From Risk/Security Analysis via Timespace to a Model of Human Vulnerability and Human Security

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Abstract—For us humans, risk and insecurity are intimately linked to vulnerabilities - where there is vulnerability, there is potentially risk and insecurity. Reducing vulnerability through compensatory measures means decreasing the likelihood of a certain external event be qualified as a risk/threat/assault, and thus also means increasing the individual's sense of security. The paper suggests that a meaningful way to approach the study of risk/ insecurity is to organize thinking about the vulnerabilities that external phenomena evoke in humans as perceived by them. Such phenomena are, through a set of given vulnerabilities, potentially translated into perceptions of "insecurity." An ontological discussion about salient timespace characteristics of external phenomena as perceived by humans, including such which potentially can be qualified as risk/threat/assault, leads to the positing of two dimensions which are central for describing what in the paper is called the essence of risk/threat/assault. As is argued, such modeling helps analysis steer free of the subjective factor which is intimately connected to human perception and which mediates between phenomena "out there" potentially identified as risk/threat/assault, and their translation into an experience of security or insecurity. A proposed set of universally given vulnerabilities are scrutinized with the help of the two dimensions, resulting in a modeling effort featuring four realms of vulnerabilities which together represent a dynamic whole. This model in turn informs modeling on human security.

Keywords—Human vulnerabilities, human security, inert-immediate, material-immaterial, timespace.

I. THE CENTRAL ROLE OF HUMAN VULNERABILITIES

THIS paper represents a summary brief from an effort to take a systematic look at some of the political significance of the manifold weaknesses in our human nature which make us vulnerable to certain situations and which can make us suffer - as individuals, as groups, as collectives. These weaknesses or vulnerabilities come in many forms and shapes, but they have in common that we cannot escape them as human beings. Human life and society is much about compensating for these vulnerabilities in search for the good life, the developed society, as we see it, and in the struggle for rights and security.

The insecurity caused when vulnerabilities are at risk or under threat or assault, is real whether subjective or objective, at the heart of the matter is - perception. Human perception determines what the vulnerabilities *mean* to us, what the threats or assaults on them *mean*, what the compensatory measures *mean*. Perception filtered through who we are - we do not see things how they are, but who we are, as the saying

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goes. Or, "(I)f men define situations are real, they are real in their consequences" [1]. As this research is geared toward the study of global political issues, the modeling on human vulnerabilities is used for a scrutiny of the concept of human security, as well as - although not in this brief paper - human rights, human development, humanitarian intervention and linked concepts, as well as aspects of armed conflict.

The focus here on human vulnerabilities is in line with a growing interest in this concept within the study of bioethics, philosophy and politics. To understand vulnerabilities is also to study and seek to understand those factors which expose and target them. Below, the symbiotically related concept clusters of security-insecurity (SIS) and risk-threat-assault (RTA) are scrutinized, including with the help of perspectives on human perception vs. time and space. This allows for positing the so-called *essence of the timespace content of RTA as well as SIS*, producing a preliminary typology image with two salient dimensions. This construct is used to organize thinking about human vulnerabilities which are categorized in a dynamic model. This is then applied on the concept on human security.

II. RTA VS SIS

The two concept clusters of security-insecurity and risk-threat-assault are two sides of the same problem. On the one hand, there is a continuum between security and its negation, insecurity, as experienced by the subject – the individual, the group, the collective etc. – and all the possible positions or outcomes in between. Security is not about either or, it is rather a matter of degree. On the other hand, the factor, event or phenomenon "out there" affecting the human condition and potentially the sense of security/insecurity, can also be organized along a continuum, this time stretching from the potential or probability based "might happen" (risk), via the more acute "will likely happen" (threat), to the actual, "is happening" (assault).

Both risk and threat are thus about something which has yet to happen; as Reith points to: "(T)he postulation of 'risk' as something that is both real and yet incalculable is based on a misapplication of the concept of risk itself. It is argued here that 'risk' is not real, but rather that it is a measure of calculation: A means of quantifying that reality." This is due to that, Reith continues, there cannot exist any risk "out there" which is independent of human observation, there is not even such a thing as "objective risk." Secondly, risk cannot be experienced "since the concept itself is essentially a temporal one, grounded in its relation to an unknown future. It is defined by and through temporality: The notion of 'risk'

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expresses not something that has happened or is happening, but something that might happen" [2]. As thought-provoking these points are, and valid in their underlining of the role of human perception, it nevertheless seems safe to posit at least certain "objective risks" and hold the perception of risk as something "real" including in its subjective and emotive qualities in terms of fear and anxiety.

As here used, the SIS continuum describes a subject's largely subjective state of affairs, while the RTA continuum features terminology for describing, objectively or not, the phenomena "out there" which is potentially compromising security. These two types of phenomena live in symbiosis with each other – without the one side of the story, the other one would not exist. Thus, security, at any level of aggregation, i.e. for societies, collectives, individual human beings etc., does not mean an absolute lack of RTA:s as without the latter there can be no talk of security or insecurity. Closer to the truth is that security means effective measures (including omissions) to counteract RTA:s; experiencing insecurity then means suffering from RTA:s which are not effectively neutralized. Crucial factors for such neutralizing measures is the ability to perceive the risks or threats in question, as well as other capabilities for withstanding an assault, thus creating lesser or greater vulnerability to RTA:s.

In other words, in the world of real events, any talk about absolute security is meaningless – rather, security is about managing RTA:s. And in order to do that, you must see and understand RTA:s, and you must also have other capabilities or resources (material, immaterial, human or other) to be able to manage risk, threats and assaults. Indeed, building the good society is in many ways about installing and instituting ways to prevent risks and threats from developing in a harmful manner; risk management and threat prevention is seen in all spheres of life to keep various threats under control – e.g. immunizations, fire alarms, conflict prevention, social security measures, traffic safety etc.

As a shorthand image, seemingly valid across levels of aggregation one can in a diagram plot RTA along the x-axis and SIS along the y-axis: An increased level of RTA, starting off from a base level of low but significant risk in order for security talk to be relevant at all, could lead to insecurity if capabilities are not sufficient (a); if the latter are sufficient, even hazards reaching an acute stage (signified in the model as an increased level of RTA) do not significantly compromise security (b). Plotting in the figure can thus look very different depending on the nature of the RTA:s and how they are managed.

Fig. 1 can be understood to display SIS as a function of RTA, and, as pointed to, into the equation we must put also capabilities (C); in mathematical form: $SIS = f\ (RTA,\ C)$. Central aspects of capabilities are the perception incl. understanding of the RTA in question, other available resources for countering the RTA, and the ability to use them effectively. Seen in this manner, the capabilities – which can be understood as any capacities plus their effective use - of an actor become mediating factors between the RTA "out there" and the resulting state of SIS of that actor. A similar point is

made by Bajpal: "Human security refers to threats to the life and liberty of individuals and communities, balanced by capacities to deal with those threats (security = threats minus capacities)" [3].

These points about RTA and security-insecurity are proposed to be generally applicable to any level of aggregation. At focus here is the individual human being.
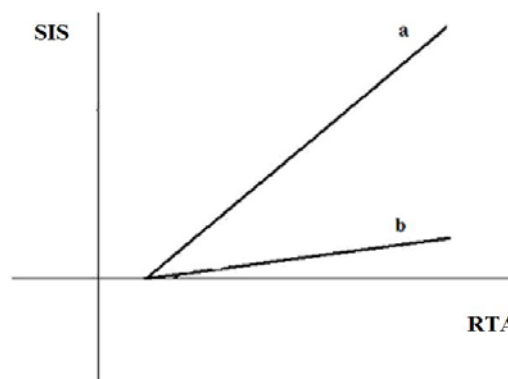

Fig. 1 RTA vs. SIS

III. WHAT IS HUMAN SECURITY ABOUT? THREE ORGANIZING QUESTIONS

How can the concepts of security and threat be further approached? What is security and insecurity about? What are RTA:s about? What can be a basis for distinguishing between different kinds of SIS and RTA? What is the nature of the linkage between the two? And importantly, how can we bring the discourse closer to the individual to approach a concept of human security? How do we approach the question of what different RTA:s mean for the individual in terms of felt or perceived insecurities? And, how, as we are faced with the translation of RTA into SIS, can we somehow when constructing our model steer free of the subjective factor? One help, drawing from Møller [4], is the following three questions for approaching the problem of security:

i. Security of whom or what? Whose security is at stake? Who is the referent subject of security?
ii. Security of what? Which is the value or good that is challenged?
iii. Security from whom or what? What (in the external world) represents the source(s) of threat?

If these three questions are answered from the point of view of human security, the following seems warranted.

In reference to the first question, studying human security must mean staying put at the level of the individual; under the heading of human security, at issue is the individual person's security - if aggregates are involved in a such threat and security analysis, it is only in so far as they are of direct relevance for the individual person.

Answers to the second question seek to account for how a certain risk, threat or assault is perceived by the individual in terms of what is threatened or under attack, i.e. what human value, need, want, or what aspect of the human condition. This parallels the notes above on SIS – what we here are after is

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thus *the essence of an RTA in terms of variation of SIS*. If anywhere, it is thus here a model of human security can play a role, a model which necessarily must account for human vulnerabilities, or more exactly the more or less subjective perception of the exposure of such vulnerabilities.

Answers to the third question is, in journalistic slang, about the who-what-when-where-why and how of RTA:s "out there", and would seek to define the external factor or factors, including actors, which represent the RTA. Also here, the determination of an external threat is a matter of perception – of judgment, competence, culture etc., i.e. again the subjective factor.

These three questions crucially identify what is at issue here – the individual, the RTA "out there", and the resulting degree of SIS, thus mirroring the points above including the proposed formula: A person's perception of his or her security is a function of the RTA out there plus the perception of it, against a background of internal "filters" as well as resources available to handle the RTA. Importantly, perception is often far from equal to an objective recording of the threat "out there". Likewise, the interpretation of personal or internal motives is not a forthright matter. It all comes together in that which we call perception - an often tumultuous and fuzzy mixture of internal and external cues.

IV. PERCEPTION IS KEY

Both RTA and SIS is about perception in a here and now however defined, the difference being that RTA, from the point of view of the individual, is about something external to the individual, while SIS gauges the resulting influence on the own person, the self, however formulated. As if between the two, stand that which we call perception. Through perception RTA:s are noticed and evaluated, action anticipated as well as evaluated, and it is also here that own SIS is evaluated in view of RTA plus available capacities and actions taken. Ideally speaking, such behavior or actions affect the RTA as well as the SIS.

This logic invites to some general points on perception. Fig. 2 describes a simplified image of a complex reality: An individual's perception (P) results from information flowing from the external world as well as the internal one. Perception leads to behavior (B) or action, which in turn affect the external situation; similarly, the internal situation can be affected by perception. Levels I, II, III describe a decreasing proximity, externally as well as internally, from the "here and now" where the perception takes place. Arrows from the external to the internal represent internalizations.

This image thus suggests a complex "flow" of inputs and feedbacks centering on perception. What's more, it invites a time and place logic. Human perception unavoidably exists in a temporal present, however defined. Perception also exists in a spatial "here", however defined, and encompasses a certain more or less local terrain – private, social, political etc. On the external side, the levels I, II, II can be seen as featuring increasingly distant factors in a spatial and/or temporal sense. On the internal side, one may argue that the three levels also describe increasing distance – temporally in the form of e.g.

memories (internalized experiences), or "spatially" in the form of e.g. deep seated personality traits. Needless to say, this description is highly schematic, but serves to shed light on a general dynamic.
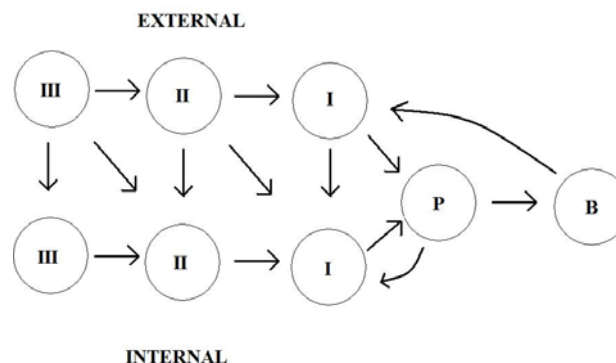

Fig. 2 The flow model

Obviously, risks, threats and assaults, as well as the feelings of SIS they provoke, are just special cases of phenomena of the external and internal world respectively. For this reason, the flow model is relevant also for the aim here – seeking a model of human security. Thus, a person's perception of a risk or threat "out there", and the perception of what is threatened in terms of own needs, wants, values etc., will always be a mixture of the external and the internal territories, a mixture of that which is "out there" and those more or less distorting filters which we carry with us in our internal set-up. This quite well fits with the formula SIS = f (RTA, C): the perception of own SIS is a function of the external threatening situation (RTA), including the perception of it, colored also by internal motives, plus other capabilities (C) applied to handle the situation. It also reflects the three questions above – what is RTA about, which are the needs and values at risk, and whose needs and values are at issue.

How does the flow model bring us closer to an understanding of human security? The answer is that it puts perception in perspective. In particular, the model suggests a timespace perspective which comes natural for issues of RTA and SIS – the nearer and more massive a risk or threat, the more acute are the perceived security effects, and vice versa. In other words, the model suggests a role for time and space for picking apart the problem of perception in a manner relevant for the analysis of RTA and SIS.

Indeed, we might, as a development of the flow model, posit external as well as internal landscapes which stretch out temporally as well as spatially, with two qualifications: First, the landscape within the human individual is about psychological depth and distance rather than spatial ditto in the usual sense of the term. Second, the temporal dimension really only resides in a present. This modeling is omitted here due to lack of space, but the image which emerges is one of the individual person traveling on the time line towards a future, balancing between the internal and the external, and forming a perception or understanding of an ever changing present as resulting from the impressions stemming from the

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internal and external past and present respectively. Perception is the existential ground-zero, but its extensions in timespace are multiple. As will hopefully be evident, this flow model construct helps closing in on key dimensions involved and will show useful for understanding human security.

V. THE ONTOLOGY OF TIME AND SPACE VS RTA/SIS

What is a risk to, or a threat or assault against a human being? It is a certain phenomenon in the external reality – i.e. external to the individual and partly or wholly defining this external situation – which is perceived by the individual to severely challenge certain valued aspects of life, even the existential situation at large etc. (for definitions, see below). Such phenomena can be a thing, an event, or really anything that has a name to it.

As pointed to, on a general level, RTA:s differ little from other phenomena – anthropocentrically speaking, an object or other phenomena becomes an RTA depending on how it affects, or is perceived to affect, one or several humans; without humans around an earth quake is just an earth quake, a stone is to most of us and in most situations just a stone, and a city square is to most of us just a city square but for the agoraphobic it can be felt as a deadly threat.

Given the points above, a timespace scrutiny of such phenomena seems warranted.

Let us begin with space. As for an observer's perception of *spatial* aspects of external phenomena, they can, first, be near or distant from the observer. Physical space has an extension in three perpendicular directions, a three-dimensionality which humans can grasp better than other mammals due to binocular vision, binaural hearing and bimanual touch, and certain mental properties connected to this [5]. Second, external phenomena can in spatial terms also be more or less intense/focused or dispersed/diffused. Into this distinction comes the factor of density and size; diffusion by definition entails larger spatial size and a lower degree of density. Values on these two parameters or dimensions are usually approximate and subjective.

A fairly obvious third dimension under the heading of the spatial is the material vs. the immaterial, or the physical vs. the non-physical. This can be related to that which we call concrete vs. abstract. Thus, any phenomena in the external world ought to be possible to approximately plot along these three spatial variables in any combination, describing various cases of spatial extension. In Fig. 3, indeed no coordinates and no combination seem impossible. Furthermore, phenomena can be allowed to assume lesser or larger chunks of the model depending on the spatial size, spread and degree of material and/or immaterial content.

The two distinctions of near-distant and focused-dispersed are indeed continuous – both proximity and focus can gradually become larger distance and increased dispersion respectively. This make the two dimensions fit well for the proposed model in Fig. 3. But are they relevant for a security analysis? How about the third dimension? As it seems, the dual concepts of near-distant and focused-dispersed make little sense for building a security model as phenomena at great spatial distance or with great spatial dispersion cannot represent meaningful risks, threats or assaults, and therefore will not serve in a human security model. The latter must, it seems, in order for it to describe a meaningful totality be built on such dual concepts which not only capture an essence of the human condition but also are meaningful at extreme values.
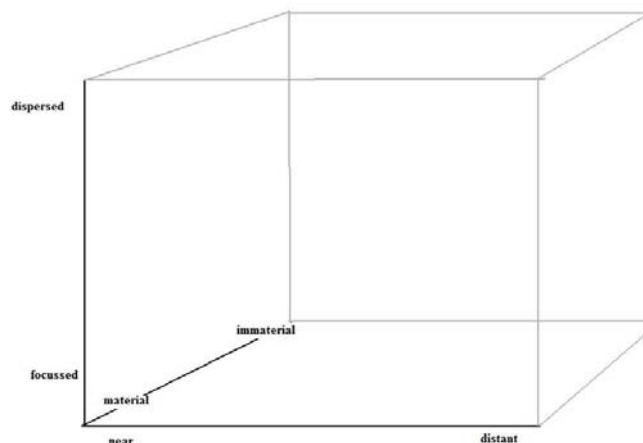

Fig. 3 Three aspects of human perception of the spatiality of phenomena

Ergo – the third dimension might be particularly interesting for modeling. However, it does at a first glance not pass as a continuum if any phenomenon of the external world is either material or immaterial, physical or non-physical. In a discussion about "the physical thing", Mead points out that such a thing is defined in terms of its manipulatory and distance experience - a physical thing can be seen and felt, and this also includes the own organism, i.e. the own body. "Sets of physical things are (...) defined by their boundaries (...)" [6]. Or simply put - because at issue here is a vast body of literature and philosophical tradition which cannot be accounted for here - things are either material or immaterial.

But at a closer look, when at issue is the *meaning* or *essence* of the external phenomenon, this might actually be a question about degree rather than absolute difference. At issue here is this the perceived essence of the external phenomenon along the lines of the RTA vs SIS outlined above – on such basis, it seems that the boundaries of concrete, or material, objects are not always obvious as phenomena in the external world can have a host of immaterial connotations inseparable from the material objects in question. In other words, many things are mixtures of the material and the immaterial – for instance a home, works of art, a flag, a community, even simple belongings, take on symbolic importance and represent both material and immaterial qualities.

This is thus about the meaning ascribed to the phenomenon in question in terms of own needs, values, hopes, fears etc., rather than about the thing in itself. Here we thus seek not a definition of the reality out there, independent of human thought and sentiment, but a phenomenon's more or less subjective essence in terms of material-immaterial content.

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Along such lines, the material vs the immaterial describe a continuum useful for the modeling here.

The third dimension material-immaterial thus displays the ability to describe what we can call an essence of RTA in terms of SIS. While the spatial dimensions of distance and dispersion both seem to translate into degree of seriousness when it comes to SIS, the third dimension acts a bit different – here, the outcome in terms of SIS is not necessarily about more or less serious RTA:s, but about a certain quality of the RTA vs. SIS.

The *time* factor is of obvious importance for describing and understanding RTA as well as SIS. In order to evaluate RTA:s in terms of security significance, it is crucial to know when a threat is due, how quickly a risk can become a threat and develop into an assault, for how long the latter will last, or if a phenomena develops so slowly as to become wholly irrelevant, etc. How can we distill some useful temporal dimensions of phenomena? Time has the faculty of extension or size in common with space [7], but, obviously, in other directions – into the past and into the future, instead of in a certain present and along spatial vectors through a three dimensional space. Along this temporal axis, often called a fourth dimension, a few central aspects can be identified.

First, just as was the case with space, a thing or an event occurs on a certain distance from the actor - in this case temporal, instead of spatial, distance, either into the past or the future, or at no distance at the "ground-zero" of the present (here and) now however defined. Thus, an event assumes a certain position on the time axis and will be called more or less "near" or "distant."

Second, along this axis, any phenomena occupy various segments, shorter of longer – a notion which can be described with the concepts focus-dispersion used also for space. In other words, some things, events, phenomena, are extended in time, others happen for a short time. This contains more than just a notion of temporal size, namely a notion of saturation or intensity which seems particularly relevant when temporal and spatial analysis is combined. These two temporal dimensions can be combined with any outcome – an event can be of long duration, spread out, and take place far away in the future or the past, or it can happen during a short period of time and in a temporal vicinity, etc.

When we look for a third temporal aspect of phenomena, we must look at what the first two do and do not cover. What about speed of an event in question, or volatility? This aspect would imply determining the degree of volatility of a phenomenon, the ability or propensity for a phenomenon to change more or less quickly. This would obviously not be covered by temporal distance, and it would not be the same as focus-dispersion.

The velocity or volatility factor of observed phenomena would thus cover not the spread, density, time segment etc. of a phenomenon, but the propensity for change and dynamics - some things simply happen more quickly, others more slowly. This distinction can if expressed as a continuum be called inertia-immediacy.

The three dimensions produce a model quite similar to the

one in Fig. 3, but here seeks to describe three temporal aspects which informs an individual's perception of a phenomenon and answer simple but central questions such as "When?", "For how long?", "With what intensity?", and "How quickly?" These temporal continua can all help to define RTA, as well as, indirectly, SIS. As for temporal distance and focus, they determine the degree of concretion, seriousness, intensity of any phenomena including RTA – that which is near in time and also focused is naturally enough more graspable, concrete etc. than that which is temporally far away and also dispersed or spread out.
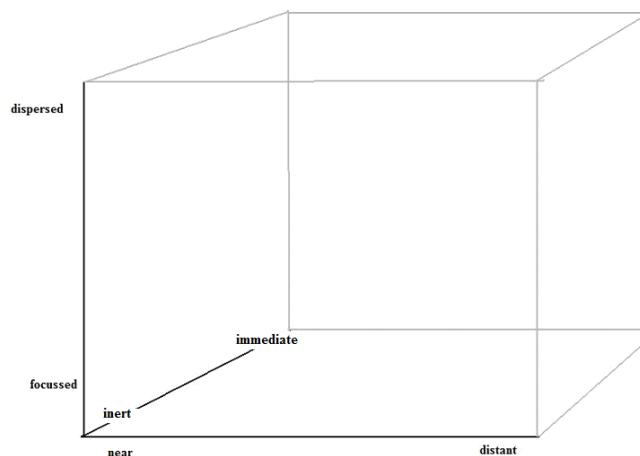
Fig. 4 Three aspects of human perception of the temporality of phenomena

Just as was the case with the spatial dimensions, two of the temporal dimensions here proposed seem ill-fit for a typology relevant for RTA:s. One reason is that at extreme values on them, phenomena seem to lose RTA status – that which happens far away time-wise, or is very diffused over time, can probably not be seen as RTA in any meaningful way. Indeed, just as was the case with space, the more temporally distant and the more dispersed a risk, threat or assault is, the more abstract is it, the more subjective will the interpretations of it be, and the less intense will the impression be on human perception. In contrast, the third temporal dimension seems meaningful for RTA at both extremes.

It indeed seems the spatial and temporal "third dimensions" respectively merge the 2nd and 3rd questions above – a threat which is e.g. immaterial can only be so with reference to the perceived human security theme under threat, and so is the case when judging the swiftness of a certain threat. In other words, while focus-dispersion and proximity-distance are aspects of the external world, the two "third dimensions" do not in the same manner respect the difference between questions two and three. And this is why they are of interest here.

The two "third dimensions" are thus unique to the spatial and temporal problematique respectively. Indeed, it is when they are posited against each other that a human security model begins to emerge. When the material-immaterial and inert-immediate are set to interact in a two dimensional figure,

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a certain dynamic emerges with four combinations – material/immediate, material/inert, immaterial/inert, immaterial/immediate.

We have thus through a timespace logic arrived at two continuums which together seem to suggest a typology. What remains now is to fill this typology with reality.
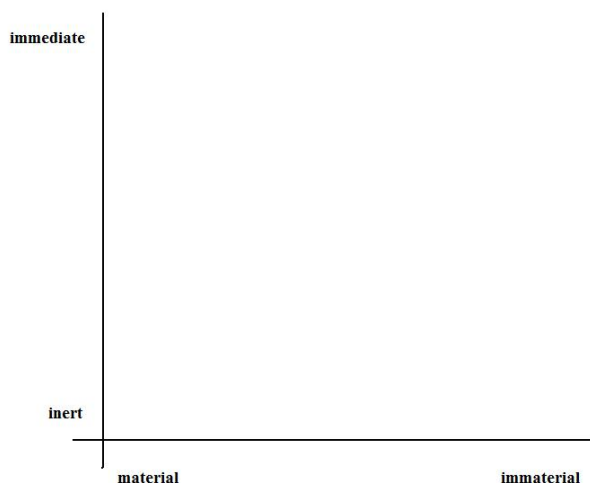

Fig. 5 The immediate/inert vs. the material/immaterial

To a significant extent, at issue is a subjective reality, the perception of own security or insecurity. Therefore, in order to approach that which represents "the nerve" of human security, it is useful to think about the *essence* of a threat, i.e. how a certain threat is perceived by the actor in question. This essence is defined as the subjective understanding of what is threatened, which value, which need, which want. At issue is not, at least not primarily, the objective or even subjective definition of the agent "out there" which produces or represents the RTA – something which is never entirely possible. Many kinds of RTA:s can be more or less objectively defined, but many are colored by subjective interpretation. Scrutiny into the latter is something a manageable model of human security must seek to avoid – while it must acknowledge the subjective, it must provide a short cut to the heart of the matter of RTA and resulting SIS.

A key to a succinct human security concept is thus found within the actor perceiving a certain risk, threat or assault, and on the basis of that drawing some kind of conclusion about own SIS. A risk, threat or assault will, given the actor's needs, internal motives, current situation etc., be more or less subjectively attributed a certain content and meaning, a certain essence. For instance, an actor's perception and definition of a threat takes place in a present, in a subjectively formulated "here and now." The narrower the actor's definition of the present, the narrower are his threat perceptions and resulting views of own SIS. Of significance is e.g. that any person brings with him- or herself a personal history, cognitive resources and even genetic setup which predisposes for certain patterns of reaction.

But instead of dwelling on the numerous factors which might affect the subjective perception of RTA:s out there, and

how they translate into SIS, it is here suggested that sufficient distance towards describing the essence of how a certain threat "out there" (3rd question) affects human security (2nd question) is covered through determining if the challenged human vulnerability is material or immaterial, as well as whether the human vulnerability and security theme in question can be swiftly challenged, or if more time, relatively speaking, is needed for insecurity in a specific situation to develop. This suggests a way to avoid confronting head-on the problematique of the subjective when approaching the human security concept. It is thus proposed that formulating the essence of threat against human security is best done in reference not directly and bluntly to the human security theme under threat, which would address the second question, and also not through defining the RTA out there, thus answering the third question, but rather with reference to two dimensions which go some distance in capturing what mainly the second but also the third question is about.

VI. Human Vulnerabilities - Human Security

The concept of vulnerabilities attracts growing interest in academic literature, in particular within bioethics and philosophy, but also in political studies, with the discussion today featuring social, economic, environmental, existential and cultural vulnerabilities. Views differ on how to define vulnerabilities, with basically two strands at hand - some stress a situational logic, that humans are vulnerable to certain situations, certain environments, that certain societies make people vulnerable; other stress the innate vulnerabilities of human nature [8], [9].

The latter view, which this writer supports, has a long tradition in philosophy and thrives to this day with e.g. Gehlen who sees the human being as a being with deficiencies, but who at the same time stresses human agency, intelligence etc., making possible cultural and social institutions which compensate for the weaknesses. He even sees human vulnerabilities as an opportunity and a basis for society and culture. As ten Have explains, "(V)ulnerability is a necessary component of an ethical framework that includes solidarity, care, and social responsibility" [8, pp 400 ff].

While this author takes a less optimistic view on the significance of vulnerabilities and what they potentially mean for humanity, it is indeed an effective concept for establishing some simple truths about the human condition in a manner relevant for social science. At issue here, as a route towards formulating human security, are nothing less than the basic strands of human nature, notably along the lines of human needs theory. This is a long standing tradition within social sciences since the 1950s with an early prominent exponent in Abraham Maslow [10] whose needs hierarchy model continues to leave its imprint on social science. There are numerous recent works focusing on human needs [11]-[16].

However, although the need for e.g. power, security or status lie at the heart of much political analysis, the psychological and human basis for such motives are rarely given attention, if any at all. Also in policy and the public discourse, "needs" is an ever present term, but as a rule the

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needs concept remains non-scrutinized and is seemingly seen as unproblematic. Indeed, as a much used concept, it is difficult to successfully tie down "needs" to any one definition. Also, the needs theory tradition was never fully successful within academia due to the difficulty to present empirical proof of the *existence* of needs. All in all, today it seems untenable to anchor social science directly to a universal set of human needs.

In contrast, the concept of vulnerabilities is general enough to largely avoid the positivist critique. Second, vulnerabilities seem readily observable. While needs theory depicts the human being as more or less actively pursuing certain things, values, situations etc. in order to fulfill these internal imperatives, the term "vulnerabilities" tell another story - at issue is instead the avoidance of situations which expose certain innate vulnerabilities. Usually, when a human being is cold, she seeks warmth; when hungry she seeks food; feelings of loneliness leads her to seek company; feelings of disorientation leads her to seek answers or ways to push such feelings aside; a person in poverty will seek ways to overcome such poverty; a person under physical threat will usually flee or fight. Positing such obvious examples is less than holding true certain innate "needs", but points to that humans will, as a matter of fact, act in certain ways when faced with certain situations, suggesting a universal set-up which can, for instance, be called vulnerabilities.

If anything, that which is called "need" comes *after* the sensation of a lack of something, of the lacunae which must be filled or compensated for, material or immaterial, whereupon the person says "I need" this or that. And further down the road, "I have a right", or even that without this or that "I feel insecure". Having said that, the concept of "needs" is still useful, as is the long standing needs literature

Four realms of human vulnerabilities are here outlined - the physical, the physiological, the social, and the existential. Each realms or category represents a cluster with related content. These realms together describe what can be named the human problematique at the level of the individual person. It also lays a basis for formulating a model of human security.

Physiological health or homeostasis represents the most basic human vulnerabilities realm and are sometimes referred to as basic needs. These are the needs to avoid hunger, disease, dehydration, asphyxia, excessive heat or cold, the need to allow bodily functions run their course, etc. We humans have these vulnerabilities in common with all animals, indeed in a certain sense with all living which makes up planet earth's biosphere; the urge to survive and thrive is a most potent drive among all living.

Then the *physical* realm. To survive in a likewise "concrete" or material sense also means avoiding more acute physical harm to one's body, thus the urge to avoid physical harm. The drive for physical safety is most potent - one example is the so-called fear-fight-flight instinct present in virtually all animals.

Third, the *social* realm. This concerns the human urge to establish the "basic infrastructure" of life, notably - in the language of modern society - a stable (economic) basis of subsistence to make possible e.g. housing, savings, insurances; although a highly complex sphere of human life and society, one can point out education and employment as two crucial factors in this sphere for safeguarding socioeconomic welfare. Needless to say, the solutions to these themes are as many as there are human societies, but the common ground is that the themes category describes a basic "infrastructure" of human existence.

Fourth, the *existential* realm. This represents a multifaceted and tumultuous terrain of what for many makes life worthwhile. A first sub theme is the one of association, the wish of every human to in some fashion establish bonds between himself/herself and the surrounding world [17]. A second cluster is about esteem, a sense of being worthwhile in the eyes of oneself and others. Needless to say, this theme is richly present in psychological literature [18]. A third cluster about expression might be posited - the urge to communicate one's true self and inner feelings to the outer world - in speech, gestures, actions etc. [19]. Fourth, orientation - the urge to know one's place in time and place in a concrete as well as an ideational sense, to know one's direction and orientation in life, i.e. setting goals and subscribing to a certain world view, ideology, religion, history etc. as a means of learning about the world and finding one's place in it [20]–[22]. Orientation is the urge "to know", no matter what - and often indeed disregarding whether the knowledge is firmly based in reality. This author holds these four themes to grasp the existential realm quite well, and while modeling here does not depend on them, they illustrate what fills the existential realm, including the vulnerabilities they give rise to.

In reality, the four realms manifest themselves in complex forms and chaotic mixtures. Nevertheless, the totality of this list presents each human with a multifaceted problematique which, in one way or another, has to be dealt with. Some of us succeed, some fail. On the basis of a solution, which to an extent takes the form of a belief and value system, as a rule anchored in a society, the person develops a sense of self and identity, and hopefully the sensation of meaning, happiness and growth.

Why is this about vulnerabilities? Because a failure to find workable solutions will wear us down, make us sick/lonely/unhappy/disoriented etc. It might even kill us. In particular within the existential category, failures can result in feelings of emptiness, unhappiness, decay, identity confusion and a negative appraisal of the self.

To guard oneself from a failure to satisfy the existential needs, one can - indeed often quite successfully, at least superficially speaking - engage in compensatory strategies, such as conformity as a strategy for association, fanaticism or fundamentalism as a strategy for orientation, prestige and self-aggrandizement as a strategy for feeling esteem etc. These are examples of how existential vulnerabilities can be exploited by e.g. populist leaders, organizers of terrorism, or producers of commercials. In other words, our existential set-up represents real life challenges and possibilities, but they are also themes which potentially expose us to exploitative or destructive dynamics.

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Now to a key point in the argument here. The four realms harmonize with the model arrived at Fig. 5 featuring the two dimensions material-immaterial, and inert-immediate.

First, the physiological realm is material in its essence - in other words, it has a distinct material basis (bodily organs, cells etc.). Second, the essence of the physical realms is also material as at issue still is the human body. In some contrast, the essence of the social realm is immaterial as its basis is more about economic and social safeguards - savings, a steady income, education etc. - than their material attributes. This may seem contra-intuitive as we are used to seeing economic issues as "material" as they often refer to material goods. But even if so, the significance in terms of the vulnerabilities they relate to is immaterial - the individual's perception of leading an orderly, predictive and sustainable life with a certain measure of welfare. The opposite of welfare is, of course, poverty - low quality housing, lack of education, unemployment, lack of income and financial safeguards etc. Fourth, the essence of the existential realm is immaterial - at issue is the individual's perception of a range of emotionally laden dimensions of life which have here been named "existential" - esteem, orientation, belongingness, expression. While the basis for such matters can be material, the essence of such themes is obviously immaterial.

Thus, two of the categories gravitate towards the material, the other two towards the immaterial. A similar situation is at hand concerning the other dimension, inert-immediate. At issue here is the volatility or degree of dynamics of a needs theme, the susceptibility for change. Such needs themes which can be deemed as immediate are thus volatile and can be challenged more swiftly than themes which are characterized by a measure of inertia.

Fig. 6 emerges: The physical and existential realms are in relative terms more volatile than the physiological and social. Crucially, the two former can be more swiftly put under stress than in the two latter cases where themes involved are, relatively speaking, more resistant to change. This is not to exclude that themes within the health or social realms can be swiftly challenged, and that much time can pass for physical safety or existential solutions to be under stress, but the point is rather that, relatively speaking, two of the themes tend to be more responsive to abrupt challenges than the other two. Again at issue is the perceived essence of the category in question in terms of volatility vs. inertia.

In sum, the physiological category gravitates to the material and the inert, while the physical realm in its essence is material but more volatile - as a rule, you stand a risk of dying quicker from a gunshot than from a disease, and a physical blow or assault is generally a more acute matter than falling ill. Further, while the existential category gravitates to the immaterial and the immediate, the social realm is more inert, less volatile, but also immaterial. As a rule, it takes longer for a threat to evolve in the social realm than in the existential one - roughly speaking, an insult can threaten self-esteem in an instant, while losing one's job is felt in economic terms in due time.

The following can be plotted in a figure, paralleling above constructs. As earlier, the vertical axis describes the inert-immediate continuum, while the horizontal axis describes the material-immaterial continuum.

As is often pointed out, human insecurity is about downside risks to the human condition. The step from exposed vulnerabilities to security talk is thus not necessarily long - that which unfavorable circumstances might take away from humans, exposing their vulnerabilities, can in many cases be formulated in the language of security. The step from here is also not long to human rights. In fact, the proposed model enables a systematic discussion about human security, human rights, human development and related concepts, with the human vulnerabilities model as a common denominator.

Fig. 6 The four realms of human vulnerabilities

Not much changes in the basic structure of the model when we transfer from vulnerabilities to security - terminology largely stays unaltered, but now as security-talk. Thus, at hand we have physiological human security, physical human security, existential human security, social human security.

A crucial factor is still the so called essence of the RTA/SIS in question, an essence which was above argued to consist of two dimensions - material/immaterial, and inert/immediate. As has been pointed to, at issue is not primarily the nature of the threatening or assaulting agent out there, but rather certain aspects of the security theme which is perceived to be under threat.

If we first look at the dimension of immediacy vs. inertia: Threats against physical security and against existential security can often develop with great swiftness. For instance, a round of artillery fire, a series of terrorist attacks, a government decree on limiting religious freedoms, or a coup d'état, have in common that they more or less instantly can have an impact on the human condition in terms of physical or existential insecurity.

Along a more inert logic: An epidemic that threatens physiological security, or an economic crisis that can threaten social security, are examples of threats that as a rule need a certain time to develop into readily noticeable threats against human security. To be sure, such risks or threats can develop

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swiftly, but there is, relatively speaking, more inertia involved than in the physical and existential spheres. It takes longer to fall ill than to be hit on the head, and as a rule it takes longer to feel the economic effects of losing one's job and bank savings than to be arrested for speaking your mind. Again, this is put along the lines of a simplified logic, but it is posited that this logic holds all the distance.

As for the immaterial/material logic, while the human security spheres of physical integrity and physiological health of the human body take on material qualities, the existential and social human security spheres are in their essence immaterial. Again, we are not talking RTA, but SIS - obviously, what RTA:s are made of is in this sense somewhat beside the point, and what matters is the resulting insecurity.

The extreme left in the model describes human security themes, the deprivations of which are lethal. While the outcome from assaults in the far upper left corner are acutely lethal (e.g. gunshot wounds), less acute although similarly lethal assaults can be plotted further down along the left extreme of the model's physical human security sphere, e.g. deadly sluggish violence against the body which results in death within hours or days. As we move downwards along the inertia-immediacy axis from the physical sphere and over into the physiological one, the lethal effects of aggressive poisons or invasive parasites can serve as examples bordering the two spheres, while dying from heart attack, AIDS, lethal forms of cancer, or lethal levels of pollution, are examples of needs or security deprivation of varying "velocity" which fall within the physiological human security sphere. This suggests that if the degree of material content is held largely constant while stating examples of human security deprivation of differing degrees of immediacy, continuity between the physical and physiological human security spheres is at hand.

If we turn to the upper half of the model, to the physical and existential human security spheres, and look at the variation in the degree of material content of the human insecurity caused by certain events while degree of immediacy is kept fairly constant, and if we move for instance leftwards through the model from the existential to the physical, we can conclude that continuity is at hand between the two spheres.

Take for instance interpersonal conflict - it can start with symbolic or oral insults, develop into (physical) assaults on physical assets, then reach a point of physical violence between the two parties targeting bodies, to reach an end state in deadly physical assault. At a point, if a person's valued assets are attacked physically, the line is indeed blurred when the person sees this as an assault on existential values or rather a physical attack on the own person, or both.

In fact, the physical and existential human security spheres together represent a highly dynamic and volatile domain of human security which, inter alia, can be fraught with political strife and confrontation. Thus, a continuum between the physical and existential human security spheres seems to be at hand.

The model would further suggest that the physiological human security sphere is continuous with the social human security sphere. One continuum which seems to align with a

movement from the physiological to the social, is the notion of curative vs. preventive health care with the former addressing physiological ailments and the latter being largely about creating conditions in terms of social welfare for a stable and healthy way of life. In the conflict management literature, a prominent theme is the linkages between humanitarian efforts, rehabilitation and socioeconomic development. In terms of human security issues involved, this triad largely fits into the lower two spheres, representing a movement from addressing human needs for food, water, sanitation, acute health care etc., to starting to rehabilitate workable solutions for securing such needs, and finally entering a phase in which acute health issues have been solved and more sustainable institutions for socioeconomic welfare are built.

Other social human security themes of central importance to the individual, such as education (in particular for women), employment, stable family finances, pension schemes etc., lean as much in another direction in that they are imbued by existential significance. For instance, researchers on unemployment have found that being out of work is deeply painful as it causes feelings of worthlessness, isolation and even disorientation; having a job can be primarily existential rather than a social value-added. These linkages suggest a continuum between the social and existential human security spheres. Family, employment, education, having a home, a healthy private financial situation – these are all social themes that can feature notions of existential solutions of e.g. association, esteem, orientation, even expression.

physical human security	existential human security
physiological human security	social human security

Fig. 7 Human security

As for the middle of the model, human strategies or solutions that in their content and meaning correspond to all four security spheres can be found. It seems that the notion of having a home, a homestead etc., fits well here. On an aggregate level the proper term would be habitat. A home is important for shelter and keeping out heat or cold, thereby, to a certain degree, safeguarding physiological health; it can, again to a certain degree, serve purposes of physical safety; a decent place of living is an important aspect of social welfare and normalcy; finally, one's home is normally a central

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component of an existential solution - it can be a marker for social status, it can be important for one's association with the own kin, ethnos, "class", etc. The notion of having a home thus combines much of the themes discussed hitherto, and could fit into the central part of the human security model - it can, if one will, indeed be seen as that around which much else evolves. The person depraved of his or her home, e.g. a refugee, is in a state of utter depravation and need. This person has, also on an existential level, lost almost everything [23].

Given more space here, a discussion would follow on e.g. human rights, (human) development, and conflict management, reflecting work done within the research project. Particularly instructive is armed conflict when practically all aspects of human vulnerabilities are put under hard and often deadly pressure with antagonists pressing each other's vulnerabilities - military, political, social, psychological etc. The modelling allows for succinct description of which realms of human vulnerability, and thus which aspects of human security, come to the forefront during different phases of armed conflict. The cycle of conflict can by and large be superimposed on the model, thus running through the existential - physical - physiological - social vulnerabilities realms, roughly in that order, and with a plethora of conflict enactors and managers who either enact the conflict or seek to prevent, inhibit and alleviate the conflict and its grim consequences for in particular civilians.

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