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What Does Doing One's Part of a Joint Action Involve?

Abstract: The paper gives a conceptual clarification of what the notion of a part of a joint action (project, etc.) involves. The - mutually recognized - division of a joint action into parts can be based on social norms (viz. formal or informal rules, or proper social norms such as conventions or group specific social norms) or it can be based on agreement, coercion, or some analogous social mechanism. The paper also discusses the notions of a we-intention, of the intention to perform an action as one's part of a joint action, and of an agent's intentionally performing an action as his part of a joint action.

I. The Notion of a Part of a Joint Action

The notion of a part that I will be interested in here is the one related to joint action (and joint projects, more generally). When performing a joint action each participant is assumed to be performing his part (or share or component-action or part-action -different phrases can be and have been used depending on context). I shall in this paper attempt to give a deeper analysis of what the notion of a part involves. What, indeed, can a philosopher say about this problem?

I shall be interested in an intersubjective and (in a sense) normative notion of a part - the standard sense of the notion. When we say that a person performs his part of a joint action we typically have in mind just this notion. Suppose Kalle and I jointly write a book. My share is to write the first part of the book, while Kalle's is to do the rest. This is our agreement and our mutual understanding. Clearly we are dealing with parts in a sense requiring mutually believed normative expectations (viz. what each of us should do in this case). There are even more norm-bound cases. For instance, a professor's part in a seminar may be to direct it and to evaluate students' work. This is based on the rules of the university, and also the participants' mutual beliefs in the matter are centrally involved as in the previous example. The professor's part here is what his

task or office and the accompanying social role in the organization require him to do. In general, when a person's (position-holder's) part in a social collective or a joint project is norm-determined, it will consist of either his task or tasks or his associated social role-task or role-tasks or both.

The notion of part in its richest sense is to a great extent a social and a psychological notion. It may depend on the norms, customs, and practices (and the like) of the community or society in question; and - as seen above - it anyway depends on the norms of the particular social group we are discussing here. In addition to formal rules related to the division of tasks and labor informal rules and practices also are obviously relevant. And, in the absence of both formal and informal rules and practices, the parts and shares can be determined through explicit or implicit agreement (think of a husband's and a wife's division of tasks and labor in a marriage, which is a joint project consisting of a large class of joint and other social actions).

Before proceeding to my analysis, a remark on my terminology and my notion of norm: Following Tuomela and Bonnevier (1990) I will call obligating norms or prescriptions simply norms. Norms will be divided into rules (or 'r-norms') and social norms (or 's-norms') in the proper sense. I shall call rules the regulations, laws, charters, informal agreements and other similar verbalized norms concerning what position-holders in social collectives ought to do in certain circumstances. A person's task or tasks in a collective are typically determined by rules in this sense. His social role grows out of his task when other members of the collective come to expect that he carry out his assignments in a specific way related to other members of the collective and that he will also perform other tasks resembling his rule-tasks.¹ Thus it can be said that social norms (viz. social conventions and social group norms) also come to govern his performance of his duties and tasks. (In some special cases, tasks can also be defined through social norms, and in those cases the social norms govern the manner in which a rule-task, e.g. a professor's task to conduct a seminar, is to be performed, or they specify the tasks as tasks involved in roles, e.g. a virologist-professor's role-task to inform the public about a new virus that has attacked the society.) In any case, the norms governing a person's activities in a collective (as a member of the collective) can be divided into (formal or informal) rules and social norms (group-specific ones or general ones such as conventions typically are) in the present terminology.

The notion of a part I will discuss here is abstracted from the context of joint action where each participant is supposed to have a part to perform. In cases of 'formally' specified joint action such as ceremonial joint action and in cases where the joint action is carefully planned prior to action, the parts of the participants can be easily discerned. Taking an example

of the latter, consider some boys, Tom, Dick, and Harry, who plan to steal apples from a farmer's garden. In their plan Tom and Dick are supposed to do the actual stealing, Tom from the left side of the garden and Dick from the right side; and Harry will primarily be watching out for the farmer and other dangers. Here we can speak of the boys' parts in a differentiated sense, even if much of the content of the parts can be determined only contextually on the site of their horrendous crime when it is taking place or has taken place. They might alternatively make a joint plan to steal apples from a new place unknown to them. Then they might decide on their parts only after the joint action is about to begin. Before the action it is known only that they will have parts to perform. While we may speak of Tom's, Dick's, and Harry's parts also in this case no contentful description of those parts is available in advance. On the other hand, after the joint crime, their parts - what they actually did - can be described in great detail. Thus, in this latter type of case often the non-trivial part-descriptions can be obtained only from behavioral and functional description and classification. We specify some adequacy criteria for the joint action - especially we give its end or goal - and classify the participants' actually occurring behavior as related to those criteria. This will often involve specifying in some detail how they interact in the context of the joint action being performed. The point made in this paragraph, then, is that we may distinguish between ex ante actu and ex post actu situations. Every joint action involves some sort of plan of action, sometimes perhaps only a vague intention which need not have been properly formed prior to action; and in such a case contentful part-descriptions can be found only ex post actu. On the other hand, there may be a detailed plan, involving detailed part-descriptions, ex ante actu. It is the latter common type of case that justifies talk about parts abstracted from a context of an agent's performing his part in a context of joint action. (Other cases are handled by analogy with this and by reference to the ex post actu situation.)

It is worth noting that there are no unique 'physicalistic' (non-mental and non-social) criteria for dividing a joint action into parts and for giving an explicit physicalistic definition of the notion of a part.² To see this, consider a joint action X. Such an action will be regarded as an activity involving an 'achievement' to be called its result. (For instance, our jointly moving a table upstairs has the inbuilt result of the table's being upstairs. I will below use the variable *r* to represent the singular 'logically inbuilt' result events (or state) any token of a joint action X has.) The question confronting us here is whether there could be such a unique division of X into part-actions (or even a definition of the full result event *r* of X in terms of a unique set of results r_1, \dots, r_m of part-actions and other relevant notions) which is independent of norms and the participating agents' beliefs. The answer is "no", even if there may be physical features of actions which are 'suggestive' (think of carrying a heavy object weigh-

ing, say, 100 pounds and being in a form suitable for two carriers). But there is always the possibility (at least a conceptual if not a physical possibility) that, instead, one person alone brings about the full result of the joint action (bringing thus about a performance of X). Of course we might have actions that go beyond the physical capabilities of any one participant, but this contingent fact is not sufficient to give a required kind of explicit physicalistic definition of a part. Accordingly, there will in general be several divisions meeting the physicalistic criteria, and social and psychological criteria are used to select one specific (functional) partition. But on the other hand, we may be able to use physicalistic criteria to give partial characterizations of parts - see below.

We can also add the requirement of intersubjectivity to the notion of a part physicalistically characterized. We then deal with parts that are mutually believed by the participants to be part-actions of X at least in a physicalistic, functional sense. But even this does not suffice for catching the social, 'standard' notion of part so that a unique division of X into parts in those terms could be obtained. For such mutual beliefs defining intersubjectivity might be 'incorrect' in the following sense: there could be a division of tasks based on law or convention or agreement, and the present participants might be ignorant of the law or convention in question (although of course not ignorant of the agreement they have participated in making). Thus intersubjective parts in this weak sense are all right as far as they go, but in many cases we need for parts the additional requirement that the mutual belief must be correct relative to the convention or law or what-have-you. Such parts are just parts in the standard sense, and we can analyze them as follows:

- (P) X_1, \dots, X_m are parts of X in a situation C (in a collective G) if and only if
- 1) X_1, \dots, X_m are action types;
 - 2) if they are performed in favorable conditions, then X will be performed by their agents (say A_1, \dots, A_m) in C;
 - 3) the division of X in question is based in some norm, agreement-based rule, viz. either a) a formal or informal rule (e.g. law, charter, regulation) or b) a social norm (a group specific norm or a more general norm such as a convention) that is in force in G, or (and perhaps in addition) it is based on agreement or coercion or some analogous social 'mechanism';
 - 4) there is a mutual belief among the agents A_1, \dots, A_m (in situation C) to the effect that 1), 2) and 3).

Clause 1) is rather obvious: a part of a joint action must be something that can be performed. In clause 2) I use the phrase "favorable conditions" to cover normal conditions and to exclude the possible lack of skill and luck of the participants as well as unexpected environmental obstacles. (This notion needs no further analysis in the present context.)

Clause 2) expresses the idea that the notion of part is partly a functional notion: the performances of the parts of X are (of course) centrally involved in bringing about X, otherwise we would not be dealing with action-parts. Why is clause 3) needed? There are in general many ways to divide a joint action X into potential parts, viz. to satisfy 1) and 2) (and the mutual belief clause). But, as already seen above, the notion of a part is a social notion - typically social rules and norms as well as agreements are brought into play when determining how to divide X uniquely into parts. What the agents think of dividing up X may be crucial (cf. informal tasks and task-groups), or then rules and social norms are central (cf. the case of the university professor). We can also say that clause 3) exists to stress that a person's part amounts to (one or more of) his rule-determined tasks and the associated role-tasks or merely to his role-tasks, or it is a rule-determined task (or tasks) merely agreed upon for the purpose of performing the joint action X. (For rules and social norms to play a central role they obviously have to be in force to some extent at least, and this involves at least some degree of their acceptance by the members of G.) Thus we can say that some kind of explicit or tacit agreement or acceptance must always be present when a joint action X is divided into parts, and the agreement can be based on social rules or social norms or be merely an on-the-spot agreement.

There can be indeterminacy in dividing X into parts at the following points: First the number of participating agents may be important. While there are some joint actions specifically requiring a certain number of participants, that is exceptional. In general a joint action X can be performed with a varying number of participants, not all of whom are really needed for its performance (for bringing about its result event); cf. a large crowd of people pushing a bus uphill. Social agreements and social conventions may be needed to decide how many agents and specifically who are participate - think, for instance, of selecting delegates to represent a collective. (See Tuomela 1989b, for a game-theoretic discussion of the selection of participants in a joint action - the so-called 'Battle of the Sexes' game often may be especially involved in them.)

Next, even if the participants have been selected, there is the question of how to divide X into parts, and here social agreements and conventions as well as other social mechanisms (such as a 'dictator's' telling the participants what each is to do) play a role. Finally, in the context of X actually becoming performed there is the allotment of parts to the participants, and here we have again a coordination problem involved in the so-called coordination games and Battle-of-the-Sexes games as well as sometimes in conflict-involving games such as 'Chicken' (see Tuomela 1989b). But note that this last selection problem, which also requires social and psychological solution mechanisms, is one that is not involved in (P), which is only an analysis of what a part conceptually is.

Clause 4) is the standard kind of requirement in the context of social notions such as norms, conventions, and the like. These notions must have 'social reality', and the mutual belief requirement is meant to express that. In fact I do not have a stronger argument to offer for clause 4). We may indeed conceive of a non-doxastic notion of part defined merely by 1)-3). Let me remark, however, that clearly such a notion would not be rich enough for contexts of action, viz. when X is about to be performed, and what we are dealing with is a participant's having something as his part to perform in that context. One may of course separately add the requirement of mutual belief for such contexts where the central notion would be that of an agent's having a part of X to perform in the strong sense required by an intentional joint performance of X (cf. next paragraph and section II).

Notice that (P) does not require that the agents know each other's parts, although that may be a necessary requirement in some cases of joint action (especially in the case of small groups). Generally put, it is not always necessary even in the context of an actual performance of a joint action that the agents know that the other participants' parts are, unless that truly affects what they are doing as their own part (cf. large groups and joint actions with relatively independent subtasks). It suffices that they believe that the others have parts and that they also believe that it is a mutual belief that all the participants have parts. (Indeed, that the other participants have parts is a joint action opportunity, which must be believed by every participant to be mutually believed by the participants; cf. below my discussion of we-intentions.) We may accordingly note that there can be a successful division of X into parts without the agents succeeding in doing X (even in externally favorable circumstances). It may also be noted that the context, C, may be taken to determine not only how many participants in X there will be but also (in part) how X on this particular occasion is to be divided into parts. (Also the social rules and norms of clause 3) of (P) can be involved here, as noted above.)³

Let me now summarize the notions of part characterized above:

- i) X_i is a 'physicalistic' part if and only if X_i is an element of a set of parts satisfying clauses 1) and 2).
- ii) X_i is a social part if and only if X_i is an element of a set of parts satisfying clauses 1), 2), and 3).
- iii) X_i is an intersubjective social part if and only if X_i is an element of a set of parts satisfying clauses 1), 2), 3), and 4).

In cases of joint action we still need the notion of a subjective part, by which I mean the following: X_i is a subjective part for A_i and only if A_i believes that X_i is his part of X. In the case of playing a sonata for violin and piano there are two parts - one for the violinist and one for

the pianist. These are parts in the sense of (P). But in order for the sonata to be played on a particular occasion, each player must have a (correct) belief as to what his part is. Thus the notion of a subjective part is involved here. What is more, it is necessary to take into account what the player believes that the other player expects of him; and in accounting for this we obviously have to invoke the notion of a social loop belief. There is a kind of normative-nonnormative dimension involved in such loop beliefs. For instance, what the others think the agent ought to do (and this could well be a moral or a legal ought) may be involved sometimes, and sometimes again simply their belief about what our agent will in fact do is at stake.

II. We-Intentions and Part-Actions

The notion of a part of a joint action is a central one, because this notion is needed for an analysis of some key notions in the theory of social action. I will illustrate this.

Group-intentions (intentions in the group-mode, e.g. "We shall do X") are central for the theory of social action. For one thing, intentionally performed joint actions can be argued to require the presence of group-intentions, specifically 'we-intentions'. Roughly speaking, a we-intention to perform a joint action X is an intention by a participant to do his part of X accompanied by a belief that X can come about. To go into some detail consider the analysis of we-intentions, viz. (W1) given in Tuomela 1989a:

(W1) A member A_i of a collective G we-intends to do X if and only if

- i) A_i intends to do his part of X (as his part of X);
- ii) A_i has a belief to the effect that the joint action opportunities for an intentional performance of X will obtain, especially that a right number of the full-fledged and adequately informed members of G, as required for the performance of X, will (or at least probably will) do their parts of X, which will under normal conditions result in an intentional joint performance of X by the participants;
- iii) A_i believes that there is (or will be) a mutual belief among the participating members of G (or at least among those participants who do their parts of X intentionally as their parts of X) to the effect that the joint action opportunities for an intentional performance of X will obtain.

I require in the analysis of (W1) that A_i intends to do his part of X as his part of X. This presupposes that he must have the belief that some action is his part of X. We have here the important notions of doing (intentionally) something as one's part of a joint action and intending so to

do. Now, supposing that A_i intends to do a specific action, say X_i (regardless of how it is described or named) as his part of X , he must have acquired the belief that an action X_i is his part of X , and he must obviously also intend to do X_i . But as he might fail to connect these two features, we must also require that this intention be partly based on the belief in question. So we arrive at the following analysis:⁴

- (IP) A_i intends do to X_i as his part of X in C if and only if in C
- 1) A_i believes that X_i is his part of X ;
 - 2) A_i intends to do X_i ;
 - 3) 2) partly because 1);
 - 4) A_i believes that the joint action opportunities for X obtain and that there is mutual belief among the participants A_1, \dots, A_m that they so obtain.

To intend to do something as one's part of X is obviously more than to intend to do something, say X_i , which just happens to be an agent's part. This is true even in the case in which the agent knows that it is his part. In intending to do X_i as his part of X the agent would really be intending to perform X were it not impossible for him to do it alone (or were it not for some other reason the case that he is engaged in joint rather than solitary action or planning to at any rate). So, to continue this slightly metaphorical idea, the best he can do is his part, here X_i , and that is the primary content of his intention. Clause 3) of (IP) partly accounts for this, but the central thing to notice here is that we must really require clauses ii) and iii) of the above analysis (WI) of the notion of a we-intention to be true. (They have been incorporated as clause 4) in (IP) - see Tuomela/Miller 1988, 381-2, 385-387, for arguments for this requirement, using possibly a weak notion of a mutual belief.) In our analysis a participant's intention to participate in a joint action really amounts to his intention to do his part of the joint action (as his part of it), and this presupposes that clauses ii) and iii) of (WI) (viz. 4) of (P) hold true in this context. Thus, when analyzing one's intention to do one's part, as in (IP), we are really only saying something more about his we-intention to perform the joint action. Given this understanding of the situation, we can take clauses 1)-4) to be jointly sufficient for the truth of the analysandum of (IP).

Let us next consider the notion of an agent's intentionally doing X_i as his part of X . For A_i to do X_i as his part it is required (in some suitably broad sense) of A_i in the situation at hand that when he performs X_i he does it with the purpose that the participating agents succeed in doing X , and, furthermore, that his doing X_i in that situation is conducive to the total action's (X) coming about. One reason for this is that in the case of typical joint actions the agents are jointly responsible for the action coming about; and that typically involves their monitor-

ing the situation until the result event of the action has come about or at least as long as they can do something about it (e.g. if something unexpected happens). Thus an agent may be in this sense potentially involved (or 'in reserve' for the rest of the joint action) even after he has actually performed his part of the joint action. That he must have the purpose that the joint action be brought about means that he must endeavor to contribute to X. In general he need not literally have an intention which so to speak concerns more than his part X_i of X, but he must endeavor or 'mean' at the level of his actions that X come about (and he must have the conceptual resources and beliefs mentioned in the analysis of (WI)). So I claim that A_i cannot do his part of X, viz. something as his part of X, in the case when he we-intends to do X unless he does it with the purpose of the action X coming about (with at least a nonnegligible probability). To illustrate this in the case of some agents jointly carrying a piano upstairs, he must intend to do his part of the carrying, and he must also intend (endeavor) that the piano will get carried upstairs. And he can have this general purpose without having specific beliefs about the other agents' relevant beliefs and intentions: it suffices that he has the above general purpose that X will come about, and this can be the case even if he only believes nonspecifically, viz. in sensu composito, that the joint action will succeed (at least with some probability).

Let me accordingly offer the following analysis for the notion of doing one's part intentionally:

(DP) A_i intentionally does X_i as his part of X in C if and only if in C

- 1) A_i believes that X_i is his part of X;
- 2) A_i does X_i with the purpose (or 'endeavoring') that X will - partly because of his doing X_i - be jointly performed by the agents A_1, \dots, A_m ;
- 3) 2) partly because 1);
- 4) A_i believes that the joint action opportunities for X obtain and that there is a mutual belief among the participants A_1, \dots, A_m that they so obtain.

Briefly, the intentionality requirement imposes on our analysis the awareness requirement involved in clause 1): an agent must be aware of what he is intentionally doing at least to some degree. Our present problem is a version of this problem, and here I have, for simplicity, chosen to explicate the generally accepted awareness requirement in terms of a belief-requirement, although in some borderline cases something slightly weaker may suffice. What was argued above in the case of clause 2) of (IP) can be directly applied to our present clause 2). Clause 3) requires that he connects these things in the right way; and I will not here argue for this rather obvious requirement. As to clause 4), see above (it should be

emphasized that the argument given in Tuomela/Miller 1988, Appendix, for the case of we-intentions can clearly be modified for the present case by changing the requirement of an agent's intention to perform his part to the requirement about his actually doing his part). While thus clauses ii) and iii) of (WI) must be true here, its clause i) need not: one can intentionally do something without specifically having the intention to do it (provided one has the intention to do something relevant and closely related, e.g. to bring about a goal to which that action serves as a means). It follows from 4) that when A_i intentionally does X_i as his part of X , he believes that it is a mutual belief among A_1, \dots, A_m that all these agents have parts of X to perform when they intentionally jointly perform X . (It may be noted that agent A_i 's doing X_i as one's part of X requires only that the other participants have parts to perform, not that A_i knows or even has a belief about what each is doing as his part.)

Our analyses (IP) and (DP) involve the requirement that A_i believe that X_i is his part of X . That belief obviously involves that he believes that X is a joint action (with A_1, \dots, A_m as its agents in the situation C) and that X has parts, of which X_i is one. The notion of part can be taken to be the standard notion of part analyzed by our (P) above (although of course our agent A_i need not be aware of that analysis!).

I have now completed my analysis of what parts of joint actions are and what such relevant notions as doing one's part of a joint action and intending to do that part involve.⁵

Notes

- 1 A social role can be regarded as a mutually accepted bunch of social tasks, backed by social norms, that a role-holder is expected (factually and normatively) to perform. Such expectations often, but not necessarily, relate to a rule-determined task or office: A professor should act such and such in this kind of situation. (See Tuomela/Bonnevier 1990, for a detailed account of social norms and roles.)
- 2 The term is somewhat of a misnomer, for it assumes that the notion of a result of an action can be characterized physicalistically in the standard sense of the word (if there is one!). But the notion of a result event of an action relies, of course, on the notion of action, which seems not to be physicalistically characterizable - at least not the notion of human action (which is needed here). Thus the reader is warned not to take the word 'physicalistic' in its standard sense here. Clauses 1) and 2) of the analysis (P) below serve to what this phrase covers here.
- 3 We can define the notion of X_i 's being a part of X in an obvious way on the basis of (P): X_i is a part of X if and only if there is a division of actions X_1, \dots, X_m to which X_i belongs and of which it is true that X_1, \dots, X_m are parts of X in the sense of (P).

- 4 The notion of A_i 's intending to do his part of X as his part of X is properly to be understood in an existential sense, and its analysis is otherwise the same as that given by (IP) except that we now use instead the following first clause:

i') There is an action X_i of which A_i believes that it is his part of X.

Here a de re belief is meant and that seems all right for standard cases. However, in some cases a de dicto belief might suffice, but I shall not here discuss the problem in detail (cf. the remarks in Tuomela/Miller 1988).

- 5 While I am not aware of any analyses in the literature of the notion of a part of a joint action, Bach/Harnish 1979 discuss the notion of a collective rule, which in their analysis involves the notion of part. They define collective rules in terms of parts as follows (276):

(CR) A set of actions X_1, \dots, X_m is a collective rule in collective G if and only if

- i) to do one's part is the social norm in G;
- ii) there is a mutually recognized procedure for determining each person's part;
- iii) each person's part is one of X_1, \dots, X_m .

In these authors' analysis, to do one's part is the social norm in G if and only if a) each member of G does his part, b) it is mutually believed that a), and c) it is mutually believed that each member should do his part. I find illuminating their analyses of both the notion of a collective rule and of what a social norm is. Note that obviously the norm of clause 3) of (P) cannot be a collective rule in the sense of (CR), because that would make (P) circular. But it does not have to be: norms can obviously specify parts without their speaking of parts.

We can say, given the above analysis, that to follow a collective rule is to do one's part. But that is only one way to do one's part. This is seen when related to our (DP): if we take the social 'existence' of a social norm in the sense of Bach and Harnish to be a joint goal or end defining a joint action, and if we analyze following a rule in a rather obvious way, the analysis of (DP) can be regarded as satisfied when that of (CR) is. But the converse obviously need not be the case, for there are many other types of joint actions.

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