

Action-OS

// Metadata

Name	Action-OS
Keywords	Intention, Distal intention, Proximal intention, Deliberate action, Successful action, Intentional action, Physical action, Non-physical action
Creation date	November 1 st , 2009
Has contributor	Gilles Kassel
Used ontology engineering methodology	OntoSpec
Is of type	Core ontology
Natural language	English
Has ontology language	OntoSpec
Has formality level	Semi-informal
Ressource locator	http://www.laria.u-picardie.fr/IC/site/IMG/pdf/Action-OS.pdf
Has reference	<ul style="list-style-type: none"> - M. Brand (1984). <i>Intending and acting</i>. Cambridge, MA: MIT Press. - M.E. Bratman (1987). <i>Intention, plans, and practical reason</i>. Cambridge, MA: Cambridge University Press. - F. Buekens, K. Maesen, X. Vanmechelen (2001). Indexicaliteit en dynamische intenties. <i>Algemeen Nederlands Tijdschrift voor Wijsbegeerte</i> 93, 165-180. - A.R. Mele (1992). <i>Springs of action</i>. Oxford: Oxford University Press. - E. Pacherie (2008). The phenomenology of action: A conceptual framework. <i>Cognition</i> 107, 179-217. - J. Searle (1983). <i>Intentionality</i>. Cambridge: Cambridge University Press. - T. Shallice (1988). <i>From neuropsychology to mental structure</i>. Cambridge: Cambridge University Press.
Version	1.0
Number of concepts (classes)	14
Number of relations (properties)	3

// Relations

Complies with

Properties

[EP/DR & RR] An ACTION *complies with* a PROTOCOL.

Generates, produces

Properties

[EP/DR & RR] An ACTION *generates*, or *produces*, an ACTION. [EP/IVL] *Generates* mutually implies *is generated by*.

Is generated by, is produced by

Properties

[EP/DR & RR] An ACTION *is generated by*, or *is produced by*, an ACTION. [EP/IVL] *is generated by* mutually implies *generates*.

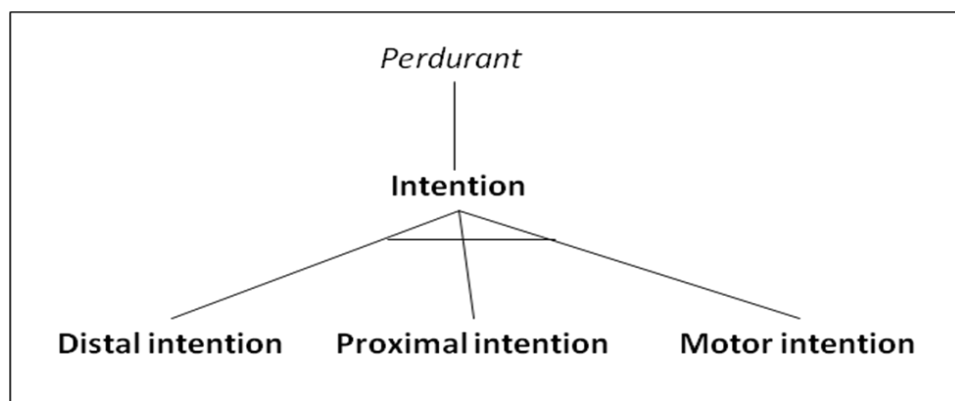
Comment

[DEF] ACTION A *is generated*, or *is produced*, by ACTION B when A is done *by* doing B: “doing A by doing B”.

[CIT] (Pacherie, 2008, p. 198): “At least three cases [of productions] must be distinguished. The first is indeed causal generation. Doing A by doing B counts as an instance of causal generation when the production of B causes the production of A. For instance, turning the light by flipping a switch or breaking the glass by dropping it on a hard surface count as instances of causal generation. The second case is conventional generation, where doing B (in circumstances C) counts as doing A in virtue of a rule or convention that stipulates that is so counts. Thus, signalling a left turn by extending one’s left arm or voting in favour of the motion by raising one’s hand are instances of conventional generation. The third case is circumstantial generation, where doing B counts as doing A only if certain circumstances obtain. For instance, one breaks the world record for in the 100 m for men by running it in 9,77 s only in circumstances where no one has yet run this distance in 9,77 a or less.”

1) Intentions

// Concepts



Intention

Meta-properties

INTENTION is RIGID (+R). INTENTION is EXTERNALLY-DEPENDENT (+D). DISTAL INTENTION, PROXIMAL INTENTION, and MOTOR INTENTION *is a non-trivial partition of* INTENTION.

Properties

[EP/SL] An INTENTION is a PERDURANT.

Comment

[DEF & CIT] The characterization of INTENTIONS that we adopt in this ontology relies on the dynamic theory of intentions defended by Pacherie (2008, pp. 181-182): “Some of the functions attributed to intentions are typically played in the period between the initial formation of the intention and the initiation of the action. In contrast, other functions – in particular, their role in guiding and monitoring the action – are played in the period between the initiation of the action and its completion. Attention to these differences has led a number of philosophers to develop dual-theories of action. For instance, Searle (1983) distinguishes between prior intentions and intentions-in-action, Bratman (1987) between future-directed and present-directed intentions, Brand (1984) between prospective and immediate intentions, and Mele (1992) between distal and proximal intentions. Two, often implicit, assumptions of these dual-intention theories are problematic. First, they tend to assume that the role of the first of these two intentions is over once the second is in place. Their second, related, assumption is that action guidance and monitoring are the sole responsibility of the second intention. In contrast, I shall argue that we should distinguish three main stages in the process of action specification, each corresponding to a different level of intention and each level of intention having a distinctive role to play in the guidance and monitoring of the action.”

Distal intention

Meta-properties

DISTAL INTENTION is RIGID (+R). DISTAL INTENTION is EXTERNALLY-DEPENDENT (+D).

Properties

[EP/SL] A DISTAL INTENTION is an INTENTION.

Comment

[DEF & CIT] (Pacherie, 2008, p. 182): “My notion of D-intention [DISTAL INTENTION] is very close in certain respects to Bratman’s notion of future-directed intentions (Bratman, 1987). Following his lead, we may stress three functions of D-intentions [DISTAL INTENTIONS]: as terminators of practical reasoning about ends, prompters of practical reasoning about means and plans, and intra- and interpersonal coordinators. The upstream dynamics of D-intentions [DISTAL INTENTIONS] – the dynamics of decision-making that leads to the formation of an intention – can be seen as involving two stages. The first stage is associated with the first of these three functions and involves deciding which end to pursue. The second stage in the upstream dynamics of D-intentions [DISTAL INTENTIONS] is linked to their functions as prompters of practical reasoning about means and intra- and interpersonal coordinators. This reasoning must be internally, externally, and globally consistent. The various elements that form the building blocks of an action plan must be mutually consistent (*internal consistency*). The plan as a whole should be consistent with the agent’s beliefs about the world (*external consistency*). Finally the plan must take into account the wider framework of activities and projects in which the agent is also involved and be coordinated with them in a more global plan (*global consistency*)... The downstream dynamics of D-intentions [DISTAL INTENTIONS] is concerned with the high-level rationale guidance and monitoring of the action. First, of course, the D-intention [DISTAL INTENTION] must be kept alive in prospective memory until the time comes to carry it out. When it does, one essential function of a D-intention [DISTAL INTENTION] is to ensure the rational control of the ongoing action... What should we understand rational control to be? Here, I Will follow Buekens, Maesen, and Vanmechelen (2001) who

describes rational control as taking two forms, ‘tracking control’ and ‘collateral control’, the second of which is often ignored in the literature. Tracking control involves making sure that each successive step in action plan is successfully implemented before moving to the next step. It also involves revising the action plan when unforeseen circumstances make it impossible to successfully proceed as originally thought. Collateral control involves controlling for the side effects of accomplishing an action. The main purpose of control as it is exercised at the level of D-intentions [DISTAL INTENTIONS] is to insure that the way the action is carried out does not flout the reasons the agent had for her action in the first place or violate the values, norms of coherence, general policies and rules of conduct to which she subscribes. ”

Proximal intention

Meta-properties

PROXIMAL INTENTION is RIGID (+**R**). PROXIMAL INTENTION is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A PROXIMAL INTENTION is an INTENTION.

Comment

[DEF & CIT] (Pacherie, 2008, pp. 184-185): “A P-Intention [PROXIMAL INTENTION] often inherits an action plan from a D-intention [DISTAL INTENTION]. Its task is then to anchor this plan in the situation of action. The temporal anchoring, the decision to start acting now is but one aspect of this process. Once the agent has established a perceptual information-link to the situation of action, she must insure that the action plan is implemented in that situation. This means that she must generate an indexical representation of the action to be performed, that is a representation that fits the specification inherited from the D-intention [DISTAL INTENTION] while anchoring it to the situation at hand... At the downstream stage, P-intentions [PROXIMAL INTENTIONS] have to ensure that the imagined actions become current through situational control of their unfolding. As we did for D-intentions [DISTAL INTENTIONS], we can distinguish between tracking and collateral control, where tracking control enables an agent to keep track of her way of accomplishing an action and to adjust what she does to maximize her chances of success, while collateral control is concerned with the side effects of accomplishing an action. Here, the main difference between P-intentions [PROXIMAL INTENTIONS] and D-intentions [DISTAL INTENTIONS] is that the former exercise tracking and collateral control with regard to the immediate goal and the situation as currently perceived, whereas the latter are concerned with the overall goal and the respect of global consistency and coherence constraints.”

Motor intention

Meta-properties

MOTOR INTENTION is RIGID (+**R**). MOTOR INTENTION is EXTERNALLY-DEPENDENT (+**D**).

Properties

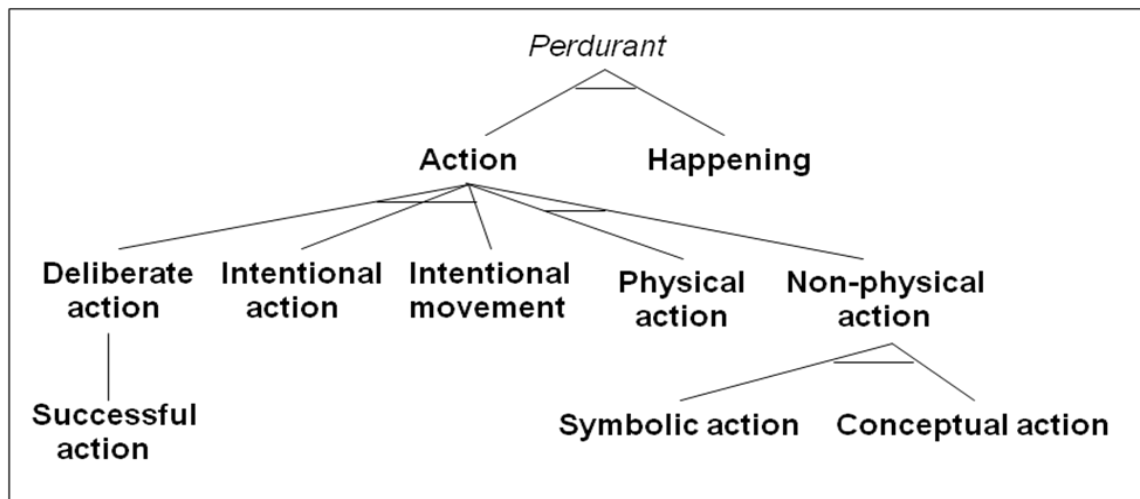
[EP/SL] A MOTOR INTENTION is an INTENTION.

Comment

[DEF & CIT] (Pacherie, 2008, p. 186): “D-intentions [DISTAL INTENTIONS] and P-intentions [PROXIMAL INTENTIONS] are responsible for high-level forms of guidance and monitoring, applying to aspects of the situation of action and of the activity of the agent that are perceived or conceptualized. However, work in the cognitive neuroscience of

action shows that there also exist levels of guidance and control of an ongoing action that are much more specific, responsible for the precision and smoothness of its execution, and operate at a finer time scale. M-intentions [MOTOR INTENTIONS] involve what neuroscientists call motor representations... It is now generally agreed that there exist two visual systems, dedicated respectively to vision for action and for the identification and recognition of objects and scenes. The vision for action system extracts from visual stimuli information about the properties of objects and situations that is relevant to action, and uses this information to build motor representations used in effecting rapid visuo-motor transformations. The motor representations produced by this system have three important characteristics. First, the attributes of objects and situations are represented in a format useful for the immediate selection of appropriate motor patterns. For instance, if one wants to grab an object, its spatial position will be represented in terms of the movements needed to reach for it and its shape and size in terms of the type of hand grip it affords. Second, these representations of the movements to be effected reflect an implicit knowledge of biomechanical constraints and the kinematic and dynamic rules governing the motor system. Thus, for instance, the movements of the effectors will be programmed so as to avoid awkward or uncomfortable limb positions and to minimize the time spent in extreme joint angles. Third, a motor representation normally codes for transitive movements, where the goal of the action determines the global organization of the motor sequence. For instance, the type of grip chosen for a given object is a function not just of its intrinsic characteristics (its shape and size) but also of the subsequent use one wants to make of it. The same cup will be seized in different ways depending on whether one wants to carry it to one's lips or to put it upside down... One can therefore also distinguish two moments in the dynamics of M-intentions [MOTOR INTENTIONS]. The upstream dynamics lead to the selection of one among the typically several pre-potentialized motor programs. When a M-intention [MOTOR INTENTION] is governed by a P-intention [PROXIMAL INTENTION] and inherits its goal from it, the presence of the goal tends to increase the salience of one of these possible pragmatic organizations of the situation and thus allow for the corresponding motor program. Forming a P-intention [PROXIMAL INTENTION] to act on an object, say reach for a pen, typically involves focusing one's attention on the object that is to be the target of the action... Yet, it can also be the case that M-intentions [MOTOR INTENTIONS] are formed in the absence of a P-intention [PROXIMAL INTENTION]. In such cases, the upstream dynamics work in a different way. According to the model proposed by Shallice (1988) there is then a competition among motor programs, with the program showing the strongest activation being triggered as a result of a process he calls contention scheduling. The guidance and monitoring functions of M-intentions [MOTOR INTENTIONS] are exercised as part of their downstream dynamics. They are responsible for setting the precise parameters of motor commands and for fine motor adjustments and rapid corrections during execution."

2) Actions



Action

Meta-properties

ACTION is RIGID (+**R**). ACTION is EXTERNALLY-DEPENDENT (+**D**). DELIBERATE ACTION, INTENTIONAL ACTION, and INTENTIONAL MOVEMENT *is a non-trivial partition of ACTION*. DOING and NON-PHYSICAL ACTION *is a non-trivial partition of ACTION*.

Properties

[EP/SLD] An ACTION is a PERDURANT which *has for part* an INTENTION. [EP/ER] Every ACTION *has for agent* an AGENTIVE at a TIME INTERVAL. [EP/ICL] No ACTION is a HAPPENING.

Comment

[DEF & CIT] An ACTION is a composite PERDURANT which consists of at least two parts: a PERDURANT and an INTENTION that causes and guides the PERDURANT.

[SA] ACTIONS are divided into DELIBERATE ACTIONS, INTENTIONAL ACTIONS, and INTENTIONAL MOVEMENTS according to the kind of INTENTION which causes and controls them.

[SA] ACTIONS are divided into PHYSICAL ACTIONS and NON-PHYSICAL ACTIONS according to the type of world (entities) which is transformed: PHYSICAL ENDURANTS or NON-PHYSICAL ENDURANTS.

Deliberate action

Meta-properties

DELIBERATE ACTION is RIGID (+**R**). DELIBERATE ACTION is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SLD] A DELIBERATE ACTION is an ACTION which *has for part* a DISTAL INTENTION and an INTENTIONAL ACTION.

Comment

[DEF] A DELIBERATE ACTION is an ACTION having for parts a DISTAL INTENTION and an INTENTIONAL ACTION, the former generating causally the latter. More specifically, the DISTAL INTENTION may be said to trigger PROXIMAL processes of the INTENTIONAL ACTION, providing them with an action plan that may still be mostly descriptive and abstract.

Successful action

Meta-properties

SUCCESSFUL ACTION is RIGID (+**R**). SUCCESSFUL ACTION is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SLD] A SUCCESSFUL ACTION is a DELIBERATE ACTION which *has for result* a RESULT *at* a TIME INTERVAL.

Comment

[DEF] A SUCCESSFUL ACTION is a DELIBERATE ACTION which is carried out to completion and leads to its intended result.

Intentional action

Meta-properties

INTENTIONAL ACTION is RIGID (+**R**). INTENTIONAL ACTION is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SLD] An INTENTIONAL ACTION is an ACTION which *has for part* a PROXIMAL INTENTION.

Comment

[DEF] an INTENTIONAL ACTION is an ACTION which *has for part* a PROXIMAL INTENTION. In case of PHYSICAL ACTIONS, the INTENTIONAL ACTION also *has for part* an INTENTIONAL MOVEMENT and the PROXIMAL INTENTION may be said to trigger MOTOR processes of this INTENTIONAL MOVEMENT.

Intentional movement

Meta-properties

INTENTIONAL MOVEMENT is RIGID (+**R**). INTENTIONAL MOVEMENT is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SLD] An INTENTIONAL MOVEMENT is an ACTION which *has for part* a MOTOR INTENTION and a bodily movement.

Physical action

Meta-properties

PHYSICAL ACTION is RIGID (+**R**). PHYSICAL ACTION is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A PHYSICAL ACTION is an ACTION. [EP/ER] Every PHYSICAL ACTION *has for part* an INTENTIONAL MOVEMENT.

Comment

[DEF] A PHYSICAL ACTION is an ACTION which involves the production of causal effects in the external world (on PHYSICAL ENDURANTS) through movements of the body of the agent.

Non-physical action

Meta-properties

NON-PHYSICAL ACTION is RIGID (+**R**). NON-PHYSICAL ACTION is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A NON-PHYSICAL ACTION is an ACTION.

Comment

[DIV] A NON-PHYSICAL is an ACTION on the non-physical world (NON-PHYSICAL ENDURANTS), i.e. on social and cognitive entities.

Symbolic action

Meta-properties

SYMBOLIC ACTION is RIGID (+**R**). SYMBOLIC ACTION is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A SYMBOLIC ACTION is a NON-PHYSICAL ACTION. [EP/ICL] No SYMBOLIC ACTION is a CONCEPTUAL ACTION.

Comments

[DEF] A SYMBOLIC ACTION is a NON-PHYSICAL ACTION which involves the production of causal effects on EXPRESSIONS.

Conceptual action

Meta-properties

CONCEPTUAL ACTION is RIGID (+**R**). CONCEPTUAL ACTION is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A CONCEPTUAL ACTION is a NON-PHYSICAL ACTION.

Comments

[DEF] A CONCEPTUAL ACTION is a NON-PHYSICAL ACTION which involves the production of causal effects on CONCEPTUALIZATIONS.

Happening

Meta-properties

HAPPENING is RIGID (+**R**). HAPPENING is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SLD] An ACTION is a PERDURANT which *has* no INTENTION as *part*. [EP/ICL] No HAPPENING is an ACTION].

Comment

[DEF] A HAPPENING is a PERDURANT which is not guided nor caused by the intention of an agent.