PRACTICAL REASON, REASONS FOR DOING AND INTENTIONAL ACTION (THE THINKING OF DOING AND THE DOING OF THINKING)*

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> To come to know what to do is to have a thought which itself consists of an awareness of its bringing about an action, or a rearrangement of one's causal powers...
>
> The causal dimension of practical thinking is the coalescence of contemplation and the causation of that contemplation, and the contemplation of that causation.
>
> (*Thinking and Doing*, p. 6)

Habitual behavior can be fully intentional.
(Oscar Thend)

Introduction

1. Topics and approaches

What believing is to theoretical, or contemplative, thinking, and to contemplative reasoning, intending is to practical thinking, and to practical reasoning. Yet what reality, or truth, is to believing is only in part what intentional action is to intending. What is believed is true or false, and to believe it is to take it to be true. What is intendend is neither true nor false, and to intend it is *not* to take it as being true, but, rather, as something *to be made* true, it having certain worth or legitimate claim on our powers to make things happen; indeed, whenever, as it sometimes happens, one believes that one will not be able to carry out one's intention, one actually takes the very *what* that one intends to correspond to -not of course to be- a falsehood.

In any case, intending is the fundamental state of practical reason, and thoughts of intentions, which rehearse or manifest the state of intending are fundamental practical operations of (human, rational) agency. The other practical states and acts presuppose and are built up on, or are complements to, intending and rehearsals of intending. Below we discuss briefly this hierarchical structure of practical thinking and reasoning.

The main topic of this essay is the logical structure of intending and the ontic nature of what is intended. For convenience, we assume that in rehearsing the state of intending to do an action A an agent

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has to token a representation of his intention to A. By 'representation' we mean here something semantical, something that plays a role in the computing or causal activities involved in thinking. In the present case, the representation we are interested in plays a crucial role in the agent's making up his mind about what to do and in his attempting to do something intentionally. This representation is, of course, internal to the process constitutive of thinking. But it must have a counterpart, a deputy representation, even if one subject to ambiguity, in the public language we use for communication. Hence, we may concentrate on the logical form and the semantics of sentences used to *formulate* intentions or resolves. Let us call such formulations *intentional sentences*. Specifically, then, our problem here is about what type of special *representation*, or representations, and intentional sentence must include in order to be intentional; alternatively put: what syntactico-semantic clues must a sentence contain for it to be properly interpreted as an intentional sentence.

Presumably, this discussion is of interest not only to philosophers, but also to cognitive psychologists, and to experts in artificial intelligence working on the facsimilization of practical reasoning or, more simply and basically, on the facsimilization of intentional action. The presumption is that an examination of the conceptual framework we use in our experience of intentional action, if correctly carried out, should deliver general constraints on, and perhaps guidance for, such facsimilizations.

A useful approach to the main topic is in part pragmatic, not really holistic, but molar. We must establish the need for, and describe the nature of, any peculiar representational element characteristic of our thinking intentional contents, as this element reveals itself under a scrutiny of the causal roles of intentions and intentional representations in intentional action. Conforming to a certain tradition, we may say that such a general representational element, as well as the meaning of the linguistic deputy representation, is a *concept* constitutive of whatever is thought of with the assertive use of an intentional representation. Then, the above described approach here is analogous to what Kant called *transcendental deductions*. We are dealing with a concept that is a necessary condition of the experience of intentional action, which is, as observed, the central core of all practical experience.

Then we must confront the complementary empirical problem of identifying the expressions of, and the applications of, such a concept. For this we must approach our living language of action descriptively and analytically.

I. THE THINKING OF DOING

1. Practical Reasoning and Intending

Practical reasoning is multifarious and hierarchical. Yet all its forms and types are species of the more general phenomenon of practical thinking. And the foundation of all practical thinking and reasoning is the thinking of intentions, the thinking involved in making up one's mind about what to do, or in simply adopting without reasons a given course of action. The state of intending is, of course -like that of believing-, merely a dispositional state. Thus, for instance, one normally keeps intact all of one's intentions -and one's beliefs- while resting in profound sleep. Just as believing is the fundamental dispositional state of so-called theoretical, or descriptive, or pure, or contemplative reason, intending is the fundamental dispositional state of practical reason -or, better, as Kant explained, of pure practical reason. Thus, episodes of coming to intend and episodes of fully thinking believing-like to do an action A here now, *endorsing rehearsals of intending* to A there then, are the primary episodes of the practical activity of the mind. More complex states of intending, like possessing an intricate plan for a form of life, require complex episodes of rehearsals of intending, but in last analysis the success of the endorsed plan will depend on a network of conditional intentions and successful rehearsals of intending.

In the simplest case, practical reasoning is the thinking involved in the derivation of intentions from other intentions, as, e.g., when one derives the consequent intention from both a conditional intention and the antecedent circumstances that have become true. But a word of caution is pertinent: not all intentional actions issued from a conditional intention need involve in their causation an episode of inference of the non-conditioned intention from the conditional intention.

Simple practical reasoning is not restricted to the first person; we also engage in communicational second -and third- person practical reasoning. For instance, for the benefit of an inattentive or obstreperous agent, we may indulge in the derivation of implied commands (or pieces

of advice, or requests), from circumstances and other commands (pieces of advice, or requests), as when a schoolmistress tells her assistant: "Remember my order, John: Call the mother up, only if the child does not arrive by 9 a.m. But the child did arrive at 8:50. Therefore, do not call the mother up".

Obviously, the second- and third-person forms of practical reasoning are derivative and presuppose their corresponding first-person version. To begin with, in the cases under consideration, a command, request, advice, or entreaty need not be fulfilled by its agent. Furthermore, even when the agent acts upon a command, or request, he must, first, *understand* it, and, second, must *translate* it into his own intentions. This crucial gap, between second- or third-person practical thought contents and first-person intentions, is of the essence of human agency. This is not to deny, of course, that there can be a total conditioning in which a noise, or mark, that would express a command can be the stimulus that elicits an *automatic* response described by the noise, or mark. Perhaps automatisms of such a kind are the building rock of practical thinking; certainly the general purpose of guiding behavior and influencing conduct, characteristic of practical thinking, is better served by people on emergencies responding automatically to appropriate noises or marks. Yet we must distinguish the mere failure of an automatic response on the part of a trained organism from the refusal to obey, available to an agent, which presupposes understanding, and first-person translation, of what has been ordered or commanded.

In important cases, practical reasoning is the thinking involved in important deliberations aiming at finding out what one ought, everything relevant being considered, to do on a particular occasion. In general, in deliberation one faces a conflict of duties or desires, wants, or ends, and one tries to determine what, given to total balance of both the reasons for the duties or wants in conflict and the other facts in the world, one ought ultimately, everything relevant having been considered, to do.

As deliberations are reasonings, in them we deal with premises and reasons that enter into the reckoning of a deliberation. Thus, we are considering just those wants, desires, or purposes represented in a given deliberation. The *logic of so-called hypothetical imperatives*

provides the principles according to which wants, desires, purposes, and their ilk generate, and can be represented by, corresponding indexed oughts.[1] Consider now an agent who faces conflicting norms or rules; let us catch him deliberating, whether by himself, in a first-person reasoning, or with the help of another, whose second-person reasoning he is prepared to translate into his corresponding first-person version. Clearly, he can consider seriously only the rules and norms he acknowledges, not only as somehow existing, but as *binding* upon him, that is, as impinging on his action mechanisms and exerting a minimal effect on them in the direction of his doing what the obligation rules prescribe, and away from what the interdicting rules proscribe. Such a norm-grounded inclination to action, however minimal it may be, the agent recognizes in his very recognition of a rule as binding; and *qua* inclination to act this inclination is manifested in the same kind of physico-chemical changes through the same kind of physiological processes. Hence, it is psychologically of the same type as what we customarily call "wants". In brief, the required internalization of the normative oughts and genuine duties an agent includes in his deliberation is the grain of truth seized by those philosophers who have spoken of one's desire to do one's duty.

In any case, regardless of the terminology one should adopt, we can, without loss of generality, view a piece of deliberation both as the formulation of a conflict of "duties", or indexed oughts, and as the search for a solution to such a conflict.[2]

Means-ends reasoning often consists of seeking means that constitute also solutions to at least vaguely envisaged conflicts of duties or ends. One is engaged in ascertaining the best means, that is, the means that at the same time both (i) contributes to the attaining of the particular goal for which it is a means, and (ii) conforms to, or requires acceptable modifications of, the other ends one is committed to, at least concerning one's most cherished or highest ends. But in all those cases practical reasoning aims not only at finding out solutions to so-called theoretical questions about the necessary, or even sufficient, causal conditions for it being the case that certain states of affairs obtain, or for one believing what the real states of affairs are. The focal point of practical reasoning is to determine what states of affairs are. The focal point of practical reasoning is to determine what states

of affairs the relevant agents *are to bring about*. For these we look for reasons that can help us answer the two questions that constitute the whole purpose of a deliberation, namely:

What I ought, everything (relevant) being considered, to do?

What shall I do?

2. Reasons for Doing

The reasons collected, grouped, examined, pitted against each other, and balanced in deliberation are *not* mere reasons for believing something, or for something being the case, but reasons *for doing*, i.e., for the agent to do something.

Reasons for doing have two dimensions: (a) on the one hand, they are reasons that sponsor a course of action as the candidate for what the agent ought everything considered to do: thus, the ranking of reasons for doing determines a *ranking* of the conflicting actions the agent ought prima facie to do, and to deliberate is simply to attempt to come to believe what the relevant portion of that ranking is; (b) on the other hand, a reason for doing an action A is such that its endorsing consideration, certainly by a deliberator well put together, has the effect of putting in readiness the agent's mechanisms of action oriented toward his doing A.[3]

This twofold, or Janus, nature *of reasons for doing* raise some important questions: What does 'doing' mean in the locution 'reason for doing'?. What does 'for' mean there?. Below we shall offer answers to these questions.

3. Intending as the culmination of deliberation

To find out *what to do* is for one to acquire a very interesting and peculiar state. For one thing, one comes to be in a position to do *intentionally* what one ought to do. Typically this finding out is, again, not a mere theoretical discovering of a truth to be added to one's repertory of beliefs; indeed it is not so much to come to believe something -although one does come to believe many things in deliberation-, but to acquire the state of intending to do what one comes to believe that one is to do. In the case of contemplative, or theoretical thinking, finding out what is the case, namely, that p, is typically to come to believe that p; likewise, in the case of practical thinking,

to find out what to do, namely, to A, is typically to come to intend to A. Thus, the creation of a state of intending to do something specific is the state at which all deliberations and all practical reasonings aim.

4. Summary: deliberation, intending, and weakness of will

We may summarize the preceding discussion schematically by means of the following claims, where '===> ' expresses *logically implication* in the logic of the ought of deliberation, and 'he*' is short for 'he himself'.

(1) One deliberates to ascertain what one ought everything relevant being considered to do;

(1a) One deliberates in the second- or third-person to ascertain what to inform to others what, on one's view, they ought everything relevant being considered to do, so that they can translate our deliberation into their corresponding first-version.
(Of course, we may lie.)

(2) X ought everything relevant being considered to A ===> [the intention, or intended content] X himself to A;

(3) *It is not the case that* (X believes that he* ought, everything relevant being considered, to A ===> X intends to A);

(4) Yet if X is a typical and attentive deliberator well put together, X may very well conclude his* deliberation (of course, in the appropriate words of his own idiolect) as follows:
"I must, everything relevant being considered, to A; therefore, I shall (am going to) A."

(5) If X is improperly wired (e.g., paralized) he may strain himself attempting unsuccessfully to A.

(6) If the world around X is inhospitable X may waste his energy in an effort, thwarted by the world, to perform A.

(7) If X suffers from weakness of the will, in spite of both his deliberation and perhaps also his being in the state of intending to A, X may yet attempt *not* to A, and may even succeed in not Aing.[4]

The central elements in the whole hierarchical structure of practical thinking are both the state of intending and the thinking episodes that are rehearsals of intending -analogous to the thinking episodes of contemplative thinking that constitute the rehearsals of belief. Hence, to appreciate fully the practical roles of deliberation and conflicts of duties or wants, we must elucidate the causal function of intentions.

II. THE DOING OF THINKING

1. Formulations of intention vs attributions of intending

We must distinguish very carefully between intentional sentences and sentences used to *attribute* intentions. To illustrate compare the utterances in the following dialogue:

Virginia: I can't stand it any more! *I'm quitting my job.*

Martha: So *you*'ve decided *to quit your job.* Really? Well, I doubt very much that you will quit your job. You believe that you'll quit. But you won't quit.

Virginia: Of course I believe that I will quit my job. But that is not the point. *I* intend *to quit my job*; I'm going to quit. You can rest assured that I will quit my job.

In the above exchange the underscored locutions formulate Virginia's intention to quit her job. The fundamental expressions of Virginia's resolve are, of course, Virginia's own first-person formulations: *I'm quitting my job* and *I'm going to quit.* The fundamental formulations of intention are so not only because they represent the first-person character of the intention, but also because by appearing in direct speech they appear naked and perspicously. The fundamental expressions of intention are tipically in English first-person future-tense sentences. But in that respect they are ambiguous, for the same sentences can express predictions. In this respect, the attributions of intention constitute a *logico--ontological prism.* A future-tense sentence that formulates an intention becomes embedded in sentences attributing that intention to the agent

in question in the special form of an infinitive. This is what we see in Martha's *you've decided to quit your job* and in Virginia's own *I intend to quit my job*. In contrast, a future-tense sentence formulating a prediction is embedded in sentences expressing the corresponding attributions of belief in its own indicative form, remaining unchanged if the attribution of belief is present or future. This is what we see in Martha's *you believe that you'ill quit* and in Virginia's own *I believe that I will quit my job*.

Thus, the problem of the special intentional representation in intentional sentences is the problem about the represented, the thought-of element that is captured by the special sense, or use, of a first-person future-tense sentence that expresses, not a prediction, but an intention.

2. The internal causality of intentional action

Obviously, an intentional action is one performed by an agent with a certain frame of mind, which for convenience we shall call an *intentional frame of mind*. This raises the question:

What is an intentional frame of mind?

We must be prepared to find that intentional frames of mind are such, not by virtue of one uniform property common to all of them, but that they form a *hierarchical family* built on a network of relationships to some *basic* frames of mind. However this may be, it is rewarding to explore different types of cases.

In the *simplest* case of intentional action an agent simply chooses to perform a rather simple bodily movement, e.g., flexing her right index, blinking, jumping a ditch, grabbing a moving object, picking up a book. Let us scrutinize one such a reasonably simple case under our logico-philosophical microscope.

Let's suppose that our agent Agens has decided to jump a certain ditch D. It is immaterial for our present purpose whether Agens has acquired the state of intending to jump ditch D as a result of a protracted deliberation, or as a result of an inference from his immediately previous conditional intention to jump D if p, and if being the case that p, or whether Agens simply, so to speak, out of the blue, chooses (i.e., comes to intend) to jump ditch D.

Patently, Agens jumps ditch D intentionally only if his intending

to jump is *somehow* involved in his jumping. But how? Dispositional states are not causes, although they can be causal conditions; only events (as Leibniz taught us) are the bearers of energy and, hence, causation. Since Agens' intending to jump is a dispositional state, we need a particular event that both (a) serves as the trigger of the causal train ending in ditch D being jumped by Agens, and (b) involves Agens' intending to jump D. Obviously, an event that is a rehearsal of Agens' intending to jump ditch D can fulfill both conditions (a) and (b).

Clearly, as a cause, or as a causal factor, of an intentional jumping by Agens of ditch D, Agens' rehearsing his intending to jump ditch D has to be characterized by its content, by what it represents. The causal connection has an internal dimension. Agens' thinks intendingly to jump ditch D and this thinking causes, in the appropriate causal setup, a causal train that is oriented towards Agens' jumping ditch D. The internal representation of his jumping ditch D makes the thinking in question effective by guiding the thinking's effect. What kind of representation is it, then?

To appreciate the force of the question better let's consider a natural theory:[5]

> *Int = Bel Theory.* To think intendigly to A is to think believingly that one will A when this thinking believingly causes one's Aing.

This theory captures in part the internal causality of intentional action. But it does not seem to me to characterize well the intentional content. We may imagine that Agens has been so conditioned by his early training that whenever he thinks believingly, believes occurrently, as other philosophers like to say, that he will jump, or to jump a ditch, his so thinking causes him to jump. Agens' conditioning may be so well-entrenched that regardless of how he resists his inclination he just can help but jump. Agens may in fact decide *not* to jump and in his very deciding not to jump he may believe that he will jump, and, lo and behold!, he jumps.

Consider a stronger theory than the Int=Bel Theory, one that requires that the agent believe that his thinking believingly that he will A causes his Aing. This theory also fails even for more occasional reasons than deeply-seated conditioning. Agens may be standing before ditch D in the process of some neuro-psychological experiments of

which he is a subject. His brain is wired in such an external, but efficient way that his thinking "I will jump ditch D" will cause him to jump. He knows of the nature of the wiring, and believes, when he sees a red light, that the mechanism is operating and hence that he will jump ditch D, and he also believes that his so thinking will cause him to jump ditch D. Yet Agens does not intend to jump ditch D.

Clearly, an agent well-put together must be able both to intend to A and to consider, and to believe, that he will not A. Furthermore, an agent well put together must be able both to think intendingly to A and to think believinly that he will not A. Moreover, an agent must at least have a feeling that he is thinking intendingly one content and thinking believingly the other. In fact, a mature agent must be able to tell the difference, so to speak, from *inside*, from the nature of the contents he is thinking, whether he is thinking an intentional content or a doxastic one. A mature agent well-put together must be able to *know immediately and in advance of any possible effects*, without an empirical investigation concerning the effects of his thinking episodes, whether he is attempting to carry out an intention or not. If the difference between intending and believing, or between thinking intendingly and thinking believingly, were not an internal difference in thought contents, the agent could only tell which one is his mental state, or his mental act, by an empirical investigation about the effects of his mental acts.

The immediate knowlodge of one's intentions is required for one to be able to acquire intentions in advance, as when one makes promises, and for one to have control of one's actions and accept responsability for them.

I conclude, therefore, that the thinkable content that is intented is not a doxastic content; *a fortiori*, it is not a proposition. If, as some recent accounts by David Lewis and Roderick Chisholm claim[6] doxastic contents are not propositions, but attributes, then my conclusion is that we must distinguish the *propositional attributes* that function as doxastic contents from the *practictional attributes* that function contents of intending. I have argued againts this Attribute View of Believing and its counterpart Attribute View of Intending[7], but I won't press the issue here. For the time being I am content to argue that intentio-

nal and doxastic contents belong to different ontico-semantic categories.

3. The Basic Practical Representation: Its Causal Role

The intended content has some special element that makes the intendingly thinking of it at least initially causally efficacious. We say "initially" advisedly. A rehearsal of intending to A may turn out to be unsuccessful (a) because the agent is not well put together: there is a break in the causal paths from the point where the rehearsal impinges to the bodily parts whose movements are required for the agent's Aing, or (b) because the environment is inhospitable: there is no causal passage from bodily movement to the state characteristic of Aing. Weakness of the will is a very special case under (a). In any case, because of the basic practical element of intented content, thinking intendigly this intented content is precisely to move the will; indeed, an episode of such a thinking is an act of will, a primary *volition*. Obviously that element has to be represented in the token that embodies the thinking episode in question. But what sort of element is it?

Let us for brevity use the schema 'I to A' to represent a basic intended content, where the infinitival connection located at *to* represents the special practical element. Thus, a primordial act of will is the tokening of a representation of an intended content, say, of the form *I to A now*, provided that tokening is constitutive of an episode of intendingly thinking oneself to A. Obviously, in some sense one is thinking of the first-person proposition *I will A*. But one is thinking more than that. One is thinking in some unspecified and even inarticulated way of the causality that the very thinking of that content can have, and that one can mobilize in executing intentional action, through which action if successful, the proposition *I will A* is made true. The basic practical element, the TO-element, is a signal of that causality.

We have seen that the fundamental practical content is a first-person content. But obviously, the first person appears in predictions and in statements about one's own past. Hence, the first-person subject is not the peculiar basic practical element. Similarly, intended contents are future-tense. The future envisioned in an intention can be so immediate that it may lie within a specious present, as when one expresses a resolve to do something right away: "I'm leaving now". Yet all varieties of future are included in doxastic contents. Hence, the future

itself is not the basic practical element.

Patently, any action whatever can be intended by an agent. Thus, the basic practical element cannot be an action. Furthermore, the basic practical element must be systematically connected to the structures of intending an to the causal setup involved in the production of intentional action. It can, at most, be an operator or modality that applies to actions to make them suitable for intending.

In brief basic practical element in intended content must be a purely formal element that can apply to *any* first-person subject and to *any* action whatever. The representation of that element, the basic practical representation, must, therefore, be a general syncategorematic symbologic mechanism applicable to the representation of any action whatever. The occurrence of the basic practical representation in the total representation of an intended content is, precisely, what makes the tokening of that total representation insert the requisite energy in the agent's appropiate Action Center, from where the energy is channeled in the direction of the parts of the agent's body whose movement, is followed by an appropriate string of changes, counts as the agent's doing the intented action. To sum up:

i) The representation of the first-person subject of an intented content indicates the *total system* where the causation of intentional action takes place;

ii) The actional predicate or representation of the action in a basic intented content indicates the direction, within the agent's body in which the energy introduced by the intendingly thinking of an intented content is expected to run; thus, the representation of the intended action *guides* the flow of volitional causation;

iii) The basic practical representation, not by itself, but syncategorematically, in the context of the total representation of intended content, occurring at the appropriate Action Center, is the *catalyst* that bestows upon intendingly thinking its volitional, causal, role.

4. The syntax of basic practical representation

We must, then, carefully dintinguish between:

(1) Agen's intented content: *I will jump ditch D*

from

(2) Agens' doxastic content: *I will jump ditch D.*

Let us for convenience call intended contents *first-person practitions*. As we have observed, first-person practitions are not propositions. As the intention-prediction ambiguity of first-person future-tense sentences show, an intention and its corresponding prediction have the same first-person referent as agent-subject and the same action type as predicate. We conjecture that perhaps the intention/prediction ambiguity of the sentence can be located in the future tense. Then first-person practitions can be considered to differ from their corresponding predictions by two different contentual elements represented, alternatively, by the future tense: we can, thus, speak of the *theoretical* or *contemplative* future tense and of the *practical* future tense. On this conjecture we can for clarity represent (1) as follows:

(1A) Agens' intended content: *I will-P jump ditch D.*

On the conjecture that the future-tense is practical/contemplative ambiguous, we may say that an intention and its corresponding proposition differ in a copula: the intention has the practical copula *will-P*, whereas the proposition has the propositional copula *will*. But we can say that and analyze further the practical copula *will-P* as a value of the copular modality *P* applied to the propositional copula *will*.

On the other hand, we can parse our intention (1) differently:

(1B) Agens' intended content: *I will P-jump ditch D*
or *I will P (jump ditch D).*

That is, we can at least initially consider the basic practical representation to be an operator on ordinary (contemplative or theoretical) properties, yielding practical properties, which are the suitable contents for intentions and other practical thought contents.

Yet we can take the representation *P* as a modality of the whole predictive proposition. Thus, intended content (1) can be viewed as having a sentential modal form, as follows:

(1C) Agens' intended content: *P(I will jump ditch D).*

A little reflection reveals that the practical modality *P* of (1C) has to be treated as a modality that applies to some primary actional propositions. The main point is that there are mixed practical contents (and

sentences), e.g., conditional intentions or commands: *If it rains, close the windows* and *Only if it he asks me will I send him the book.* Clearly, mixed practitions are practitions, but the practitional modality remains confined.

It is not our plan to defend any one of the preceding logical views of the basic practical representation. Obviously, a logic of practical reasoning has to make a choice as to how to view the fundamental, irreducible representation of intentional causality with triggering force, and a facsimilization of practical reasoning has to adopt a logic of practical reasoning[8].

5. Other Intentional Frames of Mind

We have seen that the background intentional frame of mind from which intentional action flows is composed of a dispositional state of intending to A here now and a rehearsal of such a disposition, such rehearsal being a volition to A. Such an intentional frame of mind is the *fundamental* one. More complex intentional frames of mind are constructed on varying relations to it. For instance, in adopting a plan of action we create in ourselves right there and then frames of mind within which further subplans and specific intentions will be adopted. Some actions will be intentional by virtue of that intentional background, even if they were not conceived as such, but have certain determined places in the causal chains issuing from that intentional background.

Plans have a holistic character. In the case of a well organized routine, an agent may create the appropriate intentional frame of mind, from which the intentionality of each segment of the routine ensues, by simply entering intentionally into the routine. In such a case each movement he performs will be intentionally performed, even if the agent did not conceive of it when he decided to engage in the routine, because the movement is, so to speak monitored by the initial volition to engage in the routine here now. This is illustrated by a very skillful clown who once decides to perform he just unfolds his show. There may, of course, be additional volitions, as, for instance when the agent comes to a rough spot in his routine, or when the environment introduces a disruption.

We also adopt plans that are general or schematic. Here the initial

volition creates a general causal diagram within the agent's body, where energy will have to run as it is introduced by other sources, even by further comings to intend either of subplans or specific courses of actions. This may, of course, be well entrenched habitual routines, and can, therefore, be executed by a detailed train of actions that are performed intentionally because of the holistic background created by a comprehensive initial volition. In general, the more schematic a plan of action is the more need it has to be complemented, in fact embodied, through the agent's particular actions that he chooses to perform,. i.e., actions that are intentional in the fundamental sense, by virtue of an intentional background of the fundamental type, or by virtue of a holistic monitorial volition.

We have no time here to consider the intentionality of actions that are performed in the process of carrying out plans, which can be regarded as hierarchies of intentions. But we must, for contrastive enrichment, consider at least the case of intentional action where there *need not* be a particular volitional episode, yet there is an operative background intentional frame of mind. This is illustrated by conditional intentions.

6. Conditional Intentions

The holistic character of an intented course of action, we have seen, requires that a given volition cover, i.e., start and monitor, a whole sequences of acts. This suggests that plans that depend on future circumstances may be governed by an initial monitorial volition. Such plans are actually composed of condition intentions: intentions of the form *If p, then I will A*. Therefore, in principle an agent can fulfill intentionally a conditional intention without having to go through the even of coming to intend the consequent. That is, conditional intentions can be adopted by an agent and then put into realization by one overall volition. If the volition that starts the realization of a conditional intention maintains its *Gestalt* character, then there would be no need for the insertion in the agent's agency of a special volition that brings about the realization of the conditioned intention.

Let us consider an example. As a special show of friendship, Bob Rosthal has made a decision that he expresses thus:

(1) If Jay Rosenberg visits me tonight, I will offer

him my expensive French wine.

Rosthal is, therefore, in a dispositional state of intending, which itself is not conditional but whose *content* is a conditional intention or intendend. (I use the word 'intention' to refer to *what* is intended, not to the state of intending.) The condition is internal to his intending, and we must be careful to describe his state as having a conditional content, for instance, by saying:

(2) At time t Bob Rosthal intends to do the following: if Jay Rosenberg visits him tonight, offer him his most expensive French wine.

Clearly, for Rosthal to carry out his intention (1) is not sufficient that he offers his most French wine to a visitor who, unbeknownst to him, happens to be Jay Rosenberg. Indeed, it may even be the case that the appearence of the visitor in his house is what causes Rosthal to offer him his new French wine. Yet for the offering to be the intentional offering that fulfills the conditional intention (1), it is not sufficient that it be caused by the realization of the condition. This causation would certainly conform to the holistc character of intentional action we have established above. But we need more. We need, besides that Rosthal *believe* that his visitor is Jay Rosenberg. Some persons will even say that Rosthal *carried out* his conditional intention (1) if he offers his most expensive French wine to a visitor who he mistakenly believes to be Jay Rosenberg. Such persons distinguish between Rosthal's carrying out intention (1) and Rosthal's *doing* intentionally the action of offering Rosenberg his new expensive French wine; for this doing to occur Rosenberg must be around.

In a literal sense it is not enough for Rosthal to carry out his conditional intention (1) that he believes that Jay Rosenberg is visiting him. He must actually *think* that Rosenberg is *there* visiting him. The condition of conditioned intention (1) must be thought believingly, to obtain, and that episode of thinking must be causally involved in Rosthal's offering the wine to whom he (correctly) takes to be Jay Rosenberg. Some philosophers, however, even philosophers who hold a holistic view of intentional action, may want to argue that for Rosthal to carry out his conditional intention (1) there must be another fact, or event, namely, Rosthal's going on to infer, from his conditional intention (1), and his

minor premise (that Rosenberg is there), the unconditioned consequent intention:

(3) I am (now) going to offer Jay Rosenberg my most expensive French wine.

The view here is this:

(V) If an agent has adopted a conditional intention *If* c, *then I shall A*, then he adopts the unconditioned intention *I shall A* only if he adopts this intention directly or he infers it from his previous intention and his belief that condition c obtains.

Of course, nothing prevents Rosthal from adopting, independently of all his previous decisions, the unconditioned intention to offer Rosenberg his most expensive French wine. With this part of view (V), I have no quarrel. Nor have I any quarrel with the claim that Rosthal *can* infer his consequent, unconditioned intention to offer Rosenberg his new French wine from both his conditional intention (1) and the condition (as he believes it to obtain) that Rosenberg is visiting him then. What I claim is that Rosthal need *not* make such an inference, that he *can* be moved to act by his thinking, believingly, that the condition of his conditional intention (1) obtains. For that we need a psychological background in which Rosthal has not changed his mind about (1), and this intention is either explicity in the focus of his consciousness or in the penumbra of his consciousness, in something, and inclusive of, akin to what psychologists call *short term memory*.

I claim that the *Gestalt* character of intending explains how Bob Rosthal can proceed, having adopted conditional intention (1), from his thinking believingly (not merely entertaining it) that the antecedent of (1) obtains, directly, without the mediation of any inference and without a new volition to do the action mentioned in the consequent of (1), to the performance of such an action.

My claim is based, partly, on the following general principle of implication that bridges the logical distance between practical and con-

templative reason:

(Int. Bel.*) If at time t X rehearses his intention to (A, if c),
then if at t X rehearses his belief that c,
then at t X intends to A.

This principle also bridges the distances between the dispositional state of intending to do a conditional action and the dispositional state of intending to do the action simpliciter (without the condition), through episodes of thinking. (Int.Bel.*) is actually a weak principle in two respects: i) althought it does not require that there be an ocurrence of a thinking that rehearses the unconditioned intention, it requires a rehearsal of the conditioned intention. The second respect of weakness is this: ii) (Int.Bel.*) requires that the conditioned intention be rehearsed, i.e., be in consciousness. Thus, we have also:

(Int.Bel.*) If during an interval of time d X intends to (A, if c),
then if time t is included in d and at t X has assertively in the penumbra or in the focus of his consciousness his intention to (A, if c) and at t X thinks believingly that c, then at t X intends to A.

These principles connect intending and believing along evident logical connections -by *modus ponens* none other- that relate their contents. The best support for them lies in the holistc insight we gained in the preceding sections. Recall that because of the divisibility and the additivity of realized actions, any action can be considered as a sequence of smaller actions, or as a part of a larger action. We also noted that, regardless of how much divisible an action may be, intended actions must be considered as unitary wholes, whose divisions are junctures included in their very conception. We noted that it is utterly absurd to postulate a special volition for each possible segment that any division of a realized action can yield. Thus, any action especially the more complex ones, can be treated as sequences of unitary acts. But here comes something truly significant that goes bayond (C.UA) and (V.nAd.): seldom is a unitary act sequence we intend to perform merely a juxtapositive succession of acts: acts have a *Gestalt*, as recorded in this principle:

(Act . Str.*) Seldom (if ever) an intended action, A which can be decomposed into the act sequence $a_1,...,a_i,...,a_n$ is such that each act a_i is intended by itself. Characteristically, the structure of the intention to A is of the form: intention to a_1 & intention to (do a_2, if a_1 is performed) & ... & intention to (do a_n, if a_{n-1} is performed).[9]

In short, every possible way of dividing an action that one intends to do yields a sequence of *conditionally* related actions in one's intending. Recall that an agent does not think, or cannot even think, of each of the possible divisions of his actions into sequences. The agent has only a very schematic conception of the process that would obtain in the world were he to fulfill his intention. The present claim is that if the agent thinks of some possible division of his action, especially an action that he thinks of as an undivided unit, he would consider the latter acts of the sequence as intended conditionally under his realization of the preceding acts. For illustration consider a situation in which you simply decided simply to move your right index finger and you moved it through a distance d. You moved it through d intentionally, but you also moved it intentionally through each distance d' less than d -even though you did not think of d', let alone of the motion of your finger through d'. The unthought of intentionality of your moving your finger through distance $d' + d''$ equally can be analyzed as the unthought-of intentionality of your moving your finger through d'' if you have moved it

If the above sequentialization of any action whatever is correct, then the issue, whether or not a sequence of acts conceived as one unitary action -as in the case of Rylequin- is matched by an isomorphic sequence of volitions, is precisely the issue whether or not a sequence of intended conditional acts is to be matched on a one-one basis with a sequence of volitions, or rehearsals of intending.

Perhaps the bridging implications recorded in (Int . Bel . *) and (Int . Bel **) may be considered too rationalistic. Perhaps the reader may want to reject both principles and accept causal counterparts that

include the additional condition that the agent X is rational. These weaker versions will certainly suffice for many purposes. Yet I believe that the stronger versions (Int.Bel.*) and (Int.Bel.**) hold also for irrational agents. These principles of implication determine neither which volitions the agent will have nor which actions he will perform. The principles merely tell that (dispositional) intending conditional intentions and occurrent believing that the conditions obtain imply the dispositional state of intending the unconditioned intention. The principles are non-empiricistic in that they allow that intentions can be adopted without having to go through consciousness. And this has to do with rationality only to the extent that it involves the rational power to think the believed and intended contents under consideration. But for the main causal thesis about intentional action I am proposing here, the weaker "rationalistic version" suffice. If the reader to desires he may read both (Int.Bel.*) and (Int.Bel.**) as having a built-in suitable antecedent, e.g. "X is at t rational with respect to his intentions."

7. Causation and the intending of conditional intentions

Principles (Int.Bel*) and (Int.Bel**) are not causal principles. They pertain to the structure of the one mind or reason of an agent, which functions both contemplatively and practically, to put it in Kantian terms. Those principles do not tell us which action or indeed that any action will ensue; they merely describe how certain structures of the mind create other structures to which they are logically related. Now, those structures have to do -again, not with the causation of action, since this has to do with the flow of energy- with the structures of the routes for the flow of energy. This is precisely what the dispositional state of intending amounts to. To acquire the state of intending to do an action A is to create within one's body a network of routes for energy to travel, routes oriented toward the place where the relevant muscles and nerves are activated. But the dispositional state of intending is *not* itself the activation of anything. Thus, when Bob Rosthal made up his mind to offer Rosenberg his most expensive French wine if he visited him, he literally *made up* his mind: he created channels for energy to go through. He arranged his mental structure.

Now, where is the energy required to move Rosthal's body toward his wine collection coming from? Here I am assuming a generally

Humean account of causation to the effect that causation is fundamentally a relationship between events. Hence, we have to find and event that is to furnish the energy that can move Rosthal's limbs an muscles. The energy need not, of course, come from outside Rosthal's body. But there must be an event to at least mobilize energy already available potentially.

Clearly, if, as the inferential view (V) has it, Rosthal will have to make an inference to an unconditioned intention, then the *event* of inferring as follows could certainly provide or mobilize the required energy:

(1) If Jay Rosenberg visits me tonight, I will offer him my most expensive French wine.

(2) Here is Rosenberg visiting me.
Hence, (3) I am going to (will, shall) right now offer him my most expensive French wine.

Again, I most emphatically accept the doctrine that it is possible, and, in some cases, very likely, that Rosthal reasons "(1), (2), therefore (3)." The issue is *not* whether he can make the inference, but whether he must make the inference in order to fulfill his initial conditioned intention (1). Of course, we all agree that Rosthal can very well forget his initial conditional intention (1), and upon seeing Rosenberg decide *anew* to offer him his most expensive French wine. This is not germane to our present concern.

My reason for rejecting the view (V) that Rosthal must infer the unconditioned intention (3) from his intending (1) and his believing (2) is that this has been shown not to be required in the preceding section. If when he comes to intending conditional intention (1) Rosthal creates in himself a structure of routes for energy to go through, it seems redundant to *require* that he recreates that structure by rehearsing intention (1) as a major premise. Sometimes that may be precisely what he has to do. A reasonable long time may have elapsed since he came to intend conditional intention (1), and he has been enjoying a very rich train of experiences, including the doing of many intentional actions of different sorts, and he may have, thus, blurred those routes. A process of clearing up the network of actional routes may be required, and an act of inferring "(1), (2); therefore, (3)" may do just that.

On the other hand, Rosthal made up his mind to do what conditional intention (1) formulates; he has not been enjoying experiences that touch the structure of energy paths that that state of intending consists of. Thus conditional intention (1) is in the penumbra of consciousness, or just beneath conciousness. Now, Rosthal being in that frame of practical mind, Rosenberg, with his characteristic flare, with no disguises or hats, or obsviously himself as he can be, and enjoys being, comes in and greets Bob Rosthal with his unmistakable voice and style. Rosthal perceives Jay Rosenberg. Perceiving is an event, and one that brings in energy to Rosthal's brain. That event creates in Rosthal the dispositional state that Rosenberg is visiting him, but that dispositional state is not involved in the mobilization of energy, although it is involved in the guidance of the energy to be mobilized. Why could not the event of Rosthal's perceiving Rosenberg, locating Rosenberg in his visual field through its demonstrative references, mobilize energy (whatever its ultimate source) and place it at the position where it will go through the clear routes that constitute the dispositional state of Rosthal's intending conditional intention (1)? Why indeed could it not do so?

It is purely an empirical matter whether or not the event of perceiving Rosenberg can mobilize enough energy within Rosthal's body for him to rise up, go to his wine cellar, choose from his French collection a rare Rothschild Lafitte, open it, and offer it to Jay Rosenberg. That is my point: it *is* an empirical matter. The empirical circumstances both within Rosthal's body and without his body can be such as to provide the clear channels for the requisite energy -mobilized by his perceptual thinking- to flow. Rosthal's agency mechanisms may be well put together with no relevant circuit broken; the immediate environment must be hospitable: there are no unsurmountable obstacles in the way to the wine cellar, etc.

The case of Bob Rosthal is relatively simple. We have here an isolated conditional intention (or so it seems), and his act does not seem terribly complex. The nature of the phenomenon is perhaps clearer in the case of more complex projects. The analysis we provided above for the sequentialization of an action into conditional intentions should make the whole thing obvious. Let us briefly apply that analysis schema (Act.Str.*) to Rosthal's action. Clearly, once he perceives Rosenberg (as Rosenberg), whether or not he derives intention (3) from intention

(1) and (2) being immaterial, Rosthal will go to the wine cellar, etc. These actions through which he carries out his intention (3), form if you wish, a train of acts, each of which Rosthal performs intentionally. He goes to his wine cellar intentionally, and intentionally walks down the stairs, and so each step he takes he takes it intentionally. As long as there are no obstacles in the way, Rosthal performs -like Ryle's clown Rylequin- a piece of habitual behavior. His total intention covers holistically the whole sequence of movements. But he will not have failed to fulfill his intention to take step 15, if his course of events is forced to abort at step 5 by the invincible obstacles. Step 15 enters in his plan, in his global intention, as one to be taken *if* step 14 is taken, and so on.

In general, habitual intentional action must be understood as a unitary pattern of acts that enter into the agent's intentionality in one piece, globally. The agent goes through each of the steps as if he had only contemplative consciousness of it. But that there is practical, volitional consciousness underlying it, undergirding the step to the previous steps, is manifested perspicuously when obstacles appear. An obstacle breaks the tranquility of consciousness and demands on the agent's part a fresh new volition to continue his planned course of action, or to find a detour, or even to cancel the project. The greatest economy of intentional action requires that it must be possible for an agent -Rosthal, for example- to adopt sometimes a conditional intention and be moved to action by the thought that rehearses the belief that the condition obtains- without the mediation of an inference from the conditioned intention and the belief in the condition to the unconditioned consequent. Thinking takes time -as Plato taught us- and consciousness is too complex and to precious a commodity to be squandered away in unnecessary inferences. In an admirable universe -and I believe ours is, as I learned from Leibniz- neither thinking nor consciousness is squandered away. That is why we need consciousness and hard thinking when we are learning practices, acquiring habits, and overcoming obstacles. Thereafter, our behavoir is habitual with great economy of consciousness and great efficiency. Yet habitual behavior is still intentional and voluntary.

8. Reasoned intentional action

We have argued above that an agent *can* be moved to do an action he conditionally intends to do upon his thinking that the condition obtains. Such an action is intentional, even if it is not caused by a volition to do it. It is a special case of what we may call *reasoned intentional action*. Another species is that in which the agent infers the unconditioned intention from both his conditional intention and his belief that the condition obtains. In the latter case there is a volition to do the (unconditioned) action.

Reasoned intentional action contrasts with *mere* intentional action. This is an action that arises from a volition to do it, but this volition has no bases or reasons for its adoption. Mere intentional actions need not, of course, issue from uncaused volitions. Whether a volition has a (sufficient) cause is the problem of metaphysical determinism about the will. Clearly this problem cuts across the distinction between reasoned intentional action and mere intentional action. If a reasoned intentional action issues from the agent's inferring the unconditioned intention from the other premises, then the derived volition may still be causally underdetermined. The logical fact that the intended conditional intention and the believed condition imply the unconditioned intention does not guarantee that the agent experiences the volition to perform the unconditioned action. Recall that principles (Int. Bel*) and (Int. Bel**) only guarantee that the agent will have the dispositional state of intending the unconditioned intention. But from the possession of a dispositional state, or a capacity, even a propensity, to the occurrence of an exercise or manifestation of that disposition, capacity, or propensity, there is an enormous chasm. In any case the chief point we are making at this juncture as that a reasoned intentional action contrasts with mere intentional action. A sudden determination to do some action right away--whether the determination is caused or not, without the consideration of any reasons, would, if fulfilled, deliver a mere intentional action.

Reasoned intentional action is genus under which falls intentional action that arises from deliberation. In the case of deliberation there are conflicts of duties, wants, and intentions recognized by the agent. His problem is both to stablish some ranking among those items in conflict and to connect that ranking to his motivational profile, so that he can ascertain the intentions wich he is both to give preference, and,

ultimately, to think volitionally.

CONCLUSION

In this essay we have investigated the contents and the causation of practical reason. We have seen how the contents of practical thinking must have a unique element that allows episodes of practical thinking to have their unique causal role. In that element lies the ultimate autonomy of practical reason, and, *a fortiori*, the derivative autonomy of morality. That causal element of practical thinking can be represented in many different logical ways. In the Indo-European languages it seems to be characteristically appear as form of copulation, e.g., in imperative sentences, in practical infinitive or subjunctive clauses. In Artificial Intelligence it can be represented by means of different logical mechanims. But the progress of Robotics, in its attempts at facsimilization of intentional action -not to mention the facsimilization of complex behaviors that carry out complex plans- will have to involve some representation of that peculiar practitional element both as content and as the nucleus of the causation by the facsimiles of intentional thinking, or volition-like episodes, of what is thought in such episodes.

NOTES

* An earlier version of this essay was written for, and presented at, an Interdisciplinary Conference Workshop on Practical Reasoning held at Stanford University during June 18-23, 1984.

1 For a discussion of this principle see Hector-Neri Castañeda, *Thinking and Doing: The Philosophical Foundations of Institutions*, (Dordrecht: Reidel, 1975) -to be cited as *T&D*- Ch. 10 and "Reply to Michael Bratman: Deontic Truth, Intentions, and Weakness of the Will" in James E. Tomberlin, ed., *Agent, Language, and the Structure of the World* (Indianapolis: Hackett Publishing Company, 1983), to be cited as TOMBERLIN.

2 The indexes of deontic operators I have variously called 'qualifiers,' 'adverbial modalities,' and 'institutional modalities,' which is the one I like best. See *T&D* Chs. 2 and 7. For an account of the main three qualifying modalities composing the institution of morality see Hector-Neri Castañeda, *The Structure of Morality* (Springfield, Illinois: Thomas Publisher, 1974), Ch. 8; for a preliminary study of the some of the main adverbial deontic modalities characterizing a legal system, see Hector-Neri Castañeda, "The Logical Form of Legal Systems: A New Perspective" in Antonio Martino, ed., *Deontic Logic, Computational Linguistics, and Legal Information Systems*, Vol. 2 (North-Holland Publishing Company, 1982).

3 This is a generalization to all ought thinking of what Kant called "respect for the law" (*Achtung furs Gesetz*). Kant used this phrase to refer to the internal bindingness of the *ought* (*must*) *everything considered*, which he confused with the *moral* ought -because he focused on moral agents, for whom, if they reason correctly, the two ought's are indeed convergent. As Kant so beautifully put it: "What I recognize directly as a law for myself I recognize with respect, which means merely the consciousness of the submission of my will to a law without the intervention of other influences on my mind. The direct determination of the will by the law and the conciousness of this determination is respect." (*Foundations of the Metaphysics of Morals*, Prussian Academy, Vol. IV, pp. 401n.) For a discussion of Kant's confusion see *T&D*, Ch. 11.

4 For a rich account of weakness of the will, which recognizes more cases than in customary because the account is built upon the proposition/practition distinction, see the exchange between Bratman ("Castañeda's Theory of Thought and Action") and Castañeda (paper mentioned above in Note 1 above) in TOMBERLIN.

5 For a theory of intentions akin to Int=Bel, but with an emotivist twist, see Bruce Aune's "Castañeda on Believing and Intending" in TOMBERLIN. See also Wilfrid Sellars's "Conditional Promises and Conditional Intentions (Including a Reply to Castañeda)," and my rejoinders to Aune and Sellars, all in TOMBERLIN. See also *T&D*, Ch. 6, and Ch. 10 Section 3.

6 See David Lewis, "Attitudes *De Dicto* and *De Re*," *The Philosophical Review* 88 (1979): 513-543, and Roderick Chisholm, *The First Person* (Minneapolis: The University of Minnesota Press, 1981).

7 This is the view Chisholm proposed for the first time in his "Review of *Thinking and Doing*," *Noûs* 12 (1979): 385-396, and has been adopted by Myles Brand, first in "Intending and Believing" in TOMBERLIN, and later in his *Intending and Acting* (Cambridge, Massachusetts: MIT Press, 1984): 123-175, 272ff. I have argued against both the Attribute View for intending in "Reply to Myles Brand: Intentions, Properties, and Propositions," and against the Attribute View for believing in "Reply to Ernest Sosa: Self-Reference and Propositions," both in TOMBERLIN.

8 For a treatment of the basic practical representation as a copula, see *Thinking and Doing*, Chs. 6, 4, 7-10; for a discussion of the equivalence of that treatment to the treatment as a predicate operator, see Ch. 2; for an ultimate treatment as a copula modifier se Ch. 10, Section 3. For a treatment of the basic practical representation as a propositional operator, see Hector-Neri Castañeda, "Ought, Time, and Deontic Paradoxes," *The Journal of Philosophy* 74 (1977): 775-791. For a quantificational deontic logic with identity see *T&D*, Ch. 9.

9 This principle is what ultimately what explains the patent force of Gilbert Ryle's attempt at proscribing volitions from reality by means of ridicule, when he asked: "How many volitions did the skillful clown executed during a difficult performance?" See his *The Concept of Mind* (London: Hutchinson, 1949). The propiety of the question must be acknowledged, just as much as the fact that the legitimacy of the question does not show that there are no volitions. For

this see Hector-Neri Castañeda, "Intentional Action, Conditional Intentions, and Aristotelian Practical Syllogisms," *Erkenntniss*, 18 (1982): 239-260.

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