ENGLISH SUMMARY
Success in any area of life is dependent on people’s ability to turn their intentions into actions. No matter how strong people’s intentions are, it is the step towards action that determines whether people are able to turn their intentions into reality. Whether it is finishing the do it yourself home project that has been almost done for months, sticking to an exercise regimen, or practicing a new musical instrument every day, it is the action, and not the intention, that determines progress. Although it may sound simple, taking this crucial step towards action often turns out to be harder than anticipated, especially when obstacles or complications occur.

According to action control theory (Kuhl, 1994) people vary widely in their ability to enact intentions. So called state-oriented people struggle more often with enacting their intentions than so-called action-oriented people, especially in situations that require self-regulated control. For example, in real life settings, state-oriented people are less successful dieters (Palfai, 2002), have more difficulties finding employment (Song, Wanberg, Niu, & Xie, 2006), and experience more difficulties breaking a personal athletic record (Heckhausen & Strang, 1988). Moreover, in controlled laboratory settings, state-oriented people show impaired performance on cognitive tasks under demanding circumstances (Jostmann & Koole, 2006, 2007). The goal of the current dissertation is to advance the understanding of the processes underlying these differences in the enactment of intentions between action- and state-oriented people.

In Chapter 1, we first introduce action control theory (Kuhl, 1985) as a framework for understanding differences in the ability to enact intentions. Then we present a short overview of each chapter of the current dissertation.

In Chapter 2, we discuss two competing theoretical explanations for these differences in goal-enactment related to action versus state orientation. One explanation can be found in the goal neglect hypothesis, which holds that state-oriented people are more prone to lose sight of their goals under demanding circumstances because their goal focus is not strong enough (Kane & Engle, 2003; Jostmann & Koole, 2007, study 3). An alternative explanation for the differences in goal-enactment between action and state-oriented people can be found in the over-maintenance hypothesis. This hypothesis holds that people maintain their intentions in their working memory, and that to avoid premature action, the cognitive maintenance of an intention is accompanied by inhibition of automatic behavioral routines, or ‘volitional inhibition’ (Braver, Gray, & Burgess, 2007; Goschke & Kuhl, 2003; Kuhl & Kazén, 1999). Releasing this inhibition is critical to enable flexible and efficient action initiation. Action-oriented people are capable of releasing volitional inhibition rapidly and efficiently. On the other hand, because state-oriented people maintain their intentions more
strongly, they are expected to show stronger volitional inhibition. Therefore, it would be more difficult for state-oriented people to flexibly release volitional inhibition, resulting in behavioral passivity. In short, focusing on intentions may paradoxically impair the enactment of intentions among state-oriented people.

In Chapter 3 we empirically test the over-maintenance hypothesis versus the goal neglect hypothesis in two different experiments. In both experiments, participants performed different cognitive tasks that require initiative and self-directed control. Additionally, in the second experiment we measured how well participants were able to disengage from an existing intention, when this intention was replaced by a new one. In both experiments we measured whether participants were action- or state oriented. Half of the participants were instructed to be as active as possible and to consciously direct their attention to determine their response (strong intention focus condition). The other half of the participants were instructed to relax and let the right answer ‘pop’ into their minds (weak intention focus condition). The over-maintenance hypothesis predicts that state-oriented people would perform difficult actions less efficiently when focusing more strongly on the task goal. By contrast, the goal neglect hypothesis predicts that state-oriented people would perform difficult actions less efficiently when focusing less strongly on the task goal.

In both experiments reported in Chapter 3, action-oriented participants performed better in the strong intention focus condition than in the weak intention focus condition. Conversely, state-oriented participants performed better in the weak intention focus condition than in the strong intention focus condition. Moreover, it was easier for state-oriented participants to let go of earlier intentions in the weak intention focus condition than in the strong intention focus condition. These results support the over-maintenance hypothesis, and not the goal neglect hypothesis, because the performance of state-oriented participants deteriorated when they focused on their intentions more strongly.

In Chapter 4, we tested whether these differences in performance under relaxed and demanding circumstances can be explained by underlying qualitative differences in the control processes action- and state-oriented people use. More specifically, we hypothesized that action-oriented people perform better when they rely on proactive control processes, whereas state-oriented people perform better when they rely on reactive control processes. During reactive control processes, people rely on environmental cues to determine their course of action. During proactive control processes, on the other hand, people rely on self-directed control, independent of the environment. If state-oriented people indeed rely on reactive control processes when they relax, they should benefit more from external cues than action-oriented people. Consistent with this, Kazén, Kaschel, and Kuhl (2008) found that providing helpful pre-cues led to a greater speed-up in action initiation times among state-oriented
people than among their action-oriented counterparts. Thus, there is initial evidence that pre-cues may be particularly beneficial to state-oriented people, consistent with their presumed reliance on reactive control.

In Chapter 4 we tested in two experiments (Study 4.1 and 4.2) whether state-oriented people indeed rely more on reactive control processes than action-oriented people when they relax. In the first experiment, participants performed a task that leaves ample room for reactive control processes to emerge. In the second experiment, participants performed a task that contained pre-cues that either made the task easier or more difficult. In both experiments, half of the participants were instructed to be as active as possible and to consciously direct their attention to determine their response (strong intention focus condition). The other half of the participants were instructed to relax and let the right answer ‘pop’ into their minds (weak intention focus condition). Furthermore we measured whether participants were action- or state-oriented. The results of the first experiment confirmed that state-oriented participants indeed relied on reactive control processes in the weak intention focus condition. No signs of reliance on reactive control processes were found for action-oriented participants. In the second experiment, reactive control processes only emerged among state-oriented participants when pre-cues were available that made the task easier. Again, no signs of reactive control processes were found for action-oriented participants. Therefore, both experiments confirm our hypothesis that state-oriented people rely on reactive control processes when they relax.

The differences in cognitive control between action- and state-oriented people that we have found in the Chapters 3 and 4 were all related to one specific facet of action orientation: the demand-related facet. However, action control theory has distinguished additional facets of action orientation. Besides demand-related action orientation (hesitation versus initiative), threat-related action orientation (preoccupation versus disengagement) is another well-established facet of action control. People who are action-oriented on the threat-related facet are able to easily disengage from failure and other causes of cognitive intrusions. People who are state-oriented on the threat-related facet have difficulties disengaging from failure and cognitive intrusions. The underlying common denominator of both facets is that action orientation is associated with behavioral facilitation, whereas state orientation is associated with behavioral inhibition.

In Chapter 5, we examine whether individual differences in both facets of action orientation are related to the volume and concentration of gray matter and the direction and density of white matter tracts in the brain (study 5). Gray matter consists of the brain tissue that contains neural cell bodies and is an elementary component of the brain that processes and structures sensory and cognitive information. Individual differences in gray matter that are related to action orientation therefore
reflect differences in information processing that are more structural and long-lasting than the transient influence of the environment or a temporary state of mind. White matter primarily consists of myelinated axon bundles that connect gray matter areas and enable messages to travel between these areas. Individual differences in white matter that are related to action orientation therefore reflect structural differences in communication between different brain areas.

The demand-related and the threat-related facets of action orientation have emerged as separate psychometric dimensions (Diefendorff, Hall, Lord, & Strean, 2000; Kuhl, 1994; Papantoniou, Moraitou, Dinou, & Katsadima, 2010), and were found to have differential behavioral correlates (e.g., Baumann, Kaschel, & Kuhl, 2005; Koole, 2004). However, in other studies, correlations between decisiveness and disengagement in the .40s and higher were observed (e.g., Blunt & Pychyl, 1998; Frese, Fay, Hilburger, Leng, & Tag, 1997; Rholes, Michas, & Shroff, 1989). Indeed, several studies aggregated decisiveness and disengagement values into a single score, presumably because similar patterns of behavioral correlates were found for the two constructs (e.g., Blunt & Pychyl, 2005; Rholes et al., 1989). The latter studies raise the question whether decisiveness and disengagement might be considered one and the same. Therefore, in Chapter 5, we studied the underlying neuro-architecture of both facets of action orientation. Moreover, we examined whether the correlations between action orientation and gray and white matter were still found when controlled for personality differences in the factors of the Big Five (openness to experience, conscientiousness, extraversion, agreeableness and emotional stability).

Our results showed that the demand-related and threat-related facet action orientation correlated with separate and non-overlapping differences in gray matter volume and white matter density. Individual differences in the demand-related facet were uniquely correlated with gray matter in brain areas that are associated with decision-making under time pressure, reward perception and outcome evaluation. Moreover we found a positive correlation between demand-related action orientation and white matter density in brain areas that are related to stress sensitivity. Threat-related action orientation correlated with an area that is associated with implicit thinking. This finding suggests a new conception of threat-related action orientation as a consequence of an improved ability to process thoughts non-consciously. The correlations between action orientation and gray and white matter remained significant when controlled for the factors of the Big Five. As such, individual differences in action versus state orientation appear to explain distinctive variance in the structural properties of the brain (see also Diefendorff et al., 2000; Koole, 2004; Baumann & Kuhl, 2002).

Since the 1990s, action orientation has been extensively studied. At a theoretical level, the current dissertation has added to existing knowledge by providing the
insight that the different facets of action orientation have a different underlying neuroarchitecture. This implies that there is a neurological basis for distinguishing between demand-related and threat-related action orientation. This conclusion meshes well with psychometric research supporting the distinction between demand-related and threat-related action orientation as different psychometric dimensions (Diefendorff et al., 2000). In future studies it would therefore seem continue to analyze the effects of both facets separately.

Moreover, with the current dissertation we have deepened the insights in the cognitive processes that play a role in the different functioning of action- and state-oriented people. More specifically, our results indicate that state-oriented people experience more difficulties in enacting their intentions, exactly because they focus strongly on their intentions. Furthermore, we have found that state-oriented people show an increase in cognitive performance when they are able to rely on reactive control processes.

These insights could be applied to optimize the performance of state-oriented people. Because state-oriented people benefit from ‘letting go’ of their intentions, they could profit from mindfulness meditation (see also Ruigendijk & Koole, 2011). When state-oriented people are trained in acceptance and ‘letting go’ and are able to apply these techniques under demanding circumstances, this could improve their performance. Moreover, the insights that were gained by this dissertation could have practical implications for the work environment. The current research suggests that state-oriented people perform best when they are in a relaxed mindset. Moreover, environmental cues enable state-oriented people to rely on reactive control processes, which benefits their performance. Therefore, when managing a state-oriented person, a supportive and directive leadership style would be most effective. Furthermore, because action-oriented people perform better when under pressure and on demanding tasks, for them an achievement-oriented leadership style would be most effective.