



Absent minds and absent agents: Attention-lapse induced alienation of agency

James Allan Cheyne*, Jonathan S.A. Carriere, Daniel Smilek

Department of Psychology, University of Waterloo, 200 University Avenue, Waterloo, Ontario, Canada N2L 3G1

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ABSTRACT

We report a novel task designed to elicit transient attention-lapse induced alienation (ALIA) of agency experiences in normal participants. When attention-related action slips occur during the task, participants reported substantially decreased self control as well as a high degree of perceived agency attributed to the errant hand. In addition, participants reported being surprised by, and annoyed with, the actions of the errant hand. We argue that ALIA experiences occur because of constraints imposed by the close and precise temporal relations between intention formation and a *contrary* action employed in this paradigm. We note similarities between ALIA experiences and anarchic hand sign (AHS) and argue that, despite important differences, both ALIA experiences and AHS phenomenology reflect failures of executive control to intervene and cancel contrary affordance-driven habitual motor plans.

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1. Introduction

Sometimes you become aware of something that you wanted to do only after you have done it. Your body decided for you, it picked a desire and carried it out.

– Wu Ming – Momodou

To be an agent means, most fundamentally, to be in control of one's own bodily actions. Phenomenologically, this entails the feeling that one's actions "obey" one's concurrent action intentions. Yet surprisingly few of our everyday actions are explicitly willed. In everyday life, automatic behaviors are likely much more common than explicitly intended actions (e.g., Bargh & Chartrand, 1999). Most often, these actions are functional and accomplish what we take to have been our implicit goals. Occasionally, however, our automatic actions do go awry. Everyday cases of dysfunctional automaticity include absent-minded actions when, for example:

I remove the wrapping from a candy, walk over to a garbage bin and, to my almost immediate chagrin, discard the candy with one hand and retain the wrapper in the other.

I reach into a bathroom cabinet for a bottle of aspirin, and am surprised to find myself a few moments later brushing my teeth.

These examples highlight everyday action slips (Norman, 1981; Reason, 1979) as failures of self-awareness during instrumental action (Baars, 1992, 1993; Eilan & Roessler, 2003; Heckhausen & Beckman, 1990; Zhu, 2004). Note that the examples describe not simple reflex movements but skilled, goal-directed actions, though inconsistent with concurrent intentions.

* Corresponding author.

E-mail address: acheyne@uwaterloo.ca (J.A. Cheyne).

People often react to such absent-minded actions, their common occurrence notwithstanding, with surprise, embarrassment, and annoyance. Such unintended actions are generally brought to our attention via unexpected, and usually unwanted, action outcomes.

In the present paper we explore whether action slips that occur during bouts of mind wandering can at times lead to more than mere feelings of automaticity but rather elicit the feeling that the body part involved in the action slip willfully violated one's intentions as if it had a mind of its own (i.e., an alienation of agency). The behavioral pattern during action slips such as those described above is reminiscent of the uncontrolled behaviors of individuals with an Anarchic Hand Sign (AHS; cf. Della Sala, 2005; Eilan & Roessler, 2003; Marcel, 2003), a condition characterized by episodes such as the following:

A man is sitting watching television. He reaches out with one hand and selects a program. His other hand, to his chagrin, selects another channel (Parkin & Barry, 1996).

A diner finishes a meal but observes with horror that one hand continues to put food from another person's plate to her mouth (Della Sala, Marchetti, & Spinnler, 1994).

Patients react to their misbehaving hands with surprise, embarrassment, and annoyance (Della Sala et al., 1994). In addition they often personify the hand and address it as a different and difficult person having a "will of its own" (Della Sala et al., 1994). The foregoing examples illustrate core features of AHS and highlight the actions of the anarchic hand, like action slips, not as simple reflexes but as well-executed, goal-directed actions (Marchetti & Della Sala, 1998). Nonetheless, these actions are experientially independent of the explicit concurrent goals and intentions of their owners (Biran, Giovannetti, Buxbaum, & Chatterjee, 2006; Della Sala, Marchetti, & Spinnler, 1991; Della Sala et al., 1994; Feinberg, Schindler, Flanagan, & Haber, 1992; Goldberg, 1985; Goldberg & Bloom, 1990; Kritikos, Breen, & Mattingly, 2005; Marchetti & Della Sala, 1998; Parkin & Barry, 1996). Though patients deny having volitional control over such actions, they do not deny ownership of, or fail to recognize, the offending hand as their own, in contrast to neurological conditions with which AHS is often confused (Della Sala et al., 1991, 1994). Nor do they deny that the unwanted actions occurred or even that the actions are *intentional*. Rather, the intentions do not seem to be *their* concurrent intentions and hence agency is transferred from self to hand. Such patients have experienced not merely a loss, but an active alienation, of agency for the anarchic actions. Finally, such patients are not delusional. As one patient put it: "Of course I know that I am doing it. It just doesn't feel like me" (Marcel, 2003, p. 79).

Though AHS phenomena initially seem uncanny and remote from normal human experience, similarities to absent-minded actions of normal individuals are, upon reflection, quite striking and raise the possibility that absent-minded action could, under specific circumstances lead to the experience of alienation even in otherwise normal individuals. Indeed, parallels between AHS and normal cognition have been drawn before (e.g., Humphreys & Riddoch, 2003; Riddoch, Humphreys, & Edwards, 2000), as well as specific analogies between absent-minded actions and AHS (Della Sala, 2005; Eilan & Roessler, 2003). Indeed, there is evidence of increased absent-mindedness associated with AHS, in the form of frequent tapping, scratching, and fidgeting with objects (Biran et al., 2006). It is also the case that AHS patients do not always become aware of the anarchic movements of their affected hands (Biran et al., 2006). Moreover, the surprise evinced the AHS patient when attending to his errant hand's actions is perhaps not different in kind from the experience of seeing one's candy disappear into a rubbish bin, or of being startled by the sound of a ring or pen hitting the floor and realizing that we must have been absent-mindedly "fiddling" with the object. Of course, absent-minded action slips seldom lead to outright anarchic experiences. They are very brief and innocuous compared to AHS experiences though they would appear to instantiate at least some of the conditions for such experiences as they do, for example, entail complex, functional activities. Critically, however, what absent-minded slips seldom entail are activities that are explicitly countermanded by our current intentions and this lack of conflict with our intentions likely prevents even blatant absent-minded action slips from typically being perceived as explicit violations of agency.

2. An observation and hypothesis

... the action seemed to start in the finger itself, not in some part of her mind.

– Ian McEwan – Atonement

Nonetheless the possibility that that alienation could occur under special circumstances during specific absent-minded actions occurred to us during self observation while piloting a version of the Sustained Attention to Response Task (SART; Robertson, Manly, Andrade, Baddeley, & Yiend, 1997) commonly used to study behavioral consequences of mind wandering or absent-mindedness (Cheyne, Carriere, & Smilek, 2006; Cheyne, Solman, Carriere, & Smilek, 2009; Smallwood, Beach, Schooler, & Handy, 2008; Smallwood, McSpadden, & Schooler, 2007). During SART performance, participants press a key whenever a number appears on a computer screen unless a particular and infrequent (target) number appears, in which case they must withhold a response. Participants have no difficulty seeing and identifying the target number, but frequently fail to withhold a response on NOGO trials. Failures to withhold a response on NOGO trials during the SART have been shown to coincide with subjective reports of mind wandering (Smallwood et al., 2007, 2008) and the propensity for making these SART

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