Practical arguments for prudential justifications of actions

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ABSTRACT: Practical arguments for actions are arguments which, besides their epistemic function, shall motivate an addressee to execute the justified action. First, a strategy is developed how this motivational and other requirements can be met. Part of this strategy is to identify a thesis for which holds that believing it motivates in the required manner. Second, relying on empirical decision theory, such a thesis is identified. Finally, precise validity criteria for the respective arguments are developed.

KEYWORDS: cognitive decision psychology, epistemological approach to argumentation, gap between judgement and action, justificatory thesis, justifying actions, motivation requirement, optimality judgements, personal desirability function, practical arguments, stability against new information

1. INTRODUCTION: THE AIM OF THIS PAPER

The main aim of this paper is to develop a conception of good practical arguments for prudential justifications of actions – where 'prudential' here is understood as, different from and sometimes in opposition to 'moral', regarding the best interest of a given person. And the terms '*practical argument*' or '*practical justification*' can be defined provisionally as: argument or justification sustaining a proposal to execute or realise the justified object, i.e. the action. The theoretical approach chosen here to develop this conception is the epistemological approach to argumentation, which holds that the standard function of argumentation is to bring about an addressee's justified belief (i.e. cognition or knowledge in a weak sense) in the argument's thesis by guiding his cognising the thesis.[1] In addition, the method chosen is not to immediately systematise everyday argumentation but to take a rather theoretical route in asking first what a practical argument shall achieve.

2. THE PROBLEM OF PRACTICAL JUSTIFICATIONS AND A STRATEGY TO OVERCOME IT – THE PRACTICAL JUSTIFICATORY THESIS

[1] The epistemological approach to argumentation is advanced e.g. by John Biro, Richard Feldman, James Freeman, Alvin Goldman, Christoph Lumer, Harvey Siegel, Mark Weinstein. For an overview see: Lumer, 2005b.

Mohammed, D., & Lewiński, M. (Eds.). *Virtues of Argumentation. Proceedings of the 10th International Conference of the Ontario Society for the Study of Argumentation (OSSA), 22-26 May 2013.* Windsor, ON: OSSA, pp. 1-16.

So, the aim of this contribution is to develop a conception of practical justifications of objects like actions, rules, norms, instruments; and the approach on the basis of which this is done is the epistemological approach to argumentation. However, it is precisely the epistemological approach which seems to lead to considerable problems with respect to practical arguments. First, if according to the epistemological approach to argumentation the standard aim of argumentation is to bring about justified belief and if, as is usually held and is also held by the epistemological approach, a belief's content is a proposition so that the claim of an argument is again a proposition, or more precisely: the judgment that a certain proposition is true, then actions can be neither the direct object or the claim of an argument nor the direct standard output of argumentation. The claim can only be a judgment about a proposition, and the direct standard output can only be a (hopefully justified) belief. The second problem of an epistemological approach to practical arguments is that leading to a new justified belief is characteristic of theoretical arguments but it is not sufficient for a good practical argument or a practical justification. Good and successful practical arguments are also motivating: if the addressee of the practical argument is identical to the subject of the action to be justified, then this addressee, after having accepted the argument cognitively, is also motivated to execute this action.

The problem just sketched is further broadened by the fact that beyond actions there are still other objects of practical justifications which are not judgments either. Among the things we can practically justify are instruments, definitions, motions, morals, norms, conceptions of rationality or of science, empirical theories etc. Even for these objects it holds that the practical justification should not only lead to new cognitions about them but also to a *practical* kind of acceptance of them, i.e. to a certain kind of motivation with respect to these objects.

The easiest and clearest way to put the theoretical, epistemic and the practical, motivational aspects together and to fulfil both kinds of requirements is to reduce practical arguments to special kinds of epistemic ("theoretical") arguments:[2] A practical justification of or a practical argument for some *x* (where *x* is not a judgment or a belief) is an epistemic argument for a certain thesis about *x*, which is called the '*justificatory thesis*'; this justificatory thesis then has to satisfy certain conditions, in particular, believing in this thesis (under certain conditions) must lead to the required motivation with respect to *x*. This strategy for conceptualising practical justifications and arguments neatly separates questions of truth and questions of relevance. Epistemic and alethic requirements of truth are fulfilled if the practical argument is a valid, sound and situationally adequate argument for a certain thesis; the standards for this component can be developed analogously to those for other epistemic types of arguments. Requirements of relevance and motivation instead are fulfilled by the fact that the argument justifies a very specific thesis, namely the justificatory thesis.

[2] The strategy and the adequacy conditions set out the following have been elaborated in more detail in: Lumer, 2009, pp. 241-350. An abbreviated exposition of the conception of practical justification is: Lumer, 2010, pp. 151-154.

3. ADEQUACY CONDITIONS FOR THE JUSTIFICATORY THESIS

The first principal task in executing the just sketched strategy is to determine the justificatory thesis. This is a difficult and decisive part of the research, and has to be developed with much care. In order to blurt out an ad hoc proposal it is helpful to proceed in a somewhat indirect way: First, I will postulate and motivate some adequacy conditions for such a justificatory thesis; in the second step, I will work out a justificatory thesis which fulfils these adequacy conditions.

AC1 *Adequacy Condition 1: reference to the object:* A minimal requirement of relevance for a justificatory thesis is that it is a thesis about the object of justification.

Otherwise, we could not say that the argument for this thesis is also a justification of the object in question. Hence in the following we have to search only for the *justificatory predicate* (in the logical sense of: a radical of a proposition) of the justificatory thesis. The justificatory predicate also represents a *criterion of quality* for the object of justification.

AC2 *Adequacy Condition 2: motivation:* Justificatory theses are motivating in the sense that if a prudent addressee (i.e. an epistemically and practically rational addressee with certain relevant information) is convinced of the justificatory thesis he is motivated, at least to a certain degree, to perform the above (section 2) mentioned action with respect to the object of justification. For other objects the motivation requirement is weaker. In case e.g. of a moral norm the addressee must have only an *initial* motivation to follow the norm, which, however, can be overruled by stronger opposite motives.

Some reasons for the motivation requirement are: 1. The motivation requirement is the specifically *practical* component of the conception of practical justification. Practical justifications must go beyond mere epistemic justifications by having a certain influence on this practice; they must lead to a practical acceptance of the object of justification. A practical justification would have failed if it had no further influence, if e.g. the addressee were to ask: 'Okay, now I know that the thesis about this object of justification is true; but so what? Why should this be relevant or important?'. 'Practical acceptance' of the object of justification can only be explicated in terms of motivation for certain actions. 2. Fulfilling the motivation requirement ensures the *relevance of the insight*. After all, we can have an infinite number of insights about any object of a justification. The large majority of them would be so arbitrary and irrelevant that we would not even know why the fact stated in them should be a reason for the object of justification. Relevance is constituted, however by establishing some relation to our motives. 3. *Pragmatically*, a practical justification fulfilling the motivation requirement has the advantage of really bringing about something. The pure pragmatist does not need to claim that other types of practical justifications which do not fulfil this condition are false, or

invalid or something like that; he can simply leave such "justifications" to themselves and bet on their lack of influence. – Fulfilling the motivation requirement presupposes a strong theory of action, which informs us about how which kind of convictions can affect our motivation.

AC3 *Adequacy Condition 3: stability of the motivation effect against new information:* The motivational effect of a justified conviction of the justificatory thesis is not infringed upon by acquiring new true information. This means, there is no true information for which holds: if the respective person had this information she would continue to believe in the justificatory thesis, but this belief would no longer motivate in the way required by AC2.

The point of this adequacy condition is not the stability (against new information) of the belief in the justificatory thesis itself but the stability of its motivational effect. Since a good and valid practical justification may be only defeasible, sometimes it will happen that some new and true information makes the addressee revise his belief in the justificatory thesis; this is no wonder and no objection to taking the thesis' predicate as the justificatory predicate. What may not happen though, according to stability condition AC3, is that the new information leaves the conviction of the justificatory thesis intact but erases its motivational effect because the addressee has changed his decision *criterion* because of that new information.

Some reasons in favour of the condition of motivational stability are these: 1. Stability against new information is the *rational* component of the conception of practical justification. The requirement of stability against new information introduces the practically relevant maximum of epistemic rationality into the conception of practical justification, namely that when practically accepting the object of justification all true and relevant convictions have been taken into account. 2. Stability with respect to new information prevents the practical justifications from being persuasive in a pejorative sense. It introduces some sort of *wisdom*, wisdom in the sense of transcending singular knowledge towards a more comprehensive knowledge about nexuses and the fundamental questions of life. 3. Stability with respect to new information contributes to the long-term duration of the motivational effect.

For reasons of space I leave out the adequacy conditions for justifying other objects than actions.

To further develop the theory of practical justifications of actions, we now need a strong philosophy of action, or more precisely, a strong cognitive psychology of decisions, which can tell us by which kind of convictions people can be stably motivated to act in a certain way

4. SOME ESSENTIALS OF COGNITIVE DECISION PSYCHOLOGY [3]

[3] Parts of the following decision psychology have been elaborated in full in different publications: Most of the psychological laws and the parts on intrinsic valuations in: Lumer, 2009, pp. 128-240; 428-521; the theory of intention and the theory of deciding to decide in: Lumer, 2005a; and some

A general view in decision psychology, accepted by the overwhelming majority of psychologists and economists doing empirical research in this field and a common feature of most empirical decision theories, is that deliberations roughly follow a decision theoretic framework: If people deliberate to form an intention they search for possible options; they consider the advantages and disadvantages of these options, i.e. they look for their possible non-neutral consequences (or more generally: the implications), the probability and desirability of these consequences; they value the options in the light of these advantages and disadvantages and, finally, choose the option with the highest value (overviews: Camerer, 1995, pp. 617-674; Slovic et al., 1988). This means that the kind of information deciders seek during deliberation and the way they integrate them aims at providing an answer to the question 'which is the best action?'. Although usually they do not internally formulate an optimality judgment, what they have tried to find out and what the cognitive result of their deliberation is and in the moment of decision believed to be true is an optimality judgment: 'A certain action *a* is optimum among the options considered', where the action distinguished in this way is now intended.

H1 *Intentions as optimality beliefs:* Intentions are optimality beliefs that a certain action (on the basis of the subject's present data) is optimum (in a sense to be specified) among the options considered.

Hypothesis H1 is not intended to mean that when people have these optimality beliefs that they think they have found the *really* best action but only that on the basis of their present information *a* is the best action. Hence, the optimality belief hypothesis (H1) does not imply that subjects believe that by continuing their deliberation or by obtaining new information they could not find a better option or could not find out that another of the considered options really is the best action. No, the optimality belief is only relative to the decider's present information.

'Optimum' is the same as: highest desirability. So what does 'desirability' mean? The desirability referred to in H1 is the *personal desirability*, more precisely the personal desirability of the respective subject. A more technical version of this notion is also relative to a data base, e.g. the subject's own data base at the moment of decision. So, the correct notion is: 'the personal desirability of object *a* for subject *s* on the data base *d*', which refers to or stands for a quantity. Since the following deals with personal desirability only, not e.g. with moral or social desirability, the addition 'personal' will sometimes be omitted. There are several concepts of personal desirability; the concept meant in H1 is 'personal *prospect* desirability'. *Prospect desirability* is a summarising or aggregating desirability, which under conditions of incomplete information integrates all known desirability aspects of the value object into one quantity. These other desirability aspects are (i) the *personal intrinsic desirability* of the value object itself, i.e. the desirability it has as such – if it has any – independent of its consequences or other implications, and (ii) the personal intrinsic or personal prospect desirabilities of its various (and relevant)

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major parts of it have been summarised in: Lumer, 2007.

possible consequences or implications.

During deliberation about executive actions subjects use decision strategies implying *many secondary* criteria of the aggregating desirability and optimality of alternatives. But there seems to be *one primary*, i.e. fundamental and most exact, criterion of the desirability and optimality of alternatives with which the quality of the secondary criteria can be measured.

This is what hypothesis H2 says:

H2 *Primary and secondary desirability:* Humans use a wide variety of decision modes implying different criteria of the aggregative desirability and optimality of options. These modes are not inborn but developed through cognitive processes, and their use in different situations is evaluated and chosen according to reflexively optimising deliberations that presuppose a primary or fundamental criterion of aggregative desirability and optimality.

Even primary desirability criteria are not anthropologically fixed. There seem to be only anthropologically fixed adequacy criteria by which people can comparatively assess different desirability criteria as being more or less apt. This is said in my hypothesis H3:

H3 *Adequacy conditions for primary aggregative desirability concepts:* If humans choose between fundamental concepts (D_1, D_2, ..., D_n) of aggregative desirability and they believe that among them D_1 comes closest to fulfilling the following adequacy conditions whereas the others do not, they adopt D_1 for their fundamental decisions. (The conditions for decisions under certainty are left out here.)
Condition for 'prospect desirability' for decisions without certainty: An adequate desirability criterion D_1 is materially equivalent (i.e. on the basis of the same information it leads to the same preferences) to that desirability criterion D_x for which holds: if one disregards decision costs, the constant use of D_x as the criterion for decisions without certainty is totally optimum (i.e. optimum according to the criterion of 'total desirability'). (Cf. Lumer, 2005a, 252.)

This means the long-term use of an adequate concept of prospect desirability in decisions under risk leads to maximising one's total desirability.

With respect to *intrinsic* desirability criteria here only a hint can be given:[4] Only one of the various desirability criteria used fulfils the adequacy conditions. This is a special form of hedonistic desirability criterion, namely a corrected form of hedonism, which in case of a manipulative origin of positive feelings discounts their value according to the degree of manipulation.

[4] For a more extensive elaboration, on which the following sketch relies see: Lumer, 2009, pp. 191-218; 428-521; on feeling induced intrinsic desires see also: Lumer, 2012.

5. THE PRACTICAL JUSTIFICATORY THESIS

After having collected the necessary empirical information we are now able to determine the justificatory thesis for actions. The first empirical hypothesis (H1), that intentions are optimality beliefs, leaves no choice if we want to fulfil the first two adequacy conditions.

JTA *Justificatory thesis for actions:* The justificatory thesis for prudential justifications of an action *a* of a subject *s* is: '*a* is the best option for *s*'. More precisely, there are two levels of prudential justifications of actions with slightly different justificatory theses.
1. Internal justification: 'On the data base *d* (and with a relevance threshold *r*), action *a* among the considered set of options has the highest prospect (or total) desirability for subject *s*', where *d* is the subject's data base at the moment of choice, and the threshold value *r* is appropriate to the choice situation, i.e. fitting to the desirability of the considered options and reasonable with respect to deliberation costs.
2. External justification: 'On the data base *d* (and with a relevance threshold *r*), action *a* among all available options has the highest prospect (or total) desirability for *s*', where *d* is the data base of an external instance, e.g. another subject, an expert or the set of all truths, and the threshold value *r* is fitting to the desirability of the considered options.

The threshold value *r* has been introduced here as a further variable in the justificatory theses in the light of the possibility and practical importance of differently precise valuations (see the discussion of H2). That 'the relevance threshold is *r*' means that all the consequences or implications of the value object(s) which have a higher (absolute) prospect desirability than *r* (and which are cognisable on the data base *d*) are included in the calculation of the prospect desirability of the value object *a*. Lowering the relevance threshold means to aspire to more precise valuations. Increasing the relevance threshold may be adequate e.g. when a decision has to be taken urgently.

The difference between an internal and an external justification reflects the difference between perspectives when an agent has to decide in a given situation with the cognitive means at hand or when an external entity – which also can be the agent herself in a second moment – considers which action is the really best, i.e. best if the agent's cognitive limitations are eliminated. Actually there are many external perspectives covering a range between full information and the data base of a specific person different from *s*. The external entity should consider all available (and relevant) options, whereas the subject can compare only those options which she has considered. However, one of the options of a rational subject is always to continue deliberation, thereby increasing the preciseness of her valuations or also, possibly, searching for new options and thus expanding the set of considered options.

The justificatory theses speak of 'prospect …' and of 'total desirability'. Of course, total desirabilities shall be calculated in case of decisions under certainty, and prospect desirabilities in other cases. In the following, however, we can treat total desirabilities as a limiting case of prospect desirabilities where all probabilities of the possible consequences are equal to 1.

6. DEFINING 'PERSONAL DESIRABILITY'

Now, the concept of 'prospect desirability' has to be defined. Here only two of the final definitions can be provided, which, of course, are based on the empirical hypotheses, in particular H3, and which try to contribute to fulfilling the adequacy conditions.[5]

Hypothesis H3 dealt with aggregating desirabilities of an event's consequences to the prospect desirability of that event in situations without certainty, in particular when only the consequences' probabilities are known. For such situations rational decision theory proposes to weigh the consequences' desirabilities linearly, i.e. with their probability. However, this is not the only possibility of probability weighting and perhaps not always the best, in particular it may be not the best e.g. for rare types of decision, when the law of large numbers does not hold. For such situations decision strategies more risk-averse than linear probability weighting have been proposed. However, this discussion is beyond the scope of this paper and hence no theory of rational probability weighting will be developed here. Therefore, in the following this problem will be left open and only an undefined weighting function $\Pi x,\alpha$ [6] – where x is the probability value and α another situational factor, e.g. frequency of such a decision situation, from which the probability weight may also depend – will be inserted in the formalism. This does not entirely prevent the application of the theory presented here because in most cases the weighting will follow the identity function, so that the weight will be simply the probability itself.

UPR Definition of '(exact) prospect desirability':

> The 'prospect desirability of event *e* for the subject *s* on the data base *d*' is defined as *e*'s intrinsic desirability (for *s*) plus the sum of the intrinsic desirabilities (for *s*) of all intrinsically non-neutral consequences of *e* weighted by their probability weight. – In a somewhat more formal way this can be reformulated as:
> Let '$U_{pr}e,s,d$' be the functional notion 'the prospect desirability of the event *e* for subject *s* on the data base *d*', '$U_{in}c,s$' the functional notion 'the intrinsic desirability of *c* for the subject *s* on the data base *d*'; in

[5] The following definitions rely on and are much more elaborated in: Lumer, 2009, pp. 350-427. An English exposition of some of its critical ideas is: Lumer, 1998.

[6] I use a (mostly) bracket free writing style, where general terms are designated by upper-case letters and singular terms by lower-case letters which follow the general term. Hence the formula "$\Pi x,\alpha$" used here, in most other texts is written as: "$\Pi(x,\alpha)$".

addition, let $\{c_1, \ldots, c_n\}$ be the set of the intrinsically non-neutral possible consequences of the event e, and $p_1, \ldots, p_n$ the respective probabilities on the data base d that the $c_1, \ldots, c_n$ accompany e.
Then the 'propect desirability' is defined as:
$U_{pr}e,s,d := U_{in}e,s + \sum_i U_{in}c_i,s \cdot \Pi(p_i,\alpha)$.

If the probabilities (on the data base d) with which the intrinsically non-neutral consequences accompany e are all equal to 1, then we obtain the *total desirability* of e for s.

Since, as has been noted above, in most cases it is impossible to list all intrinsically non-neutral consequences of an event, people summarise the utilities of the ramifications of some branch of intrinsically non-neutral consequences into the prospect desirability of the entire branch, where this prospect desirability is only estimated. The rational foundation of this procedure is the fact that in this way all the intrinsically non-neutral consequences of e are still considered, they are only grouped into non-overlapping subsets, namely in each case the intrinsically non-neutral consequences of e which are consequences of the same intermediate consequence of e.

Hypothesis H2 said that humans use a variety of secondary, in part much easier but less exact, desirability concepts which rely on an idea of the primary desirability concept; this is done to be able to adjust decision costs to the respective situation. The just-developed definition of '(exact) prospect desirability' is a primary desirability concept. To make the conception applicable in the real world, we still need secondary desirability criteria, which fulfil the flexibility requirements. My proposal in this respect is to introduce a kind of flexible "rounding" into the calculation of prospect desirability. We proceed on the already chosen path, i.e. to group intrinsically non-neutral consequences via intermediate consequences and their prospect desirabilities. The next step is to introduce relevance threshold values such that only intermediate consequences whose prospect desirability exceeds this threshold are included in the desirability calculation of the main value object e. Because relevance thresholds can be chosen rather freely this leads to much flexibility in using the respective concept of 'rounded prospect desirability'. Of course, rounded prospect desirability is less precise than exact prospect desirability; however the gain via accelerating deliberation may still be higher than the loss via reduced precision. Everyday deliberation uses still another main way to simplify decision, namely reduction, that is disregarding those consequences which two options have in common. Of course, this does not change the resulting preference. I will not elaborate further on this second possibility; reduction is a question of skill. Rounding and reduction probably cover the great majority of the rationally justifiable simplifications used in desirability calculation in everyday deliberation.

On the basis of these considerations the functional notion 'rounded prospect desirability' can easily be defined.

URPR Definition of 'rounded prospect desirability':

> The 'rounded prospect desirability of event *e* for the subject *s* on the data base *d* with the relevance threshold *r*' is defined as *e*'s intrinsic desirability (for *s*) plus the sum of the (exact) prospect desirabilities (for *s*) of all consequences of *e* which reach the relevance threshold *r* weighted by their probability weight. – The somewhat more formal definition is this:
> Let $\{c_1, \ldots, c_n\}$ be a set of relevant consequences of the event *e* (i.e. for all c_i holds: $|p_i \cdot Upr c_i| \geq r$), and $p_1, \ldots, p_n$ the respective probabilities on the data base *d* that the $c_1, \ldots, c_n$ accompany *e*; let '$U_{rpr}e,s,r,d$' be the functional notion 'the rounded prospect desirability of the event *e* for subject *s* on the data base *d* and with a relevance threshold *r*' and the other notions be defined as before. Then the 'rounded prospect desirability' is defined as:
> $U_{rpr}e,s,r,d := U_{in}e,s + \sum_i U_{pr}c_i,s,d \cdot \Pi(p_i,\alpha)$.

The flexibility of this concept can be seen from the fact that in the most simple deliberations the relevance threshold can be raised so much that of all considered options (which may be only two: doing *a* or nothing (a_0)) only one consequence is relevant; on the other extreme the threshold can be lowered and thereby the precision increased so much that the rounded prospect desirability captures nearly all intrinsically non-neutral consequences of the value object *e* and its value approaches the exact prospect desirability of *e*.

The final step for concluding the definition of personal value judgments is the determination of the intrinsic desirability function. Finding the empirical bases and elaborating the definition and then the rational intrinsic desirability function itself is a demanding enterprise – just think of the measurement problems – beyond the scope of this paper.[7] However, the result of an extensive discussion of this question has already been summarised above (end of sect. 4): namely, that only corrected hedonistic desirability functions can lead to fulfilling all the adequacy conditions for a practical justificatory thesis. Consequently, the intrinsic desirability presupposed in the definitions of 'prospect desirability' should be taken to be the corrected hedonistic desirability function.

7. PRACTICAL ARGUMENTS FOR PERSONAL VALUE JUDGMENTS [8]

Having defined the necessary desirability concepts we can now establish what practical arguments are, or more precisely, provide validity and adequacy conditions for practical arguments for actions and personal desirability judgments. Above, the thesis for internal practical justifications of actions has been identified

[7] My own proposal for solving this task, including a respective measurement theory, is elaborated in: Lumer, 2009, pp. 428-548.

[8] The following criteria are based on more extensive elaboration in: Lumer, 1990, pp. 319-366.

as: 'On the data base *d* (and with a relevance threshold *r*), action *a* among the considered set of options has the highest prospect or total desirability for subject *s*.' The direct arguments for such theses are impure molecular arguments (Lumer, 2011, pp. 8-9; 16-19), i.e. arguments composed of several arguments of different types. At the supreme level there is a deductive argument, which infers from various premises of the form 'On the data base *d*, the prospect desirability of action a_i for subject *s* is u_i' and one premise that options a_1 to a_n have been considered, that option a_1 has the highest prospect desirability for *s* (cf. Feldman, 1999, pp. 351-354; 420). This argument is trivial and can be neglected here. The interesting and much more complex arguments are the subordinated practical arguments in favour of the various desirability premises (elementary exposition, e.g.: Bowell & Kemp, 2010, pp. 150-153). So these arguments will be dealt with in the following. They make up the elementary form of practical arguments. Such elementary practical arguments for personal desirability judgments can then be used in many other forms of molecular practical arguments like practical justifications of other non-propositional objects (instruments, proposals, rules etc.), justifications of moral or economic welfare judgments, arguments for empirical theories etc. (Lumer, 2011, pp. 24-26).

For the epistemological approach to argumentation it is crucial that good arguments relate to (primary or secondary) truth criteria for the respective claim. More precisely, the way good arguments function is that they string judgments (the argument's reasons) in which some sufficient truth conditions for the thesis are judged to be fulfilled. When the addressee follows the listing of these judgments he then can assess step by step whether, according to his knowledge, all truth conditions for the thesis are fulfilled. The primary truth criteria for personal desirability judgments are, of course, the respective 'desirability' definitions, hence, in our theory, the desirability definitions of the last section.

Following these lines and the paradigms of epistemological definitions of other kinds of arguments (Lumer, 1990; some synthesis: Lumer, 2005c) 'valid practical argument' can be defined as follows (cf. Lumer, 1990, pp. 319-366) – here 'argumentative validity' comprises what is usually separated as 'validity' and 'soundness'; argumentative validity implies the truth or acceptability of the thesis. The definition covers only the (simple) case of the linear weighting function, so that probability values can immediately be used as the respective weights.

PA *Definition of 'ideal valid (differentiating) practical argument' (for personal desirability judgments):*
x is an *ideal valid (differentiating) practical argument* iff

PA0 *Domain of definition: x* is a triple $\langle r°,i,t\rangle$, consisting of
1. a set $r°$ of judgments $r_1, r_2, ..., r_m$,
2. an indicator *i* of argument, and
3. a judgement *t*;
$r_1, ..., r_m$ (the elements of $r°$) are called the 'reasons for *t*' and *t* is called 'the thesis of *x*'.

PA1 *Form of the ideal (differentiating) practical argument:*
1. Form of the thesis: The thesis *t* has (in the most ideal case) the form: 'On the data base *d* the (rounded prospect) desirability of event *e* for subject *s* with the relevance threshold *r* is *u*.' (This is the most complicated form of the thesis; simpler forms of such a thesis and hence formally simpler arguments can be obtained by omitting the reference to a relevance threshold, i.e. by providing an argument for the exact prospect desirability of *e*, or, when all non-neutral consequences of *e* are known with certainty, by arguing for a total desirability value (instead of prospect desirability) of *e*.)
2. Forms of the reasons:
2.1. There are *n* judgments of the form: 'On the data base *d* the probability that the consequence c_i accompanies (in particular: is caused or symbolically or legally implied by) *e* is p_i.', with $0<p_i\leq 1$.
2.2. For all judgments of the first form there is an associated judgment of the form: 'On the data base *d* the (exact) prospect or total desirability of the consequence c_i for the subject *s* is u_i.'
2.3. There is one judgment of the form: 'On the data base *d*, the consequences c_1, …, c_n are all the *r*-relevant consequences of *e*.' (As has been explained in RPC5, this means roughly that for all these consequences c_i (the absolute value of) the product of their probability p_i and their exact prospect desirability u_i (for *s*) reaches the relevance threshold *r* ($|p_i \cdot u_i| \geq r$); and there are no further consequences of *e* reaching the relevance threshold *r*.
2.4. A further judgment states: 'The intrinsic desirability of *e* for *s* is u_e.'
2.5. Finally, there is one judgment stating: 'The sum of (*e*'s intrinsic desirability) u_e and of all the products of the relevant consequences' c_i desirabilities u_i and their respective probabilities p_i is equal to *u* ($u_e + \sum_i u_i \cdot p_i = u$).'
2.6. Data base: All reasons mentioning a data base refer to the same data base *d*.
3. Indicator of argument: i indicates that *x* is an argument, that r_1, r_2, ..., r_m are the reasons and that *t* is the thesis of *x*; in addition *i* can indicate the type of argument, i.e. that *x* is a practical (differentiating) argument.

PA2 *Argumentative validity: 1. guarantee of truth:*
1. All reasons r_i of the argument are true.
2. No consequence c_i (see PA1.2.1) or its non-neutral consequences overlap (i.e. is identical with, part of or partially part of) with any other c_j from c_1, …, c_n or its non-neutral consequences. And

PA3 *Argumentative validity: 2. Adequacy in principle:* There is a person s_x for whom *d* is the set of relevant data which can influence the evaluation of *e*.

General definition of (possibly not ideal) 'valid practical argument' (for personal desirability judgments):

PA4 *Liberalisation: y* is a *valid (differentiating) practical argument* iff:
0. Domain of definition: y is a triple $\langle q°,i,t'\rangle$, consisting of
0.1. a set $q°$ of judgments q_1, q_2, ..., q_k,
0.2. an indicator *i* of argument, and
0.3. a judgment *t'*;
1. Ideal version of y: There is an *x* (an ideal version of *y*) for which holds:
1.1. *x* is an ideal valid differentiating practical argument with the specifications given in PA0-PA3.
1.2. *t'* is identical to or a simplified form of *t*, specifying at least: 'The desirability of *e* for subject *s* is *u*.'
1.3. The reasons $q°$ of *y* are a subset of (perhaps somewhat simplified versions of) the reasons $r°$ of *x* which contains at least the reasons listing the consequences of *e* (reasons PA1.2.1) and, if *e* is not intrinsically neutral, the intrinsic valuation of *e* itself (reason PA1.2.3). And
2. Indicator of argument: i indicates that *y* is an argument, that q_1, q_2, ..., q_k are the reasons and that *t'* is the thesis of *y*; in addition *i* can indicate the type of argument.

PA5 *Situational adequacy:* A valid (differentiating) practical argument with the characteristics just explained is adequate for rationally convincing an addressee *h* (hearer) of the thesis *t* (or *t'*) iff:
1. Rationality of the addressee: The addressee *h* is linguistically competent, open-minded, attentive, discriminating.
2. Convincibility: The addressee *h* does not yet have a (valid) justification for the thesis *t* (or *t'* respectively), or he has only a justification that is weaker than the one presented in the argument.
3. Data base: d_h, i.e. the addressee's data base, in its parts relevant for the argument, is identical to data base *d* underlying the argument or it is a subset of *d*. In the latter case and if the addressee's data base d_h contains data incompatible with the argument's data base *d,* before an adequate use of the argument, the arguer and the addressee first have to exchange information and perhaps other arguments as well to equalise the data bases *d* and d_h.
4. Knowledge about the consequences: The addressee *h* already justifiedly believes in the consequence listing reasons (reasons of type PA1.2.1) or he is able to recognise their acceptability immediately. (There is no prior knowledge requirement with respect to the completeness statement (PA1.2.3) because its truth, given the huge data bases we usually have available, cannot be positively recognised at all. We can only negatively find out perhaps that this statement is

not true. And there is no prior knowledge requirement regarding the calculation (PA1.2.5) because its truth can be recognised in actu.)
5. Knowledge about the valuations: The addressee *h* already believes in the desirability judgments about the consequences and about the value object *e* itself (PA1.2.2, PA1.2.4) or he is able to recognise these desirabilities in actu. (If this condition is not fulfilled a subordinate practical argument can be opened for fulfilling it.)
6. Relevance level: The relevance level *r* chosen in the argument is not more coarsely-grained than the level rationally desired by the addressee.
7. Practical function: In order to have a practical function, i.e. to make the addressee not only rationally believe in the thesis *t* but also make him adopt the valuation expressed in it as his own, the value subject *s* (referred to in the thesis *t*) has to be identical to addressee *h* or has to have – in the relevant respects – the same value function as addressee *h*.

It may be helpful to highlight some elements of this definition. Conditions PA1-PA3 define '*ideal* valid practical arguments' condition; PA4 releases these ideal conditions mainly by permitting to leave out various premises in an enthymematic fashion. Conditions PA1.2.1-2 require that there are pairs of reasons which in each case list some consequence of the value object and then assesses its prospect desirability. Condition PA1.2.5 instead speaks of the summarising statement in which all the consequences' desirabilities and probabilities are aggregated to one overall desirability value. PA2.1 requires all the reasons of the argument to be true.

An *example* for such an (ideal) practical argument is: 'To cycle to the office is good physical exercise for me, it is eco-friendly, nearly as fast as going by car, and the probability of being caught in a rain today is marginal / 1%. ⟨According to my present information, these are all the relevant consequences of cycling to the office.⟩ These consequences, according to my preferences, are very good, good, satisfactory and marginally bad respectively ⟨which can be rated as $4 + 2 + 1 + (-2 \cdot 0.01)$⟩, ⟨which sums up to a relatively very, very high utility ⟨of 6.98⟩⟩. Therefore, cycling to the office ⟨according to my present information⟩ is very, very good for me ⟨has a rating of 6.98⟩.' Since the first three consequences, unlike the fourth, are certain there is no need to weight them by their probability.

The adequacy condition PA5 is something like an instruction for use, or more precisely for the standard function of such arguments, namely convincing an addressee of the thesis – though definitely there are also other specific uses of arguments, e.g. systemising one's own deliberation or explaining one's motives to others. Practical arguments, unlike e.g. deductive arguments, do not leave much room for proving the thesis in different ways. The only real margin in this respect is to change the relevance threshold. If arguer and addressee have different data bases they have to arrange for making them identical in the relevant parts; if the addressee does not yet believe in some consequence statement or if he cannot

recognise the desirability of some consequence he first has to be convinced of it by a further argument.

Differentiating practical arguments use the definition of 'rounded prospect desirability' and justify the value object's prospect desirability by reducing it to the prospect desirabilities of its consequences. *Founding practical arguments* go beyond this level and, based on the definition of '(exact) prospect desirability', justify the value object's prospect desirability by reducing it to the intrinsic desirabilities of its consequences. Their structure is similar to the differentiating practical arguments; the main difference is that the consequences have to be valued intrinsically (cf. PA1.2.2).

8. CONCLUSION

With the definition of 'valid practical argument' and by providing conditions for their adequate use for rationally convincing, the development of good criteria for practical arguments has come to an end. Because of their psychological foundation, the so-defined arguments, or more precisely, the arguments for optimality judgments of which they are a part, fulfil the adequacy conditions for practical justifications of actions. Expressed somewhat differently: With this definition a valuable instrument has been designed for fulfilling several functions simultaneously. On the one hand, these arguments can be used to rationally convince the addressee of the thesis, which by the epistemological approach to argumentation is generally required of good arguments; on the other hand, belief in an optimality judgment about a future action, according to the sketched decision psychology, stably motivates a prudent agent to execute that action.

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