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Scientific Contribution

Complementary and alternative medicine: The challenges of ethical justification[1]

A philosophical analysis and evaluation of ethical reasons for the offer, use and promotion of complementary and alternative medicine

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Abstract. With the prevalence of complementary and alternative medicine (CAM) increasing in western societies, questions of the ethical justification of these alternative health care approaches and practices have to be addressed. In order to evaluate philosophical reasoning on this subject, it is of paramount importance to identify and analyse possible arguments for the ethical justification of CAM considering contemporary biomedical ethics as well as more fundamental philosophical aspects. Moreover, it is vital to provide adequate analytical instruments for this task, such as separating 'CAM as belief system' and 'CAM as practice'.Findings show that beneficence and non-maleficence are central issues for an ethical justification of CAM as practice, while freedom of thought and religion are central to CAM as belief system. Many justification strategies have limitations and qualifications that have to be taken into account. Singularly descriptive premises in an argument often prove to be more problematic than universal ethical principles. Thus, non-ethical issues related to a general philosophical underpinning – e.g. epistemology, semantics, and ontology – are highly relevant for determining a justification strategy, especially when strong metaphysical assumptions are involved. Even if some values are shared with traditional biomedicine, axiological differences have to be considered as well. Further research should be done about specific CAM positions. These could be combined with applied qualitative social research methods.

Key words: alternative health care, applied ethics, CAM, complementary and alternative medicine, ethical justification of complementary and alternative medicine, medical ethics

Introduction

In the recent decades, the use of complementary and alternative medicine (CAM) has become an everyday issue in health care. Several studies in modern western societies claim that up to 50 percent of the population commonly use CAM-related therapies (for example Barnes et al., 2004 for the U.S.A.; Ernst, 2000 for the U.K.; Thorne et al., 2002). A literature review conducted by Astin et al. (1998) stated that in industrialized nations large numbers of physicians refer to CAM therapies and believe in their usefulness and efficiency. In Switzerland, the representative study of Leuenberger and Longchamps (2001) about hopes and expectations of medicine, on behalf of the Swiss Academy of Medical Sciences (SAMS), showed that roughly 60% of the population wish, modern medicine would give CAM more consideration. Although many of these studies have to be treated with care due to different methodologies, cultural background and years studied, this development is clearly distinguishable.

As the interest in CAM increases it is argued whether CAM can be justified on an individual and social level. Common discussions often focus on political, 'ideological' or scientific[2] (methodological) levels, whereas there is only little academic work dedicated to questions of *ethical* justification of use, offer and promotion of CAM. Even scholarly works from respected medical ethicists, e.g. Daniel Callahan (2002), on the topic seldom address those questions systematically and sufficiently. Furthermore, some articles (for example Thorne et al., 2002; Ernst and Stone, 2004) have the tendency to focus on issues of research methods

rather than ethics *per se*. More fundamental questions are seldom examined:

How can CAM be ethically justified in general? Which principles may collide with the use of CAM (epistemological reflections on the philosophy of science taken into account)? Where might be the limits of justification? What philosophical underpinnings have to be reflected upon?

This paper will try to give an exploratory report focussed on fundamental justification issues.

Aim and method

The paper uses a philosophical analysis of possible and plausible ethical justifications for the general use of CAM. The epistemic aim of the paper will not be to give final answers to all posed questions. Rather, the paper tries to provide a systematic analysis of principles, concepts and values that can be considered relevant to this debate. In addition it will help to reveal and to systematize assumptions and principles involved.

Philosophical disclaimer

The paper is written from a western perspective and according to the tradition of 'analytic' philosophy.

Preliminaries

Complementary and alternative medicine (CAM)

To provide a final definition for 'CAM' is difficult, and perhaps impossible. Some authors deny the existence of a universal definition because CAM is mainly historically and culturally constituted (a 'social construct') like 'traditional medicine'. It has to be stressed that the term is sensitive to the situation in different contexts. Therefore, only genetic definitions that pay attention to the context of origin can be given (e.g. Drane, 1995; Dalen, 1998). One context-sensitive definition is the Eisenberg-definition based on the criteria of *medical interventions that are not taught widely at medical schools* (Eisenberg et al., 1993). Other approaches eliminate the use of the term 'CAM' altogether, and propose using an 'evidence based medicine' approach: if a treatment is adequately tested, it becomes mainstream (accepted) medicine (Angell and Kassirer, 1998; Fontanarosa and Lundberg, 1998). Furthermore it seems that there exist mostly negative definitions (e.g. Ernst and Stone, 2004). On the base of biomedicine (application of the principles of natural science to clinical medicine) CAM is defined *ex negative*. Therefore an extensional definition is given rather than an intensional one. Even the National Centre for Complementary and Alternative Medicine (NCCAM) in the United States provides a negative definition: "[CAM] is a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine" (NCCAM, 2006). Additionally, such an approach is problematic since it depends extensively on the meaning of 'conventional medicine', a term that has no clear definition either.

Definitions based on 'social construction' may be pragmatically useful (as they for example give account to different laws in different countries), but are philosophically unsatisfactory: firstly because of the well-known problem of what should be understood under 'social construct' (Hacking, 1999); secondly because characteristics of a definition relying solely on 'social construct' could eventually be *too* dependant on social/political contexts (e.g. just descriptions of the beliefs of different social groups). In this way relevant aspects (social and non-social, e.g. cognitive ones) of the *phenomenon* 'CAM' might be ignored.

Fuller establishes three reasons why a therapy is labeled as unorthodox or 'alternative' (Fuller, 1995): (1) alternative worldview (relative to 'western mainstream' or 'mainstream western medicine'), mainly derived from a spiritual belief system (e.g. New Age medical systems); (2) not validated by orthodox medical standards (e.g. many cancer treatments); and (3) a therapy is a service outside of medical mainstream that is ignored or deemed of secondary importance (e.g. midwifery). The suggested definition for this paper will focus on CAM in the sense of Fuller (1). This unfortunately will lead to some 'simplicism'. It must be granted that some issues which will be analysed, proposed and assumed in this paper do not have the same bearing for all therapies, remedies and belief systems which are or might be referred to as CAM. This especially applies to those referred to in Fuller's meanings (2) and (3). In addition to common understandings of the concept 'CAM' as seen in this section, it might prove fruitful to differentiate analytically between 'CAM as *practice*' and 'CAM as *belief system*'. Since the paper focuses especially on CAM relying on an 'alternative world view', the following characteristics are deemed important for this

purpose, and have to be understood as being part of a *stipulative, explicative definition*:

A thing x is called CAM (1) if

(necessary, but not sufficient requirement): It is claimed that x is able to heal illness (or at least certain kinds of illnesses) and/or to explain illness, and x is not considered 'mainstream/orthodox medicine', and x has at least one of the following characteristics (x's that fulfil more or less these characteristics are stronger or weaker versions of CAM (1)):

- *content-oriented metaphysics*: x has a *content*-orientated metaphysical fundament concerning disease/health e.g. asserts principles, state of affairs, causal relations which are considered 'metaphysical',[3] and/or is strongly dependent on the truth of the metaphysical beliefs. Believers and practitioners of x have explicit 'metaphysical commitments'.[4]
- *metaphysical explanations*: x gives *metaphysical* (instead of physical, biological or psychological) explanations of the causes of *physical* illness (Fuller, 1995).
- *'holism'*: if x is entitled to have benefits that can be classified to be mental, psychological, social and spiritual, then x claims to be 'holistic' in its healing effect (Ernst and Stone, 2004).
- *'spiritual world view'*: if x gives metaphysical explanations for disease/health and if x is considerably a 'spiritual world view' (Ruhl, 2002), then the metaphysical beliefs of CAM are related to supernaturalism and/or some kind of mind-body-dualism (if idealism is not embraced);
- *vitalism*: if x is a 'spiritual world view' and x proposes that there is a distinct 'life force' that is relevant to disease/health, then vitalism is part of the metaphysical belief system of x;
- *'magical thinking'*: If x is vitalistic and x is entitled to heal through this 'life force', or to use it, then x relies on 'magical thinking', proposing magic healing powers or an "unlimited therapeutic power of the mind" (Kaptchuk and Miller, 2005).

I would further suggest that with regard to 'metaphysical commitment' and the great variety of CAM one should think rather in a continuum than in a simple dichotomy. In this continuum, the instances of CAM that have less 'metaphysical commitment' and may seek scientific acceptance are located on the left side. On the right side are instances of CAM which have a strong 'metaphysical commitment'. Here CAM will not only be a *medicine*, but also a *spiritual world-view* e.g. religious faith healing.

Values

An important thing concerning values is that there could also be axiological differences in the analysed positions: biomedicine and CAM could rely on other axiologies that imply a different hierarchy of values. Perhaps biomedicine, as a scientific enterprise, values truth and knowledge higher as the subjective (psychologically) well-being of a person, while certain CAM positions might value this much higher than truth and knowledge. Axiological differences are hard to come by, as it is difficult to justify a hierarchy of value. It is especially difficult to prove the value of truth above all other values, as it is often traditionally upheld in philosophy of science and perhaps in science itself (Kitcher, 2001).

Finally, positions may differ in the 'value of a value': is a given value an intrinsic or extrinsic value? For example, it might be that CAM positions regard truth more as an extrinsic value than an intrinsic one, whereas biomedical sciences tend to regard truth as an intrinsic value.

Analytical levels of ethics in CAM/focus of the paper

It is important to make a distinction between three specific analytical levels where one can pose questions in relation to ethics in CAM[5]:

Level 1: (Practical) Ethics in the actual case of using CAM; medical ethos, question: "*How* should we act when using/offering/promoting CAM? What is morally obligated, permitted or forbidden?" (perspective of patient-physician relationship while consenting to a treatment, ethical responsibility of a health care provider and research ethics inclusive)

Level 2: Ethics about questions of offer and promotion of CAM *as a health care provider* in treatment decision and information; question: "*Should I actually* use/offer/promote CAM? Is it morally obligated, permitted, forbidden to suggest or to offer CAM?" (perspective of patient-physician relationship, ethical responsibility of a health care provider)

Level 3: Ethics about questions of use, offer and promotion of CAM *in a society in general*; question: "*Should we* use/offer/promote CAM? Is CAM *itself* morally obligated, permitted, forbidden?" (societal and 'fundamental' perspective)

Level 1 is not the subject matter of the following analysis. While level 1 is quite important in a practical context and should not be disregarded, it nonetheless lacks a more fundamental reflection insofar as the justified general use of CAM is already (implicitly) accepted or is just presupposed. Hence, analytically speaking, level 1 must truly be granted, and it must be clear how it may be granted (through considerations of level 2 and 3) before beginning to answer the questions of level 1.

Whilst there is some academic work primarily for level 1, and to a certain degree also level 2 (see for example Wardell Engebretson, 2001; Adams et al., 2002; Kaler and Revella, 2002; Ernst and Stone, 2004), level 2 and especially level 3 are less represented and seldom directly addressed.

General abbreviations used in argument analysis

On the left side of the tables (logical structure): 'Px' stands for 'Premise Nr. x'; 'P0' is commonly used for a central presumption. 'ICx' means 'Intermediate Conclusion Nr. x'. 'A' stands for 'Axiom'. 'C' stands for 'Conclusion'.

On the right side of the tables (sentence types), only where relevant: 'D' stands for 'descriptive', 'E' for 'evaluative', 'P' for 'prescriptive' and 'N' for 'normative'. 'u' means 'universal' and 's' means 'singularly' related to the extension of application (especially principles) or to the use of universal/existential quantifier.

Standard ethical principles of bioethics (Level 2)

On level 2, we can use established concepts and principles of bioethics, as referred to in Beauchamp and Childress (2001) and Hiller (1986), as 'theories of the middle range'. While these principles are used for determining and reflecting the outcome of practical decisions in a concrete medical context on level 1, they provide a framing of the more fundamental question on level 2: should a certain treatment option be offered, promoted, or used?

Level 1 'as a whole' could be used for justifying issues if the premise is stated that a practice which generates high 'moral distress', because of lacking ethical standards, is overall ethically problematic. If CAM would imply severe ethical problems if applied, then CAM would be ethically problematic.

Wardell and Engebretson, (2001, p. 332) stress the point that many practitioners in CAM practice are "complementary to or integrated within biomedicine" and have a different legal status and ethical responsibility. "Typically", so Wardell et al., "they [practitioners] provide care to a self-selected clientele with homogenous beliefs and expectations"; CAM is "private medicine" (Ernst and Stone, 2004). Some CAM therapies do relate directly to the belief system of a patient. This can go as far as other treatments ('alternative' and traditional ones) are not chosen instead of the CAM therapy corresponding to the patient's belief system (Ruhl, 2002; Adams et al., 2002).

Respect for patient autonomy

Principle: A patient has the right to choose the treatment she/he prefers, including to choose between biomedicine and CAM. The concept of patient autonomy entails that the person also has the authority to determine what makes a good life for her/him (eudaimonistic dimension). This even counts in situations where others might consider a different decision to be better.

Values: Liberty, agency, and happiness.

Justification:

P0	A person has the *ceteris paribus* right to freely make decisions on her/his own. (*autonomy*)	*D/N u*
IC	[P0]: A patient x is allowed to choose the treatment option she/he prefers.	*N u*
P1	The decision of patient x has to be respected.	*P u*
P2	CAM practice y is a possible treatment option for the given illness.	*D s*
P3	Patient x freely chooses the treatment option CAM y.	*D s*
C	CAM practice y is allowed (used/offered) and the choice has to be respected.	*P s*

Limits and problems: Patient autonomy (IC) as an established concept of bioethics and located on an individual ethics level can justify CAM or at least many aspects of it. As long as the choice of treatment is at liberty of the patient (at least not coerced) (P3) there is no ethical reason against the use of CAM *as practice* (CAM *as belief system* is not justifiable with this principle, as it is related to decision making, not to holding a belief). The principle has its limits, though. Firstly, it depends solely on the individual level without taking institutional and social levels into account. Secondly, not all preferences are legally and/or

morally acceptable. It should be clear that there have to be constraints in general on what one can freely choose. Thirdly, not all that we prefer and choose is necessarily 'wise'. This refers to the epistemic dimension as well. Since some CAM-positions have very strong spiritual beliefs, a patient might choose a CAM therapy even if there is plenty of evidence that the therapy is not beneficial (Adams et al., 2002). This occurs because a patient chooses the therapy according to her/his (spiritual) belief system ("Do persons have a right to what seems to be an utterly ineffective therapy simply because it conforms to their personal belief system?"; Fuller, 1995, p. 133). Such situations pose questions on how far the patient's autonomy might reach, in particular when the ethical responsibility of the health care provider is considered.

Interestingly, autonomy seems also to be granted at the 'spiritual level' in CAM. A practitioner "could obtain spiritual permission at the unconscious level, which was considered as important as or more important than conscious permission" (Wardell and Engebretson, 2001, p. 327). In regard of contemporary issues of autonomy in bioethical context and for informed consent (see *Informed Consent*), this goes beyond any intersubjective state of affairs that can be shown to express and document the autonomy of a patient. Misuses and misinterpretations that seem to be likely with such an approach to autonomy harbour ethical problems on their own. However, they can also be used as a general ethical (and epistemological) objection to CAM practices relating to such "spiritual permission at the unconscious level".

Paternalism as justification for CAM

Paternalism is a concept which values the epistemic authority of health care providers, regarding medical-concerned issues, higher than the right of the patient to participate in the decision-making process. The paternalistic perspective was reduced, but not fully given up, for more autonomy-based perspectives in the last half of the century (Troehler and Reiter-Theil, 1998). Wardell and Engebretson (2001) assume that CAM is more orientated towards paternalism than biomedicine; this especially concerns those positions located at the very right side of the suggested CAM-continuum. It might be that the patient (or 'client') respects the practitioner as a 'wise person' with the capability of "[brokering] with the god(s) and spirits to accomplish healing" (Wardell and Engebretson, 2001, p. 321). The importance of the virtue (of the practitioner) is thoroughly stressed by complementary healing and nursing (Wardell and Engebretson, 2001). Wardell and Engebreton assume that this emphasis on the character of the practitioner is related to the central part that spirituality plays in healing.

The following argument could be a paternalistic justification for CAM:

P1	The person with the highest competence (knowledge, skill, virtue) must decide.	*P u*
P2	A practitioner x knows how to heal and deal with the illness y through 'spiritual insight' z (or a similar skill).	*D s*
P3	A patient s (or a physician t) does not have this knowledge or skill z.	*D s*
C	Practitioner x (and not physician t) must decide on behalf of patient s.	*P s*

What gives strength to a paternalistic justification of CAM is not just the higher competence in knowing how to possibly heal someone (P2) (which could also be said of biomedicine), but a higher *spiritual* competence which entails more than just adequate ways of healing (such as eudaimonistic perspectives). Some CAM-practitioners might assert that biomedicine lacks the competence of healing (or 'really' healing). They may argue that their approaches understand human well-being better and are "cognizant of mental, moral, and spiritual factors that go well beyond the physiological considerations on which scientific medicine relies." (Fuller, 1995, p. 133). Since the practitioners are the only group capable of ('really') healing it is justified not to only use and offer CAM but also to promote it.

Beneficence

Principle: The principle is mainly orientated towards an individual ethics level, but can also be used for extended ethical considerations, for groups and institutions. It depends on how far one looks at beneficial effects. For the sake of simplicity, the extension of the principle will be kept open in the following.

Values: Values of health and the value of relief.

Justification:

P0	What promotes health and gives benefit is to be done. (*beneficence*)	*P u*
P1	A treatment x that has beneficial effects on health is an obligation.	*P u*
P2	CAM practice y does have beneficial effects.	*D/E s*
P3	CAM practice y is at least a possible treatment option for the given illness.	*D s*
P4	Where there are several possible treatment options none is *per se* obligated, but all are permitted.	*N u*
C	CAM practice y as a possible treatment option is permitted or in strong cases obligated (use/offer/promotion).	*N/P s*

Limits and problems: The principle of beneficence can be used for CAM-justification. If it is ethically obligated to do everything to increase the patient's health and CAM is such a way (or even a 'better' way), CAM *as practice* is justified.

However, the principle can solely be used as justification if a CAM-therapy does actually provide benefit in health care (P2), and/or this can be predicted with sufficient certainty to prevent ''cases of excessive claims, exaggerated promises, and deception and fraud'' (Ernst and Stone, 2004, p. 158). Otherwise it would violate both the beneficence and non-maleficence principles as reports on adverse effects and similar negative consequences have increased (Rhee, Garg, and Hershey, 2004; Carroll, 2006; Quackwatch, 2006). The ''depth of commitment to an alternative belief system'' and ''anecdotal evidence of therapy effectiveness'' cannot be considered sufficient for satisfying ethical obligations (Drane, 1995, p. 141).

This refers to a common topic in CAM-related discussions, especially on behalf of CAM-critics: Is a ''it *works*'' (as it is put by some critics) sufficient to declare a CAM therapy as a meaningful health benefit? And is this benefit really in relation to the illness (P3)? What if this 'working' is a consequence of a logical or cognitive fallacy[6] or of biases (Beyerstein, 1999) or relies solely on psychological effects (placebo-effect)? As one will remark, the question of beneficence depends also on *descriptive* states of affairs and on conceptual issues.

This is rather important in respect of different concepts of 'healing' which are questionably used in biomedicine and CAM, as such concepts are also constituted by historical and cultural factors (Drane, 1995). Some studies and comments (Wardell and Engebretson, 2001; Ruhl, 2002; Ernst and Stone, 2004; Thorne et al., 2002; Fuller, 1995) indicate that practitioners in CAM have a broader use of the concept of healing, of incorporating aspects of love and relationships, as well as of the patient's spiritual existence that goes beyond a more traditional disease/cure focus (Wardell and Engebretson, 2001, p. 331). As Thorne et al. (2002) note, health care consumers are regularly more orientated to their ''illness experience'' than to the ''disease care'' to which traditional medicine is entitled. Also, unlike biomedical research, placebo-effects might not be seen as a negative result concerning therapy evaluation (although the therapy itself does not heal). However, it might be viewed as part of a 'holistic' approach that encompasses comfort measures in its healing concept (Thorne et al., 2002). Thus the use of placebo would not be seen as a medical fraud. The problem of fraud in medical treatment is often perceived as a focal point of the ethical controversy in CAM-debates (Fuller, 1995). Therefore, it poses the important question that if the patients are eventually 'better off', (deliberate) fraud, placebo-effects or lying to the patients and the offer of such treatments in a society are ethically justifiable.

Non-maleficence

Principle: The principle exemplifies an essential part of the physician's ethos: *first, do not harm*!

Values: Health and relief.

Justification:

P0	That which decreases health and does harm should not be done. (*non-maleficence*)	*P u*
P1	A treatment x that does have harming effects on health is forbidden.	*P u*
P2	CAM practice y does *not* have harming effects.	*D/E s*
C	CAM practice y is not forbidden (use/offer/promotion).	*N s*

Limits and problems: The principle of non-maleficence might be a problem for the ethical justification of CAM as practice because when a CAM-treatment does harm, it obviously collides with the principle. While this sounds trivial it is a major critical issue. This is especially important if not only CAM-therapies that in themselves might be hazardous are considered, but also harm *indirectly* due to not engaging in effective treatment when the CAM-treatment is more or less useless in terms of healing a disease (Adams et al., 2002; Carroll, 2003; Drane, 1995), for example leukaemia. To

advocate CAM in such situations, e.g. because of patient autonomy, can collide with the physician's ethos.

As with the principle of beneficence, at this point empirical, descriptive and conceptual considerations become not only fruitful, but also necessary for the normative questions.

Informed consent

Principle: An informed consent should make a patient capable of deciding correctly about her/his treatment. An informed consent is dependent on the patient's competence to understand treatments and their consequences and to make reasonable decisions. It is also dependent on the ability of the health care provider to inform the patent accordingly.

Values: The concept of informed consent is nowadays a standard legal and ethical procedure to maintain and promote a patient's autonomy.

Justification:

P0	A decision of a person in health care has to be informed and consent has to be given accordingly for a treatment action. (*informed consent*)	*P u*
IC	[P0]: A patient x has to give informed consent for a treatment y.	*P u*
P1	For an informed consent, all relevant information about the treatment and treatment options have to be given by the health care provider z.	*P u*
P2	It is possible to give all relevant information about CAM treatment s.	*D s*
P3	All relevant information about CAM treatments is given by the health care provider z, providing veracity.	*D s*
P4	Patient x chooses the CAM treatments and gives informed consent to health care provider z.	*D s*
C	CAM treatment s is allowed (used/offered/ promoted).	*N s*

Limits and problems: Only 'CAM as practice' is concerned. In the context of CAM, Ernst (2001) highlights three points that constitute "necessary information": (a) the probability of benefiting from the procedure; (b) the probability of risks associated with the procedure; and (c) the alternative options feasible and available as well as their risks and benefits.

While this is standard information for biomedicine, there might be problems in CAM, e.g. also give alternative options for CAM (biomedicine) and their risks and benefits (P1). Ruhl, (2002) draws attention to a specialty of informed consent in CAM: the so – called "spiritual informed consent". As most CAM have rich spiritual roots, a patient should also be informed by the health care provider about potential conflicts with the spiritual/religious beliefs of the patient when proposing a certain CAM treatment. Many people would object to accepting a treatment that entails beliefs that would conflict with their own spiritual/religious belief system (Ruhl 2002).

As Ernst (2004) commented, the problems of informed consent for CAM are: (a) what information should be considered as "necessary and relevant" for the informed consent and can this "sufficient information" be provided by the practitioner; (b) a rigorously applied informed consent might lead to serious conflicts of interest in CAM: the practitioner might be obligated to state that the benefit of the treatment is not certain, that possible side effects are not negligible, and that other treatment choices do not have the possibility of harm; this can deter patients from choosing the CAM treatment. This could have financial consequences for the CAM practitioner who is often privately paid by his patients.

Finally, the question arises again of how placebo-effects and lying are to be dealt with. Some CAM-practices might be ethically problematic since deliberately not saying the truth about known or presumed 'working mechanisms' of a practice collides with the concept of informed consent.

Level 3-considerations

Regarding level 3, not only accepted or established bioethical principles and the compliance to these principles are at stake, also epistemological, metaphysical, ontological, semantic and meta-ethical assumptions must to be taken into account. This applies especially conceding that recent biomedical ethics is founded on the same assumptions as Western biomedicine itself (Thorne et al., 2002). The reflection of these assumptions is philosophically paramount for gaining an adequate account on the issue.

It seems obvious that a position with other philosophical presumptions would make more assumptions than just utter other empirical claims like biomedicine. Even the empirical state of affairs would be interpreted in a distinct way – accordingly to the philosophical assumptions made by the position about what counts as 'knowledge' or about what 'healing' or even 'truth' means (as

Thorne et al., 2002 also note). Thus, it could be that a quite different concept of truth is used in a CAM position with a high 'metaphysical commitment'. Furthermore, right and wrong could metaethically be determined teleological and thus objectively through the order of nature or (a) god(s) (or something similar).

Philosophically it is not sufficient to just rely on scientific experience to refute such a position; in this respect the position does not accept central assumptions of contemporary philosophy of science and scientific methods. Therefore, those assumptions made on behalf of epistemological and metaphysical reasons have to be considered.

Metaphysically justified values (metaphysical knowledge)

Concept: A certain CAM-belief system and the associated CAM-practice is justified because of a metaphysically 'grasped' value or knowledge (due to a specific epistemic potential that is not available to all persons, at least not without special training and accepting the metaphysical position at hand). These values or knowledge-tokens often claim certainty and are thus 'absolutely true' and ethically good/right, since it can be assumed that most CAM-related metaphysical positions do not accept the crucial distinction between 'is' and 'ought' as most modern philosophy does.

Values: Specific values related to the metaphysical belief system; spiritual values; perhaps epistemic values ('absolute truth').

Justification:

A	CAM practice relies on CAM belief system.	*D s*
P0	There exists an epistemic capacity, which is reliable for gaining knowledge with certainty about x, and proponents of CAM z have this epistemic capacity.	*D s*
P1	x is true and x is good. (*metaphysical state of affair*)	*D/E u*
IC1	[P0, P1]: CAM belief system z, which relies on beliefs about x, is 'absolutely true'.	*D s*
P2	What is good must be promoted.	*P u*
P3	An action that promotes x should be done (metaphysically obligated?).	*N s*
P4	An action that promotes what is good should be based on knowledge (truth).	*N u*
IC2	[A, P2, P3, P4, IC1]: Action y of CAM practice z that promotes x is based on knowledge (about x).	*D s*
C	Practice of CAM z should be done (is allowed or obligated).	*N/P s*

Limits and problems: This type of justification can be confronted especially with a problem concerning P0 and P1: 'critic-immunization' and the 'congruency-principle'. The normative power of P3 might be criticized. Surely, also P4 can be disputed. But I would like to focus on P0/P1 and P3, as they are the most important prerequisites in this justification strategy.

However, it has to be differentiated between two diverse levels where such problems can be identified: the belief system as such ('theory' of a CAM therapy), and the effects, 'the outcome' ('functionality' of a CAM therapy; see also *Outcome of a treatment*). Therefore it can occur that the 'theory' of a CAM therapy is 'critic-immunized', but the effects are testable (by scientific standards). The following sections are more concerned with the belief system as such.

The problem of 'critic-immunization'

The concept of critic- or error-immunization might prove useful in evaluating CAM-related metaphysical positions (strong 'metaphysical commitment'). 'Critic-immunization' should not be seen as the strict concept developed by Hans Albert and Karl Popper, but rather as a general (epistemological) attitude or property of a theory which renders it impossible to critically discuss intersubjective statements ('dogmatism'). It can also be seen as a minimal requirement of rational enquiry that no claim stands *per se* outside of critical examination and criticism.

In metaphysical context and regarding CAM this refers to asserting absolute values lying beyond the reach of persons or groups who disagree with the position (P0) and to maintaining that no counter-evidence will ever be able to prove the position wrong.[7] The problem with such a dedication to a metaphysically 'gained' knowledge or value is that it neither lies in reach for evaluation by persons who are not part of the position, nor in reach for general rational examination.[8]

Supposing that there is not only a methodological but also an *ethical* obligation to justify one's belief that leads to an action (in particular if the health of someone is concerned or crucial rights would be in danger e.g. a danger to the value of human dignity), a CAM position asserting metaphysical certainty[9] for its own sake might find itself in an ethically problematic state. In such a situation 'critic-immunization' might not only be methodologically unsound, but also ethically questionable.

The 'congruency-principle'

CAM-related positions that are setting up values and normative principles on metaphysical grounds (P1, P3) can be criticized by arguing against the existence of entities or (metaphysical, ontological ...) principles made by the position – this is the topic of the 'congruency-principle' (Albert, 1985). If there is critical evidence which shows that there is no reason to postulate those entities or to believe in them, then all normative sentences that depend on the truth of the statements concerning those entities are open to criticism and eventual refutation.

Are the assertions about metaphysical entities true? Assume that there is enough rational evidence to refute them or at least enough to lay strong doubt about the truth of them. Obviously the same is true for the normative conclusion if the statements are considered false or epistemic highly problematic/disputed. As Quine put it, sooner or later you have to pay your 'ontological debts': ontologically postulating entities can backfire epistemologically. Simply asserting them cannot be enough.

At least, the principle shows that there can be ethical objections to normative-ethical sentences formulated by CAM positions itself; It can be ethically problematic to follow a principle that is derided from questionable premises that are concerned with factual statements. On behalf of a position with high 'metaphysical commitment' though, it must be conceded that if their statements would be in fact true, they would also be justified.

Outcome of a treatment

Concept: A therapy, treatment or remedy does have an 'outcome': how effective was the treatment, was the disease healed or does the patient at least feel better? How burdening was the treatment itself?

Values: Health and relief.

Justification: There exists an argument of CAM-proponents sometimes used to highlight the advantage of CAM contrary to biomedicine that would also entail an ethical superiority:

P1	CAM 'works'.	*D s*
P2	CAM does not include surgery, invasive diagnosis or dangerous side-effects as biomedicine does.	*D s*
P3	Treatment without such side-effects is healthier, 'better'. (Thus ethically preferable)	*E u*
C	CAM often is the better choice than biomedicine.	*D s*

Limits and problems: There are two problems with this argument (though it is valid). Firstly, it uses a hardly stated premise:

P0	The beneficial effects of CAM on health are at least comparable (perhaps sometimes even better) than biomedicine.	*D s*

This descriptive premise is not undisputed as everyone who participates in the ongoing debate about CAM knows. Primary, the question arises again what could be meant with statements that a remedy or a treatment 'works' and what we mean with 'heal' (see also *Beneficence*). Since there is no proof available by modern methodologies, the epistemological dysfunction of anecdotal evidence which is used for 'proving' the effectiveness of CAM-related therapies and remedies is often at stake (Thorne et al., 2002; Carroll, 2003; Glazer, 2005). In relation to the problems of 'critic-immuzation' mentioned earlier, the question arises if the outcome of a therapy is testable (with scientific methods) and can be judged accordingly or if even the outcome is somewhat 'critic-immunized' (which poses similar problems as discussed in *The problem of 'critic-immunization'*).

The second problem refers to another presupposition in premise 2, namely the assumption that CAM treatments can never or at least seldom be harmful. Here, one has to consider the uselessness of a treatment which might harm indirectly (by deflecting from a useful treatment being applied).

Justice

Concept: On level 3, justice for ensuring equal rights to citizens in a society and for providing the social 'framework' within an autonomous subject may be used for ethical justification of CAM. In fact, justice as a virtue of social institutions (Rawls, 1971, p. 3) can be seen as being a prerequisite for (patient) autonomy on the individual ethics level.

Values: Justice can itself be seen as a value. Justice is intertwined with values of personal and social goods, for example with human dignity and ethically functioning social systems.

Justification: If there is a right to freely choose a treatment (on level 1 and level 2 as part of 'respect of autonomy'), this right must be secured by justice. Patients preferring biomedical treatments must have the right to do so, but of course the same must be the case for patients preferring CAM treatments. Besides, given the obligation by justice

of a government in a *social* democracy (e.g. Switzerland) to provide health care in the same 'amount' and quality to all citizens, CAM might be justified by means of justice if CAM is a sound alternative to biomedicine (see *Ethos of science*).

Therefore, it could be unfair not to offer CAM, given the justice of considering and offering all relevant treatment options:

P1	All relevant treatment options have to be offered.	*P u*
P2	CAM practice x is a relevant treatment option.	*D s*
IC	[P1, P2]: It would be unfair not to offer CAM practice x.	*E s*
C	[P1, IC]: CAM practice x has to be offered.	*P s*

Limits and problems: This justification presupposes that CAM is a relevant treatment option (P1). Additionally, the justification can only be used for 'CAM as practice' and when offering CAM.

A concern related to distributive justice could, on the other hand, be used against ethical justification of CAM, even only by societies with *obligatory* health care insurances subsidized by governmental tax (as in Switzerland): it could be considered unfair if a large part of the society has to pay for treatment types (CAM) which they may not approve of and which are directed only towards a small part of the society. Only treatments which have shown to be effective and beneficial and are congruent with the interests of the population should be part of obligatory health care insurances that are subsidized by governmental tax (Thorne et al., 2002). While the qualification strengthens the argument, it shifts the burden of proof once again to the question of 'rational' beneficence and effectiveness of CAM.

Freedom of speech, freedom of thought and freedom of religion

A possibility to maintain ethical justification of CAM on the level of social ethics is directed to three intertwined, although separately addressable rights in a democratic society: freedom of speech, thought and religion. A prerequisite of all three rights, in particular for free speech and free thoughts, is a common liberal attitude towards democracy.

Freedom of speech
Concept: Grants that a citizen may speak (express) freely without censorship. While justifications for freedom of speech (also called 'freedom of expression') can be disputed like all justifications (for example from CAM positions with high 'metaphysical commitment' which are nearly 'closed societies' that do not necessarily accept democracy as the best governmental system), it expresses a minimal factual agreement which is also guaranteed under some laws.

Values: Autonomy, equality, tolerance.

Justification:

P1	One has the right to speak (express oneself) freely.	*D/N u*
P2	CAM belief x is an object that can be expressed. (can be applied to P1)	*D s*
C	CAM belief x is allowed to be expressed freely (in free speech)	*N s*

Limits and problems: Free speech can be used for justifying CAM belief systems (not CAM practice) or at least the *discussion* of CAM in a political context. Similar to the freedom of thought (see below), the right to say (express) something does not include the truth of what is said (expressed).

Freedom of thought
Concept: Freedom of thought (or 'freedom of belief') is a concept more directed to the right of holding a viewpoint or a belief system irrespective of what the view of others might be; it is the right to 'believe whatever one wants to believe', justified mainly by reasons of autonomy.

Values: Autonomy, equality, tolerance.

Justification:

P1	One has the right to believe what one wants to believe.	*D/N u*
P2	CAM belief x is an object that can be believed. (can be applied to P1)	*D u*
C	CAM belief x is allowed to be believed.	*N s*

Limits and problems: It is important to realize that freedom of thought means that one has the right to believe irrespective of what others think, but this does not mean that what one believes *is necessarily right (true)*. This 'category mistake' can be relevant in regard of the ethical justification of CAM. As mentioned before, the right to believe something is not the same as 'having right' in believing something. If I take belief p, p could also be false,

even if I have the right to hold that belief in a democratic society.

When truth, plausibility, the validity or justification of a belief or a set of beliefs becomes paramount, then this difference also becomes paramount. It is getting philosophically ludicrous to maintain that the right to believe what a CAM position entails in such situations is tantamount to the truth of those propositions. In a democratic society it would be a dangerous conception, as dangers to individuals, groups and society as a whole could not be assessed and controlled anymore. Therefore, ethically speaking, CAM as practice can only be justified by means of freedom of belief if there is evidence that it does not harm. Considerations and examination of the truth of the statements made by CAM positions would again be important as soon as health and possible risks are concerned. Moreover, it cannot be evaded by relying on free thought.

Freedom of religion

Concept: Freedom of religion is closely related to the freedom of thought, but often more articulated in terms of tolerance than in terms of autonomy. The concept incorporates free belief and practice of a religion and also the freedom not to believe in any religion at all (atheism).

Values: Tolerance, autonomy.

Justification:

P1	One has the right to have a religion and to practice it.	*D/N u*
P2	CAM belief x is religious-like or a religion. (can be applied to P1)	*D u*
C	CAM belief x is allowed to be held as a religion and to be practised.	*N s*

Limits and problems: Freedom of religion includes *practice*s of a religion, but constraints exist regarding how religion is practiced. Thus it is problematic to justify a CAM practice that might prove harmful or dangerous or that violates rights granted to third parties. Furthermore, relying on freedom of religion is only an option for CAM positions with strong 'metaphysical commitment': CAM positions that are quasi-religious or actually religions. Positions of CAM that do not expel high 'metaphysical commitment' and are nearer to scientific positions cannot use freedom of religion as a possible justification.

Ethos of science

Concept: If we accept (stated in a simplified manner) that science is a subsystem of society with special epistemic authority (like sociologically assumed in the term 'knowledge-society', e.g. Van Duelmen and Rauschenbach, 2004) then the ethos of science also has to be considered, especially if this epistemic authority is extended to or specified for health care issues. A CAM-related therapy or general approach to health care has to withstand objections concerned with keeping the ethos of science as a guarantee for epistemic quality. This objection is of course meaningless if an epistemology is accepted which favours other forms of knowledge as epistemic authority (like perhaps some CAM positions with strong 'metaphysical commitment'). Obviously, the epistemologies held by these positions have to be examined and debated in that case. If a CAM-related position claims to be science or to be justified by scientific means the objection is significant.

The concept of the ethos of science which Merton (1942) gave will be used, for reasons of simplicity, even if there was considerable disagreement with the concept throughout the years.[10]

Values: Truth and knowledge.

Justification:

P0	A knowledge system that proposes to be an epistemic authority has to be structured institutionally accordingly to the ethos of science.	*N u*
P1	Only a knowledge system functioning with the ethos of science is a legitimate and reliable (!) source of knowledge (= 'certified knowledge').	*E u*
P2	Only reliable and critically produced knowledge about health care is ethically justifiable, due to risk/benefit and possible harm considerations.	*N u*
P3	CAM position x is a knowledge system functioning with the ethos of science.	*D s*
C	CAM position x is allowed.	*N s*

Limits and problems: A treatment where the truth (concerning efficiency or theory) is questionable might reasonably be objected to if a health care practitioner is committed to the ethos of science (as it is reasonable to assume that doctors in biomedicine should be). This would ethically lead to risk/benefit-considerations (Adams et al., 2002) as well as critique on theoretical assumptions which the treatment is based on. Doubts about

the effectiveness and beneficial effects will lead to considerations if the treatment is soundly justified by reliable knowledge about the world.

The norm of organised scepticism (critically examining new and old knowledge claims and trying to provide and support institutionally, displaying a 'professional sceptical attitude' to beliefs and assertions) might be one of the most objectionable aspects of CAM. Most CAM positions do not regard knowledge as fallible and provisional as science does (Kaptchuk and Miller, 2005). They sometimes ignore research findings and often have unrigorous standards for subjecting therapeutical claims to critical review (Drane, 1995). But as champions of science often point out, it is exactly this kind of attitude and method that "makes science to science" (e.g. Albert, 1985; Carroll, 2003).

A CAM position where such ideals are not realized or are insufficiently followed or where social/institutional structures for realizing such norms are non-existing can be a target of ethical rejection (based on arguments that the knowledge is not reliable, might be harmful or not open to critical examination).

The argument gathers strength regarding CAM positions which assume that their assertions and beliefs are proven to be true by scientific enterprise (even if 'special methodologies' firstly have to be used or invented, for example to cope with the 'holistic nature' of most CAM; Ernst and Stone, 2004; Adams et al., 2002; Thorne et al. 2002).

In other words, positions in CAM with minimal 'metaphysical commitment' which accept or actually propose science and scientific examination in health care issues are thoroughly obligated to the ethos of science and its norms might be criticized if they do not feel obliged to maintain the ethos.

Legitimation and justification confusions

Conceptual confusion is possible in debates about the legitimation and justification of CAM.

The term 'Legitimation' relates to a *social* process or function based on factual agreement (facticity) of values and norms. Legitimation can be reached by political legitimation (e.g. due to a decision made according to democratic processes) or by legal legitimation (correspondence with factual law). While this addresses legitimation on a social level there are also 'lesser order' legitimations in sub-systems or groups.

'Justification' is the classic term for a rational function in the 'realm of reasons', the 'context of justification'. Only validity issues are relevant and not factual agreements or facticity. Justification can be related to cognitive justification (Why is x true?), epistemic justification (Why is it reasonable for us to accept proposition x as truth?) and quite obviously also to normative justification (Why is y right? Why is z good?) (Schnaedelbach, 2000). Justifications are open to rational discourse, which is an exchange of reasons and counter-reasons. Additionally, there can be prudential justifications for actions (Why did you do this? – Because of x), but they lack the categorical, non-personal element which is akin to justifications as they are used in rational enterprises, especially in philosophy.

The confusions that can complicate debates about legitimation/justification of CAM are the following ones: firstly, the difference between legitimation and justification might not be regarded, as it for example takes place when freedom of thought (which is politically *legitimized*) is taken as a *justification* for a given set of belief. Secondly, some proponents and also opponents may mistake political or legal legitimation with ethical or even epistemic justification. This confusion is rather problematic, because a sole (!) reliance to a legitimation does not justify anything ethically and especially not anything epistemically. The leap from the premise "x is politically/legally legitimized" to the conclusion "therefore, x is true/right/good" would be as obscure as it can get. This takes place because the 'argument' is prone to a sort of *democratic fallacy*. An outcome of a sound democratic process is of course legitimated, but not necessarily true/right (proven true/right through a process of justification, where reasons for the truth/rightness are given). Furthermore it is not guaranteed that an according conclusion will be supported if a majority thinks that CAM is true or that CAM should be practiced.

Summary

CAM can be justified by means of level 2 considerations, but often only with qualification, or only dependent on several descriptive states of affairs. Best chances are offered by reliance on patient autonomy and beneficence (as supposed by the hypotheses). On level 3, there are also possibilities of justifying CAM ethically. The best chances can be found in freedom of thought and freedom of religion, while problems are arising because of epistemological reasons in an 'internal view' of CAM positions (as theory evaluation).

Table 1 summarizes the possibilities and qualifications.

Conclusions and discussion

Central ethical principles in CAM are respect for autonomy, principle of beneficence and freedom of speech, thought and religion. Collisions with the non-maleficence principle and informed consent have been shown as likely, while justice might also account positively for CAM. Shared and distinctive values between biomedicine and CAM have been identified. Epistemological reflections are significant for determining effectiveness and truth/plausibility of CAM-related therapies and positions. Collisions with the ethos of science are likely, in particular by CAM with strong 'metaphysical commitment'.

Principles and universal normative sentences

Argumentation, analysis and evaluation have shown that common objections to a justification strategy are rarely oriented towards ethical principles (such as beneficence or non-maleficence) or universal normative sentences, but rather towards singular sentences, especially descriptive ones. Exceptions might be specific normative sentences due to 'metaphysical commitment' (e.g. spiritual beliefs).

Beneficence and non-maleficence

As the summary shows, most strategies of justifying (or de-justifying) CAM finally refer (as descriptive circumstances or as constraints) to issues of beneficence and non-maleficence. It is plausible to assume that these are the most important aspects concerning ethical justification of CAM. This is not surprising for any health care area, although problems arise because beneficence and non-maleficence rely extensively on the concept of 'healing' and 'health'. The question of how to ethically deal with placebo-effects is open.

Relevance of non-ethical disciplines and aspects

Given the great importance of beneficence and non-maleficence issues, certain non-ethical disciplines become paramount in determining the range of the ethical justification of CAM. Epistemological questions are inevitable and as shown on level 3 even semantical, metaphysical/ontological and meta-ethical aspects have to be considered. It is not sufficient to solely rely on empirical data for it is produced, interpreted and evaluated according to established and accepted philosophical underpinnings (e.g. a 'disease/cure'-focus vs. an 'illness experience'-focus). Such assumptions also have to be rigorously questioned and examined for the purpose of determining the ethical justification of CAM.

An 'only ethics'-approach (such as some utilitarian approaches, but also applied ethics approaches such as the standard principles of bioethics) presuppose the *epistemic* justification or just ignore it. Generally utilitarianism, especially preference utilitarianism, seems to do the best work in justifying CAM since it can evade substantial questions (e.g. the truth of a CAM position). *Decisionism* would evade substantial issues such as the whole discussion about epistemology and methodology as well as the rightness of CAM is reduced to what citizens chose in a democratic system. However, the problem with both approaches is exactly this evasion since they do not question if a CAM therapy at hand is epistemically justified.

Values

Both biomedicine and CAM share a number of ethical and ethics-related values relevant to healing and caring: human dignity, autonomy, the value of health and happiness/well-being on the individual and social level. They might also share some non-ethical values such as epistemic values (e.g. the values of truth and knowledge), but may maintain a different axiology. The goals, however, are very similar, e.g. promoting health, relieving suffering and avoiding harm (Kaptchuk and Miller, 2005; Ernst and Stone, 2004).

However, there are some differences, especially in CAM positions with 'metaphysical commitment' that have a strong spiritual underpinning. In these positions, values that are not shared with biomedicine can be a problematic issue (such as the value of nature as a healing power (Kaptchuk and Miller, 2005) not being shared). Additionally, it must be stressed that sharing a value is not tantamount to promoting or realizing this value *in the same way*; values can be promoted or realized in multiple ways, and CAM positions might do this in ways quite different from biomedicine.

Further research

It has not been possible to carry out a detailed analysis of specific CAM positions (such as

Table 1.

Principle/ concept		Ethical justification[a]		Qualifications, problems
		Practice	Belief	
Level 2	Level 1 'as whole'	probl.	n/a	Can be rendered (more) unproblematic when Code of Ethics and the like are institutionalised
	Respect for patient's autonomy	very poss.	n/a	Only individual ethics level; reach of autonomy not without constraints
	Autonomy on 'spiritual level'	probl.	probl.	Epistemologically very problematic
	Paternalism ('spiritual leader')	poss.	probl.	Conflict with autonomy; depends on certain epistemological assumptions which are questionable
	Beneficence	very poss.	poss. (?)	Depends on the fact that CAM really has beneficial results (practical), and what counts as 'beneficial' in health care issues (theoretical)
	Non-maleficence	probl.	poss. (?)	Depends on the fact that CAM does not harm, even indirectly
	Veracity	probl.	very poss.	Lack of self-controlling instances, knows placebo-effects as accepted practice
	Informed Consent	very probl.	n/a	Informed consent often cannot be reached by CAM
Level 3	Metaphysical justification (Problems of 'Critic-/error-immunization', 'Congruency-principle')	very probl.	very probl.	Cannot be issued in democratic setting; is methodologically highly questionable; depends highly on the epistemological reasons for proposed entities; if these entities are highly disputable the ethical justification might be too
	Outcome of a treatment	probl.	poss. (?)	Depends on evidence of effectiveness of CAM, which is disputable
	Justice	poss.	n/a	Might backfire when allocation issues are reflected (why give equal money to CAM as biomedicine gets when effectiveness is not proved, et cetera)
	Freedom of speech	N/a	very poss.	Does not reach very far, only related to propose, discuss CAM in public
	Freedom of thought	N/a	very poss.	Does not imply truth of CAM and the right to be used – only to be held as a belief
	Freedom of religion	probl.	very poss.	Only useful for CAM positions with high 'metaphysical commitment', must rely on the harmlessness of CAM-practice
	Ethos of science (if accepted)	very probl.	probl.	Depends on acceptance of science and scientific methods as epistemic authority
	Legimitation (democratic process, majority)	probl.	probl.	Confuses possible legitimation with justification

[a] very possible = justification valid and plausible (perhaps sound), barely objections or qualifications to premises; possible = justification valid and plausible (perhaps sound), but objections or qualifications to premises likely; problematic = justification valid, but plausibility objectionable or qualifications very likely; very problematic = justification valid, but depended on very objectionable premises or high qualifications; impossible = justification invalid, implausible; n/a = justification not available for this category.

ayurvedic medicine, chiropractic, acupuncture, homeopathy etc.) in order to go beyond general considerations. This seems to be an open field for research: to examine which intrinsic/extrinsic values and principles are at stake by *specific* CAM positions, how strong their 'metaphysical commitment' is and what their philosophical underpinnings are like. Qualitative research of social sciences and hermeneutical ethics might be fruitful and could be organized interdisciplinarily. For gaining more insight in the *legitimation* discourse, studies of sociology of knowledge could be valuable.

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Notes

1. This is a content-shortened version of the original paper. A longer and more elaborated version can be obtained from the author.
2. According to the German tradition, 'science' as a general term (German: wissenschaft) refers to natural sciences, social sciences and humanities.
3. The problem with the predicate 'metaphysical' lies in at least two separate uses of the word. As a philosopher, 'metaphysics' is regularly conceived of as a rational reflection on the formal conditions and prerequisites about our conceptions of reality, nowadays often through analysis of language (Runggaldier and Kanzian, 1998). For a non-philosopher (and probably for some philosophers as well), 'metaphysics' is more akin to a quasi-religious belief system, like 'New Age' esoteric, or might be a general term for all that is concerned neither with empirical nor semantical issues. The difference between a philosophical and an 'esoteric' view of metaphysics lies between metaphysics which is very detailed in regard of content and a more *formal* approach on metaphysics for examining and grounding ontological formal-orientated *assumptions* or *presuppositions*, as in contemporary 'analytic' philosophy. Compare, intuitively, an approach to metaphysics/ontology of a philosopher like Willard van Orman Quine and its interest in "what there *basically (categorical)* is" with a metaphysical system of, say, Deepak Chopra to see the point I am aiming at.
4. With 'metaphysical commitment' I mean a cognitive (belief, assertion) and/or emotional characteristic that a position entails for its proponents. These (spiritual) beliefs mean something to the person; they are part of the personal 'weltanschauung' – The importance of metaphysical and other philosophical underpinnings in CAM is obvious when considering the problem of 'rationality' or 'irrationality' of a practice since CAM is often called 'irrational' by its critics. CAM-practitioners may "(...) respond that every therapy is rational insofar as its methods of treatment are *logically entailed by its fundamental premises* or its assumptions about the nature of disease." (Fuller, 1995, p. 133; emphasis added).
5. Although it should be obvious, I would like to state clearly that all considerations about ethical justification made in this paper must – in principle – also manage to be addressed at *biomedicine* and all health care related topics; if not, an unwarranted 'double standard' would be the case. While there might be some considerations which hardly can be addressed at contemporary biomedicine, this is because it lacks the descriptive properties relevant for such considerations.
6. This has been labelled 'pragmatic fallacy': "The pragmatic fallacy is committed when one argues that something is true because *it works*. (...)." (Carroll, 2003).
7. See for example proponents of Ayurvedic Medicine, criticized by Meera Nanda (2006): "(...) On the other hand, we hear repeated claims from traditional healers and modern gurus alike that no amount of research can alter or refute the 'Eternal and Absolute Truths' of Ayurveda which was supposedly revealed to the Vedic seers at the very 'beginning of time.' Even AYUSH, the government agency responsible for scientific research, describes Ayurveda as having 'originated with the origin of the universe itself.'"
8. One should not naïvely assume that positions with strong 'metaphysical commitment' would accept the dedication to 'rational enquiry' altogether. They might claim 'other' forms of enquiry and sources of knowledge that are privileged to rational accounts. When metaphysical positions vary in this degree, it seems to mark the end of all intersubjectivity.
9. The problem is not that we *know* that a given strong metaphysical position is wrong. The problem is that we can also *not know that it is true* and the possibility to show the truth of the position without already having to presuppose the whole truth of the position might be levelled beyond any rational recognition.
10. Merton assumed that the ethos of science consists of four distinct concepts that bind scientific working on normative grounds: *universalism*, *communalism*, *disinterestedness* and *organized scepticism*. These norms are legitimised through institutionalised values in the

scientific system and derived from institutionalised goals and methods of science: the extension of certified knowledge.

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