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Automatically Minded: A Research of Motor and Shared Intention

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Abstract: A purposive account of action must draw to propositional attitude states like intentions, beliefs, and desires as well as to motor representations, i.e., non-propositional forms that denote, among other things, action outcomes as specified kinematic features of bodily motions. It raises the puzzle of how these two distinct types of states successfully coordinate, especially in the automatic movements cases. By using a semi-systematic literature methodology, we examine this interface matter. First, we expand on the nature of intention and its functionality. Second, we characterize motor representations in explaining intentional action and raising the complex of automatic motions. The differences in representational format challenge the interface of theory. We argue that though the low-level motor lacks cognitively penetrable, it processes such perceptual abilities regarding knowledge-involving based on sensitivity. The notion is quite interesting when it's attached to the social realm. Consider one who 'reflexively' helps her neighbor by bringing her piano; after seeing that the neighbor is struggling enough to get it downstairs. The case goes to the issue of collective intentionality as the power of minds to be jointly directed at objects, states of affairs, matters of fact, values, or goals. The question is, what is the explanatory relevance of we-intentions? Is that possible that I have an alternative intention to the 'we' while still satisfying the we-intention? Should the intentions of 'I' and 'you' be deducible from the intentions of 'we'? In the last discussion, we suggest 'meaning' beside the self-referential as a hint for the case of collective intentionality.

Keywords: automatic, intention, motor-intention, we-intention

1 INTRODUCTION

Imagine two novice boxing players in the ring; the first player is Trump, and the second one is Putin. The two of them have never met. Since they are still beginners, there is no digital source about their previous performance. Trump and Putin have the same distal intention, namely being a triumph in this game. Their proximal intention is implemented by being in the boxing ring, wearing boxing gloves and a mouthguard. While motor intention—in the standard definition—is shown when they control their actions on track with selected right movements to accomplish their proximate intention; such as when Putin's head quickly swings to the right, avoiding Trump's uppercut, and Putin's left-hand counterpunches precisely a second later. At this moment, consider this: What factor do the motor controls play in choosing the proper movement with the right speed and timing?.

Some might assume both Trump and Putin perform 'skilled action.' As its phrase, skilled action means that an individual demonstrates her ability resulting from learning and practicing, including her sensorimotor, perceptual, emotional regulation, cognition, communication, and social skills. The intriguing one is how the theorists in action point out that consciousness often interferes with skilled routines (Dreyfus, 2007; Beilock, 2010; Di Nucci, 2013; Papineau, 2013). Those researchers appeal to widespread and empirical evidence, which suggests that conscious attention to the means or mechanics of movements constitutive of skilled action can undermine that skill's fast, fluid, successful performance.

In a similar vein, the action is strongly linked to an automatic movement. Both skilled and automatic motion is regarded as mindless behavior because the actions are out-of-control process. Mylopoulos (2020) argues that they lack the flexibility and sophistication of behavior that are the product of various thoughts, such as deliberation, problem-solving, and reflection. This standard view of automatic behavior is intriguing to some consequent questions: If a skilled action is (seemingly) performed automatically and the outcome looks like an unthinkable behavior, then how can it exhibit such a high degree of intelligence as choosing the right type of movement and delivering it at the right time and speed? Moreover, though the motion is considered automatic, the debate regarding how intentionally-less of action is still ongoing. Putting it in other frames, if theorist embrace intentionality as the feature of minds in virtue of which (some) mental states have (intentional) content (i.e., the feature in virtue of which some mental states are attitudes towards something), where is the content of the

automatic movement if it should be dragged as the derivation of prior intentions? Is it in the mental states, though the mindless behavior is convinced as less awareness mode, or in the object? How could either Trump or Putin triumph in the game if he is aware of their present intention but less aware of its content? Would one still assign motor control as a mere derivation from higher intentions, with its main task "just" keeping the action on track, rather than consider automatic behavior as the sensitivity of the context in which the stimulus occurs?

Underlining the sensitivity level in automatic behavior doesn't only shift its semantic concept. Consider when some reflexive movements appear in social life, as in the above abstract with the piano case. Consider again that the neighbor actually intended not to seem rude in front of others because he realizes that he might need help in the future to bring the piano. He needs to satisfy the intention of being friendly to fulfill his other intention, i.e., looking for help to carry the piano downstairs. Does this even matter for intentionality? What are the different motivations for participating in joint action and manipulation? What is the explanatory relevance of we-intentions?

In this paper, we discuss those two themes with given more attention to the nature of automatic behavior. As explicitly stated, a robust theoretical frameworks underline either the richness of motor variability or goal achievement but fail to reconcile it with higher intentions. We will characterize motor representations in explaining intentional action and raising the complex of automatic motions after expanding on the nature of intention and its functionality. We will bring the finding as a flintstone to the subsequent discussion, i.e., of collective intentionality. Collective intentionality comes in a variety of modes, including shared intention, joint attention, shared belief, collective acceptance, and collective emotion (Schweikard & Schmid, 2020). Collective intentional attitudes permeate our everyday lives, e.g., as in the case of the piano above as well as when two or more agents look after or raise a child, grieve the loss of a loved one, campaign for a political party, cheer for a sports team, etc. Though it's relevant for philosophers and social scientists since it plays a crucial role in the constitution of the social world, in this paper, we are not going into detail. Instead, we mention the introduction of this topic briefly as a supplement for any further research.

2 METHODS

We use a literature review as the methodological tool, especially the semi-systematic ones. As Tranfield et al. (2003) argue, the literature methodology is worthwhile when the researcher wants to evaluate a theory or evidence in a specific area or to examine the validity or accuracy of a particular theory or competing theories. Meanwhile, the semi-systematic or narrative review approach is designed for topics that have been conceptualized differently and studied by various groups of researchers within diverse disciplines (Wong et al., 2013). The aim of this method is to overview research areas that change over time. When applied correctly, it becomes a valuable method for developing theories or interventions and evaluating programs (ibid).

Further, Baxter and Jack (2008) note eight steps to conducting a literature study:

1) Establish a broad case to investigate.

One of the main questions in this step is: 'is too much information already available for the case?' The intention is one of the most discussed topics, not only on the psychological or philosophical sides but also on cognitive science and economy. However, studies that take motor intentions and the adjectives attached to them as the primary focus (i.e., automation or as a series of other intentions) are still paltry. In the case of shared intention, the theme of automatic behaviors is less observable.

2) Establish the research question(s)

A research statement is essential to guide investigations. It can be conditional or non-conditional, directional or non-directional, or expressed as a null hypothesis (ibid). The primary research question concerns the sensitivity of motor intention and its impact on agent rationality. Formulating it in another way: Does motor intention have any intelligence in itself? What is the finding impact on social intention?

3) Identify the databases

Precise case(s) can be single or multiple cases. "When using multiple cases, you need to treat each case as a single case" (ibid, p. 4). We use multiple cases (motor intention and and its role in social life) to devote a chapter or section to each case. The conclusions from each part are continually used as information contributing to the whole study. However, each case should remain separate in the treatment.

4) Determine data gathering and analysis techniques

The semi-systematic study uses several different research tools to increase validity. One can use a qualitative approach and other data collection instruments. In this case, we use articles and book with the theme in question from several discipline study. This step aims to "triangulate" techniques to provide different views of the case.

5) Prepare to collect the data

We use a method of categorizing data for measuring, including preparing formats for narrative reporting and revising the research design after review.

6) Collect the data

For this point, the data is collected by systematic evidence, or the data from various sources contribute to the overall aims of the study. However, we avoid bias in a search, such as a database bias or relying on a single database for particular topic areas, source selection bias, i.e., using grey literature, theses, etc., or paper selection bias.

7) Analyse the data

As Baxter and Jack (ibid) points out, data is used to find relationships between the object of study and the research questions posed in case literature research. For this purpose, we did tabulate information to make checking easier, corroborated and supported the qualitative data obtained, and vice-versa, and investigated the patterns in the data.

8) Prepare the report

We use the standard empirical report style to make it obvious how the data from distinct resources answer or illuminate the research question. We refer to the research questions(s) with qualitative or other quotations evidence. The statement also includes evidence from published literature in the discussion section that confirms and disconfirms the data collected.

3 RESULTS

A primary matter in motor control is the sense of how the many biomechanical extents of freedom are coordinated to attain a common goal. A particularly puzzling facet of coordination is that behavioral purposes are achieved repeatedly and reliably, with motions rarely reproducible in their detail. Therefore, the options for kinematic motion are rarely limited between higher processes (thought and decision, as the derivation from distal or proximal intention) and lower processes (habits, dispositional case, automatic or reflexive movement). However, this fails to see in the robust theory of motor intention: intelligence pervades skilled action down, with fine-grained motor movements (i.e., the low process) being influenced by opportunity and perception at a very granular extent. In other words, though the low-level motor lacks cognitively penetrable, it processes such perceptual abilities regarding knowledge-involving based on sensitivity. The perceptual is led by sub-personal sensitivity because there is no content, such as intentional decisions. Therefore, low-level motor performance is a 'model-building' level of intention rather than sticking to the content or any other mental representation as in the intentional action. On the other hand, the sensitivity of bodily movement might capture the nature of intention in social understanding. It could produce a joint commitment with its obligations, i.e., a directed obligation from one person to the other, with standing to demand a specific action from the other person and produce the basis of the demand right. The obligations are internal to the shared or joint intention.

4 DISCUSSIONS

Action is not just a bodily movement. Theorists relate this notion with several concepts, such as Davidson and Ginet, who apply methodological individualism in action, Gallagher and Threvarten, who engage social perspective, or Scanlon and Raz as the proponent of reductionism for practical reasons. Since there are a bunch of action elements, in this section, we focus on intention and its functionality, especially its dilemma when facing the motoric movement. In the subsequent ones, we are going further into the function of intentionality in the social realm. Making intention the central discussion is not without rhyme. All of those theorists agree that intention is the principal element of action. For instance, Gallagher concludes that action is characterized by intention, besides the sense of agency or meaning (Gallagher 2020, p. 43). Similarly, Bratman notes that intentions contribute in an

indispensable way to the solution of the agent's coordination planning since they guide the agent's reasoning and are part of the rational disposition (Bratman 2014, p. 46).

Intentions in One Syllable

It would be incomplete if we didn't mention the level of intention to address its functionality. At least Pacherie (2007), Bratman (1987), Searle (1983), and Gallagher (2020, p. 48) propose three levels of intention:

1. Distal or D-intention: relate to prior deliberation processes that allow us to formulate our relatively long-term goals. How 'long' this long-term is undetermined; it might be within a year, a month, or a couple of hours. The phase begins when an agent forms future planning. For instance, I would like to cook *jengkol* crispy and decide to go to a market to search for the ingredients.
2. Proximate or P-intention: specify the action in terms of the particular requirements of the action situation, including the circumstances tied to particular environments. Searle calls it the 'intention-in-action.' In this stage, the agent reflectively guides the action regarding specific means-ends relations to meet the D-intention. For instance, as I walk around the market, I look at various stalls to determine if they have *jengkol*. I prefer to buy it online if there is none in the market.
3. Motor or M-intention: involve the control processes that keep the action on track; concerning the P-intention, it's involved in selecting the movement appropriate for carrying out the intended action. For instance, without conscious perceptual monitoring, I move my feet and body to not fall over in front of the *jengkol* stall or take my cell phone and touch my finger on the screen if I have to buy it online.

Nevertheless, the cosmetic and the chair analogy merely underline that D or P-Intention could be missed, not the motoric one. In other words, M-intention must always obey the distal or proximal intention. The notion is plausible when one considers that what is pervasive and inescapable for human experience and action is not just the anticipatory aspect but the full intrinsic temporality of the processes involved. As Berthoz has suggested, the Husserlian analysis of the intrinsic retentional-protentional structure of experience is an excellent model to explore this (cf., Berthoz, 2000). Husserl labels two pieces of Intrinsic temporality to find phenomenological evidence, i.e., the retention of the just past and the protention or anticipation of that which is just about to occur and considers these to be structural features of consciousness (Gallagher, 2020, p. 37). If one attends to his own experience, he has to constantly find both an anticipatory sense of what is just happened, though indeterminate, and a continuing sense of the experience one has just lived through. However, the general structure of this temporality can also be applied to movement and motor processes that are not conscious (ibid).

Let's see the diagram of Husserl's model below:

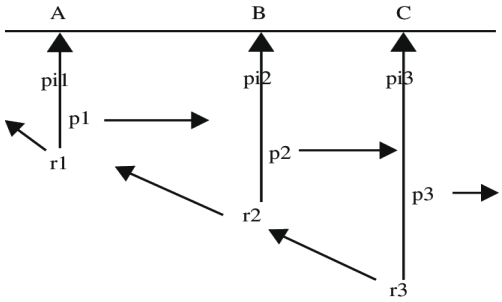

Figure 1. Husserl's model of time-consciousness (Source: Gallagher et. al., 2017)

Husserl takes the perception of a melody as his favorite example. The horizontal line ABC presents a temporal object, such as a melody of several notes. The vertical lines represent abstract momentary phases of an enduring act of consciousness. Each of those is structured by three functions:

a) primal impression (pi), which allows for the consciousness of an object (musical notes, for example) that is simultaneous with the current phase of consciousness,

b) retention (r), which retains the previous phase of consciousness and its intentional content, and

c) protention (p), which anticipates an experience that is just about to happen.

In the current 'now' phase of the living present, there is a retentioning (r3) of the previous phase, and this just-past phase includes its own retentioning of the initial phase. This means that there is a retention continuum (R3(R2, R1) and so forth--stretching back over recent (on the order of seconds) prior experience. The protentional aspect

provides consciousness with an intentional sense that something will happen. The best sign that I am anticipating the notes that will come when I am listening to my favorite music is that I am surprised or upset if someone hits the wrong note. I feel a sense of incompleteness when someone doesn't finish a sentence. This type of perceptual disappointment results from a failure to fulfill expectations; what occurs falls short of my expectations. The phenomenon of "representational momentum," in which movement or suggested movement causes the projection of a trajectory beyond what was actually experienced, has a similar pretensional aspect (Wilson & Knoblich, 2005).

Several theorists have characterized the subpersonal processes that would Instantiate the Husserlian model by using a dynamical system approach (e.g., van Gelder, 1996; Varela, 1999, Thompson, 2007). In this view, action and our consciousness of action arise in a way that involves the concurrent participation of distributed regions of the brain and their sensorimotor embodiment (Varela et al., 2001). Particularly, Varela distinguishes three relevant timescales:

- an elementary timescale, facilitating intersensory integration across modalities with differing processing times
- an integration timescale, integrating these elementary, sub-personal processes and corresponding to the experienced present, a phenomenologically fully constitutedcognitive operation
- a narrative timescale, measured in durations greater than the living present and the reflecting and re-framing of the intrinsic temporality of the other scales (adding (more) meaning retrospectively).

An exciting matter now is how are timescales and narratives connected. At this point, we argue that non-linear timescales are the atoms of narratives. They present a sense of sequentiality from non-linear perception, therefore providing a sense of time. In other words, the narrative reflects the intrinsic temporality if actions are situated in a world of meaning. Intentions are future-oriented and go beyond the limits or the present circumstances. This leads to a two-sided implication of narratives on timescales, as intentions are forward-oriented while descriptions can be backward-oriented.

Motor Without Intention

Perhaps now it is bright enough why the claim of a bodily movement as the derivation of initial intentions is robust. Actions have a flow structure and an intentional direction. Therefore, one cannot analyze any type or primary enaction just at a certain point but always as a process that involves the past and perceptions about the future. However, there is another form a motion could have. Primarily in habit or such a dispositional case, an action is assumed to be automatized motion since those exhibits will modulate the anticipatory processes of perception and action.

Automaticity is one of the most explored phenomena in psychology, philosophy, and cognitive science. Automatic processes have been investigated in the domains of perception, decision making, moral judgments, close relationships, emotional processes, face perception and social judgment, motivation, and goal-pursuit, conformity, behavioral contagion, embodied cognition, and the emergence of higher-level automatic processes in early-childhood (Bargh et al., 2012). Several theorists commit that automatic processes and behaviors do not require attention (LaBerge & Samuels, 1974; Shiffrin & Schneider, 1977; Hasher & Zacks, 1979; Logan, 1979). At least Logan (1980) and Hommel (2007) add that being uncontrolled or uncontrollable is hardly a universal property of automatic processes. A critical set of evidence supporting this claim comes from studies of unwilling racists who can overcome their automatic biases when motivated to do so (Dunton & Fazio, 1997; Blair et al., 2001; Olson & Fazio, 2004). That is, although particular stimuli automatically trigger racist stereotypes or associations, subjects who were committed to egalitarian ideals were at least sometimes able to control and thus overcome the application of their automatic biases. Similarly, Logan (1985) has argued that if we begin by considering skilled performance rather than, for example, perceptual processes, we are doubtful to conclude that automatic processes and behaviors lack control. The very opposite seems to be true: the more expert one is at a skill, the more automatic that skill becomes and the more controlled it is.

At this moment, some semantic explication is in order. Theorists use the word 'control' distinctively. Tzelgov, following Logan (1985, p. 5), uses 'control' to mean the 'sensitivity of a system to changes in inputs.' LaBerge and Samuels (1974) use 'control' to mean the overcoming of a disturbance, similar to the way philosophers use 'guidance control' (Frankfurt, 1978; Fischer, 1982; Fischer & Ravizza, 1998). These ways of

defining 'control' make it reasonable for automatic processes to be controlled. However, others, such as Shiffrin and Schneider (1977) and Schneider and Chein (2003), seem to use 'control' to designate the category to be contrasted with automaticity. Moreover, Schneider and Chein (ibid) note seven features that need to be explained by a theory of automaticity:

1. that consistent extended training is required to develop automatic processing, while controlled processes can be established in a few trials and under varied mapping situations. (p. 528)
2. automatic processing is fast and parallel, while controlled processing is slow and serial.
3. that automatic search requires little effort and can operate in high workload situations, whereas controlled processing requires substantial effort and interferes with other controlled processing tasks.
4. that automatic processing is relatively robust to stressors
5. the difference in cognitive control can be applied to automatic and controlled processes. Specifically, once a process becomes automatic, it becomes difficult to control.
6. The learning degree depends on the amount and type of controlled processing, while there is little learning in pure automatic processing.
7. automatic attention response depends on the priority assigned to a stimulus itself rather than on the context in which the triggers occur.

On the other hand, Sheets-Johnstone (2012) and Tzelgov et al. (1997) have pointed out the implausibility of agents remaining necessarily unaware of their skilled, habitual, automatic behaviors. Their argument is in line with Gallagher, Bratman, and Pacherie views regarding the unnecessary of any proximal or distal intention in some habitual actions. For instance, 'reaching a cup of tea' as a habitual action. When an agent reaches for a cup of tea as his habitual action while working on the computer, he does not require a prior intention to do so or consciously deliberate and form a plan for reaching a cup of tea. However, it still counts as an intentional action and may involve a present intention-in-action, and motor intentions (Pacherie, 2006) since the reference copy of sensory input from the movement facilitates motor control (Wolpert & Flanagan, 2001).

There is another exception besides dispositional cases. Under the condition, the person with Locked-in Syndrome has limitations in motion. The person, for instance, controls a cursor on a computer screen by thinking. Still, though no bodily movement is involved in this condition, theorists still regard it as an intentional action. 'Thinking' is considered a form of action strongly related to intention, at least regarding 'which sign should I click on the computer screen.' Besides thinking, some specific bodily postures like wrinkling one's brow, nodding one's head, or making facial expressions may contribute to the accomplishment of thought (cf., Goldin-Meadow, 1999 or Gallagher, 2005). At this point, it is just rightly pointed out that motor representation is not limited to specifying the detailed kinematic features of bodily movements, such as force and direction. Nevertheless, based on those depictions, M-intention is impossibly to stand by itself; it should be either the derivation of other intentions or could be regarded as an automatic movement if the action is close to the habitual or dispositional case.

Fortunately, some findings challenge the all-or-none conception since the studies show a lack of co-occurrence among central features of automatic processes. One of them is Stanley and Krakauer's (2013) experimental work employing visuomotor rotation. The participants are instructed to reach for a target (Tp) on a computer screen. The initial hypothesis is that the participant's reaching movement "drifts" in the direction opposite to the rotation (ibid, p. 260). The participants were then instructed to adopt an explicit strategy, i.e., by hitting the neighboring target (Tn), which has placed 45 degrees near Tp. Thus, if participants aim to hit Tn, the cursor will hit the Tp. The participants' movement again started to drift toward the Tn and away from Tp, despite their intention to hit Tp. Shortly, Stanley and Krakauer take this as evidence that motor acuity can develop contrary to an agent's intention and thus does not manifest in the intentional action (ibid).

The trial gives us more about the nature of motor-control mechanisms. There are two kinds of movement to concern awareness in a motion; voluntary and involuntary movement. In the case of voluntary or intentional action, the sense of agency and ownership cannot be easily distinguished; they tend to reinforce each other. In involuntary movement, they can be dissociated since a sense of agency is missing in this motion, though the sense of ownership is still involved (recall the chair case above) (Gallagher, 2020: 44). The agent doesn't need to monitor explicit perceptual of bodily movement in both voluntary and involuntary movement. Our bodily can still perform their motor details without precise perceptual monitoring because the physical movement already involves motor-control processes.

Further, the motor-control mechanism is associated with two kinds of approaches, i.e., inverse model and forward ones. An inverse model derives the motor commands required for a particular movement or body position by comparing the current and desired body positions. When the inverse model generates a motor command, the efferent copy of that command and is sent to a forward model, which compares the intended body position with the predicted sensory feedback (from the anticipated body position) that will result in an issued motor command (Gallagher, 2020, p. 52). If there is a mismatch (or prediction error) in the system, the forward model allows for quick, online correction as the process, without waiting for sensory feedback from the movement. Pacherie also suggests that D- and P-intention formation can also be analogized to these kinds of forward and inverse motor-control mechanisms (Pacherie, 2007, p. 4).

Following Mylopoulos, the motor command and motor program are two different types of motor representation. The motor command is propositional knowledge of what to do to initiate an action, while the motor program is "*practice-related reductions in movements variability and increases in movement smoothness*" (Mylopoulos, 2020, p. 259). Briefly, the motor program is such 'an adaptation for an action.' On the other hand, there are two different types of motor representation according to schema theory, (i) motor program, which specifies the general form of an action type, and (ii) motor command: computed on the base of the motor program, which specifies the detailed kinematics of the action given the condition of the agent (e.g., current bodily position) and the present context (e.g., distance from target objects) (Schmidt in Mylopoulos, 2020, p. 264). Motor representation is available to an individual agent for performing a particular task and does not just represent those tasks or the action outcomes that are associated with them but rather the method by way of which they are to be performed under the agent's practical abilities (Pavese in Mylopoulos, 2020, p. 261). On Pavese's account, these methods, in turn, constitute the practical mode of presentation under which the underlying proposition skills are known.

Sensitivity in Motor Control

How one holds the pen may differ from each other. The previous section suggests that the variation is based on the difference in the use of the motor representation, and the proposition under practical presentation mode can also be identified. It also buried the dichotomy between higher processes (thought and decision, as the derivation from distal or proximal intention) and lower processes (habits, dispositional case, automatic or reflexive movement) as the only analyzing option for bodily activity. As stated earlier in section 3, we suggest that the role of motor representation in possession of skill must not be understood in terms of proportional knowledge. The work done by motor and perceptual systems can be depicted as the generation of information (oft conceptually structured output) specialized for action direction, which in turn proposes that the cognitive modes of practical reasoning play a significant part in the order of intelligent action are not abstract; syllogistic one philosophers frequently deal as the paradigm of practical reason. In a nutshell, motor control is intelligence because of its sensitivity to the content of intention or other propositional attitude states.

Let us call back the boxing ring between Trump and Putin for simplicity. In the second round, Putin already has a lot of information on Trump and vice versa; both can arrange more precisely which punches they should do or which body part is the opponent's weak. In this situation, intelligence comes from the higher or propositional level, which engages with thought and decision in the inverse model so that the movement tends to represent intentional content, i.e., a 'pure' implementation of proximal intention. On the other hand, in the first half, considering that they do not yet represent each other before, the motor control exhibits some lower processes. The assumption is in line with Papineu's examination (2013, p. 191) below:

> "*At any stage of an inning, a competent batter will have assessed the situation and formed a view about how to bat—a conscious intention to adopt a specific strategy. As with any intention, this will then set the parameters of the basic action-control system. It will direct that system to bat aggressively, say. It will take one raft of conditional dispositions from the batsman's repertoire and reconfigure that basic control system so that it embodies just those dispositions...After being so reset, the basic action-control system will respond accordingly, without any further intrusion of conscious thought*".

However, it fails to see that in the robust theory of motor intention: intelligence pervades skilled action down, with fine-grained motor movements (i.e., the low process) being influenced by opportunity and perception at a very granular extent. In other words, though the low-level motor lacks cognitively penetrable, it processes such

perceptual abilities regarding knowledge-involving based on sensitivity. The perceptual is led by sub-personal sensitivity because there is no content, such as intentional decisions.

Moreover, a primary matter in motor control is the sense of how the many biomechanical extents of freedom are coordinated to attain a common goal. A particularly puzzling facet of coordination is that behavioral purposes are achieved repeatedly and reliably, with motions rarely reproducible in their detail. Therefore, the options for kinematic motion are rarely limited between higher processes (thought and decision, as the derivation from distal or proximal intention) and lower processes (habits, dispositional case, automatic or reflexive movement). Robust theoretical frameworks underline either the richness of motor variability or goal achievement but fail to reconcile the two. Here we suggest an alternative notion based on stochastic optimal feedback control. It might also make clearer that in such a non-habitual case, e.g., turning to the cosmetic shelf though intending to buy *jengkol*, this action isn't led by such of 'inserted thought' as in the Locked-in Syndrome or pretending that it is a ghost whispering to cheating from your initial motive. Refers to the counterexample in the intentional action, i.e., buy *jengkol* and accomplish the intention; the intention content here is apparent, i.e., about *'jengkol'* and 'mental state.' In the cosmetic case, the action is not a reflective or 'unthinking' movement. On the contrary, it exposes low-level processes based on sensitivity in motor control which makes it able to produce that performance.

Similarly to the Trump-Putin battle, the first round isn't about an automatic or uncontrolled punch. Instead, their perceptual abilities lead to appropriate movements or setting the speed. As implicitly stated, this notion might challenge the predicate of unintelligent on the automatic motion. Perhaps it isn't intellect because it doesn't exhibit any higher cognitive processes. But instead of thinking of independent intentional states and automated reflex-like basic actions or independent behavior trajectories and the performance of those tracks by a method of motor understanding, it seems that we should revise our viewpoint of skill to reflect findings that show that even those processes responsible for the low-level, automatic, fine-grained sensorimotor executions of motor skills are sensitive to high-level purposes. The optimal strategy in the deal of uncertainty allows variability in redundant (task-irrelevant) dimensions. This suggestion doesn't strain the desired tracks but uses feedback more intelligently, merely correcting those deviations that interfere with task goals. This framework generates goal-directed corrections, motor synergies, task-constrained variability, simplifying rules, discrete coordination modes, and controlled parameters.

Regardless of all suggestions, we do not intend to say that movement based on distal or proximal intention does not become sensitive to the environment. As discussed earlier, an intentional action tied to expectation or cognition influences what we will perceive. We instead expand the other side; compared with the movement based on sensitivity, this type of movement is more flexible to 'adjust' with some range of information. Pragmatically speaking, it is not about changing the input from the distal to the proximal ones but rather about changing the processing. Shortly, the sensitivity in proximal intention is exclusively sensitive to its intention itself. Further, sensitivity in motor control can penetrate a broader range of information, i.e., internal (perceptual abilities) and external (environment). Nonetheless, a significant problem that emerges is the issue of where learning develops as a subject remedies their skill degree. Is it at the "model-building" and the intellectual and level of intention, or at the reflexive extent of motor insight? For further discussion, Fridland (2017) provides evidence to support the idea that the motor level builds models of the acts being performed, or, in other words, that flexible cognition is active at both the motor-acuity level and the strategic intentional level.

To distinguish between intentional action and action based on sensitivity, we argue that one can use 'self-referential narratives,' as proposed by Stephens and Graham. "Whether I take myself to be the agent of a mental episode (or bodily action) depends upon whether I take the occurrence of this episode to be explicable in terms of my underlying intentional states" (Graham and Stephens in Gallagher, 2020, p. 49). As explained earlier, intentional action generates a stronger sense of agency and ownership. Reflex movement has a strong sense of ownership but minus a sense of agency due to its spontaneity and lack of flexibility. Likewise to reflexive motion, we argue that movement based on sensitivity also has a strong sense of ownership but lacks a sense of agency. 'Lack' here is due to heightened awareness when the agent performs some, supported by Montero's report (Agurruza in Gallagher, 2020, p. 382) on several phenomena for skilled action. *"[…] for the possibility that expert performers, in dance or musical performance, stay pre-reflective, occasionally even entering a mindless zone, she also thinks that optimal performance often coincides with thoughtful performance, perhaps involving even a step up from enhanced pre-reflective or performative awareness*." The agent knows that the body is moving, but she

can probably not explain why she acts that way. It is not because she moves spontaneously as a reflex, but at the same time, the sensitivity in motor control focuses on both sides, to her intention and the environment. The agent has a sense of agency but is not as rigid as intentional action. At this point, we hope that it has become obvious that a hybrid paradigm of skilled bodily motion where the intelligence of skill is cashed out in intentional terms, motor control, and propositional is characterized in brute-causal, bottom-up, and unintelligent ways is unsustainable.

A Dessert: Bridging into Social Understanding

A bunch of theories is already exposed. The discussion might be more intriguing when it touches on the social realm. Take this analogy: a friend, let's say his name is Billaro, sees his acquaintance, let's say his name is Lestio, walking down a street. Without any hesitation, Billaro approaches Lestio to walk together. They walked together, and because their destinations differed, Billaro said to Lestio: 'I have to go to Desa Penari. See you later!'. The passage seems simple, but one thing seems interesting: a joint commitment through a supportive bodily gesture, forming an obligation such as saying goodbye when parting or asking whether Lestio would mind if Billaro accompanied her for a walk together.

Applying the above analogy to a bigger social group, for instance, a company or an organization, the pitch would seem bolder. If the joint-commitment or we-intention--whatever the term could be--results in an obligation and rights in the group, what if in an organization that initially consisted of 20 people, but because there is a problem, there is only one member left. Do this one and only person have to be assigned this organization's obligations? What if no more members are left; can a commitment or we-intention exist without a subject in it? Probably the readers will be tempted to think, 'there is no more group commitment because 'we' itself is the aggregate of individuals.' But consider this another case: a secret society was attacked by another group, killing from the leader to its chef. A policeman who investigates the subject is attracted by the secret society's commitment and decides to form his own secret society. Is commitment merely about someone's presence? Should the intentions of "I" and "you" be deducible from the intentions of "we"?

Through *Walking Together* (1990), Margaret Gilbert initiates the complexity of we-intention or plural subjects in her terminology through a simple case, i.e., walking together. Scrutinizing her account results in extensive consideration of the ontology of social science itself. Apart from Gilbert, many theorists have tried to draw the knots of intention in social life from various directions. As a dessert, this part shouldn't be too 'filling' like the main course in the previous discussion. Let us briefly point out the nature of intentionalism from a social point of view.

Intentionalism about the existence or the basic infrastructure of the social world extends far beyond social ontology, narrowly conceived as a relatively recent field of research (Schmid). It has deep origins in social theory, political philosophy, and social history. For instance, a version of intentionalism is used in accepted contractualist or contractarian theories of social phenomena (mainly social, moral, legal norms and social organizations). In these theories, it is claimed that the reason why the target social phenomena exist and what they are - or should exist and be as they should - is because they make sense to the agents or are accepted by them as such. Some intentionalist social ontology is implicitly operative in (and explicitly supported by) any member of the extended family of social theories and approaches to social science that use intentional explanation as the method of choice. The Hobbesian view of government is a good example, in which people's (rationally motivated) mutual consent to be governed is the basis for the existence of government.

A primary issue for intentionalist positions is the claimed (or avowed) “internal” condition of intentional states, by which intentional attitudes are exclusively “subjective” and therefore cognitively attainable solely to the "single haft" of the perspective, but not to extern observers. This looks to cause intentional attitudes incapable" as the base" of an “objective” view. Therefore, the mainstream theoretics of rational choice, as suggested in the economic model of human behavior, are inclined to comprehend the unit of analysis in the sense of behavioral dispositions rather than the notions of “internal or inside” mindedness.

Nevertheless, essential philosophies of rational choice conserve the argument that preferences are to be comprehended as intentional attitudes. Therefore, the logical choice is theoretical or practical reasoning in which preference is the consequence. It is underlined in these variants that social phenomenon is to be construed as (totality of) behaviors of agents. It is standardly assumed of the agent’s attitudes that they are rational – typically,

that an agent's preferences are complete and non-transitive. Consequently, preferences among the available alternatives are based on the values stipulated to the prospective outcomes from their point of view.

A salient example is Jon Elster's notion of rational choice explication in the sense of intentional explanation (Elster, 1986). Elster, in these accounts, notes that choices have non-intended consequential causal, which accounts for significant sides of the social world (a typical instance is the market equilibrium). However, non-intended consequences in this view are parasitic on intentional actions ("rational choices"). Any clarification of social phenomena must depend on what the agents desire or believe to be the case or value. Thus, intentionalism is not attached to the rationality necessities made in theoretical classical rational preference (see, e.g., Stueber, 2012 for the discussion of the relevancy of empathy for intentionalist accounts).

Whereas the mainstream of the present debate about collective intentionality probably has no direct roots in early social theory or phenomenology, Wilfrid Sellars' concept of we-intention is widely acknowledged as the point of departure (Tuomela & Miller, in Schweikard & Schmid, 2020). We-intentions play a vital role not only in Sellars' practical philosophy but also in the current debate on collective intentionality. We-attitudes have a thick normative judgment, and they can have a concession to intersubjective validity and express people's attitudes. The concept of a we-intention thus bridges emotivism and intuitionism (Sellars, 1974). We-intentions are attitudes that are not merely private, but at the same time involve a shared point of view from which the participants may critically assess each other's contributions (Schweikard & Schmid, 2020).

Sellars notes that though we-intentions are not private, they do not entangle a group mind. His view is that we-intentions are had by individuals but that they contrast from individual intentions in their form (ibid). Sellars' conception of we-intention can be traced back to Robin G. Collingwood's New Leviathan (1947), where Collingwood defines society as "*the sharing of certain persons in a practical social consciousness verbally expressed in a formula like 'We will go for this walk' or 'We will sail this boat*." (Collingwood, 1947: 146)

Collingwood in a chapter *Society as joint will* argues that there is nothing mysterious about practical social consciousness (ibid, p. 148). Common knowledge even though vague is required for all the individual participants concerning the enterprise as a unit and a particular idea in which they could take a part. Additionally, the participant must know that other agents are partners with him- or herself in this common endeavor, without knowing who exactly they are. As 'social consciousness', society "*is nothing over and above its members. It has no will but the will of its members, no activity but the activity of its members; no responsibility but the responsibility of its members*" (ibid, p. 149).

Sellars' savor differs from Collingwood's, but Sellar's analysis tightly adheres to Collingwood's path. Sellars agrees with Collingwood that the attitude in question requires no group mind capable of belief or intention over and above the heads of the participating individuals (Sellars, 1968, p. 203). Individuals have all intentionality involved in group intention and group action. Still, it is conceived as the intentionality of a particular sort, which Sellars calls "action we-referential intention" or, in short, "we-intention" (Schweikard & Schmid, 2020). Thus, individuals, not groups, intend a joint action (Sellars, 1980, p. 98). Nevertheless, it leads Sellars to one of the most profound problems in the commentary of collective practical intentionality. One cannot intend what one takes to be entirely beyond one's abilities or beyond one's control (Sellars named it the "'up to the agent'ness" of intention [ibid]). The agent takes an object of intention to be "up to her" to some degree. A consequential question is: How can individuals have we-intentions? It seems plausible to assume that the behavior of each individual, insofar as it is an action, is up to that individual him- or herself. An individual with an action-we-referential intention, however, does intend not only their behavior but also the behavior of the other participants. This behavior is not up to him- or herself, but to others. Thus, we-intention seems incompatible with the 'up to the agent'-ness of intention (Schweikard & Schmid, 2020).

This problem is sometimes bypassed in the current debate by transforming from action-referential to propositional intentions. Michael Bratman analyzes shared intentions in terms of "intention, that" rather than "intention to" (see: Bratman, 1999). Similarly, Raimo Tuomela distinguishes action intentions from aim intentions in parts of his work (see: Tuomela 2007). To intend that the window be closed is different from intending to close the window in that. In the former case, the subject having that intention may differ from the subject of the intended action. Therefore, the matter with we-referential intentions seems to disappear as soon as intention is conceived in propositional rather than action-referential terms (Schweikard & Schmid, 2020). Previously, Sellars prepared already a response to those potential matters: "*It is essential to see that I can not only intend to do something*

myself, but I can also intend that someone else do something, i.e., that it be the case that he does it" (Sellars, 1968, p. 184).

However, Sellars sees clearly that this apparent escape route is a dead end. Again, he follows Collingwood, who argued that consciousness, insofar as it is practical, is not a matter of "making up your mind that" but a matter of "making up your mind to" (Collingwood in Schweikard & Schmid, 2020). Talk of "intention that something is the case," Sellars argues, may be grammatically correct. Still, it is understandable to talk of practical commitments only because of their relation to "intention to." When spelled out, the intention that p is the intention to make it the case that p (Sellars, 1968, p. 184). Thus, a person's intention that "we" do x, or that somebody else does x, is a practical commitment only as an action-referential intention (intention to): one intends to do whatever is necessary to make it the case that we do x, or that somebody else does x. It yields a solution to the problem (which Sellars later calls "superficial") (Schweikard & Schmid, 2020). A person may assume that it is up to her what other people do because she takes herself to influence these other people (Sellars, 1968, p. 188).

Since we initiated this section with Gilbert's account, let us briefly discuss her notions for closing. As the title suggests, Gilbert analyses the general phenomenon of social groups by analyzing what happens when two people walk together. In other words, when can we say that two people are pursuing together the common goal of walking together? In her paper, the case is as follows:

> *"Imagine that Sue Jones is out for a walk along Horsebarn Road on her own. Suddenly she realizes that someone else—a man in a black cloak—has begun to walk alongside her, about a foot away. His physical proximity is clearly not enough to make it the case that they are going for a walk together. It may disturb Sue precisely because they are not going for a walk together. It is possible, of course, that she is glad he is there. She has recognized him. He is Jack Smith, and she wants to get to know him. She waits for him to say something. He is in the same position. Thus they could be walking along next to each other, each wanting this to continue. Is each one's possession of the goal that they continue walking alongside each other logically sufficient for their going for a walk together? I would say not"* (Gilbert, 1990, p. 2).

Concerning the above question, Gilbert answers it by building a gradient scale, in which we go from the primary case of two individuals just walking next to each other to two individuals walking together in a sense defined above. We first have to introduce two preliminary accounts of walking together:

(i) The first one is the weak shared personal goal analysis. Both participants have the common intention to walk together, but this intentionality is not shared. They are not aware that they share the same goal. Therefore, they are not taking a walk together.

(ii) The second one is the shared solid personal goal analysis. Both participants have the common intention to take a walk together and are aware of it. At that time, they also had common knowledge of the shared goal. Still, they are not actually walking together.

Briefly summarized, (i) having the same intention and (ii) common knowledge that both individuals want to pursue this intention are not strong enough cases for walking together. What is missing? For Gilbert, the two previous accounts do not produce sufficient and necessary conditions such that the members have an obligation to perform in a certain way and to rebuke the other person if they act in a way that doesn't

bring about the success of the joint action. For example, in our case, if one of the two members walks far ahead, the other would be entitled to rebuke them as this behavior doesn't bring about the success of the action of walking together. This kind of obligation, claims Gilbert, is not derived from individual intentions for a common goal. Still, it's present only when the subject of our shared goal is a plural subject, semantically a "we" subject. This plural subject is the result of a pool of wills that are bound simultaneously and interdependently to each other in pursuing the common goal. It means that the individuals do not commit to being part of this shared pool of wills conditional on the other's members' commitment. They have committed altogether, conditional to everyone being committed. Gilbert extends this analysis of walking together to the broad phenomenon of social groups, making clear that even if not all social groups have a shared goal for joint action, collective beliefs or collective principles still constitute a sufficient condition for the construction of a plural subject.

For closing, let us raise one question regarding Gilbert. What if we alter a bit the concept of time? Would this shifting timing change anything? Let us analogize it more. It has been established that Sue and Jack are both fully aware and in a commitment to each other that they are walking together and will continue to walk together. On another page, Gilbert notes that as Sue and Jack walk alongside, Jack starts to draw ahead. Sue then calls out to Jack to slow down so they can continue walking together. What would happen if Jack did not slow down?

If we break it down into time frames, maybe it makes more sense:

T1: Sue and Jack start to walk together (both have agreed to a commitment to some extent)

T2: Sue and Jack are walking side by side.

T3: Jack starts to walk faster than Sue.

T4: Sue and Jack are no longer walking side by side.

T5: Sue calls out to Jack. Jack does not slow down (Jack does not have the will to walk with Sue anymore)

T6: Sue and Jack are no longer walking together.

Those are just simple walks between two individuals. What if this was applied to large groups of individuals (collectives) that, over time, change wills and goals? Does the concept of time need to be introduced to understand when a collective is and is not? Could we not claim that Sue and Jack are still walking together, just at different paces now?

5 CONCLUSIONS

Action is not just a bodily movement. Intention as a mental state doesn't only consist of representative content, such as in social life or inside the head of the agent but is also pervasive to biomechanical extents. We argue that motor representative is not always the derivation of other intentions. It is essential as the basis of the intention reading in social understanding, particularly when the account has thick normative notions. Several questions are provided for further research.

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