability of an individual to consciously monitor and control behavior, despite initial levels of competence. Individuals in low income environments are therefore likely to exhibit stimulus driven responses and to be less reflective in general. However, the authors emphasize the plasticity in self-regulation development and argue that such a view is consistent with models of information processing that make a distinction between so-called reflective versus reflexive processes of information processing and action control (i.e., so-called dual-process models).

In their article “When Planning Results in Loss of Control: Intention-Based Reflexivity and Proactive Control”, Nachshon Meiran, Michael Cole, and Todd Braver discuss a phenomenon they call intention-based reflexivity. This phenomenon refers to the seemingly paradoxical loss of control associated with states of high readiness to execute a plan. The authors review extensive experimental research suggesting that the neurocognitive systems associated with the preparation of novel plans are quite different from those involved in the preparation of practiced plans (i.e., plans that have been executed in the past). When it comes to practiced plans, intention-based reflexivity depends on the availability of response codes in long-term memory. When the plans are novel, however, reflexivity is observed when the plan is pending and the goal has not yet been achieved. Moreover, the authors find that intention-based reflexivity is also dependent on the availability of working memory, cognitive resources, and the motivation to prepare. It is further argued that intention-based reflexivity may qualify as a unique form of control called “pro-active control” that is relatively rigged and insensitive to rapid changes of the situational context. In sum, then, the authors present evidence that the intention to carry out a simple action in the near future may result in paradoxical loss of control such that the intended plan may even be executed prematurely and inappropriately. The authors postulate different boundary conditions for the reflexivity of novel versus practiced plans, and they point to the likely neurocognitive mechanisms that might be involved. The authors conclude that whatever mechanisms give humans the gift of mental flexibility to allow for rapid novel planning, these mechanisms also take away flexibility when a new plan is prepared to be executed.

The subsequent article entitled “Mechanisms of Switching Intentions: Inhibition Promotes Flexibility in Sequential Action Selection” is authored by Kai Robin Grzyb. This article is also characterized by the style of reasoning and the typical methods used by cognitive psychologists. According to the author, intentional action can be referred to as nothing more than a person having adopted a certain task goal, and that by engaging in the given task a certain task set (i.e., the sum total of activated cognitive procedures) is acted upon. Accordingly, from this perspective it becomes interesting to know how people can switch from having adopted one task set to adopting a different subsequent one. The author assumes

that such switching is facilitated when the new task set is effectively activated and the old task set (or the abundant task set) is strongly inhibited. Using the concept of switching intentions, the author attempts to elucidate the complex findings that have been obtained in recent years with respect to the potential mechanisms of effective task switching. In sum, then, the article by Grzyb is an attempt to explore how the concept of switching intentions allows understanding the complex evidence suggesting that activation as well as inhibitory processes play an important role for a person’s switching performance.

## 6 References

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