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Kinesis and Energeia—and What Follows. Outline of a Typology of Human Actions

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Abstract This paper presents a typology of human actions, based on Aristotle's kinesis–energeia dichotomy and on a formal elaboration (with some refinement) of the Vendler–Kenny classificatory schemes for action types (or action verbs). The types introduced are defined throughout by inferential criteria, in terms of what here are referred to as "modal-temporal expressions" ('MT-terms'). Examples of familiar categories analysed in this way are production and maintenance, but the procedure is meant to offer a basis for defining various other commonsense categories. Among the more theoretical categories introduced are "Aristotelian projects", i.e. actions defined in terms of Aristotle's conceptions of movement/change, as well as "abstract projects", in which the agent ensures that something changes from not being a fact to being a fact, and "conditional agency", which involves actions that are to be performed when/if certain conditions come to be fulfilled. A category like "starting an action" is itself inferentially defined here in MT-terms, and so, *inter alia*, are proceeding with, finishing, stopping and interrupting an action. There is also a demonstration of how actions of one type may be converted into those of other types, where this is a matter of the way they are "seen" or described. There is also an implication to the effect that some of these distinctions may be useful for formulating certain critical insights regarding modern life.

Keywords Action types · Ontology · Dynamics · Inferential definition · Temporality · Aristotle · Kenny · Vendler

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> "… at the same time we are seeing and have seen, are understanding and have understood, are thinking and have thought. But it is not true that at the same time we are learning and have learnt, or are being cured and have been cured. However, at the same time we are living well, and have lived well … Of these actions, then, one group should be called *kineseis* and the other *energeias*. For every *kinesis* is incomplete—slimming, learning, walking, house-building; these are *kineseis* and are incomplete as such. For a thing cannot at the same time be taking a walk and have taken it, nor be house-building and have house-built, not be coming-to-be and have come-to-be, nor be being moved and have been moved. But it is the same thing that at the same time has seen and is seeing, or is thinking and has thought. The latter sort of action, then, I call an *energeia*, and the former a *kinesis*." (Aristotle, *Metaphysics* Θ.6, 1048b, pp. 23–33)[1]

This famous passage from Aristotle's *Metaphysics* Θ.6 is remarkable for (at least) two reasons. Firstly, it aims to give a definition of the *kinesis-energeia* dichotomy, which is of crucial importance in the ontology of the late Aristotle. Whereas Aristotle's analysis of change and movement, as developed in the *Physics*, assigns dynamic phenomena to substances, i.e. "beings", the systematic function of *kinesis-energeia* is to furnish an insight into the dynamic structure of being itself. Secondly, the definition makes use of a special procedure: what is common to all instances of *kinesis* or*energeia*, respectively, is not (merely) a "content" specified in the form of *genus* and *differentia specifica*, but a certain inferential pattern. Whenever a form of *praxis* is stated in the Present Participle it will, in the same moment, either imply the Perfect Participle (if you are thinking, you have thought) or the negation of the Perfect Participle (if you are building a house, you have not built a house). In the first case the *praxis* is *energeia*, in the second *kinesis*.[2]

Though Aristotle's overarching term is *praxis*, he is obviously dealing with something more general than—or maybe something entirely different from—human "practices". Yet the concepts of *kinesis* and *energeia* apply to human actions as well, and this is to be my starting point here.[3] My project will be to make use of Aristotle's own terms and definitional procedure to develop a typology of human actions.

1 Analytical Terms and Notations

Human agency is expressed in different verbs: you *perform* the act, *execute* the task, *engage in* the activity, *carry out* the project, etc. There are a lot of idiomatic expressions here, and no general term that would include all forms of human

[1] My translation, partly based on Ross (1972), and Tredennick (1989).

[2] In the classical definition the *definiens* takes the form of a (material) conjunction 'Ax *iff* Bx · Cx'. In the inferential definition it takes the form of a (strict) implication: 'Ax *iff* Px → Qx′.

[3] It may be argued that the *kinesis–energeia* dichotomy, when specifically applied to the domain of human action, corresponds to Aristotle's dichotomy of *praxis* (an action that has its end, i.e. telos, in itself) and *poiesis* (an action that has its end or telos outside of itself).

agency. As a standard expression I will opt here for "An agent does *P*", or "A does *P*", notating this as 'does/*P*', '*P*' here referring to what is done.[4] Two remarks on this: (1) The reference to the agent has been eliminated from the outset, since it conveys no more information than "(being) the tautological subject of what is done in *P*". In every occurrence of '*P*' the agent is one and the same, all other things being equal. (2) The slash ('/') in the formula is meant to be filled out with what would, for a specific connection between these terms, be the appropriate verb: 'does *perform P*', 'does *execute P*', etc.

Besides the expression 'does/*P*', there is a 'do!/*P*' (sometimes simply written '*P*!'), a 'done/*P*', and a 'doing/*P*'. These four expressions represent what I'll call *modes* of the action *P*.

1.1 The Directive Mode: 'do!/*P*'

The analysis of an action that I want to carry out starts out from the *directive* to perform the action: 'listen to the music!', 'walk to the station!', 'bang the table!'. From this we derive the "*content*" of the action, which may be expressed in the infinitive or as a verbal noun: '(the action) to listen to the music', '(the action) to walk to the station', '(the action) to bang the table'. A does *P* insofar as he follows or acts in accordance with a *directive* to do so. We shall write this as 'do!/*P*'.

There are three major advantages to this procedure: The first is descriptive *specificity*. The description of the action *P* should be no more specific, but also no less specific, than the directive. 'He is reading the 1927 edition of the Bible' and 'He is reading the Bible' may both be true. However, if it's a point that it should be the 1927 edition (as, for example, the agent is a theologian comparing different translations of the Holy Scripture), then the directive goes: 'Read the 1927 edition of the Bible!'. Meanwhile, the relevant description of the activity to be filled in for '*P*' goes: 'A is reading the 1927 edition of the Bible'. If, by way of contrast, the point is just to read the Bible, the book accidentally being a copy of the 1927 edition, then the directive goes: 'Read the Bible!' and the relevant description of the action is, accordingly, 'A is reading the Bible'.[5] The second advantage is that the directive '*P*!' remains the same, and continues to be "active", for (at least) as long as the agent is *in action*, i.e. whether he is just starting, is in the middle, or is about to stop/finish (insofar as there are, in the particular cases, such things as initiating, being in the middle, stopping/finishing, and so on). The third advantage is that the directive mode of the verb (or verbal expression) represents the agent's own perspective and the understanding that he of necessity has insofar as he has been properly assigned the function of being the subject of the action, whereas the descriptive modes represent the action as observed "from outside". The last of these points will turn out to be the most important one for the analyses below.

[4] The letter 'P' has been chosen for its association with, for example, 'practice' or 'performance'.

[5] As for the task of *telling* somebody what someone is doing, it may still be a point to give further specifications beyond those included in the directive. The agent may act according to the directive 'Kiss Anna!' or just 'Kiss her!', but in a report it may be essential to specify that it is his wife he is kissing.

I believe all human actions—or, maybe I should say, all of those sorts of human action that I want to account for in my analyses—may be subsumed under a directive.[6] The directive mode reflects what I take to be the crucial feature of actions: that they will either *succeed* or *fail*. Even so, in this context it is not important to have criteria for sorting out what is an action and what is not. My point is, rather, to ask what the implications are *if* this or that is considered as an action.

1.2 The Momentary Mode: 'does/*P*'

The expression 'does/*P*' states that right now the action *P* is being performed:[7] 'does/play-the-violin', 'does/walk-to-the-station', 'does/bang-the-table'.

The "now" need not be a point in the mathematical sense. It may have a certain "width" (as demonstrated by Husserl). It has the width necessarily implied—no more, no less—when we ask, "What is he doing *now*?"

From the momentary mode we shall proceed in two directions.

1.3 The Perfective Mode: 'done/*P*'

Any human action *P* has an end or *telos*, which is that which constitutes the *fulfilment* of 'do!/*P*'. Insofar as *P* is brought to an end, it has *succeeded*, has been successfully performed or, as we prefer to say here, has been *completed*. The end of the agent's playing the violin is that he has played the violin (which he has done as long as he *is* doing it); the end of the agent's walking to the station is that he has walked to the station (which he has *not* done as long as he is still doing it); the end of the agent's banging the table is that he has banged the table (which he does and has done once and for all).

Now, *insofar* as *P* is being performed at this very moment—i.e. 'does/*P*' is true—*P* is *also completed* or *not*—i.e. *not yet—completed*. The formal expressions

[6] Not all directives [imperatives], on the other hand, are directives for [particular] actions. (i) "Know yourself!" may be a good instance of an exception. Yet, whether it is taken to be advice about the acquisition of knowledge or about living one's life in a certain manner, you may succeed or fail at it, and this is the crucial feature of actions in the sense of the word that I want to make use of. (ii) General directives need not be omitted from the list because of their generality, since in particular situations they are "transformed" into particular directives. "Always look in both directions before you cross a street!" becomes operative as: "Look in both directions before you cross the—i.e. *this*—street!" (iii) A directive like "Win the race!" subsumes an action that by its logical form—the successful completion of something—presupposes a previous action. This means, moreover, that the agent can only act under that directive if he understands it as being implied by another directive—namely "Compete in the race!". But you are, in principle, only competing in the race if you are trying to win it, so the directive in question ("Win the race!") is redundant. The imperative is the grammatical mode of many speech acts. The utterance "Come to me next Friday!" may be an invitation, an order, a request, or an instance of giving advice, and there is certainly a difference between invitations, orders, requests, and instances of giving advice. But there is no difference as regards *following* the imperative in respect of its being an invitation, an order, a request, or an instance of giving advice.

[7] The present participle 'being performed' is here used as part of the main text or meta-language of this analysis, and should not be confused with the present participle used as part of the technical language of the formulae below.

here are 'done/*P*' and '∼done/*P*', as in, for example, 'done/play-the-violin', 'done/walk-to-the-station', 'done/bang-the-table', etc.

'Done/*P*' is a modal expression, but has what might be called (purely) *temporal* implications: if 'done/*P*' is true in this moment, it will also be true at any *later* time.

1.4 The "Keep-going" Mode: 'doing/*P*'

Insofar as *P* right now is being performed—i.e. 'does/*P*' is true—*P* is *also* either in the *process* of being performed—the performance is something *ongoing*—or is *not* in the process of being performed—is *not* something ongoing. The formal expressions here are 'doing/*P*' and '∼doing/*P*', as in, for instance, 'doing/play-the-violin', 'doing/walk-to-the-station', '∼doing/bang-the-table', '∼doing/arrive-at-the-station' etc.

The "going-on" of an action is obviously an *active* going-on, a "*keep*-going". (Hence the choice of the expression '"keep-going" mode' instead of, say, 'progressive mode'.) An ongoing action means a sustained transition from effort to success. Any moment when you are doing something is a moment in which you succeed in *still* doing it, i.e. it [the moment] has its own completion. Whenever there is human action there may or may not be long-term projection and fulfilment (see the following sections), but there is always short-term projection and fulfilment.

It must be emphasised, once and for all, that the particle 'doing…' in the expression 'doing/*P*' should be understood technically here, in the specific sense of "being in the process of …". Actions of the "achievement" type (see below) have, as a defining feature, their inability to be "ongoing"; i.e. propositions like 'doing/stop' or 'doing/arrive' are meant to be self-contradictory. Outside of the context of the formulae I will be speaking here—with the usual implications—about a person "arriving", "stopping", "banging the table", or in general—as I already have, above—about all kinds of action as "being performed".

'Doing/*P*' is a modal expression, but it has what might be called (purely) *temporal* implications. If 'doing/*P*' is true in this moment, it has been true for some time. There is no music playing unless it has been playing "for a while". Alternatively, though slightly different, we can put it like this: a moment in which 'doing/*P*' is true cannot be *either* the first *or* the last moment in which 'doing/*P*' is true.[8] A third way to put it—less phenomenological, I think—is that 'doing/*P*' is true if and only if *P* takes up a temporal interval.

The "keep-going mode" provides the 'does/*P*' with implications *around* any moment in which 'does/*P*' is true. The perfective mode on the other hand provides the 'does/*P*' with implications as regards any moment *later*. Furthermore, 'doing/*P* → does/*P*' counts as a definitional truth, or an axiom, whereas the inference 'done/*P* → does/*P*' is invalid (though the expression is not self-contradictory).

[8] One might feel tempted to ask how a process could begin or end, when there is no such thing, respectively, as either a first or a final moment. One answer might be that there *is* no first moment, but later there *was* and, similarly, there *is* no last moment, but later there was. The first raindrop *is* not a raindrop. It *becomes* a raindrop—and the first one—when other drops have fallen too: enough of them to constitute rainy *weather*. A temporal logic with phenomenological ambitions must account for this paradox, i.e. demonstrate why there is no paradox.

The directive mode 'do!/*P*' may also be said to have temporal implications. It is due to the agent's subsumption under the directive, that we may properly say that 'does/*P*' is true, even when the agent is still *preparing* to do *P* (opening the book "before" reading it; putting on his shoes "before" the walk; ordering the building materials "before" building), or is taking a *break* from *P* (preparing a cup of tea "while" reading; sleeping at night "while"—i.e. during the course of—building the house).

Since the majority of the modal expressions introduced ('doing/*P*', 'done/*P*', and 'do!/*P*') have temporal implications, I'll call them "modal-temporal expressions", or "*MT-terms*" for short.

2 Activities, Accomplishments and Achievements

Whenever somebody does something—whenever there is a 'does/*P*'—we may also have the following configurations:

(1) doing/*P* & done/*P*
(2) doing/*P* & ∼done/*P*
(3) ∼doing/*P* & done/*P*
(4) ∼doing/*P* & ∼done/*P*

Depending on the meaning—or our reading—of the verb or verb-phrase *P*, we will arrive at one of the following three *basic action types*:

(1) *A* does something *P*, and insofar as he does it, he is doing it and has—at the same time—done it. In (2) we have: *A* does something *P* and insofar as he does it, he is doing it and has—at the same time—not done it. In (3) we have: *A* does something *P*, and insofar as he does it he has done it and is not doing it. The fourth combinatory variant (4) is not possible: when *A* is neither doing *P* nor has done *P*, *P* cannot be anything that *A* does. These three possible configurations form the basis of the typology to be presented below:

(1′) The action *P* is called an *activity*
iff does/*P* → doing/*P* & done/*P*

Examples: to play the violin, to drive a car, to keep an eye on something.

(2′) The action *P* is called an *accomplishment*
iff does/*P* → doing/*P* & ∼done/*P*

Examples: to walk somewhere, to produce something.

(3′) The action *P* is called an *achievement*
iff does/*P* → ∼doing/*P* & done/*P*

Examples: to bang the table, to arrive, to find.

In our notation we shall use 'does/*Pt*' for "the agent does *Pt*, *Pt* being an ac**t**ivity" (or, better, "the agent is subsumed under the directive 'do!/*Pt*', *Pt* being an ac**t**ivity"). For 'does/*Pc*' we read "the agent does *Pc*, *Pc* being an

ac**c**omplishment'' (or, better, "the agent is subsumed under the directive 'do!/*Pc*', *Pc* being an ac**c**omplishment "), and for 'does/*Ph*' "the agent does *Ph*, *Ph* being an ac**h**ievement " (or, better, "the agent is subsumed under the directive 'do!/*Ph*', *Ph* being an ac**h**ievement").[9]

The terms 'activity', 'accomplishment' and 'achievement' are taken from Vendler (1967) and have become commonplace in linguistic discourse.[10] The terms 'activity' and 'accomplishment' correspond in MT-terms to Aristotle's dichotomy *kinesis* and *energeia*. Aristotle does not introduce a separate action type corresponding to 'achievement'.[11] Kenny (1963) makes use of a plethora of inferential (and other) criteria. As regards the definitional inferences involving 'doing/*P*' and 'done/*P*', he arrives at:

$(1'')$ *P* is called an activity *iff* doing/$P \rightarrow$ done/P
$(2'')$ *P* is called a performance *iff* doing/$P \rightarrow \sim$done/P

Kenny makes no distinction between accomplishments and achievements. (Notice, however, that the implication 'doing/$P \rightarrow \sim$done/P' doesn't contradict our definition of an achievement, since the premise 'doing/*P*' never holds for achievements.)[12]

The first way of defining action types characterises the definiendum in terms of the implications it has when the action is currently being performed: 'does/*P*'. This procedure is closer to Aristotle's own way of putting it, since the definitional terms 'doing/*P*' and 'done/*P*' occur here—positively or negatively—in *conjunction*: "… at the same time we are seeing and have seen, are understanding and have understood, are thinking and have thought. But it is not true that at the same time we are learning and have learnt, or are being cured and have been cured." (Aristotle, 1048b, pp. 24–26) In Kenny's procedure, by contrast, the definiendum is characterised in terms of inferences licensed from the mode 'doing/*P*' and—positively or negatively—to the mode 'done/*P*', with the definitional terms 'doing/*P*' and 'done/*P*' occurring here as antecedent and consequent in a (strict) *implication*. The result is the same in both definitional modes, and so are the observations concerning logical features of "dynamicity" on which the definitions are based.

Yet the "Aristotelian" procedure has an advantage when we come to try to define *achievements* in inferential terms (which neither Aristotle nor Kenny does!). A definitional procedure that has only the MT-terms 'doing/*P*' and 'done/*P*' at its disposal must define achievements in something like the following manner:

[9] The '$\rightarrow$' indicates strict implication, and the validity of the inferences, accordingly, depend on the meaning of '*P*'; i.e. they are conceptual necessities.

[10] Vendler, to be sure, does not talk about "activities", "accomplishments" and "achievements", but about "activity *verbs*", "accomplishment *verbs*", and "achievement *verbs*". And he makes no use of inferential procedures in his definitions.

[11] Ryle (1963) argues that an Aristotelian *energeia* is, in fact, an achievement. I will refrain from entering into that discussion at present.

[12] The '*iff*' is my adaptation. It is not clear (to me) whether Kenny thinks that the inferences in $(1'')$ and $(2'')$ are sufficient to define the action types involved.

(3″) The action *P* is called an achievement *iff* doing/*P* is not possible
or: The action *P* is called an achievement *iff* 'doing/*P*' is not well-formed

taking it for a premise that there are just those three categories, so the 'not possible' or 'not well-formed' will not make the definition too inclusive. In any case the conceptual apparatus has been supplemented with a term that doesn't belong to the MT-grammar. By contrast, if we follow the "Aristotelian" procedure in definition (3′), we simply proceed with the three MT-terms that we have been using all along: an achievement is an action for which it holds that if somebody "does" it then, by necessity, he has "done" it and is not "doing" it.[13]

One thing is left implicit in all of the above definitions, and since I also want to leave it implicit in what comes below, I shall once and for all make it explicit. Expressions like '*Pt*', '*Pc*' and '*Ph*' represent specific types of action, and it is of course type-specific features that we want to define, whereas they are tokens. We are dealing with actions that are actually being or not being performed, that actually have or have not been performed. They occur "in time". The fully elaborated version of, say, the "Aristotelian" definition of an activity (1′) will thus go as follows:

$(1'_t)$ The action *P* is called an *activity*
iff $(\forall t)((\text{does}/P \text{ at } t) \rightarrow (\text{doing}/P \text{ at } t) \,\&\, (\text{done}/P \text{ at } t))$

which we may, for example, read as "The action *P* is called an *activity* if and only if it holds that any time 'does/*P*' is true, is a time at which 'doing/*P* & done/*P*' is true".

3 Syntactic Conversions of Achievements, Activities and Accomplishments

In the analytical application of the distinction between achievements, activities and accomplishments it is not important that we reach agreement in all cases about whether the action denoted by a certain verbal expression should be analysed as an achievement, activity or accomplishment. My concern continues to be with what the implications are *if* this or that action is considered as, say, an achievement rather than an accomplishment.

An important aspect of this consists of the *conversions* from one type of action to another that a particular action may undergo, depending on how detailed or fine-grained its perception or description is. Similarly, one action may be converted into a sequence of actions and vice versa. Here are some examples:

(a) Converting an achievement into an accomplishment and vice versa.

[13] Vendler develops a fourth category besides activity, accomplishment and achievement: state. There is no room for that category in the present analysis. This is not because states are, so to speak, "passive" and thus irrelevant to the philosophy of action. The reason is rather that states are more easily—and, from an intuitive point of view, still adequately—accounted for within the category of activity (and its derivatives). Taking an example from Vendler himself, ruling is either an activity ("Britannia rules the waves"), or it is not an action at all. (So a sentence like 'George W. Bush rules the U.S.' might simply be read as "George W. Bush is the constitutional head of the U.S.").

$$Ph \Leftrightarrow Pc$$

To shut the door is, typically, by default—and at an ordinary tempo—seen as an achievement. But looking carefully—conceptualising in slow motion, so to speak—you see the agent engaged in the project of *closing* the door, i.e. performing an accomplishment. Notice however, that there is a lower limit as to how detailed or fine-grained your perception/description of the action may be, if it is still to be perceived/described as an action (and therefore also as an achievement). To clench one's fist is an achievement. Yet it takes some time to do it—say one tenth of a second—so in fact there is a process during which the fingers are gradually changing their position. But if you then consider the "clenching" to be an accomplishment, your observations will belong to the conceptual realm of mechanics or physiology, for example, rather than to that of agency.[14]

(b) Converting an activity into an open sequence of accomplishments (or accomplishments and achievements) and vice versa.

$$Pt \Leftrightarrow Pc_1\text{-}Pc_2\text{-}\cdots$$
$$\text{or:} \quad Pt \Leftrightarrow Pc_1/Ph_1\text{-}Pc_2/Ph_2\text{-}\cdots$$

Gathering flowers is an activity. Yet what you *do* is pick this flower, then that flower, etc. Running a shoemaker's shop—being a shoemaker—is an activity. It may be converted into an open sequence of accomplishments, each consisting (primarily) in the making or repairing of particular (pairs of) shoes and (derivatively) in particular acts of buying, selling, ordering, etc.

(c) Converting an accomplishment into a closed sequence of accomplishments (or accomplishments and achievements) and vice versa.

$$Pc \Leftrightarrow Pc_1\text{-}Pc_2\text{-}\cdots\text{-}Pc_n$$
$$\text{or:} \quad Pc \Leftrightarrow Pc_1/Ph_1\text{-}Pc_2/Ph_2\text{-}\cdots\text{-}Pc_n/Ph_n$$

In baking a cake—as an accomplishment—you follow a recipe, each paragraph of which tells you what is to be done next. So the accomplishment shows up as a sequence of accomplishments. (Maybe the recipe also prescribes achievements, such as "switch on the cooker!".) If you pay careful attention to the man closing the door you see him reaching out his hand, grasping the door handle, turning it, pushing the door, etc. (But once again there is a lower limit to how many segments you can have if they—each of them—are to keep the status of accomplishments/achievements.)

(d) Converting an accomplishment into an activity.

$$Pc \Rightarrow Pt$$

You may see an accomplishment as an activity by abstaining from, or being prevented from, seeing a *point* in what the agent is doing. Most of the people you watch through the café window are walking with a destination in mind, and a reason for having that destination: they may even be entirely involved in getting to where

[14] Alternatively, the agency may belong to the realm of physiotherapy, rehabilitation etc. I owe this observation to Johanna Seibt.

they are going to. But you just see them walking—which is not "wrong". Yet it is an abstraction rather than a syntactic conversion—a poetic alienation that happens to be the paradigm of modernity.

Is human life an activity or an accomplishment? Life as "being alive" is a paradigm of activity, since Aristotle makes it exemplify *energeia* ("you are living and have lived", Met. 1048b, 27). It is, then, an activity that ceases with the well-defined event called "death". However, if you are living—existing—in an "authentic" way, roughly along the lines of Heidegger's 'Being-towards-Death' (Heidegger 1967), it is a terminating accomplishment (see Sect. 6.1). And if your life is committed to a mission (completed by your death, so that it "is consummated"), it may even be seen as a projective accomplishment (again, see Sect. 6.1). Life may become a project—a "life project", as it is currently called in some intellectual discourses (at least in Denmark).

4 The "Phases" of an Accomplishment: To Proceed and to Finish

Achievements and activities are actions that cannot be finished. With achievements, this is because one cannot be doing them. With activities it is because they have no end outside of their performance. Only accomplishments can be finished. This means that the performance of an accomplishment has two "phases" or "structural components": the keep-going and the finish. First you *proceed*: you are in the process of baking the cake, or doing the walk that leads you to the station. Then you *finish*: you take the cake out of the oven, or arrive at the station. (They form a succession in the sense that when you are proceeding you have not yet finished, and when you have finished, you are no longer proceeding. However, it is clearly misleading to say that the accomplishment "is composed" of the proceeding and the completion. We shall return to this problem later.)

The *first* is, in MT-terms, an *activity*: whenever you are proceeding with the cake-baking, you have proceeded (and have been proceeding) with baking the cake. Whenever you are proceeding with the walk to the station, you have proceeded with the walk. Whenever you are proceeding with the accomplishment *Pc* you have proceeded with the accomplishment *Pc*.

Now, any time—i.e. as long as—you are *performing* the accomplishment *Pc* you are necessarily *proceeding* with it and vice versa.

(4) *If* the activity *Pt* is the proceeding with the accomplishment *Pc*
then doing/*Pt* ↔ doing/*Pc*

However, proceeding with the accomplishment *Pc* is the *only* activity you necessarily perform *qua* performing the accomplishment *Pc*. And so we end up with a definition:

(5) The activity *Pt* is the proceeding with the accomplishment *Pc*
iff doing/*Pt* ↔ doing/*Pc*

The implicit "*qua*"-principle may be explicated in this way. If you are riding to the station, you'll also be sitting on a horse on a ride to the station and vice versa, and

the activity statement 'doing/sitting-on-the-horse-on-a-ride-to-the-station' and the accomplishment statement 'doing/riding-to-the-station' do also together fulfil the inferential criterion 'doing/$Pt \leftrightarrow$ doing/Pc'. But this equivalence depends on the *specification* of 'Pt' and 'Pc', whereas 'proceeding with Pc' is the only description of an activity that fulfils the inferential criterion *without further specification*. All definitions below presuppose the application of this principle.

In formulae like (4) and (5)—and all subsequent formulae in this paper—we can dispense with the symbols 'Pt', 'Pc' and (below) 'Ph' by simply making explicit their definitional inferences. So (5) may be spelled out in this way (the terms 'P^1' and 'P^2' denoting two actions without type specifications):

(6) The action P^1 is the proceeding with P^2
iff doing/$P^1 \leftrightarrow$ doing/P^2
& doing/$P^1 \rightarrow$ done/P^1 (i.e. P^1 is an activity)
& doing/$P^2 \rightarrow \sim$done/P^2 (i.e. P^2 is an accomplishment)

However, for the sake of brevity we shall continue to make use of 'Pt', 'Pc' and 'Ph' in the manner in which they were previously defined (as part of our system here), using the same symbols and operators as initially proposed.

The *second* "phase" of an accomplishment is in MT-terms an *achievement*. When you arrive at the station, you have arrived at the station, and arriving is something you cannot be in the process of doing.[15] (Once again, a fine-grained perception or description may, of course, convert the achievement into an accomplishment, but in the present example we are studying the implications it has *if* we see it as an achievement.) So in the formal sense it holds that (a) whenever you finish an accomplishment Pc, you have finished it, and (b) finishing is not a process. It is clear that

(7) does/finish-$Pc \rightarrow$ done/Pc

In the very moment you perform the finishing of the accomplishment you have performed the accomplishment as a whole. Finishing the accomplishment Pc is, however the *only* achievement which—without further specification of 'Pc'—entails that the accomplishment Pc has been performed.[16] So we get:

(8) The achievement Ph is the finishing of the accomplishment Pc
iff does/$Ph \rightarrow$ done/Pc

It may be objected that the definition is too inclusive—and accordingly is no definition—since the inference 'does/complete-$Ph \rightarrow$ done/Pc' holds for any achievement performed after Pc has been performed. Entering the train after

[15] Actually when we say that the train "is arriving" we mean that it is "about to arrive": i.e. it is in the very last stages of its journey and will arrive very soon—and, in the formal sense, have arrived, too.

[16] When you enter the train at the station you have necessarily also walked—or moved in some other way—to the station (unless you have lived your whole life there!). And when you swallow the last mouthful of the cake, the cake has necessarily also been baked (though not necessarily by you!). So lots of achievements imply that this or that accomplishment has been performed. But in this respect they depend—all of them, except the case of completion—on the specific content of the actions spoken of, i.e. the specific values of 'Ph' and 'Pc'.

having walked and arrived at the station does also imply that you have arrived. One good answer to this objection is to say that all sorts of actions performed after the accomplishment that we are dealing with do not belong to the *agency* of that accomplishment.

There is, however, a much simpler solution. We need only recall that there is always a universal temporal quantifier operative: an "at any time…", "whenever…", "as long as…", etc. Thus we may write:

(9) The achievement *Ph* is the finishing of the accomplishment *Pc*
iff done/*Ph* ↔ done/*Pc*

which states that any moment at which 'done/*Ph* is true is—by conceptual necessity—a moment at which 'done/*Pc*' is true and vice versa.

This raises another important question. Does the inferential definition tell us that *Ph is* the finishing of *Pc*, and not just that *Ph* takes place at the same *time* as that finishing? Will not any achievement performed in the very moment of the finishing of the accomplishment—not just the finishing itself—satisfy the definitional criteria? The answer is: if the temporal coincidence is a matter of contingency, then the logical relationship between 'done/*Ph*' and 'done/*Pc*' will also be contingent. i.e. not inferential. From '*Ph* is contingently taking place at the same time as the finishing of the accomplishment *Pc*' we may infer the truth of the material equivalence 'done/*Ph* ≡ done/*Pc*', not the validity of the strict equivalence 'done/*Ph* ↔ done/*Pc*'. By contrast: that the finishing of the accomplishment *Pc* has successfully been performed ('done/finish-*Pc*' is true) *means* that *Pc* has successfully been performed ('done/*Pc*' is true)—and vice versa (*mutatis mutandis*). '… is the finishing of…' is the only relationship between an achievement *Ph* and an accomplishment *Pc* that validates the strict equivalence 'done/*Ph* ↔ done/*Pc*' (without further specification of '*Ph*' and '*Pc*'). Finishing the accomplishment *Pc* is the only achievement you will have performed *qua* having completed *Pc*.

There is always more at stake than just chronology in the system of inferential definitions that I am trying to develop here. The chronological relationships are *implied* by logical relationships between the *meanings* of 'do!/…', 'does/…', 'done/…', 'doing/…', '*Pt*', '*Pc*', and '*Ph*', as initially defined, but these terms have other conceptual implications besides those of bare chronology.

You cannot arrive if there is no place to arrive at and if you have not brought yourself to that place from somewhere else. So to arrive is an achievement that by its logical form—the completion or finishing of something—presupposes a previous accomplishment. This means, furthermore, that the agent can only act under a directive like "Arrive at the station!"—usually in a form such as "Arrive at the station at 14.00!", or maybe just "Be at the station at 14.00!"—if he understands it as being implied by the directive "Go to the station at 14.00!", specified as "Walk/drive/fly/swim, etc. to the station at 14.00!" Similarly, to find a ball is usually an achievement, but as such it can only occur as the completion of a search: as someone's success in attempting to find the ball.[17]

[17] You may also find something by just "coming across" or "stumbling over" it. Here the "finding" isn't an action at all, but an event.

You cannot, conceptually, have an accomplishment without an activity called "proceeding with the accomplishment" and an achievement called "completing the accomplishment". Further, you cannot have an instance of "proceeding with an accomplishment" without an accomplishment to proceed with, and thus a completion of that accomplishment, and you cannot have a "completing of an accomplishment" without an accomplishment to complete, and thus a proceeding with that accomplishment too. So the activity and the achievement are implied by the accomplishment, but imply each other as well. (Wherever there is a married couple there is a man and a woman. However, the couple does not consist of a man and a woman, but of a husband and a wife.)

We may say that the proceeding is a proceeding *until* … You proceed with your walk to the station *until* you arrive, or proceed with your cake-baking *until* you have finished it. But now, it seems, the proceeding is losing its status as an activity. As long as you are proceeding-with-*P*-until-*X* you have not yet proceeded-with-*P*-until-*X*, and when you have proceeded-with-*P*-until-*X* you are not proceeding any longer. The 'proceeding-with-*P*-until-*X*' is not an activity but an accomplishment.

Does it, then, still make complete sense to say that the accomplishment, structurally, has an activity-component and an achievement-component? I think it does. To account for this we should switch the analysis to the directive mode. First we may write:

(10) Do!/Proceed with the accomplishment *Pc* until you have finished it

This is simply another way of phrasing the directive of the accomplishment itself. (10) is equivalent to

(11) Do!/*Pc*

Instead we may write:

(12) Do!/((Do!/Proceed with the accomplishment *Pc*) until you have finished it)

The latter has the form: 'Follow the instruction 'X!' until Y!'.[18] This furnishes the directive for an accomplishment '*Pc*', while leaving the proceeding as an activity, yet in its proper place, i.e. as subordinated to the accomplishment as a whole.[19]

So, although it is slightly peculiar to say that an accomplishment is "composed" of an activity and an achievement, they may be separated in our perception. (Or, at least, the perception of the activity component may be separated from that of the achievement component). There may also be a practical point to the separation. You help the handicapped person to walk, not to walk to a specific place—say, to the shop. Or helping him walk to the shop is something different from helping him walk. The analytical point of making this separation will, I trust, become more obvious in the discussion of *terminating accomplishments* (Sect. 6).

[18] The proposed first-and-second-order structure of directives will be discussed in Sect. 10.

[19] See Sect. 10.

5 To Start an Action

To perform an accomplishment *Pc* or activity *Pt* you must perform, respectively, the *start* of *Pc* or *Pt*. To start something is an achievement: once you start, you have started. And in its formal sense, which is what I seek to elaborate here, you cannot be in the process of starting. First we arrive at:

(13) *If* the achievement *Ph* is the start of the accomplishment *Pc*
then does/*Ph* → doing/*Pc*

Here it is important that we write 'does/*Ph*' instead of 'done/*Ph*' (though the first implies the second). This will not hold:

(14)* *If* the achievement *Ph* is the start of the accomplishment *Pc*
then done/*Ph* → doing/*Pc*

since the 'done/*Ph*' is consistent with '∼doing/*Pc*', that is, with the accomplishment having begun and being *over* (completed, suspended, interrupted). Instead, we might write:

(15) *If* the achievement *Ph* is the start of the accomplishment *Pc*
then done/*Ph* → (doing/*Pc* or done/*Pc*)

However, the inference 'does/*Ph* → doing/*Pc*' in (13) may be valid too—and so may the inference 'done/*Ph* → (doing/*Pc or* done/*Pc*)' in (15)—for achievements performed *while Pc* is being performed. If, for example, *Pc* can be analysed as a sequence of accomplishments, then (13) is valid for the start and the completion of every link in the sequence (apart from the last). In order to get a definition we must supplement this:

(16) The achievement *Ph* is the start of the accomplishment *Pc*
iff (does/*Ph* → doing/*Pc*) & (doing/*Pc* → done/*Ph*)

stating that the start of the accomplishment *Pc* is the only achievement *Ph* for which it holds that whenever 'does/*Ph*' is true, 'doing/*Pc*' is true, and whenever 'doing/*Pc*' is true, 'done/*Ph*' is true—all by conceptual necessity. Achievements coinciding with the start of the accomplishment *Pc* are excluded from the scope of the definition for reasons similar to those that were presented in the analysis of the finishing of an accomplishment (see Sect. 4). '… is the start of …' is the only relationship between an accomplishment and an activity that validates the two strict implications in the *definiens* of (16) without further specification of '*Ph*' and '*Pc*'.

As regards the start of an activity, we likewise arrive at:

(17) The achievement *Ph* is the start of the activity *Pt*
iff (does/*Ph* → doing/*Pt*) & (doing/*Pt* → done/*Ph*)

6 Terminating Actions

6.1 Projective and Terminating Accomplishments

In the examples above the accomplishment was finished as an outcome of the accomplishment *itself*: if Tom is the cake-baker, it is Tom himself who brings the cake-baking to its end. When Mary performs the walk to the station, she also herself completes the walk by arriving at the station. I shall describe such accomplishments as *projective*. But the accomplishment may also be completed in a form that is a function of something *outside* of the accomplishment itself: a *terminating event*. The babysitter looks after the kids until their parents come home. That is the task. So long as she is doing the job of babysitting, i.e. is looking-after-the-child-until…, she hasn't done it, i.e. completed it. And in the very moment when the parents return, she has done it. Hence doing that job is an accomplishment, but the completion is brought about by an event E, rather than by an achievement performed by the agent herself. Instead of

(18) *Pc* is the accomplishment finished by the achievement *Ph*
iff done/*Ph* ↔ done/*Pc*

we get:

(19) *Pc* is the accomplishment terminated by the event E
iff E has happened ↔ done/*Pc*

stating that any moment in which it is true that E has happened is by necessity a moment in which 'done/*Pc*' is true and vice versa.

In the case of a terminating accomplishment it is more obvious than in that of the projective accomplishment how we should separate out the activity-component, the *proceeding*, from the achievement-component, the *finishing*, since the agent only *performs* the proceeding. There is an activity to be "kept going"—something one should "keep an eye on", "take care of", etc.—*until* … The directive for an accomplishment *Pc* terminated by the event E may take this form:

(20) Perform the activity *Pt*, *until* E has happened!

In the terminating accomplishment the '… until E has happened' is substituted for the '… until you have finished *Pc*' in the projective accomplishment. This implies that the conditions spelled out in MT-terms in the latter case may be spelled out in *similar* terms in the first case. Now, finishing a projective accomplishment is an achievement, so a terminating event must bare some structural similarities to an achievement.

In the example "The babysitter looks after the kids until their parents come home" the terminating event *has* the MT-structure of an achievement, since it *is* an achievement. That which is an event in the babysitter's agency is an action in the parents' agency: they *arrive* (which is one of our standard examples of an achievement).

(21) Mary's babysitting is an accomplishment terminated by the parents' arrival
since Mary: done/babysitting ↔ Parents: done/arrival

the only thing new is that the enterprise is distributed over two agents (an individual one, Mary, and a collective one, the parents).

According to purely formal criteria the events we are dealing with have the structure of an achievement: a moment in which a terminating event takes place is a moment in which it has taken place and is not taking place. But the modalities 'does/…', 'done/…' and 'doing/…' have semantic implications specifically bound to the domain of human actions. (While a discussion of how MT-grammar might be applied beyond the realm of human agency—e.g. to events and, subsequently, to existence—is certainly possible, it lies outside the scope of this text and so must await another occasion.)

I now wish to offer four observations concerning the distinction between projective and terminating accomplishments.

(i) Both projective and terminating accomplishments may be productive (see Sect. 8), and on a general, or even abstract, level the distinction may run parallel to, say, the distinction between manufacturing and agriculture. The shoemaker carries out and completes the production of the shoes. The peasant sows, waters and fertilises—takes care of—the grain until *it* has grown to the point where it is ready to be harvested. The shoemaker's directive may go thus: 'Proceed with the work of shoemaking until *you* have finished the shoes!'. On the other hand, the peasant's directive goes thus: 'Proceed with the work (of watering, fertilising, weeding etc.) until the *grain* has grown to the point where it is ready to be harvested!'

(ii) However, the distinction is often a matter of description. Compare the tasks 'Drive along the road until the signpost X appears!' and 'Drive along the road to the signpost X!'. Even baking a cake may be seen as an accomplishment completed by a terminating event: the baking is finished when the bell in the oven rings (to indicate the finishing of the baking), or when the cake in the oven has attained the right colour (where this constitutes the baking having finished).

(iii) The distinction is often blurred. You search for a book and you complete your search by finding it—a projective accomplishment. Or you search until it eventually turns up—a terminated accomplishment.

(iv) The distinction may not tell us much about the "nature" of the particular action spoken of. Insofar as it is analysed as a sequence of accomplishments and achievements, it is solely the *last* link that decides whether the accomplishment *as a whole* is projective or terminating.

A special terminating accomplishment is *waiting until*… It's clear that:

(22) Waiting-until-E-has-happened is an accomplishment terminated by E
iff E has happened ↔ done/(waiting-until-E-has-happened)

In a trivial sense, waiting is not an action (even though it displays the essential characteristic of human action—you may *fail* to do it). But waiting may show up

in the form of links in sequences of accomplishments and achievements: waiting is *waiting in order to*… Usually waiting is a matter of preparedness to do something *else* other than wait. Waiting for the train means waiting *in order to enter* or *take* the train. Baking the cake in the oven is completed, say, by waiting until the bells rings, but there is no point in this waiting unless afterwards the cake is taken out of the oven (and consumed). The accomplishment 'waiting in order to…' plays an important role in the huge category *actions on conditions* (see Sect. 10).

A single accomplishment, as we have seen, may be converted into (or seen as) a sequence of accomplishments—projective accomplishments, terminating accomplishments, and waiting—and achievements. In history the introduction—and gradually predominance—of *machinery* has tended to increase the number of terminating accomplishments and waiting phases. Moreover, the development from machinery to more advanced kinds of '*apparatus*' (e.g. electronic devices, computer controlled equipment) tends to turn the accomplishments into sequences of achievements and waiting. The formula holding for a lot of things we are doing nowadays is: 'Press the button B_1—wait until E_1 has happened—press the button B_2—wait until E_2 … etc.', one of the principles of technological "progress" being that it should minimise the duration (though not necessarily the number) of periods spent waiting. The "fast computer" that we all urgently want is the one that tends to eliminate these periods.

6.2 Terminating Activities

All human activities—at least those of this world—will stop sooner or later. But some of them have the feature that they are already deemed to run out, simply in virtue of their description or directive—and hence right from the start. If I drink wine from a bottle—an activity—then from the very beginning there is a last possible mouthful. If I walk in the direction of the station—an activity—then from the beginning there is a last possible step. When—or if—I eventually come to the station, there *is* no more walking to be done in that direction. Such activities with a pre-defined "expiry" I will call "terminating activities".

Obviously, a terminating activity may be co-extensive with an accomplishment. The activity "drinking wine from the bottle" may terminate at exactly the same time as the accomplishment "drinking (all) the wine in the bottle" is finished. So wherein lies the difference? And what is the difference between performing and finishing the accomplishment of 'walking to the station' and performing the activity of 'walking in the direction of the station' without stopping before getting there?

From a logical point of view the distinction is clear: if you stop your walk *to* the station before you arrive, then you have failed to walk to the station and have not walked to the station. If, by contrast, you stop your walk *in the direction of* the station before you have actually arrived there, you have not failed to walk in the direction of the station, since that action—being an activity—may end at any moment in its performance. This "if…, then…" is *logical*, and holds whether or not the agent as a matter of contingency actually arrives at the station. Compare also

(a) 'Drink the wine in the bottle!', equivalent to (b) 'Keep on drinking wine from the bottle *until* there is no more wine in the bottle!", with (c) 'Keep on drinking wine from the bottle!', which he may do right up to the last mouthful.

The logical difference spoken of here may give rise to a practical difference too. If I am running three miles as an accomplishment, it would be wise for me to conserve my energy, and maybe do other things, too, that specifically relate to the action as a whole. If I go for a run that just happens to be a three-mile run, such features will be absent.

In the above examples we compared the terminating activity (drinking wine from a bottle, walking in the direction of the station) with a *projective accomplishment* (drinking the wine in the bottle, walking to the station). One might also compare the terminating activity with a *terminating accomplishment*. Here we can return to the example of childcare: for busy parents the early evening hours may be a matter of a terminating accomplishment. The directive goes as follows: "Stay with, play, comfort, etc. the children *until* they fall asleep!" This is what they *will* do sooner or later, and what, eventually, they *did* at 9 p.m. For not-so-busy parents, being together with the children is an *activity* that simply ceases when the children fall asleep. The directive goes as follows: "Stay with, play, comfort, etc. the children!" And so it went on until the children fell asleep at 9 p.m. To recall our opening quotation: "… we are living well, and we have lived well." (Aristotle, Met. 1048b, p. 25)

Can we always *see* the difference? Does the agent always know the difference himself? If a man walks up and down the street in front of the same shop, we are apt to say that he has no goal, and hence is performing an activity rather than an accomplishment. Well, he may walk—and be walking—up and down to get warm (a projective accomplishment), or to keep warm until the bus arrives (a terminating accomplishment). In the evening parents of a young child may switch between the two positions.

7 Stoppings and Interruptions

7.1 The Stopping of an Accomplishment: Interruption

In the formula

(23) *Pc* is an accomplishment stopped by the event E
iff (E happens $\rightarrow$ doing/*Pc*) & (E has happened $\rightarrow$ $\sim$done/*Pc*)

the definitional inferences say that the moment in which it is true that E happens is, of conceptual necessity, a moment in which *Pc* is being performed, and any moment in which it is true that E *has* happened is a moment in which *Pc* has not been successfully performed. The only relationship between an accomplishment *Pc* and an event E, that validates these inferences, is '…is stopped by…'. But what is the meaning of '…stopped by…'?

(24) (E^* happens $\rightarrow$ doing/*Pc*) & (E^* has happened $\rightarrow$ $\sim$done/*Pc*)

To stop an accomplishment (before it is completed) means to *interrupt* it. So (23) is actually providing a definition of interruption. The interruption may be a matter of an event that physically prevents the agent from proceeding with his project, or it may be a matter of the agent's own decision, or it may be a matter of variants in between. In (23) all of these are being considered as events.

In talking about interrupting events we are implying some stricter or looser concept of causality. *Pc* stops *because* E happens. Tom's cake-baking was interrupted by a telephone-call, not by a dog's barking in the same moment. '*Pc* stopped *by* E' is a stronger relationship than '*Pc* stopped *at* (the same time as) E'. It is not easy to account for that distinction with the tools we have at our disposal. The definition of *Pc* as being an accomplishment that stops at the same time as the event E takes place will have the same form as (23). However, the point to be expressed is that the values of 'E' should *exclusively* license the inferences in (23) *qua* being events that take place within the field of the agency of *Pc*. We only want to include inferences that are significant from the agent's own perspective.

It may help to clarify things if we make explicit the premise pointed out right at the start of this article, namely, that by definition 'A does *P*' means 'A follows or acts in accordance with the directive: "*P*!"' Or, more precisely: whenever there is a 'does/*P*', a 'doing/*P*', or a 'done/*P*', there is a 'do!/P', according to which the agent "does/*P*", (is) "doing/*P*", or (has) "done/*P*". We may then write:

(25) *Pc* is an accomplishment stopped by the event E *iff*
'do!/*Pc*' is such that (E happens $\rightarrow$ doing/*Pc*) & (E has happened $\rightarrow$ $\sim$done/*Pc*)

This formula may give the impression that the agent has, beforehand, a list of possible interrupting events. He may have a (short) list, but the most disturbing events are typically those that are not on that list and hence cannot be accounted for. Tom's interruption of his cake-baking may be motivated by a telephone call, or a dog's barking, or both, or something else. We cannot predict that, and maybe neither can *he*. We can only say: *if* an event turns out to have such a significance when *Pc* is being performed, *then* it can serve as a candidate for being a value of 'E' in (25).

You cannot stop (and thus, also, cannot interrupt) an achievement, since you cannot be in the process of doing it. You may be prevented from doing it or decide not to do it (up to the very last moment before it could or should be done: that is what we usually mean when we say that NN was "just about to", say, press the button, but was "interrupted" in doing so.)

7.2 The Stopping of an Activity

(26) *Pt* is an activity stopped by the event E
iff (E happens $\rightarrow$ doing/*Pt*) & (E has happened $\rightarrow$ $\sim$doing/*Pt*)

Can an activity be *interrupted*? After all, it is being completed all the while it is being performed—by its own logic, any moment in the performance of an activity is a moment in which it is completed. Even so, I think there are three situations where it does make sense.

(a) If the activity may be analysed as an open sequence of accomplishments, then an interruption of one of the accomplishments may be seen—and experienced—as an interruption of the activity. A conversation may be interrupted. The noble art of ending a conversation (which should preferably be, but is not always, a co-operation between both participants) consists in bringing it to a point where the most recent subject under discussion has been exhausted. This, then, is a point where the conversation may stop, i.e. end, *without* having been interrupted. (If there are topics that from the very beginning *must* be debated, then the conversation so far is not an activity but an accomplishment.)

(b) The rain interrupted your walk, we say, even when the walk is an activity. The idea is simply that the agent still *wanted* to proceed with the activity. What is the logical form of this "wanting to proceed"? Its *temporal mode* is that of an activity, but it is obviously not something performed, not an action. You do not want [or intend etc.] something by following a directive to want.

(c) The walk may also—in a certain sense—be interrupted by your own decision. You take a rest. The only condition to be fulfilled, if this should count as an interruption, is that you, in the very moment of beginning your rest, act under a directive (e.g. have made a decision) that implies that you will *resume* the walk.

8 Productive Actions

8.1 The Production of an Object

When the work is finished, the work is finished. This "slogan" is not meant to propose a tautology, but to point out the ambiguity of the term 'work'. The work may be the working process—the accomplishment—as well as what finally comes out of it. When the artist has finished his work, the work of art is finished, and vice versa. Correspondingly, when the building—the building-work—is finished, the building—the house—is finished, and vice versa. When you have finished the cake-baking you have finished the cake, and you have not finished the cake-baking if you have not finished the cake that you are baking. Or to put it in general terms, when the *production* has been finished, there is a *product* that has been finished, and vice versa. The production of the object is, obviously, an accomplishment, and might even furnish the paradigm for the latter.

That something—the object O, let us say—has been produced, means that it has been brought into *existence*.[20] Let us say that 'O' is the name of a particular object, and 'Pc_0' means the production of the object O. This inference

[20] According to merely temporal criteria the concept of existence at stake here has the temporal structure of an activity: a moment in which the object O exists is a moment in which it has already existed, and existence does not occur, so to speak, 'at the click of a finger': i.e. when O exists it is *existing*. As I have already stated, my discussion of the possibility of applying the MT-grammar to (certain concepts of) "existence" will have to be saved for another occasion.

(27)* done/Pc_0 → O exists

is not valid, since O may have ceased to exist. By contrast, this is valid:

(28) O exists → done/Pc_0

You may object that O might have come into being in other ways than via the productive action. But such an object will not be numerically identical with O.[21] Now, *defining* the production of O using this (or a similar) formula will mean substituting the unspecified accomplishment '*Pc*' for 'Pc_0', and demonstrating that in MT-terms certain inferential relationships between 'O exists' and *Pc* are *only* licensed if '*Pc*' actually *has* the value (i.e. actually *means*) 'Pc_0', i.e. "(being) the production of O". We have, then, at least a definitional *feature*:

(29) *If Pc* is the production of the object O
then O exists → done/*Pc*

saying that if an accomplishment is the production of an object, then the existence of that object entails that this accomplishment has been performed. The question is, whether (29) can be turned into a full-blown definition, i.e. whether 'Pc_0' is the *only* value of *Pc* for which it holds that the existence of O entails that *Pc* has been performed. Very little specification of 'O' is needed for the inference to no longer hold good, but that should not trouble us, as we are exclusively concerned with inferential relationships that do not presuppose specifications. But if the production is seen as not just one accomplishment but a sequence of accomplishments within the same agency, then the existence of O entails that any arbitrary link in the sequence—not just the production as a whole—has been performed.

We come closer to how things are, I think, if we define the production in terms of its *finishing*. We get

(30) The accomplishment *Pc* is the production of the object O
iff does/finish-*Pc* → O exists

stating that the moment in which *Pc* is finished is a moment in which O exists, and '… is the production of…' is the only relationship between *Pc* and O that licenses the inference 'does/finish-*Pc* → O exists' without further specification of '*Pc*' and 'O'. And so it is, since completion of 'the production of O' *means* "the successful performance of an accomplishment the completion of which is constituted by the emergence of O".

If we do not want action types other than the three basic ones to appear on the right-hand side of the slash (as in 'does/finish-*Pc*'), we may write:

[21] Maybe it is, after all, not that simple. The very concept of an object's numerical identity, where that object only exists potentially, is awkward. The coffee was served, the ingredients and the procedures for making it were all the same, but it all happened 10 minutes later and was done by Peter instead of Anna. The same coffee?

(31) The accomplishment *Pc* is the production of the object O
iff there is an achievement *Ph* such that:
(does/*Ph* → O exists) & (done/Pc ↔ done/Ph)

Here the second bracket conveys the information that the achievement *Ph* is the finishing of *Pc*.

Now, if *Pc* is seen as a sequence of accomplishments (and achievements) then the last link, and any series including the last link, will also fulfil the conditions expressed in (30). Yet this is a positive point, not a problem. That is, in fact, the way we live with productions! I am producing the potato soup insofar as I cultivate the potatoes, dig them up, wash them, etc. and, finally, cook the soup in a pot. "It's done!" But as a busy man with not-too-high culinary ambitions I am also "producing" the soup when I just warm up the ready-made substance bought at the supermarket. "It's done!"

And so we end up back with the initial point, which is that 'finished' may—in senses that are mutually dependent—be predicated about an accomplishment as well as about what comes out of it. The concepts of 'production' and 'product' are mutually dependent. But the 'finished-ness' of the accomplishment is derived from the finished-ness' of the object and not vice versa. The finished-ness of the object is, typically—to put it one way—its *being-ready-for*… (in Heideggerian terms, its "Zuhandenheit").

Productive actions are, at least for us here, projective actions. However, as the criterion of "finished-ness" is derived from the product, there is often a terminating aspect. When you make dinner, you keep an eye on the dinner on the stove, until *it* is finished: then *you* have finished the cooking. You proceed with polishing the silver until it shines. You whip the cream until the cream is whipped. Generally speaking, you proceed with the work until the object spoken of has been *realised* in a sense defined by the object itself.

The definition includes no specific producer. Different links in the productive sequence may involve different agents. It will, moreover, often be more appropriate to speak of a network of productive sequences rather than of one (long) sequence. And there may be collective as well as individual agents involved. One may, of course, also consider the whole production, no matter how complicated, as having a single overarching agent with an (often) very complex internal division of labour (as in, say, a firm). This is how the definition puts it, the productive action being specified in no other terms than by having the object O as its product. You may call it a theoretical abstraction, but it is far from being *merely* a theoretical abstraction. It is a *practised* abstraction (cf. Marx (1947) on "abstract work"). Most often we deal with products without being able to—and without having any reason to—know about their production process. By and large things are what they are in terms of what they are ready for and, in addition, how and by whom they are used, owned, etc., without any recourse to the history of how they came into being.

An open sequence of productive *accomplishments* may constitute a productive *activity*. For instance, whenever the shoemaker makes a particular pair of shoes (an accomplishment), he is exercising his "shoemakership". To *be* a shoemaker means to be the subject of an open—and long—sequence of (particular) productions of

shoes. There are, obviously, "holes" in or "intervals" between the links in the sequence. The shoemaker—*insofar as* he is (being) a shoemaker—does other things in the workshop apart from just producing shoes (such as repairing, selling, ordering, buying, talking etc.), all in the course of duty. He may even do nothing—e.g. when resting—between actions, as long as it is "shoemakery" that is the principle that defines what a proper instance of "doing-nothing" should mean. The shoemaker is no less a shoemaker when he sleeps at night than when he is productive—though we might prefer him not to sleep at work!

8.2 Results and Products

The distinction between accomplishments that bring about a product and accomplishments that do not depends primarily on our definition of an object: i.e. what may figure as 'object' or 'O' in the above formulae. The car parked next door is a product of the productive action that has the car as its end. But we would hardly call the parked car insofar as it is parked—i.e. the very fact of the car being located in a certain way relative to its surroundings—an object, so the action of parking the car is not a production. You study the theory of relativity until you understand it well, i.e. until the theory has become a theory understood well by you. But would you call the wisdom attained an object? If the flame of a candle is an object, then lighting the candle is a production, the flame being the product of that action. If the cleaned room, *qua* having-been-cleaned, is an object, then cleaning the room is a production.[22]

One step towards a solution would be to introduce a more general concept of the *result* of a projective accomplishment. The result should then be taken in a rather strict sense: as the way reality has been changed/arranged thanks to the completion of the accomplishment, *qua* completed. The result does not in this sense include just any physical effect or consequence—or so-called "by-product"—of an action. The end of my walk around the lake—that which constitutes my walk as completed—is my return to the starting point, so strictly speaking there is no result. I may have caught a cold as a result of my walk in the *loose* sense of 'result', but not as the end of it. In the strict sense of the word the result of my walking to the station is that I am now located at the station. The result of cleaning the room is the clean room and not, for example, the empty bottle of cleaning materials. Within the category of actions that bring about a *result* one may then also attempt to draw a line between actions that bring about a *product* and ones that do not. How you implement that distinction is something that may have manifold implications for your metaphysics. Probably the first thing to do would be to speak of things instead of objects

[22] A stone, tree, lion, mountain, lake, cloud, or nose are, according to any criteria I have ever encountered amongst philosophers, objects, albeit in a more or less flesh-and-blood sense, so to speak. But insofar as we limit the class of productive actions to those performed by human agents, rather than God, we may leave natural objects out of account. Yet a particular plant of the genus *Triticum aestivum* is a natural object, whereas when cultivated as bread-wheat, and hence as raw material for wheat-bread, it becomes a product. A hundred pigs are a hundred natural objects. But on the pig breeder's farm they are animals to be slaughtered. And having been slaughtered they are—have become—products, making pig-breeding a productive activity.

(Heidegger 1954, 1967). The next might be to undertake a study of the Aristotelian concept of primary substance (*prote ousia*).

Economics has its own potent concept of a product: a productive action is an accomplishment whose result—the "product"—one may buy and sell. Or, slightly differently, though still quite important in (Marxian) political economics, a product is the result of an action—known therefore as a "productive action"—that one may pay for.

8.3 Maintenance

In the way I have coined the term, which is fairly close to common usage, the product is brought into existence by the *completion/finishing* of the productive accomplishment and constitutes this as completed/finished. There are, however, actions that might properly be called 'productive', even though the "product" is not just (or is not in any way) brought into existence by a productive accomplishment, but is also (or maybe instead) *kept* existing. Houses, tools, cars, etc. must be *maintained* in order to remain houses, tools, cars: i.e. to remain usable for that which they are used for. We may define 'the maintenance of the existence of the object O' as "the activity the completion of which in any moment is constituted by the 'still-exists' of O".[23] We then have:

(32) *Pt* is the activity of maintaining the existence of the object O
iff doing/*Pt* → O exists

Let us spell it out this time. (32) states that: (a) any moment in which it is true that *Pt* is being performed is, by conceptual necessity—i.e. since *Pt* is the activity of maintaining the existence of the object O—a moment in which it is true that O exists. And (b) "(being) the activity of maintaining the existence of the object O" is the only reading of 'doing/*Pt*' that licenses the inference 'doing/*Pt* → O exists' without further specifications of '*Pt*'. If the existence of O depends on its being maintained throughout its career, this strict implication will have to be replaced by a relation of strict equivalence.

In both production and maintenance the object *exists* as a matter of—and as constituting—the completion of an action. But in the case of the productive accomplishment, the completion accounts for the existence of the object (immediately) *after* the performance of the action, whereas in the case of the productive activity, being completed in any moment of its performance, the completion accounts for the existence of the object *during* the performance of the action.

There may be an "until…" associated with such an activity, converting it into a terminating action—a terminating accomplishment or activity. You maintain the house until you move house; you maintain the car until it cannot be maintained any longer. We arrive at

[23] If we are willing to admit a dynamic reading of the concept of existence without further argument, then we might say that the "keep-going" of the activity means the "on-going" of the existence of the object.

(33) *Pc* is the accomplishment of maintaining the object O until the event E has happened
iff (doing/*Pc* → O exists) & (done/*Pc* ↔ E has happened)

stating that any time at which it is true that *Pc* is being performed is a time at which O exists (though not necessarily vice versa), and any moment at which it's true that *Pc* has been completed, is a moment at which E has taken place, and vice versa.

One may take on the task of maintaining one's house until one moves. I think peasants, by tradition—at least as, by tradition, they have been conceived by urban dwellers—explicitly regard their task as being to keep the farm running "until the next generation takes over", passing it down in the same condition as when it was passed down to them. This is a terminating accomplishment.[24] But you may also just maintain it without any sense of the fact that nobody lives in a house for eternity. This is a terminating activity.

Maintaining something is rarely a single long, temporally unbroken undertaking. We talk about "constant maintenance" as being virtually equivalent to "regular maintenance", the constancy being defined in terms of the regularity, or maybe vice versa.

As already suggested above, a proper maintenance of, say, a tool doesn't just keep the tool "existing" but "keeps it keeping" its usability. We may write:

(34) *Pt* is the activity of maintaining the tool T
iff doing/*Pt* → T is usable

Objects of maintenance may also be friendships, competences, traditions, situations, states, etc., i.e. things that we would not usually call "things". However, the most important objects of maintenance are *living beings*, whose life depends on maintenance, which in such cases tends to be referred to instead as 'care', 'nursing', etc. Anything from pot plants and cats to babies and the senile are candidates for this. Pot plants are, almost by definition, objects of care, since they do not just happen to grow on the windowsill: *somebody* is growing them. Good care obviously involves more than just caring about the "existence" of its object: the beings cared for should not just continue to live, but to *live well*.

(35) *Pt* is the activity of looking after the living being A
iff doing/*Pt* → A is living well

Good care is, typically, a terminating accomplishment: you proceed with the care *until* no care is needed. Consider once again the babysitter whose task it was to look after the children until the parents come home. What makes the arrival of the parents a proper termination of the care is the fact that from now on no replacement care is needed.

[24] It may also be regarded as embedded in an open sequence of similar accomplishments, and so in a single huge activity: "I took over the farm from my father, as he did from his father, and you take over from me, as your son will take over from you!".

(36) *Pc* is the accomplishment of looking after the living being A
iff (doing/*Pc* → A is living well)
& there is an event E such that: done/*Pc* ↔ E has happened

What is the difference between 'care' and 'maintenance' in the more general sense? Well, the first takes living being as its object, the other not. What is life, then? Before biology made all life that biology itself could not account for into a metaphor for biological life, we were used to talking about a living friendship, a living conversation, a living interest and, accordingly, about keeping a friendship, a conversation, or an interest alive. Maybe the distinction could be spelled out as follows:

(a) You maintain an object O by keeping it "in order":

(37) *Pt* is the activity of maintaining the object O
iff doing/*Pt* → O is in order

(b) You may also maintain a process. A burning fire, say, is identical with the burning of the fire, so we get:

(38) *Pt* is the activity of maintaining the process G
iff doing/*Pt* → the process G goes on

(c) And, finally, there is one more option—you may maintain an object O by maintaining a process G:

(39) *Pt* is the activity of maintaining the object O
iff doing/*Pt* → the process G goes on

I think the last comes fairly close to "looking after a living being". (Process ontologists may disagree as regards the formal distinction between (38) and (39). I have, at least, offered some of the elements of a language in which possible disagreements about this might be expressed.)

Some actions are productive—we even say "creative"—without leaving a "product" in the sense defined above.

(40) *Pt* is the activity of playing music
iff doing/*Pt* ↔ music is playing

The activity of playing music (40) is fairly similar to the activity of keeping the fire burning (38). However, in (38) but not in (40) there is an "interaction" between the activity and the process kept going. The fire is always more than what you make out of it. The music made is in a one-to-one relationship with the music making. In the era of musical recording and playback, and of production of music that has never been performed, etc., there is much more to say about musical playing, listening and other ways of being "engaged" with music—but not here.

9 "Aristotelian Projects" and "Abstract Projects"

Aristotle analyses all changes in terms of what they are changes *from* and changes *to*. From "the object O is F at t_1" to "the object O is G at t_2", F and G being contrary terms (of quality or quantity). If the change is one of location, i.e. a movement, then it goes from "the object O is at location S_1 at t_1" to "the object O is at location S_2 at t_2". In the following we shall abbreviate this to "the change from X to Y". Aristotle is not interested—in the first instance, at least—in the *way* the change is carried through. Whether Socrates walks, rides, drives or is carried from Athens to Corinth, whether he takes this or that route, his movement will, in Aristotelian terms, be the same. Many philosophers describe human actions—those treated as accomplishments or achievements here—as having the form of an Aristotelian change.[25] I describe such actions as *Aristotelian projects*.

If we want to formalise the Aristotelian project we may consider it to be a productive/resultative action, the product/result of which is a *change*. In the original reading of the productive action (see Sect. 8), this inference was invalid:

(41)* *If* the accomplishment *Pc* is the production of the object O
then done/*Pc* → O exists

since O might have ceased to exist. By contrast, when the product or result is a change it holds that

(42) *If* the accomplishment *Pc* is bringing about the change from X to Y
then done/*Pc* → the change from X to Y has taken place

since a change cannot be cancelled. Things may be "switched back" again, but the change *as an event* will once and for all have taken place.[26]

(42) may even pass for a definition. The accomplishment *Pc* that brings about the change from X to Y is the only action that licenses the inference 'done/*Pc* → the change from X to Y has taken place'.

(43) *Pc* is the accomplishment bringing about the change from X to Y
iff done/*Pc* → the change from X to Y has taken place

This formula holds for changes of quality, quantity and location. But what about the last types of change proposed by Aristotle: coming-into-existence and passing-away? Producing a change by which something comes into existence means

[25] See, for instance, von Wright (1963, 1968).

[26] Socrates, we said, has changed location from Athens at t_1 to Corinth at t_2. And this remains true when he later returns to Athens. But notice, there is a lower limit as regards how briefly he may be located in Corinth if 'being located' and not, for example, merely 'passing through' is to count as the proper expression here. There is, in general, a lower limit as regards how briefly the final state may last if it is to be a final state and thus constitute the completion of a change. If Tom is on a pub crawl a week after he had declared that he "had stopped drinking", then he didn't stop drinking. If three years have passed, then he *did* stop—this much is true for all eternity—even though he has started again.

bringing that something into existence—i.e. *producing* it. Correspondingly, producing a change by which something passes away means *destroying* it. The definition of production as an Aristotelian project follows (43), so we have:

(44) The accomplishment *Pc* is the production of the object O *iff* done/*Pc* → the change from O's non-existence to O's existence has taken place

the formula being noticeably different from definition (30), put forward in the paragraphs focussing on productive action. (44) says that *if* an accomplishment has the feature that one may logically *infer* from its having been performed that there has been a change from 'O does not exist' to 'O does exist', *then* that accomplishment is the production of O, and vice versa. Destruction may be similarly defined:

(45) The accomplishment *Pc* is the destruction of the object O *iff* done/*Pc* → the change from O's existence to O's non-existence has taken place

Many Aristotelian projects may be seen as derived from non-Aristotelian projects by abstraction. From Socrates' stroll from Athens to Corinth we derive Socrates' change of location from Athens to Corinth. From "vacuum-cleaning the room" and/or "scrubbing the floors" we derive "changing the room from being dirty to being clean".[27] Instead of earning one thousand dollars, which now sits in your account, or stealing it, or having it as a result of your investment, you have just "increased the balance". Other non-Aristotelian projects cannot be the subject of such abstractions. Good examples are: "looking after the children a whole evening", "playing a sonata" and "walking around the lake". (The last case implies incremental changes of location, but as a whole there is no change at all in Aristotelian terms).

The abstraction may go a step further and become what I simply prefer to describe as an *abstract project*. From a change in terms of contraries we may derive a change (or, if you prefer, two changes) in terms of contradictories, to the effect that even the *type* of change may be left unspecified.[28] For instance, instead of being subsumed under a directive such as 'bake a cake to be served at the party!', the agent is subsumed under a directive such as 'see to it that there is a cake to be served at the party!'.[29] As such he fulfils the directive whether he bakes a cake, buys it, steals it, or maybe has somebody else bake it. The change brought about is a change from "there is *not* a cake…" to "there *is* a cake…". Or compare: "See to it that

[27] Notice that when you are specifying the way in which the change is carried through you are in fact specifying the result as well. A room that has been vacuum-cleaned is "clean" [or cleaned] in a different sense from one whose floors have been scrubbed or one in which both projects have been carried through.

[28] Production and destruction are also changes in terms of contradictories. But they are not abstract projects since the contradictory terms are not *derived* from contraries.

[29] Nor is the analysis of actions as abstract projects unusual in modern philosophy. See, for instance, Horty and Belnap (1995).

there is a brand-new red car parked in front of my garden at my wife's birthday!" The addressee may fulfil this directive, for example, by

A : (i) producing the car and
(ii) parking it as desired (existential and positional change performed by the agent); or
B : (i) painting the (fairly new) black car in front of the garden red (qualitative change); or
C : (i) buying a red car (change of ownership is no Aristotelian category, but it is certainly one of ours) and
(ii) having it delivered in front of the garden (positional change performed by somebody else).

It follows that all Aristotelian projects may be turned into abstract projects, but not vice versa. Generally speaking, what is "brought about" in an abstract project is a change of the world from being a world in which '$\sim q$' is true into a world in which 'q' is true. What the agent brings about is a change of something from not being a fact to being a fact. Formalised, this reads as follows:

(46) Pc is the accomplishment bringing about the change from '$\sim q$' to 'q'
iff done/$Pc \rightarrow$ the change from $\sim q$ to q has taken place

We may say that q states the *completion criterion* for the project. Notice that the criterion must, in principle, be formulable prior to and independently of the performance. Abstract projects are "historyless". If 'q' in (46) could be taken to mean, say, "Socrates is in Corinth having walked all the way from Athens", then the accomplishment would no longer be an abstract one, as it conveys information about a "from". It would not even be an Aristotelian project, since it conveys information about a "how".

Production—particularly in modernity—will often occur in Aristotelian or even abstract terms: I tell the dealer what kind of kitchen I want and he delivers it, ready for use—preferably on the agreed date. *How* he did it plays no role here. The finished-ness of the product is its readiness to be used without reference to a previous genesis. As we understand and have access to fewer and fewer of the processes involved in production technology, and to each other's "hows", the division of labour—whether on a small or a large scale—comes to be more and more a matter of Aristotelian projects. A directive like "See to it that my car drives again!" sounds more like somebody else's directive to the agent than the agent's directive to himself. But more than class struggle it expresses the prevalence of alienation and abstract freedom.[30]

[30] These days there are traces of a revolt against the [social] dominance of Aristotelian projects. One example may be the introduction (or revival) of "organic food production", linked, for example, to animal-welfare concerns and the like. We want the narrative back—particularly one we may feel good about!

10 Acting on Conditions

In Sect. 6.1 we defined the terminating accomplishment in this way:

(19) *Pc* is the accomplishment terminated by the event E
iff E has happened ↔ done/*Pc*

In the present paragraph I shall introduce the concept of *acting on conditions* or *conditional agency*. Here the event E plays the opposite role. Instead of being completed by E the accomplishment is *prompted* by E.[31] We get:

(47) The accomplishment *Pc* is prompted by the event E
iff E happens ↔ does/start-*Pc*

If, in our definitions, we do not want to apply action types other than the three basic ones, we may write:

(48) The accomplishment *Pc* is prompted by the event E
iff there is an achievement *Ph* such that:
(does/*Ph* → doing/*Pc*)
& (doing/*Pc* → done/*Ph*)
& (E happens ↔ does/*Ph*)

in which the two first implications in the *definiens* simply convey the information that the achievement '*Ph*' means "the start of *Pc*". Actions prompted by events represent by far the most comprehensive type of human agency (as defined within the MT-grammar), since most of the actions we have studied so far might have been prefixed with a clause to the effect that the action is to be performed if such-and-such conditions are fulfilled. We do this all the time. And whenever we in fact perform *one* action (making actions countable for a while), there will be a multitude of actions that, consequently, we must be prepared to perform *if*… Most such conditions are never fulfilled, and we are lucky that this is so—not just because many of the conditions themselves are unpleasant when they occur (for example, I have never had to make a phone call to the police prompted by a robbery), but also, and above all, because the class of events that could modify, disturb or prevent your action were they to happen is infinite, and the class of things you should or could do in such cases is (more or less) correspondingly infinite.

However, there are some problems with the above definition. First, it is the exception rather than the norm that the performance of the prompted action starts in the very moment when it is prompted, yet that is what (47) indicates. What actually "happens" to the agent when the prompting event takes place is that he is subsumed under the directive to perform the action. We have:

[31] All three basic types of actions may be prompted. But insofar as the logical relationship between the action and the prompting event is the same in all cases we may keep to the analysis of the prompted accomplishment.

(49) E happens → do!/*P*

And so we may define:

(50) The accomplishment *Pc* is prompted by the event E
iff E happens → do!/*P*

This frees us from the need to give further consideration to whether (47) only holds for a prompting event, or leaves room for other events taking place at the same time as the start of the action.

We must, however, be careful to distinguish between the *action* as *de facto* being performed, prompted by an event, and the *agency* that includes both the *preparedness* to act and the action itself as eventually performed (if/when the conditions are fulfilled). It is the conditional (49) as a whole that constitutes the agency. In fact the agent *is acting* under that imperative, whether the prompting conditions ever occur or not and whether he succeeds or fails to act if/when prompted. That is, the hypothetical imperative stating that a certain action *P* is to be performed if/when E takes place may *itself* constitute an action. To stand guard really is something one does, even if literally one does not actually move a finger. The job of telephone receptionist is the same—and is no more, no less, a job to be done—whether there be an unbroken chain of calls or no calls at all. There is, so to speak, one *first-order* action *P* and one *second-order* action *P**:

(51) $P^* =$ Do!/(If E happens → do!/*P*)

which, for the sake of brevity, we will notate as:

(52) (E happens → *P*!)!

In general an action or job such as P^* may be formulated using prefixes such as "look after…!", "keep an eye on…!", "be prepared to…!": the agent should be able to recognise the event, *if/when* it might take place, and he should be able to (re)act properly. Usually P^* involves not one but a plethora of hypothetical imperatives. A task such as "look after the children!" will be implemented in something like the following manner: 'When the children get sleepy, put them to bed! If one of the children begins to cry, comfort him! If one of the children wants to pee, take him to the toilet! If one of the children gets thirsty, give him something to drink! If one of the children picks up a piece of porcelain, take it from him (carefully)! And so on.'

Even when we are concentrating fully on doing just one thing at a time, we are subsumed under a lot of imperatives of type (52). Even if the action is the classical one in philosophy of action, namely hammering in a nail, you will be subsumed under *internal* conditionals such as 'If you hit the nail a bit awry, then immediately adjust it with your next blow!', and under *external* conditionals such as 'If the telephone rings, answer it!'

Most things we do are embedded in first-and-second-order agencies, or *are* first-and-second-order actions. Further, however—and again, most of the time—we are even acting within a *third*- (or higher-)*order* structure. The shop-assistant doing his

job is helping the customers, *if* they need help; he is putting that kind of commodity on this shelf, *in case* they show up, etc. All of this occurs as part of a single complex structure. One of the tasks is: 'Answer the telephone *if* the boss goes out!'. However, as we have seen, *that* task is itself defined as a first-and-second-order agency. At a higher level it consists of picking up the phone *if* it rings and, more specifically, in answering "q", *if* anybody calling should ask "p?", and even more specifically in giving the message M to A, *if* he should call. That is, we have conditional agencies that are themselves subject to other conditional agencies, and hence the designation 'third-order agency'. Though it is indeed simplistic to treat the conditionals as being straightforwardly logically conjugated, I shall write:

(53) The agency [P] amounts to: $(E_1 \rightarrow P_1!) \,\&\, (E_2 \rightarrow P_2!) \,\&\, \ldots (E_n \rightarrow P_n!) \ldots$ etc.

Let us say that one of the actions performed conditionally is P_n, and that this agency is itself conditional. We then have:

(54) The agency of $[P_n]$ amounts to: $(E_{n1} \rightarrow P_{n1}!) \,\&\, (E_{n2} \rightarrow P_{n2}!) \,\&\, \ldots$ etc.

[P], $[P_n]$ and P_{n1}, P_{n2},..., etc. represent agencies/actions of three different orders.

But could we not dispense with third or higher-order conditionals? After all, a proposition like '$p \rightarrow (q \rightarrow r)$' is equivalent to '$p{\cdot}q \rightarrow r$'. Let us suppose that we have:

(55)
(i) The agency [P] amounts to: $(E_a \rightarrow P_a!) \,\&\, (E_b \rightarrow P_b!)$
(ii) The agency $[P_a]$ amounts to: $(E_{a1} \rightarrow P_{a1}!) \,\&\, (E_{a2} \rightarrow P_{a2}!)$
(iii) The agency $[P_b]$ amounts to: $(E_{b1} \rightarrow P_{b1}!) \,\&\, (E_{b2} \rightarrow P_{b2}!)$

From this we get:

(56) (iv) The agency [P] amounts to:

$$\begin{aligned} &(E_a \rightarrow (E_{a1} \rightarrow P_{a1}!)) \\ \&\ &(E_a \rightarrow (E_{a2} \rightarrow P_{a2}!)) \\ \&\ &(E_b \rightarrow (E_{b1} \rightarrow P_{b1}!)) \\ \&\ &(E_b \rightarrow (E_{b2} \rightarrow P_{b2}!)) \end{aligned}$$

which we may spell out as follows:

(57) (v) The agency [P] amounts to:

$$\begin{aligned} &(E_a \cdot E_{a1} \rightarrow P_{a1}!) \\ \&\ &(E_a \cdot E_{a2} \rightarrow P_{a2}!) \\ \&\ &(E_b \cdot E_{b1} \rightarrow P_{b1}!) \\ \&\ &(E_b \cdot E_{b2} \rightarrow P_{b2}!) \end{aligned}$$

So we have got rid of implied implications, hypothetically hypothetical imperatives, or whatever you may call them. The agency [P] of necessity occurs before the agencies $[P_a]$ and $[P_b]$, but we may spell this out without introducing any third-order agency. Or can we—i.e. should we?

I do not think so. In (i) part of the agency consists in our *paying attention* to E_a and E_b, but not to E_{a1}, E_{a2}, E_{b1} or E_{b2}. But then if, for example, the condition E_a turns out to be fulfilled, the agent must pay attention to E_{a1} and E_{a2} with the

consequence that the situation *as a whole*—and hence the agency as a whole—is changed. Before the boss goes out, one of the shop-assistant's tasks is to keep an eye on whether he goes out—not to stay glued to the phone. When the boss goes out, the shop-assistant will continue with any pressing tasks, but stay closer to the telephone.

However (iv) and (v) *are* equivalent in their present form. In order to account for the difference we should, once again, regard the agency as a matter of subsumption under a hypothetical imperative (see ex. 52). In (iv) the first conjunct goes:

(vi) $(E_a \rightarrow (E_{a1} \rightarrow P_{a1}!)!)!$

whereas in (v) it goes

(vii) $(E_a \cdot E_{a1} \rightarrow P_{a1}!)!$

and these directives are *not* equivalent within a "logic of practical attitudes". In (vi) E_a is the object of attention, whereas if E_a becomes true, $(E_{a1} \rightarrow P_{a1}!)$ is the practical consequence. In (vii) $(E_a \cdot E_{a1})$ is the object of attention, whereas if $(E_a \cdot E_{a1})$ becomes true, $P_{a1}!$ is the practical consequence.

Another variant of conditional agency is*to do something before something else*: for example, hiding the chocolate before the children come home, taking in the washing before it starts raining, or pressing the button before the alarm system goes off.

The "something" you must do before a certain event occurs may be an accomplishment or an achievement. In the first case the type bears some similarity to a terminating accomplishment: both have their completion defined in terms of an (external) event. But in the terminating accomplishment this event happens in the very moment of completion and constitutes the completion, whereas the event spoken of in the present case must occur *before* the event. We simply have:

(58) *Pc* is an accomplishment to be performed before the event E
iff E happens → done/*Pc*

The chronological relationship between the event and the action is not "predicted". Nor is it just a matter of fact, but rather of the inferential necessity implied by the agency itself, that the action is—i.e. is *to be*—performed before the event happens. Hence the inference constitutes a fully spelled-out definition of the task "to perform P before E". This might be explicated as:

Pc is an accomplishment to be performed before the event E
iff *Pc*! is such that (E happens → done/*Pc*)

The same formula also holds if the action is an achievement:

(59) *Ph* is an achievement to be performed before the event E
iff happens/E → done/*Ph*

or better again:

(60) *Ph* is an achievement to be performed before the event E
iff *Pc*! is such that (happens/E → done/*Ph*)

11 The Present as the Past of the Future: A Problem

If Tom stopped swimming before he had swum a mile, then he did not swim a mile, and what he in fact was doing was not swimming a mile. Correspondingly, it seems, Tom is not at the present moment in the process of swimming a mile, if he later stops before he has swum a mile: i.e. he is only swimming a mile if he actually later *succeeds* in doing so. When I am *predicating* about Tom right now that he is swimming a mile, then I am *predicting* something about the future. And if that prediction turns out to be false, then the predication is falsified. If '*Pc*' means "(to) swim a mile", we may put it this way:

(61)		(i)	Now: done/stop-*Pc* → Past: ∼doing/*Pc*
	which amounts to	(ii)	Past: doing/*Pc* → Now: ∼done/stop-*Pc*;
	but from (ii) we get	(iii)	Now: doing/*Pc* → Future: ∼done/stop-*Pc*
	and, further,	(iv)	Now: doing/*Pc* → Future: done/*Pc*

This reflects *one* way of talking about accomplishments being performed in the present in relation to the future. We may call it the *strict* mode. As regards *seeing* the performance of an accomplishment—seeing it *as* an accomplishment—the strict mode is fatal: the accomplishment performed right now *is* only an accomplishment insofar as it is completed later, but when it is completed it is not being performed, and hence you cannot see it being performed.

In practical usage we often introduce prefixes such as '*trying to*…' to get rid of the prophetic implications of a proposition about the present: "He is *trying* to swim a mile, *attempting* to cross a crowded street, *trying* to catch a butterfly, etc. accounting for the possibility that he will not complete his project. The prefix 'trying to…' conveys no psychological information about the agent here, but is a purely logical feature of any agency. Whatever your prospects of success or failure may be, you cannot at the present moment—*qua* agent—do less than try to do it.

Now, trying to perform an accomplishment is an activity, and you cannot stop an activity unless you have already been performing it for a while. So we have:

(i′) Now: done/stop-trying-*Pt* → Past: doing/trying-*Pt*

i.e. exactly the opposite inference of (i). In (i) we had 'Now: done/stop-x → Past: ∼doing/x' whereas (i′) states that 'Now: done/stop-x → Past: doing/x'.

Further to this, as far as the definition of an activity, which holds for any moment, and also for the present, is concerned, we have:

(ii′) Now: doing/try-to-*Pc* → Now: done/try-to-*Pc*

But due to the temporal implications of the perfective mode, (ii′) entails:

(iii′) Now: doing/try-to-*Pc* → Future: done/try-to-*Pc*

The same form is possessed by (iii′) as by (iv): 'Now/doing-x → Future/done-x'. But (iii′) is not a genuine prediction since it is a purely logical implication of something that may be verified now. The use of the prefix 'trying to…' reflects a *second* way of seeing and describing an action being performed in the present in terms of its relation to the future. We might call it the *soft* mode.

The 'trying to…' serves the function of an "epistemological caution" here. But the agent may himself be subsumed under the directive 'try to P!' rather than just 'P!': i.e. he may himself consider the risk, the implications of any possible failure, etc., as something to be accounted for. And insofar as *we*, as observers and reporters, are trying to see—i.e. understand—the agent in terms of his perspective, *we* may also make use of the 'try…'-prefix in this more-than-just-epistemological sense.

There is, I think, a *third* mode too. When Mummy is baking a cake, we will all be disappointed if she fails to complete her project. She did not bake the cake, we say, but we would not deny that she *was* baking it. One way of reading this case may be to say that she was – all the time—*proceeding* with baking the cake. Proceeding with baking a cake is an activity: it is the "activity-phase" or "activity component" of the accomplishment "baking a cake" (see Sect. 4). So reasoning in the same way as in (i′)–(iii′) above, we come to:

(i″) Now: done/stop-proceed-with-*Pt* → Past: doing/proceed-with-*Pt*
(ii″) Now: doing/proceed-with-*Pc* → Now: done/proceed-with-*Pc*
(iii″) Now: doing/proceed-*Pc* → Future: done/proceed-*Pc*

which again is a logical point, not a prediction. We may call this the *medium-soft* mode: within the agency of an activity it is possible to fail to proceed, but it is impossible to fail to try. Again, substituting 'proceed-with-*Pc*' for '*Pc*' is an *epistemological* caution. As an agent Mummy was not merely subsumed under the directive 'Proceed with baking the cake!' but was—in the strict mode—subsumed under the directive 'Bake the cake!'

I wish to claim that the strict mode is the usual one. We cannot live our lives in the soft mode, *seeing* and *performing* the majority of our accomplishments as attempts or activities. There is, then, some sort of a *Bedingung der Möglichkeit* in human practice, such that we succeed in most of the things we do, and in general do not account—and do not need to account—for the risks connected with the possibility of failure: we catch hold of most of the things we reach out for, find a support for our body with almost every step we take when walking, find most of the things we have left where we left them, understand most utterances in our own mother-tongue, etc. And this is reflected in the way we usually describe actions. Generally it is only in the cases where we fail that we realise what our implicit assumptions about the future were.

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