

JEAN-PAUL BAQUIAST

**UNE ECOLOGIE
CONSENSUELLE ET SCIENTIFIQUE
EST POSSIBLE**

**A CONSENSUAL AND SCIENTIFIC
ECOLOGY
IS POSSIBLE**

REMERCIEMENTS À JEAN PAUL BAQUIAST

Nous devons tous vraiment beaucoup à Jean-Paul Baquiast et à Christophe Jaquemin. Depuis des années, dans leur revue en ligne *Atomates Intelligents*, ils offrent un compte rendu périodique des investigations et des novations conceptuelles et techniques accomplies par des hommes partout dans le monde. Ils le font d'une manière remarquablement exhaustive, compétente, impartiale, lucide, et aussi engagée sur la voie des actions pour la liberté et la justice. En ces temps où l'attention de tous est constamment accaparée par des tourbillons corrosifs de communications de catastrophes, d'agissements collectifs ou individuels arbitraires et empreints de bassesse, de dangers de tous calibres, d'insupportables manifestations de laideur morale, ils ont créé un improbable îlot de condensé de pensée créatrice et de buts réfléchis et généreux, où l'on peut calmer son intelligence et en nourrir les élans.

Mais ici je tiens à exprimer des remerciements plus personnels à Jean-Paul Baquiast: La compréhension profonde de mon étrange méthode de conceptualisation relativisée et l'adhésion qu'il manifeste face à elle, me sont très précieuses. Et en outre, dans le bref texte lumineux de ce volume, il me fait le don inattendu d'une perception que moi-même je n'avais pas formée et qui me paraît véritablement importante. Je ne peux faire mieux que citer la formulation de l'auteur:

« Quand on sait quelle économie d'efforts et quels progrès dans le degré de consensus ont pu s'accomplir par l'adoption, partielle, de quelques standards ponctuels et purement conventionnels comme la numération décimale ou le système d'unités *MKS*, quand on se représente le chaos sophistique qui doit avoir régné dans le domaine des argumentations "rationnelles" avant la construction et l'emploi de la syllogistique d'Aristote, il n'est pas malaisé d'imaginer l'ampleur des effets que pourrait avoir l'adoption consensuelle de ce standard d'un type nouveau qui consiste en *toute une méthode, enracinée dans les fondements de la microphysique, développée de manière explicite et cohérente, et qui concerne la totalité des processus de conceptualisation* ».

Selon moi, cet extrait est à concevoir en exergue de cet ouvrage de Jean-Paul Baquiast.

Mioara Mugur-Schächter

PRÉFACE DE L'AUTEUR

La structure interne de ce petit livre est inusuelle:

Le sujet est exposé d'abord en français, très brièvement et d'une manière aussi intuitive que possible¹. Ensuite le même sujet est réexposé en anglais mais d'une manière qui n'est ni tout à fait la même, ni tout à fait différente: Nous n'avons pas recherché une traduction au sens strict du mot, mais plutôt une incorporation du contenu du texte français dans une variante anglaise plus élaborée conceptuellement. La spécificité majeure de la variante anglaise est qu'elle donne au lecteur accès direct à la "voix" de l'auteur de la méthode de conceptualisation relativisée, via une très ample citation placée au centre du texte. Cela permet une perception plus vive de la nature – très particulière – de cette méthode, tout en offrant plus de matière pour en approfondir la compréhension. Ainsi, globalement, la variante anglaise est nettement plus complète.

J'espère que cette succession de deux variantes distinctes d'un même exposé regardée comme un seul tout, pourra mieux plaider pour le but proposé dans cet ouvrage que ne le ferait une variante unique monolithique de tout point de vue. Car le bilinguisme augmente le nombre des lecteurs potentiels et, par des comparaisons, il permet de cibler de manière plus précise des significations locales; cependant que – après la lecture des deux variantes – le caractère à la fois répétitif et progressif de l'introduction des concepts fondamentaux pourrait avoir amorcé dans l'esprit du lecteur une véritable compréhension de la méthode de conceptualisation relativisée.

La bibliographie commune et placée à la fin du volume. Les indications spécifiques de la seule version en cours sont données dans des notes.

J-P Baquiast

¹ Ce texte, dans une forme plus primitive a déjà été publié indépendamment dans la revue en ligne Automates Intelligents (inscrire la référence). Ici nous lui donnons une suite en anglais, avec laquelle il forme un seul tout.

**UNE ECOLOGIE
CONSENSUELLE ET SCIENTIFIQUE
EST POSSIBLE**

INTRODUCTION

Posons deux hypothèses "optimistes " qui seront évidemment à vérifier :

1. Les systèmes anthropiques modernes (anthropotechniques pour reprendre notre terminologie) disposent de suffisamment de ressources technologiques, humaines et informationnelles pour que, sous la pression d'un risque majeur – celui d'une extinction massive les affectant tous – leurs comportements se modifient d'eux-mêmes dans le sens de la prévention. On voit que cette hypothèse n'évoque pas l'intervention de supposées décisions volontaires inspirées par un libre-arbitre providentiel. Nous pensons plutôt à des mesures de correction spontanées ou semi-spontanées apparaissant dans certaines conduites de groupe et étudiées dans le cadre du paradigme de la sélection de groupe. Le terme de semi-spontanées signifie que les actions se produisent d'elles-mêmes, mais qu'elles peuvent entraîner un écho voire un renforcement au sein des bases neurales ou computationnelles génératrices d'états de conscience individuels ou collectifs.

Malheureusement, nous l'avons dit, les systèmes anthropotechniques dominants se montrent encore incapables de mobiliser ces ressources et de prendre les mesures adéquates. Il faut mettre en cause, à la base de cette incapacité, non seulement des conflits d'intérêts, bien identifiés, mais ***un manque général de MÉTHODE***, qui ne l'est pas.

2. En effet, pour qu'elles soient efficaces, les mesures de prévention ou de correction nécessaires devraient s'appliquer aux causes, disons, "réelles" qui provoquent la crise, et non à des causes telles qu'imaginées par les divers acteurs, chacun en fonction de sa capacité et de son intérêt. Mais peut-on parler de "réel" en sciences sans faire référence à la façon dont ce qu'on appelle *connaissance* est construit par un processus complexe associant les observateurs, leurs instruments et la réalité sous-jacente qui, "en soi", reste inconnaissable ? Les processus de ce type sont

examinés depuis longtemps, sinon compris, notamment lorsqu'ils s'inscrivent dans la physique quantique. En outre, pour le cas spécial des descriptions quantiques de microétats ils ont été entièrement explicités, généralisés et développés pour s'appliquer à *tout* processus de création de connaissances communicables et consensuelles, par Mme Mioara Mugur-Schächter (MMS), sous la dénomination de *Méthode de Conceptualisation Relativisée (MCR)* (MMS, [2002A], [2002B], [2006]). Cette méthode générale doit donc valoir notamment en matière de sciences de la Terre.

Dans les processus de création de connaissances conduits selon *MCR*, l'observateur-acteur-concepteur se retrouve modifié sans même qu'il s'en rende compte. Autrement dit, son comportement au cours d'un processus de création de connaissances s'adapte, *via* les algorithmes de la méthode, aux contraintes mises à jour par le but d'engendrer des connaissances – relativisées – concernant telle ou telle entité réelle placée dans le rôle d'entité-à-décrire. Globalement, il en résulte une dynamique de construction d'une représentation de notre monde, où les actions des différents observateurs-acteurs-concepteurs se conjuguent de manière *normée* constituant un tout constamment "cohérent" (comme dans la nature, que ce soit au niveau microscopique et macroscopique), sans que des conflits destructeurs puissent jamais détruire l'équilibre de la représentation de l'ensemble.

Ainsi, à partir des comportements de détail des systèmes anthropotechniques qui agiraient selon cette méthode, émergeraient spontanément, *sans* intervention préalable d'une prétendue volonté humaine et des finalités volontaristes affichées par elle, des règles prudentielles de comportement cognitif global qui permettraient d'éviter et même de réparer les destructions massives observées actuellement.

Il est évident que dans ce cadre, le contenu du concept étiqueté par le mot Gaïa devrait être reconstruit, ainsi bien entendu que la description de toutes les forces contribuant actuellement à la destruction du correspondant de ce concept ou pouvant participer à sa reconstruction. Ni

Gaïa ni ces forces ne nous sont perceptibles "en soi". Cependant, grâce à *MCR*, nous en donner des représentations relativisées nous permettant *d'agir* sur elles.

En appliquant *MCR* au monde macroscopique dont les complexités sont immenses au regard de la simplicité de nos rapports exclusivement instrumentaux avec le monde quantique, l'émergence de règles prudentielles visant à protéger ou réparer Gaïa ne se fera pas spontanément, ni facilement. Elle sera le résultat de processus déjà engagés et qui, sauf accidents, devraient s'étendre, même en l'absence d'interventions humaines individuelles et délibérées. Ces processus ont trait notamment aux modalités d'observation scientifique et au déploiement d'outils nouveaux, par exemple dans le domaine des réseaux, de l'intelligence artificielle et de la robotique autonome. Ils sont susceptibles de produire de nouvelles symbioses avec ce qui demeurera de biologique dans les systèmes anthropotechniques de demain.

Les ressources technologiques impliquées dans les processus mentionnés n'existaient pas du temps de l'homo erectus ni même des sapiens récents du 19e et 20e siècles. Ils sont le produit d'une évolution cosmologique plus globale vers la complexité, que l'on retrouverait sans doute sur d'autres Terres que la nôtre.

MCR

Vue de haut sur les grandes étapes

Evoquons ici en quelques lignes seulement les étapes véritablement indispensables afin de se faire une idée concernant la démarche *MCR* pour construire des connaissances. Pour tout autre renseignement nous indiquerons au fur et à mesure les sources appropriées. En outre, de temps à autre, nous ajouterons des remarques concernant particulièrement le problème écologique.

Il s'agit en fait d'une méthodologie pour la production de "descriptions relativisées". On peut en donner une annonce introductive dans des termes très synthétiques:

Il *n'y a de "science" QUE de descriptions*. Les "phénomènes" au sens psychologique du mot ne peuvent être *communiqués* que lorsqu'ils ont été *décrits* et ne deviennent alors *consensuels* qu'en un sens particulier bien défini et moyennant des procédures construites *ad hoc*. La structure de l'étape tout à fait première, primordiale, de la construction de ce sens et de ces procédures – l'étape de *description de base transférée* (sur des enregistreurs d'appareils soit artificiels soit biologiques) – est en essence toujours la même, qu'il s'agisse d'opérer dans le monde quantique ou dans le monde macroscopique, et notamment aussi celui qui nous intéresse ici, celui des sciences de la Terre. Ainsi l'ensemble des descriptions de base transférées constitue une toute première strate de la représentation de l'entière conceptualisation humaine déjà accomplie à tout moment donné.

Quant aux étapes subséquentes – celles de *modélisation par méta-conceptualisations intrinsèques* de plus en plus complexes de descriptions primordiales transférées – il apparaît qu'elles sont marquées par certains caractères invariants très forts qui permettent une représentation tout à fait générale, valide pour l'ensemble de toutes les chaînes de conceptualisation, quelle que soit le domaine ou le niveau où elles sont développées. Cette représentation générale concerne donc l'entier volume des conceptualisations accomplies à tout moment donné, à partir de la strate primordiale correspondante de descriptions transférées primordiales.

Ainsi par:

- **explicitation** de la méthode de construire des descriptions de microétats qui se trouve encryptée dans les algorithmes de la mécanique quantique (MMS [2009A], [2009B]) ;

- **généralisation** de cette méthode à la construction de descriptions de base, primordiales, pour des entités-à-décrire d'un domaine *quelconque* du "réel", impliquant des ordres de grandeur quelconques des qualifications d'espace et de temps;
- **développement** de la méthode descriptionnelle qui caractérise l'émergence de la seule strate descriptionnelle primordiale, transférée, de manière à constituer une méthode applicable à *tout* processus de conceptualisation quel que soit le stade de son évolution (i.e. qu'il s'agisse déjà d'un stade de *modélisation* mais encore sommaire, ou d'un stade de modélisation ayant un niveau de complexité quelconque, ou qu'il s'agisse de *systèmes* de descriptions (soit des systèmes syntaxiques de description (comme les syntaxes de logique formelle, ou de disciplines mathématiques), soit des systèmes de descriptions "appliqués", c'est-à-dire constituant une *théorie d'un domaine du réel*, comme les disciplines de physique théorique (MMS [2006]) ;

il se constitue cette discipline nouvelle qu'est la méthode générale de conceptualisation relativisée dénotée *MCR*.

MCR incorpore dans sa base, dans la strate universelle des descriptions primordiales transférées, les germes de l'efficacité descriptionnelle de la mécanique quantique fondamentale. Et elle développe ces germes d'une manière telle qu'elle *investit* l'entier volume du conceptualisé à tout moment donné, par un réseau représentationnel à caractère fractal, simple et universel, qui y injecte *partout* une organisation porteuse de possibilité de *contrôles réflexifs et optimisants*.

Globalement, cette approche ne prétend pas, comme dans les sciences de la nature, représenter ce qui "est"². De manière déclarée et résolue il s'agit d'une approche **normative** et **finalisée**, soumise à un *but*

² En fait, **JAMAIS** ce n'est le cas. Dans les sciences de la nature aussi agit un but, celui de connaître de manière à pouvoir prévoir, ou améliorer. Ce but entraîne des normes, des méthodologisations, et celles-ci *agissent* sur ce qui « est » : la "science" est artefact conceptuel.

défini, à savoir le but d'éliminer *a priori*, par construction, toute possibilité de faux problèmes et de paradoxes.

Ce sont les *relativisations descriptionnelles systématiques* accomplies pas à pas qui assurent la réalisation de ce but.

Les concepts principaux

Dans ce qui suit nous faisons maintenant un exposé un peu plus détaillé de *MCR* qui, bien qu'il soit lui aussi outrageusement sommaire, permet néanmoins de se faire une idée plus concrète de la démarche et des raisons de son efficacité³.

Le fonctionnement-conscience

« L'activité d'un observateur-concepteur – conçue comme pouvant s'appliquer sur l'univers extérieur *et* sur l'univers intérieur auquel elle appartient, et là, notamment, sur elle-même – est dénommée *fonctionnement-conscience* et symbolisée *FC*. Le fonctionnement-conscience est posé être la quintessence de l'acteur épistémique, irrépessiblement antérieure et extérieure à toute *action* épistémique spécifiée; il est la source invariante et continuellement subsistante de toutes les actions épistémiques de l'observateur-concepteur, et chacun de ses produits lui devient extérieur dès qu'il a été achevé; il marque une coupure *ultime* mais mobile, permanente et inamovible, entre lui-même et le reste ».

³ Les définitions du texte qui suit sont – en général – reproduites telles quelles du livre *Sur le tissage des connaissances* (MMS [2006]). Lorsque c'est le cas nous introduisons le signe de citation « ... ». Mais cela n'est pas systématique. Afin d'abrèger l'exposé nous opérons aussi certaines fusions : En ces cas le signe de citation sera absent.

Le lecteur, s'il le désire, peut également trouver la reproduction de l'ensemble du "noyau de *MCR*" sur http://www.mugur-schachter.net/publications_fr.html au point **7b**. "NOYAU DE LA METHODE DE CONCEPTUALISATION RELATIVISEE", (déchargeable). Sur ce document – comme dans MMS [2006] – chaque définition est suivie d'un commentaire qui en précise la signification.

On postule donc au départ l'existence d'un observateur humain doté d'un cerveau lui-même capable de faits de conscience. Ce cerveau est tel qu'il peut produire des *buts* au service desquels mettre une stratégie. Ainsi MMS considère que l'organisme vivant, ceci à plus forte raison s'il est doté de conscience, est capable de téléologie⁴. Sa méthode introduit constamment de manière explicite les buts qui motivent les actions descriptionnelles.

Nous pensons pour notre part que le concept de 'fonctionnement-conscience' peut être étendu au fonctionnement de tous les êtres vivants, et peut-être même à celui de précurseurs matériels de la vie biologique, aux prises avec "la Réalité" telle que définie ci-dessous. Le terme de conscience ne peut donc alors être conservé que sous forme de métaphore. Les concepteurs de robots véritablement autonomes espèrent que ces robots pourront procéder de même afin de se doter de représentations ayant du sens pour eux.

Dans l'étude du milieu terrestre, des crises qui l'affectent et des risques qui le menacent, le rôle de l'observateur, générant le fonctionnement conscience, sera rempli de fait par tous les individus, organismes et instruments observant la Terre et s'efforçant d'en tirer des conclusions pouvant provoquer des actions adaptatives. Plus ces observateurs et les données recueillies seront *fédérés*, notamment au sein des grands réseaux d'observation scientifique, plus la portée des

⁴ La téléologie (à ne pas confondre avec l'étude des causes finales ou finalisme) est l'étude des systèmes à buts, finalisants, acceptant différentes plages de stabilité structurelles, et capables, en général, d'élaborer des buts ou de modifier leurs finalités, (en anglais: "*purposeful systems*"). Dans les systèmes humains psycho-socio-politique, cette téléologie peut se nommer "autodétermination". La téléonomie est l'étude des systèmes finalisés par une stabilité; recherche de la stabilité structurelle et non du changement, (en anglais: "*goal seeking systems*"). En psychologie et en sociologie, la téléonomie peut se nommer "autonomie".(wikipedia) Ces mots sont suspects pour les matérialistes. Mais il est tout à fait possible d'accepter les définitions ci-dessus sans se référer à des causes finales imposées par une divinité quelconque.

conclusions sera grande. Plus en d'autres termes des actions correctrices pourront voir le jour.

Réalité

« Dans ce qui suit le mot réalité désigne le *réservoir évolutif* – tel qu'il se trouve disponible au moment considéré – à partir duquel tout *FC* peut soit créer radicalement, soit délimiter, soit simplement sélectionner des entités-objet-de-description future de *toute* nature, physique, ou psychique, ou mixte. Ce réservoir évolutif sera symbolisé *R*. »

On voit qu'il s'agit, au départ, d'une définition qui englobe "les trois mondes" de Karl Popper, sans singulariser le "réel" mutuellement le "réel" physique, ou psychique, ou social-économique. Ces séparations émergent plus tard, progressivement, au fur et à mesure du développement.

Le postulat réaliste

« J'admets par postulat l'**existence** – indépendamment de tout fonctionnement-conscience et de toute action cognitive – aussi, d'une réalité physique. Mais l'existence seule, *nue de toute qualification*. »

Ici apparaît pour la première fois une affirmation, implicite, de la singularité à l'intérieur du tout du "réel" d'une sorte particulière de "réel physique", mais qui pour l'instant est seulement dénommée, sans encore être définie dans son contenu. Et l'on voit que (en accord avec le kantisme et le néo-kantisme), MMS conteste la possibilité de *connaître* cette réalité physique "telle qu'elle est en elle-même", ce concept et son expression étant considérés comme **contradictaires dans les termes** parce que toute connaissance communicable sans restriction est *description*, donc **qualification**, et toute qualification est marquée de manière *inamovible* de relativité à la grille de qualification mise en œuvre (psycho-physique ou instrumentale) qui interpose un écran opaque entre le réel physique et ce qu'on peut en connaître.

Bref, on postule qu'il existe quelque chose de "physique" au-delà des constructions par lesquelles nous nous représentons le monde, mais qu'il

est impossible – à *jamais* – d'en *connaître* plus que des *descriptions* qui ne sont jamais déterminées exclusivement par ce réel "physique", mais toujours tout autant par les grilles de qualification utilisées.

Cependant qu'en absence de toute grille de qualification on ne peut rien percevoir, ni *a fortiori* connaître.

Mais cela n'empêche nullement la connaissance de pouvoir être efficace, en prévoyant, modifiant, etc.

Notamment, dans le cas qui nous occupe, la connaissance pourrait produire des réactions efficaces face à la crise écologique. Dans l'étude du milieu terrestre, des crises qui le touchent et des risques qui le menacent, on ne considérera donc pas nos représentations du milieu terrestre (Gaïa), non plus que celles des événements qui l'affectent (réchauffement, extinctions massives) ou des systèmes anthropotechniques qui s'y expriment, comme *ÉTANT* "du réel physique" connu ou connaissable "tel qu'il est en soi". Une telle *identification* enlève dans des naïvetés, des paradoxes, des faux problèmes. Le réel physique est postulé comme existant *en dessous* de toute description, indescriptible "en soi" mais donnant naissance aux connaissances utiles pour agir sur ce réel par des interactions avec les grilles de qualification de nos sens biologiques, de nos instruments et appareils, et de notre entière activité mentale.

Entité-objet et générateur d'entité-objet

« L'opération épistémique par laquelle un fonctionnement-conscience *FC* introduit une entité-objet sera regardée comme une action sur *R* accomplie par *FC* à l'aide d'un générateur d'entité-objet dénoté *G*. L'opération *G* est exigée être définie de manière **effective, communicable et consensuelle**, et elle doit être **répétable** indéfiniment. L'« endroit » de *R* (ou la zone, ou la sorte de domaine) où un générateur *G* donné agit sur *R*, est posé être un élément essentiel de la définition du générateur *G* et qui doit être spécifié explicitement. Cet élément sera dénoté R_G . L'entité-objet introduite par un générateur *G*

donné sera dénotée α_G . Pour des raisons *méthodologiques*, on pose entre G et α_G une relation de un-à-un dénotée $G \leftrightarrow \alpha_G$:

CE qui émerge comme le produit d'une opération G donnée – quoi que cela soit – est dénommé *l'entité-objet-à-décrire engendrée par G* et est étiqueté α_G^5 . »

Donc, cependant que les langages courants ainsi que la logique et les probabilités classiques présupposent qu'une entité-objet-de-description *préexiste toute faite* dans une sorte de monde des idées, *MCR* considère son émergence – **en tant qu'entité-à-décrire** – comme l'effet d'une opération cognitive délibérée, ciblée, communicable et effective, souvent de nature physique, et qui permet du consensus tout autant quant à son mode exécution qu'en ce qui concerne la définition de son résultat.

Le générateur d'entité-objet-de-description et l'entité-objet-de-description elle-même ont donc une importance majeure. Le générateur de l'entité-objet-de-description est une opération permettant au fonctionnement-conscience, dans le cadre de ses stratégies téléonomiques, de créer quelque chose – directement perceptible *ou non* (comme dans le cas d'un microétat) – à partir de quoi il sera possible de procéder à des qualifications sur une base acquise *de manière délibérée et consensuelle* et qui est *reproductible*. Il n'y aurait pas de science sans cette sorte d'opération. Nous procédons de cette façon en permanence dans la vie courante. Nous construisons des objets-d'étude qui n'existaient pas avant notre intervention. Pourtant ce fait reste très souvent non explicite, même dans les actions cognitives scientifiques où pourtant il est omniprésent, bien qu'à des degrés variables. Et en conséquence de cette occultation de l'explicite ce fait, essentiel, échappe aux contrôles et aux optimisations, cependant que ses conséquences restent non définies. Or lorsqu'on explicite ce fait et on le *norme*, ses effets peuvent être exprimés

⁵ Le commentaire de cette définition est particulièrement important. (http://www.mugur-schachter.net/publications_fr.html pp. 3-6)

formellement et peuvent être soumis, par des allers-retours adéquats, à un ciblage de plus en plus précis, ou à des optimisations radicales.

Dans l'étude du milieu terrestre il s'agira donc tout d'abord, lors de chaque acte descriptionnel, d'indiquer comment on introduit l'objet de la description projetée (par exemple 'Gaïa', ou tels ou tels actes qui sont supposés agir sur elle).

Qualificateurs

« **Regard-aspect ou vue-aspect.** Considérons un point de vue de qualification (couleur, cohérence, etc.). Dénommons-le *aspect* ou *dimension sémantique*, ou *dimension de qualification*, et étiquetons-le par quelque lettre ou signe, disons *g*. Considérons un ensemble *fini* – donc discret – de *n* qualifications distinctes, mais toutes selon l'aspect *g*. Chacune de celles-ci sera dénommée *une valeur k de l'aspect g* où $k=1,2,\dots,n$, et elle sera étiquetée *gk* (un bi-indice solidaire). On pose les conditions suivantes.

a) l'aspect *g* est considéré comme étant entièrement spécifié *si et seulement si* sont spécifiées explicitement :

a1) une *définition* – conceptuelle, ou factuelle, ou les deux à la fois – de l'aspect *g* et de ses valeurs possibles,

a2) une *procédure* effectivement réalisable d'examen selon l'aspect *g*, c'est-à-dire un *g-examen* (physique-conceptuel, ou conceptuel (notamment formel), ou mixte).

b) le résultat de tout *g-examen* est observable *directement* par le fonctionnement-conscience de l'observateur-concepteur (par ses sens biologiques et/ou son esprit);

c) il est en outre spécifié explicitement une *procédure effective* et communicable qui détermine en chaque cas *une valeur gk* et une *seule* en termes de laquelle doit être annoncé le résultat observé d'un *g-examen* accompli. Ceci revient à l'exigence de spécifier une *règle de codage* de

tout résultat observable d'un g -examen, en termes d'une valeur gk de l'aspect g et une seule.

Si les conditions $a)$, $b)$, $c)$ sont toutes satisfaites, alors l'ensemble $\{g, (gk, k=1,2,\dots,n)\}$ constitue une grille de g -qualification dénommée encore le regard-aspect g ou la vue-aspect- g ⁶, et qui sera symbolisée Vg (V : vue en français, view en anglais). »

« **Regard ou vue.** Une grille de qualification qui consiste en un nombre arbitrairement grand mais fini de vues-aspect, est dénommée un regard ou une vue et est dénotée V . »

Ces qualificateurs sont les moyens d'observation et de mesure, biologiques ou instrumentaux, dont nous disposons.

On mesure quelle distance il y a entre la complexité et les potentialités de consensus incorporées à ces définitions qui constituent le concept MCR de "qualificateur", et d'autre part les "prédicats" des grammaires des langages courants et même la formalisation qu'en a tiré la logique classique autant ancienne (syllogistique d'Aristote) que moderne (les syntaxes logiques de Frege, Russell, Tarski, etc.).

Existence relative

« L'opération de qualification dénotée Vg ou V , lorsqu'elle est appliquée à une entité-objet-d'étude α_G qui a été produite par une opération de génération G , peut conduire à la constatation de l'*in*existence mutuelle, relative, de α_G et de G . Par exemple, entre une symphonie de Beethoven et une vue-aspect de couleur, il y a *in*existence relative; mais avec une vue de 'sonorité' il y a existence relative. »

Ceci montre que, étant donnée une entité-objet-d'étude, on ne peut pas inventer n'importe quelle vue et construire à l'aide de celle-ci des

⁶ Ce choix de dénomination reste ouvert afin de pouvoir introduire une notation valable en français et en anglais à la fois : V pour vue et pour view. Toutefois, en français, le mot « regard » convient mieux.

connaissances concernant l'entité-objet-d'étude considérée. Il faut que la vue utilisée *corresponde* en quelque sens au fragment de réel auquel elle est appliquée.

C'est par des distinctions de ce genre, qui interviennent constamment à tous les niveaux de la construction et dans tous ses endroits, que *MCR* élimine *a priori* les "faux absolus", *via* des relativisations adéquates.

Dans l'étude du milieu terrestre, des crises qui l'affectent et des risques qui le menacent, la multiplication (par millions et davantage si possible) des observations, des observateurs et des mesures obtenues, ainsi que leur *mutualisation* au sein de grands réseaux scientifiques susceptibles de provoquer des décisions collectives réparatrices, permettrait d'affiner les diagnostics et les actions.

Référentiel épistémique

A priori on prend en considération *tout* appariement (G,V) . Mais ensuite on teste *l'existence relative* de l'appariement considéré. Si l'on en conclut que G et V n'existent pas l'un relativement à l'autre, alors (G,V) est **éliminé** *a posteriori*. Si au contraire l'on trouve que G et V existent mutuellement – ce qui équivaut à dire que la vue V existe par rapport à l'entité-objet-d'étude α_G introduite par G – alors on conserve cet appariement (G,V) et l'on dit qu'il constitue un *référentiel épistémique* où il est possible de développer une description relativisée correspondante.

On a là un exemple de ces contrôles réflexifs, *a posteriori*, que *MCR* assure à chaque pas, et qui permettent d'optimiser en construisant, et même après avoir construit: la méthode relativisante de *construction* est telle que partout et à tout instant, tout accompli reste ouvert à des modifications optimisantes, dont les conséquences, à leur tour, restent elles aussi visibles et opérables.

Le Principe-Cadre et vues-cadre d'espace et de temps⁷

Il s'agit, mais avec précision et en allant au fond du problème, de la nature et du rôle du cadre d'espace-temps dans lequel tout humain place les entité-objet-d'étude **physiques** qu'il décrit (ou même que seulement il *conçoit* comme existantes).

L'on introduit ensuite le concept de *vues-cadre* d'espace et de temps et l'on exige *par convention* que toute vue V qui existe face à une opération de génération G qui introduit une entité-objet-objet-de-description **physique**, contienne aussi les deux aspects-cadre d'espace et de temps, munis d'unités telles que ces aspects-cadre *existent* face à l'entité-objet-d'étude α_G introduite par G .

Dans notre domaine, cela pourra être la Terre dans le système solaire d'une part, et d'autre part l'année, la décennie, le siècle ou au-delà, abordés séparément ou en superposition.

Descriptions relativisées

Soit donc un référentiel épistémique (G,V) . Par des **répétitions** de toutes les successions $[G.Vg]$ consistant en une réalisation de l'opération de génération G de l'entité-à-décrire α_G suivie de l'application à l' α_G ainsi produite, d'une vue-aspect Vg de la vue V , l'on finit par établir pour α_G toutes les qualifications que la vue V rend possibles pour α_G . L'on aboutit ainsi, mais très progressivement, à un premier concept *central* de **description** d'une entité de nature *physique*, relativisée à :

(1) la manière d'introduire l'entité-à-décrire α_G en définissant explicitement l'opération de génération G qui "produit" cette entité en tant qu'objet-de-qualification future;

(2) cette entité-à-décrire elle-même *qui est le support des qualifications futures*;

⁷ Cf. http://www.mugur-schachter.net/publications_fr.html pp.8-9

(3) la vue V (qui peut se réduire à une vue-aspect Vg) qui opère des qualifications sur α_G .

Une telle description est dénotée $D/G, \alpha_G, V/$ afin d'indiquer les contenus de sa genèse *et les relativités à ces contenus* qui marquent de manière indélébile la description " D " obtenue. Quant à cette description " D " elle-même, elle consiste **exclusivement** en l'effet final global, observable et stable, de l'accomplissement de l'ensemble des successions $[G.Vg]$ qui ont été réalisées; c'est-à-dire, en l'ensemble des qualifications obtenues.

La manière dont cet effet global émerge et les contraintes auxquelles il est soumis afin de satisfaire à toutes les exigences de scientificité, sont discutées et réglées à fond *via* une suite de 3 "propositions" *prouvées*, $n11, n12, n13$ ⁸.

Ensuite la démarche constructive continue et l'on arrive à constituer le concept *MCR* le plus foncièrement novateur, celui d'une **description DE BASE TRANSFÉRÉE** (sur des enregistreurs d'appareils) d'une entité de nature physique.

L'opération de génération d'une telle description crée, *à partir du réel physique* **encore jamais conceptualisé**, une entité-objet-à-décrire qui peut être encore entièrement inconnue; en *tout* cas elle est encore entièrement inconnue **du point de vue duquel on désire construire des connaissances qui la concernent**. Cette opération de génération introduit donc un fragment de réel physique concernant lequel on recherche une certaine connaissance encore toute première, "primordiale". Et la "vue de transfert" employée à cet effet produit cette connaissance primordiale qui consiste exclusivement en un ensemble de marques observables "transférées" sur des enregistreurs d'un appareil de qualification (ou de "mesure") *via* des interactions avec cet appareil.

⁸ Cf. http://www.mugur-schachter.net/publications_fr.html pp.10-13

Tel quel, cet ensemble de marques est encore *entièrement dépourvu d'une structure d'espace-temps assignable à l'entité-objet-de-la-description-accomplie*. C'est juste une poussière amorphe de données observées, éparpillées dans l'espace sur les divers enregistreurs d'appareils, et éparpillées dans le temps à l'intérieur de la durée globale de construction de la description. *Rien* encore du type d'un "objet" au sens classique (chaise, montagne) n'est déchiffrable dans cet amas amorphe de données primordiales transférées. Cet "objet" reste à être **construit ultérieurement**.

Ultérieurement donc, afin d' "expliquer" la structure de cet ensemble de marques primordiales, on peut entreprendre d'opérer des **modélisations relativisées** de plus en plus élaborées de la description primordiale transférée construite au départ. Mais au niveau primordial lui-même, les descriptions transférées qui y émergent sont dépourvues de toute "explication". Elle se *montrent* seulement, dans l'amas des marques transférées enregistrées. Point.

Le Principe de Séparation

Un *Principe de Séparation* dénoté *PS* établit quand une description donnée correspondant à un référentiel épistémique donné dispose de ressources descriptionnelles bien définies et *finies* et, par construction, on sait à quel moment celles-ci sont épuisées. Si néanmoins l'on veut *continuer* de quelque manière l'action de création de connaissances amorcée dans ce référentiel épuisé, alors le "Principe de Séparation" pose qu'il faut introduire un *nouveau* référentiel épistémique qui soit relié au précédent d'une manière adéquate pour réaliser la continuation désirée.

Chaînes et réseaux de descriptions relativisées

Les connaissances construites successivement à partir d'une ou de plusieurs descriptions de base transférées et représentant des "explications" de celles-ci par des modélisations de plus en plus complexes, *s'associent* les unes aux autres le long de "chaînes de descriptions" distinctes mais *connectées les unes aux autres* par les entités-objet-d'étude, ou par les vues-aspect contenues dans les vues utilisées, ou par les deux à la fois. L'on obtient ainsi des chaînes de méta-descriptions **hiérarchisées** et celles-ci forment un réseau de chaînes qui s'intersectent dans certaines descriptions-nœuds.

La "coupure" [(non-classique)-(classique)]

Les assertions des 3 points qui précèdent entraînent que:

Toute chaîne descriptionnelle est enracinée – via des descriptions PRIMORDIALES, de base, transférées – dans du réel PHYSIQUE encore jamais conceptualisé (encore a-conceptuel).

Ainsi la croissance normée des processus MCR de conceptualisation conduit à une séparation de l'ensemble de toutes les conceptualisations qui existent accomplies à tout moment donné, en une strate primordiale transférée enracinée dans le "réel *physique*" a-conceptuel, et une seconde strate d'épaisseur *illimitée* qui contient des modélisations de plus en plus complexes et de plus en plus entrelacées à l'intérieur d'un réseau de chaînes descriptionnelles hiérarchisées.

Ainsi, en ce stade du développement de MCR, le contenu vers lequel pointe le mot "physique" qui au départ était resté sans définition, acquiert finalement une signification précisée. Ceci illustre le caractère foncièrement constructif de la démarche.

"Lois naturelles"

Les méta-connaissances de divers ordres de ce réseau de chaînes descriptionnelles qui, par construction, placent et maintiennent dans l'explicite tous les choix relativisants qui sont intervenus, permettent de rendre intelligible la variante *MCR* de nos représentations globales tellement enchevêtrées. Cependant que l'enracinement du réseau de chaînes descriptionnelles, dans le factuel physique a-conceptuel *protège de la perte de contact avec ce réel **factuel*** (physique, psychique, social, etc.) ; il assure l'extraction d'une substance sémantique où – de manière *potentielle et **relative aux interactions cognitives*** – sont incorporées toutes les apparences observables qui se font jour par les qualifications diverses opérées le long des chaînes de descriptions. C'est en conséquence de ces permanente incorporations, dans les descriptions que nous construisons, qu'il est ensuite possible de former à partir de celles-ci ce que nous appelons les "lois de la nature", auxquelles en fait nous participons (MMS [2002B], pp.2091-303).

Conclusions globales sur la structure de MCR

Enfin, moyennant au total 21 formulations de base (chacune suivie d'un commentaire) – à savoir 10 définitions principales, 1 postulat, 3 principes, 1 convention, et 6 propositions démontrées (au sens de la logique courante) – se constitue progressivement l'entier "noyau de *MCR*".

Ce noyau *échappe* aux formes superficielles et floues qu'imposent subrepticement à la pensée les langages courants avec leurs grammaires, ainsi que la logique et les probabilités classiques. Cet écran opaque et dispersif est dissous et, à sa place, est créé un réseau de relations *directes* et claires entre, d'une part les opérations factuelles qui, dans les actions descriptionnelles, agissent en dessous de tout langage préconstitué, et d'autre part les résultats observables de ces actions descriptionnelles.

Il est à noter que le postulat réaliste "minimal" tel qu'il est posé dans *MCR* (qui affirme exclusivement *l'existence* d'un "réel physique" mais *pas* aussi la possibilité de le connaître "en soi"), s'il est associé à la définition générale d'une description relativisée et au fait que toute chaîne descriptionnelle s'enracine dans le factuel physique a-conceptuel, permet de **démontrer** *l'impossibilité de "connaître du réel-en-soi"*: dans *MCR* il ressort de manière *déductive* que ce concept de "connaissance du réel en soi" n'est qu'un faux absolu, un absolu illusoire fondé sur une notion auto contradictoire.

Bien sûr, depuis Kant, les philosophes, dans leurs propres termes, affirment cette même impossibilité, avec quasi unanimité. Mais dans *MCR* cette affirmation devient une *preuve*. Une preuve au sens de la syllogistique courante seulement, pas au sens d'un système formel logique ou mathématique. Mais une preuve tout de même.

D'autre part le concept *MCR* de description relativisée est consensuel. *Il est doté par construction d' "objectivité" au sens d'un consensus intersubjectif*. Et comme d'autre part toute chaîne descriptionnelle est enracinée dans du réel a-conceptuel *via* des descriptions de base transférées, ce consensus intersubjectif se réalise forcément autour de noyaux sémantiques constitués de fragments de réel factuel⁹ qui permettent de parler – en un sens rigoureusement re-défini – de "vérités" *factuelles et relatives*.

Ainsi *MCR* nous pourvoie d'une structuration définie et normée des processus de conceptualisation qui part du physique a-conceptuel et s'élève jusqu'au métaphysique, en le *touchant* et en dessinant ainsi la *frontière* indépassable entre la rationalité et le métaphysique, sans pénétrer dans le métaphysique mais sans l'exclure non plus. Et l'on y voit

⁹ Le mot "factuel" est introduit pour inclure du réel psychique, social, économique, etc. ; mais toujours les extrémités des chaînes de conceptualisation, leurs débuts absolus, sont enracinées dans du réel **physique**, anorganique ou organique).

enfin exposée aux yeux de tous, la structure de la *phase primordiale universelle* de la conceptualisation – la strate des descriptions de base transférées – *qui auparavant était entièrement ignorée*.

Quelques applications déjà élaborées de MCR

MMS a élaboré plusieurs applications abstraites du noyau de *MCR*, toutes d'un intérêt méthodologique considérable :

Elle a reformulé dans les termes de *MCR* une "logique génétique" et une "théorie génétique des probabilités", relativisées toutes les deux, qui **s'unissent** en profondeur et en outre **étendent** leur nouveau domaine commun de structuration logique-probabiliste.

Elle a identifié aussi le lieu conceptuel où se loge le "sens" dans la théorie de l'information de Shannon, et ceci permet de faire des estimations (relativisées) de complexité qui n'évacuent pas les contenus sémantiques.

Elle a réalisé une représentation *MCR* du "temps" – à *deux* dimensions – fondée sur les concepts d'identité-différence *relative* et de changement *relatif*.

Ces applications abstraites, conceptuelles, apportent d'ores et déjà la preuve de l'intérêt de la révolution épistémologique qui découle de la généralisation à *tout* processus d'élaboration de connaissances – dénommée "*MCR*" – de l'essence méthodologique primordiale identifiée dans les substrats épistémiques des algorithmes mathématiques de la mécanique quantique où cette essence ne concerne que le cas particulier des descriptions de microétats.

Mais récemment d'autres chercheurs ont mis en évidence l'intérêt *et la nécessité* d'étendre les applications de *MCR* à la construction d'une *systemique relativisée* ainsi qu'à la conception et la construction matérielle d'artefacts, notamment de voitures¹⁰.

¹⁰ Henri Boulouet [2008].

Conséquences acquises

Il ne faudrait donc plus désormais continuer de raisonner selon les méthodes précédentes, sauf à le faire intentionnellement et de façon déclarée, dans le cadre de recherches limitées.

Surtout, il ne faudrait plus céder à l'attraction irrésistible d'un réalisme naïf, quel que soit son masque. En effet, attardons nous un instant de plus sur cette conclusion imposée par l'inamovible relativité de tout processus de qualification (donc de toute description ou représentation ou conceptualisation), à l'ensemble des vues-aspect qui ont été impliquées dans son élaboration, à savoir que:

* il n'est simplement pas **CONCEVABLE** de *connaître* le réel physique "tel qu'il est en soi".

* il est même illusoire de penser qu'on peut "se rapprocher asymptotiquement" d'une telle connaissance, parce qu'*il n'y a pas* de processus imaginable de "passage à **UNE** seule limite asymptotique" bien définie, qui soit commune à l'ensemble hétéroclite et jamais clos des descriptions possibles où l'on saute d'une vue qualifiante à une autre.

* Même une suite de descriptions réalisées toutes pour *une* même entité-à-décrire α_G (une même opération de génération G) et face à *une* seule vue-aspect Vg toujours la même mais dont les *valeurs* gk seraient progressivement rapprochées de plus en plus l'une de l'autre lorsqu'on passe de l'une des descriptions de la suite, à la suivante¹¹, même une telle suite marque déjà le résultat, d'une indélébile relativité à Vg , qui introduit un écran *opaque* face à une inimaginable "manière d'être en soi" du fragment de réel mis en jeu par α_G , puisque "manière d'être" veut dire *qualification* cependant qu' "en soi" veut dire absence de qualification, et donc "manière d'être en soi" est un concept auto-contradictoire.

¹¹ En fait ce scénario n'est jamais réalisable indéfiniment. Pour *toute* dimension sémantique donnée Vg , en supposant que le concept d'unité de mesure de ses valeurs gk accepte la définition d'un sens opérationnel, ce sens cesse de subsister à partir d'une certaine borne inférieure de la grandeur de cette unité.

Et enfin, prenons maintenant toute la mesure de cette circonstance que, à l'intérieur de *MCR*, cette conclusion de non sens – qui ne supporte aucune sorte ni aucun degré d'atténuations – s'impose *déductivement* dès que les postulats, principes et définitions sont acceptés. Si nous faisons cet exercice, il se dégage devant nos yeux, comme vivant, ce fait étrange mais non contestable que toute connaissance est une *construction de fonctionnements-connaissance*, un façonnage par des actions cognitives humaines, de cette matière première que nous appelons le réel, dont nous postulons nous mêmes l'existence, mais qui ne peut que nous rester à *jamais non connaissable isolément de nos actions cognitives*.

Cela, qui au départ est difficile à assimiler, une fois assimilé malgré tout, rend claire et cohérente la conception de nos rapports de connaissance avec le "réel" factuel, notamment physique. Cela nous enseigne les **limites** de la connaissance du réel physique. Mais cela nous dévoile aussi l'énorme degré de *liberté* dont nous disposons pour construire cette connaissance d'une façon rigoureuse, ciblée, optimisée, nettoyée de faux mysticismes et de faux problèmes de "vérité" absolutisée (qui en outre sont souvent soulevés *avant* le moment où il devient possible de construire un concept relativisé de vérité *sans* par cela immobiliser le processus progressif de construction de connaissances (cf. par exemple dans MMS [2009], pp. 97-99) la décision méthodologique de poser la relation de un-à-un $G \leftrightarrow \alpha_G$ pour le cas où α_G est "un microétat" dénoté me_G)).

Notamment, *cela démystifie la logique et aussi les mathématiques*. En effet ces approches majeures de l'esprit humain occultent plus ou moins leurs racines dans du réel physique. Leurs entités-à-décrire sont conçues comme étant là, flottant de manière atemporelle dans l'univers des concepts. Ces entités-à-décrire y sont montrées du doigt par, exclusivement, d'autres concepts-et-mots. *Tout* y est de la nature du concept et du verbe qui exprime du concept. *Rien n'y est physique-opératoire*. Ces disciplines donnent l'illusion de *naître* dans du langage, de *flotter* dans du pur langage, et de **là**, de pointer comme magiquement

vers des "objets" matériels, qui eux aussi préexisteraient, et *tels qu'on les perçoit*. Toutes les **genèses** réflexes qui se sont élaborées par des interactions innombrables et millénaires entre des corps avec leurs psychismes, et du « réel, sont **occultées**. Alors on ne comprend pas comment "leur pouvoir" naît, ni où il s'arrête. En conséquence de cela la logique et les mathématiques nous paraissent être de source divine. On les idolâtre. On ose à peine y toucher pour les modifier. Nos attitudes face à ces disciplines tellement efficaces ressemblent à l'attitude des primitifs face aux phénomènes naturels.

Tandis que la logique génétique de *MCR* donne des bases intelligibles aux systèmes formels et à leurs forces opératoires et par cela elle libère l'esprit pour cibler et optimiser les procédures formelles sans ménagements infondés, en les soumettant à des normes, donc à des buts, c'est-à-dire en méthodologisant explicitement.

Concernant le calcul classique des probabilités moderne tel qu'il est défini par le mathématicien Kolmogorov, on peut faire des considérations analogues (cf. MMS [2009B]). Celles-ci changent du tout au tout le concept de probabilité. L'impact sur les procédures probabilistes pratiques est considérable. Et cet impact se propage au problème de la mesure des "complexités" (MMS [2006]).

Ajoutons que *MCR* clarifie foncièrement le concept de *système*. La science des systèmes s'évertue à "identifier" ceux-ci dans la nature, "tels qu'ils y sont". Alors, évidemment, elle se noie dans le nombre immense des candidats et s'enlise dans une impression d'arbitraire de laquelle chacun s'extrait plus ou moins selon son degré d'inventivité intuitive. Mais tout se débloque, s'organise, devient consensuel et algorithmique, lorsque, d'emblée, il est clair que le "système" recherché pour tel ou tel *but* (de description ou de construction ou d'explication), avec les "sous-systèmes" qu'il contient certainement (de par définition même du terme "système"), est d'abord à *engendrer* librement en tant qu'entité-objet-de-description convenable, *via* le choix d'une opération de génération *G*

adéquate au but que l'on s'est donné; et qu'ensuite on peut – à la fois – en engendrer et qualifier les "sous-systèmes" *relativement à telle ou telle vue*, ce qui sépare automatiquement le "système" en "sous-systèmes" consistant en ***zones de telle ou telle valeur de l'aspect considéré***; puis méta-qualifier les rapports statiques et les interactions entre ces sous-systèmes-zones-de-valeur, des sous-systèmes *relativisés*, à l'aide d'un choix approprié d'*autres* méta-vues-aspects-d'interactions adéquates. Après quoi la *même* entité-objet-d'étude produite par *G*, peut être soumise à une *autre* vue-aspect qui engendrera d'*autres* sous-systèmes-zones-de-valeur, ayant d'*autres* interaction mutuelles. Ce qui donne un accès naturel au traitement de "la complexité d'un système".

PROPOSITION D'APPLICATION DE MCR À LA CLIMATOLOGIE

Les premiers systèmes auxquels appliquer ce traitement devraient être les systèmes anthropotechniques, les objets de notre présent essai. Proposons donc maintenant au lecteur une application très schématique de *MCR* aux sciences de la Terre, relativement familières à un grand nombre et appartenant en grande partie au domaine macroscopique.

Supposons un climatologue qui cherche à comprendre le réchauffement qui depuis quelques décennies semble affecter l'ensemble des climats du monde. Ce climatologue constatera vite que les définitions classiques du réchauffement ne suffisent pas à expliquer les phénomènes à court terme plus ou moins erratiques constatés par les météorologues. Ceci conduit les sceptiques à nier le phénomène tout entier, enlevant de la crédibilité aux politiques destinées à lutter contre la production anthropique des gaz à effets de serre. L'opinion en vient à les critiquer. La définition des "réchauffements" est-elle pertinente ?

Dans les sciences de la Terre "réalistes", c'est-à-dire qui présupposent la possibilité de *décrire* le réel physique "tel qu'il est en soi", indépendamment de l'homme, on a tendance à ériger en "faits" immuables ce qui n'est qu'effet relatif à des modes de se comporter, de *parler*, etc. Le réchauffement, la désertification, le dépeuplement des océans..., deviennent des absolus que l'on ne peut qu'étudier de l'extérieur, en tournant autour sans les modifier, comme on le fait en étudiant, par exemple, une éruption volcanique. Mais un peu de réflexion montre que le *degré* d'indépendance de l'entité-objet-d'étude, face à nous, les observateurs qui décrivons, de nos comportements, nos buts et le langage même que nous employons, est loin d'être le même pour toutes les entités-objet-de-description. Qu'il est essentiel d'explicitier et de définir le degré de relativité à nos actions descriptionnelles, de ce que nous qualifions; bref, qu'il faut en chaque cas définir les relativités

descriptionnelles et en estimer la source, la nature et l'importance des *marques* qu'elles impriment sur la description. Ce qu'on appelle "réchauffement de la planète" n'est ni conçu ni qualifié de la même façon par les lobby's pétroliers, les écologistes, le ministère de l'environnement ou par tel ou tel scientifique travaillant sur un terrain d'un type donné: air, océan, continents terrestres. En d'autres termes, on ne peut pas "réifier" subrepticement le réchauffement en un "objet" unique et bien défini, simplement en utilisant dans tous les cas un même mot, comme s'il s'agissait d'une réalité dont la définition s'imposerait à tous au même degré auquel s'impose le signifié de l'expression 'l'Océan Atlantique' ou bien le signifié de l'expression 'le continent africain'. Ce ne serait que fabriquer une illusion.

Que faire alors? Accepter passivement l'hétérogénéité des discours qui repose sur la diversité des personnes parlant du réchauffement et sur la non-compatibilité de leurs motivations ? C'est en général ce qui se passe. Mais on aboutit ainsi à une sorte de babélisation. Les différents locuteurs désignent sous le même mot des choses foncièrement différentes, pas seulement parce qu'ils ne conçoivent pas la nécessité de faire autrement, mais souvent parce qu'ils *veulent provoquer des réactions politiques différentes*. Ceci explique pourquoi la science climatologique est généralement considérée comme inexacte sinon menteuse.

Mais si l'on voulait introduire de la rigueur dans les discours sur le réchauffement, il faudrait que toute personne qui en parle soit amenée à *préciser son référentiel épistémique*, le comparer à ceux des autres, et contribuer ainsi à faire ressortir *un ensemble de définitions particulières relativisées communicables et **consensuelles*** qui puissent ensuite être unifiées de quelque façon et subsumées à un concept unique de "réchauffement de la planète". On constatera alors, probablement, que la plupart des gens qui parlent de réchauffement d'une façon prétendument scientifique, refuseront les procédures de relativisation consensuelle; pas parce qu'il s'agirait d'un processus trop complexe, mais parce qu'ils

refusent d'admettre qu'ils ne veulent *pas* aboutir à un consensus intersubjectif. Car en fait, souvent, celui qui parle de réchauffement s'appuie implicitement, afin de se crédibiliser, sur la croyance des autres en "une manière d'être en soi" de cette entité (ce' qui est une notion auto contradictoire): ils ne cherchent qu'à donner de la "réalité" à *son discours et à sa personne*, voire à sa carrière quand il s'agit d'un « expert » appointé. Nous sommes face à une tentative de prise de pouvoir sur ceux à qui ce discours est destiné. Le réchauffement de la planète est une question politiquement sensible et donne lieu à de multiples exploitations partisans.

Que me propose *MCR* pour éviter de telles dérives?

Il faut d'abord que j'accepte une régression conceptuelle: je dois admettre que ce qu'on appelle "le réchauffement" n'existe pas *en soi*, en dehors de ceux qui cherchent à connaître quelque chose qu'ils associent à ce mot et qu'ils veulent explorer par leurs actions cognitives. Car il s'agit là foncièrement de qualifications, de descriptions, et celles-ci, on l'a vu, portent d'une manière indélébile les marques des actions cognitives qui les fondent. Il faudra donc décider, pour chaque description envisagée, de *déclarer* de façon quelle sorte d'entités-à-décrire je veux mettre en jeu, qui "existent face à la qualification réchauffement"; et comment, par quelle sorte d'action de génération *G*, communicable, consensuelle et répétable (physiques ou conceptuelles ou mixtes) je rends ces entités-à-décrire disponibles pour être qualifiées, *stabilisées en tant qu'objets-d'étude*, c'est-à-dire de connaissance.

A partir de là entreront en jeu à leur tour les vues-aspect *Vg* à construire afin d'organiser une vue *V* globale de "réchauffement" – communicable et consensuelle – qui soit pertinente et dotée d'un ensemble convenable de "valeurs de réchauffement", puisque connaître veut dire décrire et décrire veut dire qualifier. En outre, puisqu'il s'agira de qualifications par des opérations physiques (au moins en partie), il faudra spécifier quels sont, pour chaque vue-aspect introduite, les "appareils de

mesure" et les "opérations de mesure" qui sont impliqués. L'on réalisera donc – de manière consensuelle – un certain nombre d'appareils qui, à partir d'interactions de mesure avec les entités-objet-d'étude mises en jeu, produisent des marques perceptibles, *chacune codée en termes d'une valeur d'une grandeur qualifiante, selon un système consensuel de codage*. Il pourra s'agir de prélèvements d'échantillons d'air ou d'eau, portant sur le présent ou sur le passé (carottages glaciaires par exemple), de résultats d'enquêtes auprès d'archives scientifiques ou professionnelles, mais aussi (pourquoi pas) de sondages d'opinion ou toutes autres formes d'observation. (En préparant ces sondages, par exemple en définissant les questions et les réponses possibles, j'accomplis ce que les physiciens de la mécanique quantique nomment une "opération de préparation de mesure").

On voit que dans le but de connaître tel ou tel processus relié au "réchauffement", je suis *obligé* d'adopter une attitude de description radicalement *active*:

*Je dois **créer** aussi bien les entités-à-décrire que les qualifications de ces entités.*

Et l'on voit aussi qu'en agissant ainsi selon *MCR* la multiplicité inorganisée et incontrôlée des sens du mot "réchauffement" pourra être éliminée: ce mot sera désormais relié d'une manière construite – et modifiable – de manière consensuelle, à un ensemble de descriptions relativisées $D/G, \alpha_G, V/$ dont chacune spécifie quelle entité-objet-d'étude elle concerne, comment celle-ci a été introduite, comment elle a été qualifiée, et aussi comment l'ensemble de ces descriptions relativisées s'associent au concept général de réchauffement. Et tout cela, toutes ces descriptions ainsi que leurs relations et la manière dont elles construisent ensemble le concept de réchauffement, deviendra déclaré, transparent, consensuel, vérifiable, *optimisable*.

L'on dira peut-être que d'ores et déjà c'est ainsi que l'on procède. Mais ce serait très faux. Car les exigences *MCR* de spécification **consensuelle** des opérations de **génération** des entité-objet-d'étude, les exigence **d'existence relative** entre ces entités et les vues-aspect utilisées, la très détaillée structure *normée* – opérationnelle et conceptuelle – assignée au concept de vue-aspect (notamment l'importance des codages consensuels des 'valeurs' d'une telle vue-aspect), *l'organisation* des enchaînements descriptionnels, etc., constituent un *tout* organisé et cohérent qui est foncièrement *nouveau* et qui paraît être exhaustif. Exhaustif à tel point que, allant du jamais encore conceptualisé, jusqu'à la limite entre construction rationnelle et croyance métaphysique, ce tout permet notamment d'incorporer d'une manière traitée explicitement, ce fait profondément gênant qu'e l'on soit obligé d'admettre *a priori* que la qualification "existence de réchauffement" ne peut **pas** être regardée comme une "propriété" de l'entité-objet-d'étude (la planète Terre) considérée *isolément*; obligés d'admettre que cette qualification **émerge de l'ensemble des interactions** entre cette entité et les appareils de mesure utilisés, en tant qu' un effet observable, public, de ces interactions ².

A lui seul, le fait de réaliser cela constitue déjà une avancée conceptuelle notable et dont les conséquences pratiques sont nombreuses. Car actuellement, lorsqu'on conduit des enquêtes que l'on considère être scientifiques, les résultats déclarés, systématiquement, sont entachés de morcellements méthodologiques et de fausses absolutisations qui les rendent à la fois hétéroclites et illisibles. En effet supposons que je veuille apprendre quel réchauffement global s'est produit (ou non) dans le monde durant le 20^{ème} siècle. Si j'enquête auprès de la Météorologie Nationale, l'on me donnera un chiffre tout nu, sans me communiquer comment il a été obtenu, par quels tests opérés sur quel ensemble d'entités-objets-d'étude et à l'aide de quels appareils et quelles opérations de mesures assorties de quels codages des résultats bruts. Je ne connaîtrai donc que ce seul chiffre cryptique, incontrôlable, qui sera la "vérité" affirmée par la

Météorologie Nationale. Or lorsque j'enquêterai auprès de l'Agence américaine NOAA (*National Oceanic and Atmospheric Administration*), on m'annoncera certainement un *autre* chiffre masqué en vérité absolue mais en fait marqué d'*autres* relativités cachées et très difficilement retrouvables, sinon à jamais perdues. Ce sera le réchauffement incontrôlable selon la NOAA. Voilà le Babel où se trouve notre société dite scientifique et moderne.

Le pas – géant – qui serait à faire afin de sortir de ce Babel serait d'adopter comme un standard commun la manière MCR de conceptualiser qui, pour autant que je sache, est l'unique organisation rigoureuse et cohérente de l'ensemble de tous les processus de conceptualisation.

Quand on sait quelle économie d'efforts et quels progrès dans le degré de consensus et d'efficacité ont pu s'accomplir par l'adoption – partielle – de quelques standards ponctuels et purement conventionnels comme la numération décimale ou le système d'unités MKS, quand on se représente le chaos sophistique qui doit avoir régné dans le domaine des argumentations "rationnelles" avant la construction et l'emploi de la syllogistique d'Aristote, il n'est pas malaisé d'imaginer l'ampleur des effets que pourrait avoir l'adoption consensuelle de ce standard d'un type nouveau qui consiste en *toute une méthode, enracinée dans les fondements de la microphysique, développée de manière explicite et cohérente, et qui concerne la totalité des processus de conceptualisation.*

Arrêtons-nous un instant sur cette perspective. Imaginons que la NOAA, le pétrolier Total, Greenpeace, et le Ministère de l'Environnement, soient tombés d'accord pour travailler chacun à déterminer le réchauffement produit au cours du dernier siècle. Imaginons aussi que chacune de ces organisations choisirait son propre domaine d'entités-objets-d'étude et ses propres instruments de mesure, mais en procédant toutes selon les normes MCR. Par exemple, l'une de ces organisation

serait chargée des études de prélèvements d'eau, l'autre des études de d'échantillons d'air, et les deux autres des observations sur la flore. Imaginons enfin que par chacune de ces voies la conclusion finale soit la même: un réchauffement correspondant à un accroissement de température estimé à 1° centigrade. A ce moment là, et après des vérifications mutuelles, on pourrait affirmer qu'en effet il existe un "réchauffement" correspondant à une hausse de 1° centigrade de la température globale moyenne, estimée par telles et telles voies toutes déclarées, consensuelles et vérifiables, inscrites dans une méthodologie générale unique et cohérente, elle aussi déclarée et ouverte aux critiques et aux améliorations. Alors, *face aux approches exposées et en un sens relatif à celles-ci*, l'estimation entreprise serait accomplie, mais tout en restant indéfiniment ouverte à des retours réflexifs optimisants, car ses limites et sa structure seraient connues.

Sur cette base consensuelle l'on pourrait ensuite continuer la construction cognitive, de manières différentes, toutes offertes par les normes *MCR*¹². De cette façon, progressivement, l'on pourrait construire une caractérisation de la qualification globale dénommée "réchauffement" qui soit consensuelle, orchestrée, cohérente, et néanmoins de plus en plus complexe.

Mais rapprochons-nous plus de la situation usuelle. En général, la répétition d'un grand nombre de fois d'une succession $[G.Vg]$ d'une opération de génération G d'une entité-objet-d'étude donnée, suivie d'une opération de qualification de cette entité par la vue-aspect Vg , fait apparaître tout un spectre de valeurs de réchauffement *différentes*, allant par exemple de $0,5$ à $1,5$ degrés centigrades: en général la situation se révèle être statistique. Dans ces conditions une valeur mesurée unique, à elle seule, n'est pas caractéristique du réchauffement que l'on veut

¹² Un exemple frappant d'une progression de ce genre peut être trouvé dans la reconstruction *MCR* du concept de probabilité (MMS [2006] pp. 193-274, [2009C]).

caractériser. Donc le nouveau problème qui s'impose est d'établir une *distribution statistique stable* assignable aux valeurs mesurées (en l'absence de stabilité on ne pourrait tirer aucune conclusion définie). Mais cette distribution, elle aussi, sera *relative* aux opérations de génération des entités-objet-d'étude mises en jeu, à ces entités elles-mêmes, et aux vues aspect utilisées, avec les appareils et les opérations de mesure que celles-ci comportent. Bref, par un très grand nombre de répétitions d'opérations de qualification mutuellement exclusives, l'on peut espérer d'aboutir à construire une certaine connaissance globale et stable, statistique-probabiliste, concernant ce qu'on appelle "le réchauffement de la planète"; une connaissance consistant en une description relativisée qui soit un invariant observationnel associable au désigné de cette expression.

On peut aller plus loin, en établissant aussi un algorithme mathématique *prévisionnel*, une "fonction de probabilités" qui représentera l'ensemble de tous les résultats expérimentaux en fonction du temps (cela s'impose dans le cas du réchauffement puisque celui-ci est supposé évoluer). Une fois construite que telle fonction de probabilité évolutive, des calculs simples permettraient d'obtenir des prévisions quantitatives – seulement globales et probabilistes, pas individuelles et certaines – mais des *prévisions quantitatives* tout de même. Ces prévisions, comme dans le cas des microétats, pourraient cependant se révéler d'une précision déconcertante.

Et ainsi "le réchauffement" qui au départ n'était qu'un simple étiquetage verbal, aurait finalement subi une transmutation en un outil mathématique de description probabiliste prévisionnelle.

Un tel outil serait évidemment fort utile, notamment pour convaincre les décideurs de l'urgence des mesures à prendre afin de faire face au phénomène de réchauffement. En ce sens, et en ce sens seulement, l'opacité qui sépare le supposé "réchauffement" de ma propre capacité *d'action*, aura été levée. Une structure descriptionnelle prévisionnelle et vérifiable aura été mise en place à cet effet.

Nous résumons. Malgré ce qui pouvait paraître au premier abord, on voit que *MCR* est très différente des méthodes classiques. En ce qui concerne "le réchauffement" chaque observateur climatologue classique affirme *a priori* l'existence d'un phénomène qu'il appelle "réchauffement" et qu'il définit à sa façon. Il ne tient compte d'aucune autre définition possible. Il travaille exclusivement à partir de sa propre définition. Alors tel auteur inclura dans le calcul du "réchauffement" les variations de températures observées dans la circulation océanique profonde dite thermohaline; tel autre observera les migrations d'animaux obligés à s'adapter; tel autre ne tiendra compte que des niveaux d'enneigement observés dans les stations de ski; etc. Ces auteurs procéderont ensuite à des mesures statistiques qui donneront une apparence de scientificité à leurs définitions, dont ils n'annoncent pas le caractère partiel, relatif, dont souvent d'ailleurs ils ne sont pas très clairement conscients. Evidemment, les climatologues honnêtes sont nombreux et ils ne sont pas tous incapables d'efforts destinés à limiter le caractère partiel de leurs travaux. En croisant les points de vue, ils peuvent aboutir à des caractérisations plus générales des phénomènes qu'ils étudient, même si celles-ci sont toujours relatives. Mais dans ce cas, ils retrouveront sans le savoir certaines essences des procédures de *MCR* exposées ci-dessus. Ils courront cependant à tout moment le risque pratiquement inévitable d'un degré pauvre de cohérence globale et de glissement dans l'erreur de la réification des descriptions, de l'identification des descriptions avec l'entité-objet-de-description, en conséquence de fausses absolutisations. Dans le cas des microétats ces dangers sont écartés par la circonstance très rare que la situation cognitive est tellement extrême et contraignante qu'elle impose du "dehors" toutes les relativisations descriptionnelles explicitées dans l'infra-mécanique quantique et généralisées dans *MCR*. Mais dans l'activité scientifique courante, classique, nos inerties de pensée et nos libertés d'action relâchée nous exposent à chaque pas à des façons de procéder qui, en l'absence de garde-fous méthodologiques, perpétuent

indéfiniment les morcellements et les insuffisances des savoirs que nous élaborons.

LE CHAMP GENERAL D'APPLICATION DE MCR

Entre les lignes qui précèdent il apparaît que l'applicabilité en tant qu'*épurateur* de la méthode de conceptualisation relativisée, ne se limite pas aux représentations scientifiques du monde. Elle s'étend aussi aux représentations par des langages courants, ou de groupe d'action, y compris le langage *politique*, grand consommateur de références à de prétendus "existants" qui n'existent que par la volonté des acteurs de la vie politique. La portée de cette méthode est donc véritablement constituée par l'entière "conceptualisation". Selon nous, elle devrait donc être dorénavant enseignée et appliquée partout.

Il faut bien voir que c'est la transposition et la généralisation aux représentations quelconques, et notamment à celles de la science macroscopique, des pratiques épistémologiques de la physique quantique, qui représente la nouveauté de *MCR* et assure son efficacité. Divers chercheurs en sciences de la complexité, par exemple Edgar Morin avec ses célèbres notations récursives, avaient essayé de proposer des modèles tenant compte de l'implication de l'observateur dans ses descriptions. Mais ces tentatives n'ont jamais été convaincantes ni généralisables. Pour y réussir, il fallait d'abord interroger au fond la démarche du physicien quantique, puis la constituer en méthode utilisable dans tous les autres domaines de l'acquisition de connaissance.

Si l'on veut l'appliquer systématiquement, la méthode *MCR* paraîtra peut-être au premier abord *trop* raffinée et perfectionniste, étant donné que ses performances spécifiques ne sont vraiment frappantes dès le premier abord que dans des cas relativement peu courants dans la vie quotidienne. Notre lecteur n'aura pas manqué de se moquer, nous en sommes persuadés, du luxe de précautions méthodologiques que nous

avons évoquées pour traiter du "réchauffement". Comme on dit, c'était un peu se noyer dans un verre d'eau.

Mais il s'agissait d'une démonstration d'école.

Par contre, ces précautions apparaissent *indispensables* quand on est confronté à des paradoxes ou à des problèmes qui semblent insolubles (par exemple, est-ce que Gaïa telle que définie par James Lovelock existe vraiment?). Plus généralement, la méthode s'impose quand il s'agit, comme l'indique James Lovelock, de rapprocher des sciences qui refusent de le faire spontanément, bien qu'elles traitent toutes du même sujet, Gaïa : géologie, vulcanologie, océanologie, météorologie, biologie et anthropologie.

Il conviendra également d'utiliser *MCR* dans les domaines qui, suite à telle ou telle pratique particulière (météorologie marine à court terme, par exemple) sont d'ores et déjà abordés par des méthodes véritablement "professionnelles" mais qui sont locales: car cela permettra d'*englober* les résultats particuliers obtenus, dans un système de connaissances organisé et cohérent aussi vaste qu'on voudra, et d'accomplir cette intégration d'une manière guidée, normée, consensuelle.

Dans les cas mentionnés, et en d'innombrables autres types de situations, *l'utilisation de MCR comme référence explicite générale*, apparaîtra d'abord comme efficace, puis finalement comme indispensable, même s'il restera toujours possible d'employer les *raccourcis* que cette méthode définit elle-même, à chaque fois que ceux-ci sont " légalement " acceptables sans introduire des contresens. *Car on disposera ainsi d'une sécurité et d'un consensus de conceptualisation permanents.*

Serait-il possible de trouver, par cette voie, sinon des solutions au drame actuel, qui hélas nous paraît être irréversible, du moins des perspectives dessinant les contours d'un monde différent, où les acquis cognitifs du monde actuel seraient conservés, intégrés dans un seul tout, optimisés indéfiniment?

Nous en sommes persuadés. Mais il faudrait que se mettent en place des techniques et des procédures de gouvernance représentant des sauts qualitatifs considérables par rapport à ce qui se pratique aujourd'hui.

CONCLUSION

L'apport de la méthode *MCR* présentée ici ne pourrait se faire sentir pleinement que si chacun des cerveaux humains qui produisent des jugements déclaratifs sur le monde étaient capables d'y faire appel spontanément. Car ainsi ces jugements et les comportements qui en découlent, seraient beaucoup plus aptes à permettre une navigation consensuelle, avertie, contrôlée, optimisée, dans notre monde actuel tellement complexe et en rapide et permanent changement: on ne serait plus handicapé par une approche naïvement «réaliste» qui crée l'illusion que nous serions en contact direct avec le tissu même du monde "tel qu'il est vraiment en soi".

Mais peut-on espérer que des modes de pensée traditionnels, inventés depuis des millénaires par la pensée mythologique ou depuis des siècles par la pensée rationaliste cartésienne, puissent être modifiés foncièrement? Des milliards d'hommes considèrent encore le monde, et eux-mêmes, comme des religions primitives leur imposent de le faire.

Si cependant, malgré les difficultés évidentes que comporte la diffusion de *MCR*, l'ensemble particulier des observatoires et des observateurs qui étudient spécifiquement l'évolution de la Terre et des mondes biologiques qui l'habitent, étaient capables d'implémenter rapidement des approches dérivées de *MCR*, leurs observations pourraient acquérir rapidement une pertinence accrue. Les décisions découlant de ces observations pourraient alors se révéler plus efficaces. De plus, la mutualisation des représentations de la Terre obtenues à tous moments par ces observatoires, pourrait en permanence engendrer une méta-représentation évolutive cohérente. Pour l'instant une telle méta-représentation cohérente fait cruellement défaut et cela empêche de juger

de l'adéquation des mesures prises et des possibilités de développements de risques.

Comme actuellement – à la différence des systèmes financiers, économiques, politiques – la composante *technologique* des systèmes d'observation évolue de façon contrôlée et très vite dans une voie d'informatisation et de mise en réseau, il ne semble pas interdit d'espérer qu'un terrain propice à l'émergence de la méta-représentation cohérente dont nous venons de rappeler la nécessité, pourrait se mettre en place en quelques années.

Il n'y a rien de certain à cet égard, mais c'est une possibilité.

**A CONSENSUAL AND SCIENTIFIC
ECOLOGY
IS POSSIBLE**

ACKNOWLEDGEMENT TO JEAN PAUL BAQUIAST

We all owe really much to Jean-Paul Baquiast and Christophe Jaquemin. Since already many years, in their e-review *Automates Intelligents*, they offer us a periodic account of the conceptual and technological investigations and innovations accomplished by humans all over the world. They achieve this in a manner remarkably exhaustive, competent, impartial, lucid, and also passionately engaged for liberty and justice. In these times when the attention of everyone is constantly monopolized by corrosive swirls of communications of catastrophes, of individual or collective doings marked by arbitrary and wickedness, and of dangers of every magnitude, they have created an improbable islet of a *condensé* of creative thinking.

But here I want to address to Jean-Paul Baquiast more personal thanks: his deep understanding of my strange method of relativized conceptualization and the agreement that he manifests with respect to it, are very precious for me. Moreover, inside the luminous text from this volume I discovered the unexpected gift of a perception that I had not formed myself, and which seems to me genuinely important. I cannot do better than to quote the formulation of the author:

« ...when it is well known what progress has been achieved in the degree of consensus and efficiency via the – partial – adoption of merely punctual and purely conventional standards like the decimal numeration or the MKS system of units, when one imagines what sophistic chaos must have reigned in the realm of “rational” argumentation before the construction and the adoption of Aristotle’s syllogistic, it is not difficult to form a representation of the extent of the effects that might be entailed by a consensual adoption of this standard of a new type consisting of *a whole method, rooted in the foundations of modern physics, developed in an explicit and coherent way, and concerning the totality of the processes of conceptualization* ».

The place of this quotation, I think, is in exergue of the present work.

Mioara Mugur-Schächter

THE AUTHOR'S PREFACE

The inner structure of this small book is somewhat unusual:

The subject is first exposed in French, very briefly and in a way as intuitive as possible¹³. Then the same subject is re-exposed in English, but in a manner that is neither identical to the preceding one nor entirely different from it: We have nowhere researched a strict translation. Moreover the English version contains The major specificity of the English version is that it gives the reader *direct* access to the "voice" of the author of the method of relativized conceptualization, via a very ample uninterrupted quotation placed in the centre of the text. This permits a much more vivid perception of the very peculiar nature of this method while it also offers matter for a deepened understanding of it.

I hope that this succession of two distinct accounts will much better plead for the aim proposed in this work than a unique monolithic account could do. Indeed, the bilingualism enlarges the number of potential readers and, via comparisons, it also permits to target with more precision local significances; while – after the reading of both versions – the repetitive and progressive character of the introduction of the fundamental concepts, might have induced in the reader's mind a genuine understanding of the method of relativized conceptualization.

?..... ?

The bibliographic indications that are common to the two versions are placed at the end of the volume; those specific to the current version are given in notes.

J-P Baquiast

¹³ This work has already been published before (J-P Baquiast []) but in a more primitive form and independently of a subsequent English version.

**A CONSENSUAL AND SCIENTIFIC
ECOLOGY
IS POSSIBLE**

INTRODUCTION

Consider the hypothesis according to which the "anthropotechnical" systems are endowed with human, technological and informational resources, which, under pressure of major risks, entail with certainty *spontaneous* modifications of the behaviour of these systems, that act preventively to annihilate the risks (JP Baquiast [2010]). According to the well-known paradigm of group selection, this hypothesis seems reasonable. In fact however, just like in the case of markets, the dominant anthropotechnical systems also have manifested up to now a clear ***incapacity*** to spontaneously bring forth such adequate protective modifications. In particular this is strikingly so concerning the ecological risks.

Why?

*We believe that this incapacity stems not only from well known conflicting interests which translate into a lack of consensual **AIMS**, but also from a general lack of **METHOD**.*

The specific goal of this article is to draw attention upon the fact that, via a quite singular process, modern microphysics has progressively and silently brought forth – in epistemology – *a deep methodological revolution* that, in particular, could thoroughly enhance our reactions to the ecological risks :

The physicist Mioara Mugur-Schächter has entirely explicated the way along which it has been possible to construct definite knowledge concerning "microstates", entities which no man can directly perceive, nor ever will, at least so long as the biological essence of 'man' stays what it now is¹⁴. Mugur-Schächter has established by what sort of

- conceptual-operational actions,

¹⁴ The main specialized papers that have finally led to this result are indicated in the bibliographic list from the end of this article, and they can all be discharged from http://www.mugur-schachter.net/publications_fr.htm.

- **methodological DECISIONS,**

- deep modifications of the two basic classical descriptive concepts of "object"(of-description) and "qualification" (predication),

a descriptive strategy can be developed that produces a qualitative but *formalized* descriptive structure which – once brought into evidence – can be clearly recognized to constitute the epistemological substratum of the quantum mechanical mathematical formalism. In this sense, the mentioned approach "explains" the mathematical formalism.

This massive initial elucidation points toward certain *universal* features of the epistemological substrata of the quantum mechanical formalism. On the basis of these features the author has developed **a fully general formalized epistemology** that she called *Method of Relativized Conceptualization* (MRC).

In the first part of this work, written in French and that has already been published before (*Automates Intelligents* 21/03/2009), we have indicated very briefly how MRC could – and should – be applied in ecology. Here, in the second part of this small book, in order to enlarge and enforce our message, we shall now develop this idea in English and in a manner much more explicitly founded from a conceptual point of view.

MRC:

THE METHOD OF RELATIVIZED CONCEPTUALIZATION

Global preliminary remarks

MRC is *a structure of general norms for conceptualizing consensually*, that is, for generating knowledge that is objective in the sense of intersubjective consensus. Quite explicitly, it is constructed as a **method**.

Any method, by the very definition of this concept, is dominated by *aims* that induce the norms appropriate for the realization of these aims. "Science" is generally considered to be a method of which the exclusive

aim is to generate knowledge in a strictly "neutral" way, i.e. without nothing changing in "how facts are naturally"; this aim – as well as its various verbal expressions – will come out inside MRC to be a mere illusion, an impossible aim.

The aims that generate the method of relativized conceptualization are the following ones. Construct from A to Z a structure of rules for conceptualizing which, if applied step by step throughout a process of construction of knowledge:

A. By construction, eliminates a priori and at all the levels of the developed structure, the possibility of any insertion of germs of *syntactic contradictions* as well as of *semantic paradoxes or false problems*.

B. Generates a net of chains of knowledge that are communicable without restrictions of space or time, and are consensual.

The aim specified above has been induced by previous critical researches of the author. These had brought into evidence that human mind can be indefinitely stopped by false problems and by paradoxes which arise as consequences of, exclusively, **false absolutes**, that is, the assumption of absolute validity of hypotheses or assertions which in fact are valid only *relatively* to restrictive conditions that can be explicated with precision (MMS [1964], [1979]). Quite naturally this conclusion has oriented the author toward the search for ***an explicit system of descriptive relativizations that be necessary and sufficient for banishing a priori, by construction, any possibility of insertion of false absolutes.*** The result of this search is MRC.

Throughout the construction of MRC the *semantic contents* of any given process of conceptualization constitute the major object of attention: the whole – qualitative – formalization of MRC is induced step by step by the involved semantic contents. Thereby MRC is radically different from logic, from mathematics, as well as, quite generally, from

any "purely formal system"¹⁵. In *this* sense MRC introduces a fundamentally new sort of conceptual being that deals with conceptualization in general as determined by semantic contents. However MRC *includes* the formal systems also¹⁶.

MRC stresses that *any* piece of knowledge that is communicable without restrictions of space or time (contrarily to mere mimics, inarticulate sounds, etc.), is **DESCRIPTION**. So, in particular, the whole of "science" consists of descriptions for which some sort of *inter-subjective consensus* has been insured. So MRC can also be characterized as:

A general method for describing consensually in a way that excludes by construction insertion of false problems or paradoxes.

The main concepts of MRC

What follows from now on inside this chapter consists of a succession of *verbatim* quotations from Mugur-Schächter [2002B]¹⁷. Thereby the reader is offered a direct immersion into samples from the original work. This, we think, is the optimal way for genuinely realizing the very peculiar nature of the method of relativized conceptualization. While in its turn

¹⁵ The inverted commas refer to the fact that M. Mugur-Schächter holds that semantic is *omnipresent* throughout the domain of conceptual structures, whether formal or not: in the special case of formal systems it is implicitly involved by the axioms and by the rules of transformation of the symbolic expressions (MMS [2002A], [2002B], [2006]).

¹⁶ Namely at the level of conceptualization where the construction of these can already be entered upon, for MRC, being a constructive approach, is also a hierarchical one. And at that level MRC brings into evidence the *specific* sort of semantic contents which a formal system always **does** contain, contrarily to what is usually assumed.

¹⁷ The full text from which these quotations have been drawn in contained in MMS [2002B]. It can be freely discharged from: http://www.mugur-schachter.net/publications_fr.htm, "publications on site" point 6. (Unhappily, no English version is available as yet of the notably improved presentation of the nucleus of MRC achieved in MMS [2006], nor of the full exposition in MMS [2009A] and [2009B] of the origin of this nucleus, drawn into evidence from beneath the mathematical formalism of quantum mechanics).

such a realization might be the unique way able to trigger a decision to *act* for the application of this method.

But of course, we have been obliged to make huge cuts: Most among the 'comments' that, systematically, follow each definition, are entirely left out, though they are an *organic* part of the development and quite essentially enlightening. We reproduce only a small number of core-comments and the "global" comments that, inside the original exposition of the nucleus of MRC, synthesize each partial succession of definitions that individualizes a *general* MRC-concept ("relative description", relative model", etc.). We did not even reproduce the whole sequence of constructive definitions, postulates, principles, and proved "propositions" from MMS [2002B] (poorer than that from MMS [2006], unavailable in English).

Like in the original text, a definition is indicated by the letter D; a postulate by the letter P; a principle by Pr; a convention by C. The numeral that follows one of these symbols is the same as in the original text. So, because of the suppressions, *there are holes* in the numbering from this paper.

Notwithstanding the radical simplifications the quotations will constitute more than a half of the present paper. For a hurried reader this might seem too long. But a quiet reader, aware of the fact that a deep conceptual innovation cannot be communicated in a journalistic way, might accept the effort, and this, we believe, might suffice for conveying to him a clear view on the importance of the new possibilities offered by MRC, in general, as well as in particular for a consensual reorganization of the researches in the domain of global warming of our ecological system.

Preliminaries for defining the concept of relative description

D1. *Consciousness functioning.* The activity of an observer-conceptor's mind – called here *consciousness functioning* and denoted CF – is conceived to play a central generative role, acting on the exterior

universe *and* on the interior universe where it belongs, and there, in particular, also on itself. This activity is regarded as the quintessence of the epistemic *actor*, irrepressibly anterior and exterior to any specified epistemic action. It is an (or "the"?) invariant among all the epistemic actions the observer-conceptor is aware of, it is the tissue of his continuity, and each one of its products becomes exterior to it as soon as it has been produced. It marks a mobile, permanent and unremovable cut – an ultimate cut – between itself and the rest.

D2. Reality. What is called reality is posited here to designate the *evolving* pool – always considered such as it is available at the considered time – out of which any given consciousness functioning either radically creates, or delimits, or only selects, object-entities of *any* kind whatever, physical or psychical or of a mixed kind. This pool will be indicated by the letter R.

P3. The realist postulate. Throughout what follows is explicitly postulated the **existence** – but independently of any mind and of any act of observation – of, also, a *physical* reality.

D4. Generator of an entity-to-be-described, and entity-to-be-described. The epistemic operation by which a consciousness functioning CF introduces an entity-to-be-described will be regarded as an action upon R achieved by CF via an *operation of generation* denoted G (and called also "generator"). The spot (or zone, or the sort of domain) from R where a given generator G acts upon R, is considered to be an essential element from the definition of that generator, and which has to be explicitly specified; it will be denoted R_G . The entity-to-be-described itself introduced by a given generator G will be denoted α_G . For **methodological** reasons, a one-to-one relation is posited between a given definition of a generator G and the corresponding entity-to-be-described α_G : **that** which emerges as the product of a given G-operation,

whatever it be, is called "the entity-to-be-described produced by G" and is labelled α_G .

Comment¹⁸. Any description involves an entity-to-be-described. Usually it is considered that it suffices to name or to label this entity-to-be-described thus just directing the attention upon it before it is more thoroughly examined. This "linguistic" attitude is restrictive. Indeed not any conceivable entity-to-be-described pre-exists available for examination. Therefore throughout what follows it is required that the basic epistemic action accomplished upon R which brings into play the considered entity-to-be-described – ***as such*** –, no matter whether this action is trivial or not, be *always* indicated explicitly and fully.

A generator G of entity-to-be-described can consist of any psycho-physical way of producing out of R an object for future examinations. Such a way involves systematically some psychical-conceptual component, but which can combine with concrete operations. A generator G can just *select* a pre-existing object or on the contrary it can radically create a new object. If I point my finger toward a stone I select a physical entity by a psycho-physical selective gesture that acts in a non creative way on a physical zone from R (R_G is the volume where the stone is located). If I extract from a dictionary the definition of a chair I select by a non creative psycho-physical act, an abstract conceptual entity materialized by symbols in a physical zone from R consisting of the dictionary (so here $R_G \equiv$ dictionary). If I construct a program for a Turing machine in order to examine the sequences produced by this program, I bring into play a creative, instructional conceptual generator of entity-to-be-described that acts on a zone from R containing subjective and inter-subjective knowledge as well as material supports of these. If, in order to study a given state of an electron, I generate what I posit to be this state by using some macroscopic device that acts on a place from the physical space of

¹⁸ The definition D4 is so crucially important that we fully reproduce its comment also.

which I suppose that it contains what I call electrons, I delimit a physical entity-to-be-described, by a psycho-physical radically creative action. If now I apply the *same* operation upon a mathematical theory, or upon a place from the physical space where the vibrations of a symphony can be heard but the presence of electrons is improbable, I am making use – by the definition D4 – of **another** generator, since it involves *another zone* R_G , and so, in consequence of the one-one relation posited between G and α_G , I delimit *another* entity-to-be-described (interesting, or not, probably not, in this case). When I define by words a new concept, as I am doing now, in order to later specify its behaviour, I produce a conceptual entity-to-be-described, by working, with the help of a psycho-conceptual-physical creative generator, upon the spot from R consisting of the reader's mind.

The inclusion, in the definition of G , of the "zone" R_G from R where G is supposed to act, requires two important specifications.

(a) R_G is *not* a qualification of the produced entity-to-be-described α_G , obtained by examining *this* entity-to-be-described in order to learn about *it*. It is a condition imposed upon the operation of generation G in order to insure the location of *all* the products of G , inside a pre-decided conceptual volume indicated by some verbal label, "microstate", "chair", "program", etc. (In the particular case of a selective generation like for instance pointing toward a stone, this pre-posed conceptual volume where G has to act, might degenerate in the conceptor's mind into an identification with the physical location of the entity-to-be-described α_G : this has to be avoided). The methodological necessity of such a pre-decided conceptual location will only progressively be fully understood.

(b) *In general, the stability of the state of the "zone" R_G from R where G is supposed to act cannot be controlled; so the "inner" content of what is labelled α_G cannot be controlled either.* The physical region from R where I act in order to generate a given microstate of an "electron", can

be imagined to involve non perceptible and uncontrollably variable fields, etc.; the reader of these lines can happen to be a 16 years old boy, or a mature intellectual. In *general*, I should even *interdict* myself to imagine no matter what concerning the inner state of R_G , since in certain cases (like in that of the state of an "electron") I try to form some *radically primary* knowledge *out of it*. So – in general – R_G has to be regarded as just a monolithic, non analyzed datum that entails an unavoidable non-predictability concerning the effect of G labelled α_G . One should very clearly realize that it simply is *inconceivable* to "entirely" immobilize *a priori* the effect of G denoted α_G : this would require specifying "completely" R_G . But such a requirement is both impossible (circular) and unnecessary. One simply cannot *start* a process of representation of the way in which descriptions, i.e. qualifications of *any* entities-to-be-described, emerge out of R, by specifying, so qualifying R itself everywhere and for any time, and also from any point of view. Such a huge and fundamental circularity is not acceptable, while on the other hand *it cannot be realized*. But the *a priori* non-determination concerning the effect of the individual operations of generation of an entity-to-be-described, is by no means an insuperable problem or a difficulty. It simply is an unavoidable constraint that MRC is obliged to recognize, include and control. The recognition of this constraint plays an essential and very original role in the dynamics of conceptualization developed inside MRC. It brings into evidence one of the roots of human conceptualization and it comes out to be intimately tied with a reflexive character of MRC, of maximal *a priori* freedom, followed by *a posteriori* controls and restrictions. It opens up the way toward a constructive incorporation of the fundamental fact called "non-determination of reference" established by the deep analyzes of Quine and Putnam, which marks the breaking line between factuality and mere language. So, in short, a one-to-one relation $G \rightarrow \alpha_G$ just *has* to be posited.

(c) Reconsider now closely the one-one relation $G \leftrightarrow \alpha_G$ posited above. It is crucial to stop as long as it is necessary for grasping deeply, calmly, that *no other relation could be uphold ab initio*. Indeed the entity-to-be-described labelled α_G always emerges still non qualified *from the standpoint of the subsequently intended examinations*, for if not, its generation would be unnecessary for *this aim*. It can even emerge still entirely inaccessible to direct knowledge of any sort, if G is a radically creative and physical operation of generation (as is the case indeed for the microstate generated by most quantum mechanical operations of state-generation). Now, in these conditions, what we called a one-one relation between a given definition of an operation G of generation of an entity-to-be-described, and the mere **label** α_G , obviously *cannot* mean that the still unqualified replicas of α_G are all "identical" in some inconceivable absolute sense.

The one-one relation posited between G and α_G amounts to just a **methodological** *pre-organization of language-and-concepts*, unavoidable in order to be able to form and express the *beginning* of the representation of a human chain of conceptualization. Such a methodological pre-organization is, by its nature, a **FORMALIZING** step, like, for instance, the position of an algebraic relation.

Indeed if from the start on we imagined that G might produce sometimes this and sometimes something else, how would we *speak* of what it produces, or *think* of it ? We would have to re-label in only *one* way the product entailed by a given definition of G, whatever it be, and thus we would come back to precisely our initial choice of language and notation. On the other hand, if we asserted *a priori* a "true" or "real" one-one relation between G and what is labelled α_G , we would thereby assert the sort of view that is sometimes called ontological or metaphysical realism (a God's Eye view, as Putnam puts it). But this would directly contradict the very philosophical essence of the present approach, such as we tried

to capture it in the definition D2 and the postulate P3, and the explicit features of which will progressively become manifest in the consequences of D2, P3 and D4.

The explicitly methodological character of the constructive strategy adopted in the definition D4, is a quite crucial step. It saves premature, void, illusory questions and paradoxes that simply cannot be solved *a priori*. Instead, as it will appear, it brings forth *a posteriori* a clear, operational, fully *relativized* concept of "identity" that emerges progressively and eventually reaches an explicit and specific definition. And this suppresses inside MRC one of the most noxious false absolutes induced by current language. Furthermore, the relativization of the qualification of identity permits then to show that MRC, inside its *soma* progressively structured by the subsequent definitions, postulate and principles, eventually entails a well-defined sort of *minimality* of the realist postulate P3, initially just posited without any further qualification. By this minimality the "metaphysical realism" will appear to be organically rejected inside MRC.

D5. Qualificators.

D5.1. Aspect-view. Consider a point of view for qualification (colour, coherence, etc.). Call it an *aspect* and label it by some letter or sign, say *g*. Consider a finite – so discrete – set of *n* mutually distinct *g*-qualifications. Call each such qualification a *value of the aspect g* and label it *g_k*, which reads *the value k of the aspect g*, in short a *g_k-value*.

The aspect *g* is considered to be "defined" *if and only if*:

- (a)** The specification of the values *g_k* of the aspect *g* is associated with the explicit specification of an effectively realizable sort of *g-examination* (physical, or conceptual (in particular formal), or mixed).
- (b)** Any result of a physical *g-examination* is directly perceptible by the observer-conceptor's biological senses and mind; any result of an abstract *g-examination* is directly perceptible by the observer-conceptor's mind.

(c) Any specification of a *g*-examination contains a procedure for deciding what result is to be announced in terms of what *g_k*-value, which amounts to the specification of certain *coding-rules*.

If the conditions **(a)**, **(b)** and **(c)** are all satisfied, the pair [*g*, {*g_k*, *k*=1,2...*n*}] constitutes a *grid for qualification by the aspect g* that will be called *the aspect-view V_g*.

D5.2. View. A grid for examination that consists of a finite but arbitrarily large set of aspect-views, is called a view and is denoted *V*.

Comment¹⁹. The complexity and the degree of organization of a given view *V* are determined by the number of aspect-views *V_g* from *V* and by the structures of the various sets of *g_k*-values introduced by the various involved aspect-views from *V* (number of *g_k*-values, "position" (central, extreme) of each set of aspect-values on the corresponding semantic dimension *g*, existence or not of an order among the *g_k*-values of a fixed aspect *g*, a reference-*g_k*-value (a *g_k*-zero), etc.). In particular a view can reduce to only one aspect-view or even, at the limit, to one aspect-view containing only one *g_k*-value on its semantic dimension *g*. There is nothing absolute in the distinction between an aspect-view and a view: an aspect-view can be transformed in a view by analysis of its aspect in two or more sub-aspects, and *vice-versa* the set of distinct aspects from a view can be synthesized into a unique aspect. This stresses that a view, like also a generator of entity-to-be-described, is just **a construct** freely achieved by the acting consciousness-functioning CF by *abstractions* from a corresponding domain of reality *R_g*, in order to attain a definite epistemic aim.

The definitions D5.1 and D5.2 permit to evaluate the distance between an operator for qualification in the sense of MRC, and the classical concepts of logical or grammatical 'predication'.

¹⁹ A core-comment.

D5.3. Physical aspect-view and view. Consider an aspect-view V_g where the aspect g is physical and requires physical operations of examination of which the results consist of some observable physical effects. Such an aspect-view will be called a *physical aspect-view*. A view containing only physical aspect-views will be called a *physical view*.

D5.4. Space-time aspect-views. One can in particular form a *space-time aspect-view* V_{ET} . The partial aspect-indexes E and T can also be considered separately from one another, setting $g=E$ or $g=T$. The space-aspect E is associated with space-values or "positions" that can be denoted E_r (setting a position vector \mathbf{r} in the role of the index k introduced in D5.1) and the time-values can be denoted T_t (setting a time parameter t in the role of k). In general the *numerical* estimations indicated by \mathbf{r} and t are not mutually independent. But nothing interdicts to symbolize separately the spatial position-value and the time-value.

Infinitely many space-time views can be constructed (by varying, in the representations, the choice of the origins of space and time, of the units for measuring intervals, the form and direction of the involved reference-axes). Any space-time aspect-view introduces an *ordered* grating of space-time values. This last specificity of the space-time views entails highly important epistemic consequences because it endows these views with the power to *strictly singularize the representation of an entity-to-be-described*.

D6. Epistemic referential and observer-conceptor. A pairing (G,V) consisting of a generator G of entity-to-be-described and a view V , is called an *epistemic referential*.

A consciousness functioning CF that endows itself with a given epistemic referential is called an *observer-conceptor* and can be denoted $[CF,(G,V)]$.

It is associated with the consciousness functioning CF that generated and adopted it.

D7. Relative existence and inexistence. Consider an *a priori* pairing (G, V_G) . If an examination by the aspect-view V_G of the object entity α_G generated by G , never reveals to the involved observer-conceptor some value g_k of the aspect g , we say that *the entity-to-be-described α_G does not exist (is not pertinent) with respect to the aspect-view V_G* (or equivalently, that V_G does not exist with respect to α_G , or that α_G and V_G do not mutually exist)²⁰.

Suppose now, on the contrary, an act of examination by the aspect-view V_G of the object entity α_G generated by G , that *does* reveal to the involved observer-conceptor one or more values g_k . In this case we say that *the entity-to-be-described α_G exists with respect to the aspect-view V_G* (or that V_G exists with respect to α_G , or that V_G and α_G do mutually exist).

Comment. A relative existence between and α_G and V_G expresses that the domains of reality R_G and R_g are not mutually exclusive and that α_G has been extracted from their zone of superposition.

P8. The Frame-Principle. I posit the following principle, called *frame-principle* and denoted FP.

Consider a *physical* entity-to-be-described α_G that can be (or is conceived to have been) generated by some definite physical generator of entity-to-be-described, G . This entity α_G does exist in the sense of D7 with respect to at least one physical aspect-view V_G (D5.3) (if not the assertion of a physical nature of α_G would be devoid of foundation (content)).

²⁰ If one examined with the help of a voltmeter, a symphony by Beethoven, the operation might never produce an estimation of a difference of electrical potential (accidents being neglected). Of course during a more realistic sort of tentative research a mutual non-pertinence can be much less apparent *a priori* than in this caricatured example.

The frame-principle FP asserts the following.

- If the physical entity-to-be-described α_G does exist in the sense of D7 with respect to the physical aspect-view V_G , then *ipso facto* α_G exists in the sense of D7 with respect to also at least one view V formed by *associating* V_G with a convenient *space-time view* V_{ET} (it cannot exist with respect to *any* such association, if only because the values g_k of a given aspect g can appear or disappear with respect to a given space-time view when the space-time units are changed). But the entity-to-be-described α_G is non-existent in the sense of D7 with respect to *any* space-time view that acts *isolated* from any other physical aspect-view V_G where $g \neq ET$: *the space-time views are **frame**-views which, alone, are blind, they cannot "see" nothing.*

- According to what precedes what is called "physical space-time" *cannot* be regarded as a physical entity-to-be-described α_G . Indeed the assertion posited in the first part of this principle does *not* apply to what is called "physical space-time": the designatum of this expression *itself*, considered strictly *alone*, is non-existent in the sense of D7 with respect to *any* physical aspect-view V_G where $g \neq ET$, and it is equally non-existent with respect to any association of such a physical aspect-view, with a space-time aspect-view. In this sense:

What is called "physical space-time" is – itself – only the *locus* of all the possible space-time frame-views (referentials), the *genus* of these. It is the conceptual volume where physical entities, facts or aspects, can be assigned space-time specifications which, if this is desired, can be numerically defined by the use of a space-time referential.

C9. Conventions. In order to take explicitly into account the frame principle FP we introduce the following conventions.

- Any view V considered in order to examine a *physical* entity-to-be-described will contain a space-time aspect view V_{ET} and one or more physical aspect-views V_g .

- The aspects denoted g are always supposed to be *different* from the space-time aspect ET .

The general concept of relative description

D14. Relative description.

D14.1. Relative description of a physical entity-to-be-described. Consider an epistemic referential (G,V) where: G is a *physical* generator that generates a corresponding *physical* entity-to-be-described α_G ; V is a *physical* view with m aspect-views V_g with respect to each one of which α_G does exist in the sense of D7; and, as required by P8 and C9, V contains also a space-time view V_{ET} introducing an *ordered* space-time grating (D5.4). Furthermore consider, for *each* V_g from V , a big number N of realizations of the corresponding sequence $[G.V_g]$, in simultaneity or in succession, the time parameter being re-set at the same initial value t_0 for each realization of a sequence $[G.V_g]$.

Suppose first that, when the succession $[G.V_g]$ is realized N times, for *each* aspect-view V_g from V , *identical* outcomes of the corresponding configuration of gk -space-time-values are obtained, i.e. only *one* same "individual" result appeared N times. We shall then say that an *N-individual* outcome has been obtained (the reference to N is necessary because nothing excludes that for another sequence of successions $[G.V_g]$ some dispersion be found). The set of N -individual configurations of gk - Er - Tt -values corresponding to *all* the m distinct aspect-views V_g from V , constitutes in the abstract representation space of V ordered by the space-time grating introduced by V_{ET} , a definite "form" of gk - Er - Tt -values. This "form" will be called an *N-individual relative description*, with

respect to V , of the physical entity-to-be-described α_G (in short an individual relative description) and it will be indicated by the notation $N_{D/G, \alpha_G, V}$ to be read «the description relative to the triad G, α_G, V and to the number N of tests $[G.V_G]$ » (in current usage the index N , supposed to be big, will be dropped). The individual relative description $D/G, \alpha_G, V$ defined above can also be regarded as the set of all the individual *relative-aspect-descriptions* $D/G, \alpha_G, V_G$ with $V_G \in V$.

Suppose now that, when the various successions $[G.V_G]$ with $V_G \in V$ are realized N times, *not* all the successions $[G.V_G]$ are found to reproduce identically one same configuration of g_k -Er-Tt-values; that at least for one $V_G \in V$ (not necessarily for all) the corresponding succession $[G.V_G]$ produces a whole set $S_{g_i} = \{c_{g_i}\}$ of mutually distinct, dispersed configurations c_{g_i} of g_k -Er-Tt-values, (with $i \in I$ and I a finite index-set, to preserve the finitistic character of this approach); but that, for *any* succession $[G.V_G]$ which produces dispersed results, when N is indefinitely increased, the relative frequency $n(c_{g_i})/N$ of occurrence of *each* configuration $c_{g_i} \in S_{g_i}$ manifests a tendency to converge toward a corresponding probability p_{g_i} . In these conditions each configuration $c_{g_i} \in S_{g_i}$ will be called an *elementary-event-description* corresponding to the succession $[G.V_G]$ with $V_G \in V$ and it will be denoted $D_p(g_i)/G, \alpha_G, V_G$. The epistemic referential (G, V) will be said to produce a *probabilistic relative description* of the physical entity-to-be-described α_G which will be denoted $D_p/G, \alpha_G, V$. (This primitive definition of a probabilistic description will be thoroughly reconstructed once the kernel of MRC will have been fully constructed).

D14.1.1. Reference and relative meaning. In any case of qualificational stability, individual or probabilistic, we shall say that α_G is the reference of $D/G, \alpha_G, V$ while $D/G, \alpha_G, V$ – as perceived by the

acting observer – is, for that observer, the meaning of α_G relatively to V .

D14.3. Basic transferred relative descriptions. In what follows we finally shall touch and transpose in quite explicit and generalized terms, the fundamental epistemological innovation specifically implied by quantum mechanics.

D14.3.1. Basic transferred relative descriptions of a physical entity-to-be-described. Consider a relative description *in the sense of D14.1* where:

- The generator consists of a physical operation and it produces a physical entity-to-be-described that cannot be perceived directly by man. Such a generator will be called a *basic generator* and will be denoted $G^{(0)}$.
- The entity-to-be-described produced by a basic generator $G^{(0)}$ will be called a *basic entity-to-be-described* and will be denoted $\alpha^{(0)}$ (a simplified notation standing for $(\alpha_{G^{(0)}})^{(0)}$).
- The view able to draw phenomenal manifestations out of a basic entity-to-be-described is necessarily such that the phenomenal content of each g_k -value of each involved aspect g consists of features of a material device for g_k -registrations, biological or not, but which always is *different from the studied entity-to-be-described*, these features emerging as “marks” produced by the interactions between the registering-device and replicas of the considered basic entity-to-be-described. These marks acquire *significance* by their coding in terms of values g_k of the aspects from the acting view. A view of the just specified kind will be called a *basic transfer-view* (in short a basic view) and will be denoted $V^{(0)}$. The aspect-views from $V^{(0)}$ will be called basic aspect-views and will denoted $V_g^{(0)}$.
- The epistemic referential $(G^{(0)}, V^{(0)})$ will be called a *basic epistemic referential*.

- A relative description in the sense of D14.1, individual or probabilistic, achieved with a basic generator and *one* basic transfer-aspect-view $V_g^{(o)}$, will be called a *basic transferred-**aspect** relative description* and it will be denoted $D^{(o)}/G^{(o)},\alpha^{(o)},V_g^{(o)}/$.
- A relative description in the sense of D14.1, individual or probabilistic, achieved with a basic generator $G^{(o)}$ and a basic transfer-view $V^{(o)}$ involving at least two *mutually incompatible* basic aspect-views $V_{g1}^{(o)}$ and $V_{g2}^{(o)}$, will be called a *basic transferred relative description* (also, in short, a basic description or a transferred description) and it will be denoted $D^{(o)}/G^{(o)},\alpha^{(o)},V^{(o)}/$ (in short $D^{(o)}$).
- A basic transferred description $D^{(o)}/G^{(o)},\alpha^{(o)},V^{(o)}/$ is posited to *characterize* observationally the involved entity-to-be-described $\alpha^{(o)}$, which means by definition that it is *assumed* that no other operation of generation $(G^{(o)})' \neq G^{(o)}$ can be found which, associated with the same basic view $V^{(o)}$, produces the same basic transferred description.

Comment²¹. It is difficult to fully grasp from the start the meaning and the importance of the concept of basic transferred relative description. But it is crucial to grasp it fully. Indeed it is by *this* concept that MRC penetrates beneath natural language and the forms of thought involved by it, establishing a definite relation between conceptualization and physical factuality. Therefore I shall comment on it in detail, even redundantly.

To begin with, let us stress that a basic physical entity-to-be-described produced by a basic physical operation $G^{(o)}$, *if* furthermore this sort of entity-to-be-described has *never* before been qualified *via* any transfer-view $V^{(o)}$ whatever, emerges still entirely unknown *in terms of*

²¹ A core-comment again: D14.3.1 constitutes one of the full novelties introduced by MRC.

the knowledge researched concerning it specifically, notwithstanding that the operation of generation $G^{(0)}$ *does* singularize it out of the whole of reality. Indeed – factually – the result labelled $\alpha^{(0)}$ *is* entirely "specified" by $G^{(0)}$, it is "defined", since it can be held available for any possible subsequent examination and, accordingly to the posited one-one relation between the operation $G^{(0)}$ and its result $\alpha^{(0)}$, it can be deliberately reproduced. More. Factually, each such result emerges from the operation $G^{(0)}$ that produced it, *fully* individualized, it lies on a level of zero-abstraction, still filled with its whole untouched concrete singularity. Which no language whatever could ever realize because we generalize as soon as we speak: full singularity is unspeakable. But – consequently in fact – this result produced by $G^{(0)}$ alone, not yet followed by an operation of examination, is individualized in *another* manner than that in which knowledge concerning it specifically, is researched; namely in only a factual physical sense, not an already conceptualized, qualifying sense. It is true that the specification of the generation operation $G^{(0)}$ involves necessarily some position of a pre-decided *conceptual* space of qualification (tied with the "zone" R_G from R where G is supposed to act (cf. D4 and comment on it). By its definition $G^{(0)}$ drops its products inside this pre-decided conceptual volume. That what is labeled $\alpha^{(0)}$ is pre-constrained to emerge inside this or that space-time domain where $G^{(0)}$ acts, it is produced so as to correspond to some definite verbal designation ("a manifestation of stellar life", or "a state of a microsystem", etc.). In this sense $G^{(0)}$ and its result labelled $\alpha^{(0)}$ might be considered to never be "purely" factual. But:

The preliminarily *posited* conceptual volume where the operation $G^{(0)}$ drops all its products, cannot be equated to the *new* knowledge that is *researched* concerning these products. The elaboration of this new researched knowledge is the task left by construction for examinations achieved *subsequently* upon the already produced

$\alpha^{(0)}$, *via* this or that basic aspect-view $V_g^{(0)}$ that exists in the sense of D7 with respect to – non specifically – anything lying inside the pre-decided conceptual volume where $G^{(0)}$ drops all its products.

It is important to realize that the specification of the operation $G^{(0)}$ of generation of an entity-to-be-described *must* contain a conceptual receptacle attached to the physical action involved by $G^{(0)}$; a conceptual receptacle to be lowered with this action into the depths of pure as yet non-conceptualized physical factuality, in order to receive inside it the results of the operation $G^{(0)}$ so as to be able to hoist them up into the stratum of the concepts-and-language. This is an unavoidable condition because *only* a receptacle made of concepts-and-language can hoist up into the thinkable and speakable a lump of pure factuality. A macroscopic operation $G^{(0)}$ can be itself shown, taught, repeated, and also said. But if nothing thinkable and speakable were posited concerning what $G^{(0)}$ produces, which by hypothesis is not perceivable, then this, the product, even if factually it has been produced, would simply stay out of conceptualization. While human mind, in order to be able to *think* about a non perceivable thing, needs, not only to have labelled it by a repeatable operation of generation and by a notation, but furthermore to have endowed it with some initializing conceptual status, with at least some approximate preliminary speakable location inside the unending and infinite-dimensional space of concepts.

But of course a basic description $D^{(0)}$ does not *indefinitely* produce an entity-to-be-described $\alpha^{(0)}$ that is still unknown, specifically and precisely in the desired terms. Knowledge about $\alpha^{(0)}$ is a subjective and moving character. Think of a basic description that is repeated by the observer-conceptor X after having produced for him the desired knowledge concerning $\alpha^{(0)}$: then, even though $\alpha^{(0)}$ is generated by the same generator $G^{(0)}$ and emerges beneath the level of the directly

observable by man, it is nevertheless already known by X (while for another observer-conceptor it can be strictly unknown, even if the knowledge acquired by X has been made socially available in public registration devices (apparatuses, catalogues, books, etc.).

The only specific and perennial features of a "basic" description $D^{(o)}$ and of what is here called a "basic" entity-to-be-described $\alpha^{(o)}$ stem from the *constant* character of the involved referential, a "basic" referential $(G^{(o)}, V^{(o)})$ where $G^{(o)}$ works on the physical factuality and $V^{(o)}$ is a transfer-view as specified in the definition D14.3.1: it resides in the fact that what is called a basic description $D^{(o)}$ consists by definition of *exclusively* features imprinted upon registering devices that are all *different* from the studied entity-to-be-described $\alpha^{(o)}$ itself.

Consider now the following question which is fundamental for the MRC treatment of reference: does indeed the definition D14.3.1 of a basic description open up a way toward a communicable characterization of – specifically – the basic entity-to-be-described $\alpha^{(o)}$? The final posit from D14.3.1 concerns this question. Consider a basic *aspect*-description $D^{(o)}/G^{(o)}, \alpha^{(o)}, V_g^{(o)}/$ (the basic view consists of only one basic aspect $V_g^{(o)}$). In this case it seems clear that $D^{(o)}$ does *not* yield a characterization – individual or probabilistic, no matter, but specifically and isolately – of what is labelled $\alpha^{(o)}$, since it points toward observable manifestations brought forth by interactions between $\alpha^{(o)}$ and a material device for g_k -registrations. Which changes what was labelled $\alpha^{(o)}$ (P10) and produces perceivable results that depend on the device for g_k -registrations as much as of $\alpha^{(o)}$. But what about a "binocular" basic description $D^{(o)}$ where the basic view $V^{(o)}$ consists of two mutually incompatible basic aspect-views $V_{g1}^{(o)}$ and $V_{g2}^{(o)} \neq V_{g1}^{(o)}$? In quantum

mechanics, for the particular case of a basic entity-to-be-described that is a state of a microsystem, it is (implicitly) admitted that, together, two quantum mechanical descriptions of a same microstate *via* two mutually incompatible quantum mechanical views, characterize that microstate. Which means only that no other operation $(G^{(0)})' \neq G^{(0)}$ of generation of a microstate can be assumed to yield both these same two quantum mechanical descriptions. The final posit from D14.3.1 generalizes inside MRC the above-mentioned quantum mechanical implication. It would be satisfactory of course to found this posit upon a constructed argument (for instance a *reductio ad absurdum*). But so far I did not succeed to find one. So I introduce the condition as just a supplementary security for the solidity of MRC). This completes now on the observational level the methodological posit from D4 according to which a given operation of generation of an entity-to-be-described is assumed to always produce the same entity-to-be-described. The necessity of a complement of this type can be best understood *per a contrario*. In the absence of any phenomenal, specific, normed, communicable set of qualifications associated specifically with what has been labelled $\alpha^{(0)}$, one would have to regard " $\alpha^{(0)}$ " as just a label that labels nothing distinct from this label itself. Then speaking and thinking of "what has been labelled $\alpha^{(0)}$ " would be only a void sophistic trick, amounting to arbitrary implicit postulations. We would be obliged to admit that pure factuality and human communicable knowledge stay for ever apart from one another. But this just does *not* happen. Quite on the contrary, our capacity to adapt to the environment and the technical powers that we are able to acquire manifest continually the astonishing, even miraculous agreement between human knowledge and factual being, attesting intimate couplings and transmissions which somehow manage to emerge between them.

The posit from D14.3.1 incorporates into the MRC-representation the assertion of a definite way in which a basic entity-to-be-described produced by a basic generator $G^{(0)}$ inside pure physical factuality,

can be conceived to be captured there and then hoisted up into the conceptual net of inter-subjective knowledge: it is that what produces a pair of sets of mutually incompatible observable manifestations which – accordingly to the final posit from D14.3.1 – cannot be obtained by the use of any other operation $G(o) \neq G(o)$.

At a first sight the concept of a basic transferred description might seem very particular, and too radical. But in fact *it possesses absolute priority and non restricted generality inside the order of cognitive elaborations*. Quite universally, any entity-to-be-described corresponding to any generator, if it *did* reach the consciousness of an observer-conceptor, then it reached it *first* by some transferred descriptions. We remain unaware of this because usually the phenomenal appearance of the *gk*-values involved in these transferred descriptions stems from marks imprinted directly upon the biological domains of sensitivity of the observer's body which act at the same time as generators of entity-to-be-described and as views in the sense of MRC. So the involved epistemic referentials are of a nature which, with respect to the general MRC-descriptive mould, is particular and degenerate (cf. the global comments on D14, the comments on D19.4, V.1.1 and V.1.2). This entails the following effects which occur all at the same time and beyond any control of logical consistency:

(a) It hides the transferred character of the marks.

(b) It inclines toward assigning systematically a passive role to the mind, in its interactions with physical factuality. The mind is supposed to just *receive* marks irrepressibly imprinted upon the sensitive apparatuses of the body by incessant streams from the physical factuality. (How far one is thus kept from realizing the possibility and the universal methodological value of two radically distinct epistemic stages which, in general, have to be both active during a deliberate achievement of "unnatural" transferred descriptions, like those on which quantum mechanics throws light!).

(c) It pushes surreptitiously toward ontological absolutizations. Indeed one encounters severe difficulties to realize that the (various) transferred descriptions of this chair, which my consciousness functioning achieved spontaneously by the help of my biological views (involving the eyes, the nervous system, the ears and fingers, etc.), cannot, without contradiction, be identified with "the-way-in-which-the-chair-in-itself-really-is"; that nothing, never, will be able to prove that this or that model of a chair "exists" independently of any perception, of any view. More, that such an instinctive hope contradicts both philosophy and logic, since in the absence of any view the very concept of description, and even that of merely an isolated qualification, vanishes (cf. p18, D19.1, D19.2). It is really hard to withstand the irrepressible trend toward identification of our spontaneous modellings stemming from descriptions transferred on the human biological registering devices, with ontological credos that float on self-contradicting assemblages of words, alike to Magritt's tree that floats with its roots in the air. Kant, Poincaré, Einstein, Husserl, Quine, Wittgenstein, Putnam, have founded famous analyses on the explicit recognition of this fact.

But, and this is noteworthy, as soon as the transfer-view from a considered basic transferred description $D^{(0)}$ does not directly involve the biological human terminals – the nearest and which *in fine* cannot be eliminated –, as soon as the transfer-view $V^{(0)}$ from $D^{(0)}$ involves marks registered on devices that are exterior to the observer's body (as it happens indeed for microstates), it suddenly becomes quite clear that a basic description $D^{(0)}$ itself constitutes a constructed intermediary entity-to-be-described which relays the access of the basic a-conceptual entity-to-be-described $\alpha^{(0)}$, to the observer-conceptor's consciousness-functioning; that phenomena are not always independent of aimed volition, that they are not always just psycho-physical facts which emerge spontaneously, but might have to be planned and produced by method. Then, like in quantum mechanics, the two distinct and mutually

independent stages involved in a transferred description – the stage of generation of an entity-to-be-described $\alpha^{(0)}$, and the subsequent stage of creation of observable manifestations drawn from $\alpha^{(0)}$ by interaction with gk-registering devices – appear as obvious. Their active and deliberate character strikes the mind, and the invaluable normative value of the concept of basic transferred description can be fully understood.

The basic entity-to-be-described $\alpha_G^{(0)}$ from a transferred description $D^{(0)}$ roots this description directly into pure, a-conceptual physical factuality. Correlatively the transferred description $D^{(0)}$ achieves for the involved basic entity-to-be-described $\alpha_G^{(0)}$ a very first passage from pure physical factuality, into the domain of communicable knowledge. It yields for it a first communicable form, a first observable expression that points communicably toward the involved entity-to-be-described. So the basic transferred descriptions are the *local zero-points* of the chains of conceptualization, in the following sense. Each basic transferred description $D^{(0)}$ starts from a conceptual situation where, though a conceptual environment of the basic entity-to-be-described $\alpha_G^{(0)}$ (genus, etc.) always is more or less explicitly posited *a priori* (at least *via* the definition D4 of $G^{(0)}$), nevertheless nothing is known concerning $\alpha_G^{(0)}$ *specifically*.

The very first stratum of communicable knowledge available at any given time consists of the basic transferred descriptions achieved up to that time, not of just phenomenal appearances in the Kantian sense.

The transferred descriptions are the channels through which as yet non semantized but semantizable factual substance, is adduced into the domain of the inter-subjectively semantized. The "scientific legalization" of "phenomenal appearances" in Kant's sense BEGINS by the construction of transferred descriptions, of which $D^{(0)}$ yields a

normalized form. This amounts to a formalization of the structure of the connections between Knowledge and Being.

This is a quite fundamental contribution of MRC to epistemology. It separates the volume of the known, in two essentially different strata. Indeed the whole rest of the available knowledge consists only of subsequent developments of this first – evolving – stratum of transferred descriptions which operate the very first connections between Being and knowledge: namely, it consists of space-time modelizations which endow the basic transferred descriptions with the features required by the frame-postulate P8, thus insuring for them an “intelligibility” of which initially they are devoid. A *non limited* succession of descriptonal complexifications can then indefinitely improve these space-time modelizations (cf. D16, D.19, and all the involved discussions).

I add a last remark concerning the concept of basic transferred description. From the viewpoint of MRC the quantum mechanical descriptions of micro-states appear as just particular instances from the general class of transferred descriptions of physical entities: the strategy of quantum mechanics, once identified explicitly, brings into evidence an example of the *universal* way in which the conceptualizations are rooted into pure physical factuality, and, for this example, it displays all the stages of the rooting. MRC recognizes the universality of this rooting and extends it to any sort of physical factuality, re-expressing it in general and *normalized* terms.

Global comment on the definitions D14²². Finally, let us now consider globally the whole set of definitions D14 and make some comments on the general concept of relative description.

²² Together, the sequence of all the definitions D14 forms the general *basic* MRC-concept of relative description, which then founds the concepts of relative meta-description, of a hierarchical chain of relative descriptions, and of a net of such chains.

The general notation $D/G, \in G, V/$ stresses that any description that is normed in the sense of MRC brings into play a triad $G, \in G, V$ to which it is essentially relative: this is the general descriptive mould induced from quantum mechanics and required now for any description, whether it is basic, transferred, or not. The first location from this triad is the place reserved for an epistemic action, the generation of an entity-to-be-described, which up to now has quasi systematically been ignored, because the canonical basic transferred descriptions where the generation of an entity-to-be-described plays a separate and active key role, were ignored. Indeed for a description that is not transferred, the operation of generation of the desired entity-to-be-described is often accomplished without any difficulty, in a spontaneous or even implicit way (think of descriptions of conceptual entities, like a definition, etc.). While when the transfers occur on – directly – the biological sensorial apparatuses (views, in the sense of MRC), the involved view V acts also like a generator G which just selects out of R an entity-to-be-described, namely the field of perceptibility of V , and – simultaneously – also qualifies this entity-to-be-described: we can symbolize by $G(V)$ such a *generator of a view* and by $(G(V), V)$ the corresponding epistemic referential. In this case the action of a generator of entity-to-be-described is still deeper hidden than in the preceding case. This highly degenerate and so wide-spread natural situation contributed strongly to the lasting occultation of the fundamental role of principle of the operations of entity-to-be-described generation. Quantum mechanics, for the first time and only implicitly, made a separate use of the operations of generation of entity-to-be-described, which permitted to this author to become aware of their general and fundamental epistemological importance.

*The operation G of generation of the entity-to-be-described remained the big omission of the grammars, the logic, and of all the approaches that involve the processes of conceptualization, even inside classical physics, **and even inside the nowadays quantum***

mechanics where this operation here denoted "G" is absent from the formalism, is **devoid of any mathematical representation**, and moreover it is **CONFUSED** with "operations of state-preparation" which are part of the processes of **qualification** by measurements.

This is why the question of reference has raised insuperable problems: the basic object-entities are only *surreptitiously* drawn into the natural basic descriptions (the *degenerate* ones, produced in a reflex way *via* the biological sensorial apparatuses); they are only implicitly included there with the status of a present but a *non specified* reference. The problem of identifying *a posteriori* of what this reference consists, starting from the already achieved description, has stubbornly resisted solution.

But accordingly to MRC, an operation G of generation of an entity-to-be-described is **ALWAYS** involved, even if in a non separated and implicit or reflex way.

By construction, any relative description $D/G, \alpha_G, V/$ is, itself, distinct from the generator, the entity-to-be-described and the view involved by it, to all of which it is conceptually posterior; it qualifies only the entity-to-be-described which it concerns, not also the generator and the view of which it makes use, nor itself, globally. As for the generator and the view, these are by definition distinct from one another, often by their content, but in *any* case by the *role* held during the process of description.

*In the definition of a relative description the three notations G, α_G, V designate three descriptive **ROLES**, three descriptive functions; they do **not** designate the **nature** of the entities to which these roles are assigned in the case of this or that particular relative description.*

And all these three roles are systematically played in any relative description, even if an actor cumulates distinct roles, or plays a role superficially, or both. For instance, if I say «"red" is a too poor expression, better say "colour of blood"», the first proposition expresses verbally a

relative description $D/G, \alpha_G, V/$ where "red", though grammatically it is an attribute, holds the role of the entity-to-be-described α_G (generated by use of a generator G which is a selector acting upon the spot R_G from R indicated by the word "colour"), while "poor" is placed in the role of the view V . But if I say «my cheeks are red», "red" plays the role of the view. So the structure required by the definition D5.1 of an aspect-view, is only a necessary condition for acting *as a view*, but this condition does not hinder a view in the sense of D5.1 to act also in the *role* of an entity-to-be-described (like in the first above example) or in the role of a generator $G(V)$ of entity-to-be-described that generates its field of perceptibility by interaction with R .

*According to MRC no entity – operation, or material structure or concept – possesses **intrinsically a fixed** descriptive role.*

In each descriptive act, the descriptive roles are assigned by the acting consciousness functioning, and in general these roles change from one description to another one. When a natural description is examined in order to compare it to the MRC norms, the first step is to examine *what* plays the role of entity-to-be-described, *what* the role of generator of this entity, and *what* plays the role of qualifier, of an MRC-structured view. A description $D/G, \alpha_G, V/$ is a piece of meaning constructed in a normed way and which, essentially and explicitly, is relative to the epistemic *actions* that achieved the semantization asserted by this description. *Any* asserted meaning bears inside it the genetic structure designated by the sign $D/G, \alpha_G, V/$, but it can include this structure in a more or less implicit, truncated, malformed way. Whereas inside MRC all the three involved roles G, α_G, V are explicitly indicated, each one at its own "legalized" location, and played accordingly to the explicated genetic order of the corresponding epistemic actions. They are to be treated as void, available, labelled *rooms* that have to be filled up in a reference-questionnaire to

which any achieved or envisaged description must be subjected. Thereby MRC acts like a sort of algebra.

The distinction, inside a relative description $D/G, \alpha_G, V/$, between the relativity to the operation G of entity-to-be-described generation of which the role is to produce an entity-to-be-described, and the relativity to this entity-to-be-described α_G itself of which the role is to bear subsequent qualifying examinations, is one of the most subtle and important features of MRC. In particular it preserves from the very strong inertial tendency induced by classical thinking, to forget that as soon as an entity is regarded as playing in a description the role of entity-to-be-described, *ipso facto* a corresponding epistemic action of generation of entity-to-be-described has produced it **as such**, has, implicitly or explicitly, put it on the descriptive stage with this role, even if, in some cases, this entity somehow pre-existed and so has only had to be selected as entity-to-be-described, it has not been necessary to radically create it as such.

The association, in any relative description $D/G, \alpha_G, V/$, between a one-one relation $G \leftrightarrow \alpha_G$ and the requirement for D of, indifferently, either a strong individual stability or an only probabilistic one, is intimately related with the impossibility, for mere language as well as for mere notations, to **fully** grasp and capture a factual singularity (individuality), neither in an absolute sense *nor* in only a relativized sense. Umberto Eco remarks: «The tragedy comes from this that man speaks always in a general manner about things which always are singular. Language *names*, thus covering the non-transcendable evidence of individual existence». Indeed each predicate (view) is general, and no conjunction of a finite number of predicates can ever exhaust the open infinity of the possible qualifications of a physical entity-to-be-described. As soon as we speak or write we generalize.

The concept of relative description is selective. It does not admit inside the class delimited by it, illusory descriptions where one of the

three roles G , α_G , V is not played at all. Consider for instance the famous illusory description «this is a lie» (or «I am a lie»)» where the word "this" (or "I") masks the absence of specification of the operation G of generation of entity-to-be-described, so also *the absence of specification of the entity-to-be-described α_G itself*. This blocks any further conceptual development. Indeed, previously to any research of a truth-qualification of the description, one finds oneself in a situation of impossibility to decide concerning the mutual existence in the sense of D7 between the involved entity-to-be-described α_G – non specified – and the involved view V . If this primary non-decidability concerning the *a priori* possibility of meaning, were permitted to enter the concept of relative description, it would manifest itself later in the form, also, of a paralysis of any attempt at a meta-qualification of the *relative proposition* founded on this illusory description *via* the values $g_k=\text{true}$ or $g_k=\text{false}$ of a meta-aspect-view $g \equiv$ empirical truth).

When descriptions that violate the MRC norms, are reconstructed in a normalized way, the paradoxes stemming from them disappear. There is no need for this to introduce levelled languages of logical types, the illness is cured *locally* by the normed reconstruction of only the considered description.

But nothing hinders to generate (select) as an entity-to-be-described *any* natural description excluded by MRC, and to characterize its incapacities or specificities by reference to the MRC-norms. In this sense the methodological selectivity of the concept $D/G,\alpha_G,V/$ by no means constitutes an *a priori* pauperisation of the ensemble of descriptions that can be studied inside MRC.

Finally, the general concept of relative description, by its various realizations, permits to discern definite categories inside the realm of the problem of reference and of meaning, and a *dégradé* of proposed solutions: the definitions D14.1, D14.2.1 and D14.3.1 introduce, for the

corresponding circumstances, what might stand as a solution or be completed to become one; the definition D14.2.2 suggests a possible approach concerning some of the circumstances to which it applies, while others are isolated as the most problematic; finally, the non achieved definition D14.3.2 concentrates in it definite questions and suggestions.

Like the one-one relation between a given generator of entity-to-be-described and the corresponding entity-to-be-described, like the definition of relative existence and then the frame-principle P8, the concept of relative description with the three roles involved by it, is an act of (qualitative) *formalization*, involving a methodological essence.

Cells of relative description.

Chains of descriptonal cells.

Non-reducible complexification of the conceptualization

P15. *The Principle of Separation.* Since any one relative description $D/G, \alpha_G, V/$, whatever its complexity, involves by construction one generator of entity-to-be-described, one entity-to-be-described, and one view, all well defined, as soon as some change is introduced in the actor designated for holding one of the roles from the triad G, α_G, V , another description is considered.

By a methodological principle called the *principle of separation* and denoted PS, this other description must be treated **SEPARATELY**.

D16. *Relative metadescription.* The principle of separation requires descriptonal closures and new starts. These entail the necessity of an explicitly and fully relativized concept of metadescription prescribing how to transcend "legally" an already saturated description.

Consider a precedingly achieved relative description to which the *order* 1 is assigned conventionally: $D^{(1)}/G^{(1)}, \alpha^{(1)}, V^{(1)}/$ (in short $D^{(1)}$; and instead of α_G we write α , to simplify the graphism). Consider a generator that selects $D^{(1)}$ as a new entity-to-be-described $\alpha^{(2)}$, denote it $G^{(2)}$ and

call it a *metagenerator (or a generator of order 2) relative to $D^{(1)}$* . So we have $\alpha^{(2)} \equiv D^{(1)}$. Consider also a view involving *aspects of order 2* with respect to which $D^{(1)}$ does exist in the sense of D7 (for instance the aspect of factual truth of $D^{(1)}$, or else some aspect of *relation* inside $D^{(1)}/G^{(1)}, \alpha^{(1)}_{G, V^{(1)}}$), between the various gk-space-time qualifications produced by the examinations of $\alpha^{(1)}$ by the initial view $V^{(1)}$, etc.; call it a *metaview (or a view of second order) relative to $D^{(1)}$* and denote it $V^{(2)}$. The description which is relative to the triad $G^{(2)}, \alpha^{(2)}, V^{(2)}$ will be called a *metadescription (or a description of order 2) relatively to $D^{(1)}$* and it will be denoted $D^{(2)}/G^{(2)}, \alpha^{(2)}, V^{(2)}/$ (in short $D^{(2)}/D^{(1)}$, or $D^{(2)}$).

The same denomination and notation are conserved if **(a)** $G^{(2)}$ selects as a new entity-to-be-described $\alpha^{(2)}$ not only $D^{(1)}$ considered globally, but furthermore it includes in $\alpha^{(2)}$ also separate elements from $D^{(1)}/G^{(1)}, \alpha^{(1)}_{G, V^{(1)}}$ specified explicitly ($G^{(1)}$, or $\alpha^{(1)}_{G}$, or $V^{(1)}$, or two or all three of them) which permits then to introduce in $V^{(2)}$ aspects of relation between such an element, and the global result $D^{(1)}$ to which it has contributed. Or if **(b)** $G^{(2)}$ selects a whole set $\{D^{(1)}_1, D^{(1)}_2, \dots, D^{(1)}_m\}$ of previously achieved relative descriptions (with an explicit reconsideration, or not, of elements from these descriptions), in which case $D^{(2)}$ is relative to all these descriptions. In this way a very free and rich concept of normed relative metadescription is introduced.

*But a **basic** transferred description can only have the **minimal** conceivable order, no matter in which chain it is involved.* Therefore this non-conventional minimal order will be denoted by 0, to distinguish it from any conventional initial order 1.

And any chain, if it has first been conventionally started with already previously achieved descriptions to which the order 1 has been assigned, can always be later completed downward until a basic transferred descriptions is identified which roots the chain into pure factuality.

Thereby the chain hits an absolute end (or equivalently, it finds its absolute beginning), which entails a corresponding re-notation upwards of all the successive orders of the involved descriptive cells. But a given relative description can belong to different chains that meet in it (it can be a node of the web of chains of conceptualization). So, regarded as a cell from distinct chains, a same description can have different orders.

*But the feature of being a meta-description (or not), is an absolute **if** transferred descriptions constitute the origin used as reference, since the zero order of a transferred description is an absolute.*

The above statement amounts to the remark (rather obvious *a posteriori*) that:

The (open) set of all the possible relativized descriptions falls apart in just *two* (evolving) layers: **(a)** the layer of transferred descriptions of physical basic object-entities which, by definition, are not themselves previously achieved descriptions, and **(b)** the layer of meta-descriptions in the absolute sense, i.e. of descriptions where the entity-to-be-described consists of one or several previously achieved descriptions. *Both layers have an evolving content.*

Through the first layer, the prime matter for the elaboration of meaning is drawn into conceptualization, and inside the second layer the basic meaning produced in the first layer undergoes abstract transformations which progressively elaborate indefinitely complexified meanings.

It is essential to note that in any chain, for each passage from a descriptive level n to the following level $n+1$, the new epistemic referential to be used $(G^{(n+1)}, V^{(n+1)})$ is freely decided by the acting consciousness-functioning CF, as an expression of his own (evolving) descriptive curiosities-and-aims, such as these emerge at any given time from his own biological, temperamental, and social-cultural background: it is the consciousness-functioning CF who, step by step,

chooses the "direction" of the descriptonal trajectory drawn by the succession of the cellular but connected descriptonal closures $D^{(n-1)}$, $D^{(n)}$, $D^{(n+1)}$,.... which, accordingly to [P15+D16], produce the indefinite progression of a hierarchical chain started by conventionally initial conceptual descriptions $D^{(1)}$ or by absolutely initial basic descriptions $D^{(0)}$.

*So, as long as no method or algorithm is found for determining – as a function of some definite parameters – a new epistemic referential each time that a passage from a description to a metadescription (with respect to that description) takes place, a descriptonal chain remains a concept that **cannot be absorbed in the concept of computation.***

And even if such an algorithm were specified, furthermore, the determination of the parameters on which the new referential depends should emerge automatically: but accordingly to what criteria ? Etc.

The subjective successive descriptonal aims play a decisive role in the representation of the processes of conceptualization offered by MRC. But on the other hand, the representational structure assigned by MRC to the processes of conceptualization, namely the structure of a web of chains of increasingly complex relative descriptions, is a (qualitatively) formalized structure, involving definite methodological rules and conventions.

This brings clearly into evidence that "a formalized epistemology" in the sense of MRC is quite fundamentally distinct from a reduction to computation.²³

²³ Here, inside the full text there follows a sequence – which we skip – of very remarkable "propositions" **PROVED** inside MRC, that establish that **(a)** Inside an MRC chain of descriptions *reduction* of a description to preceding ones is *not possible*;

Relative MODELS:

Passage from *non-classical* to classical conceptualization

D19. Intrinsic *metaconceptualization*. *Intrinsic model*.

D19.1. Intrinsic metaconceptualization of a basic transferred description. Consider a basic transferred description $D^{(0)}$ of a physical entity-to-be-described $\alpha^{(0)}$, individual or probabilistic.

- Let $G^{(1)}$ be a metagenerator of entity-to-be-described consisting of a conceptual selector (D4) that selects for examination the meta-entity-to-be-described consisting of $\alpha^{(1)} \equiv [D^{(0)} + \alpha^{(0)}]$.

- Let $V_I^{(1)}$ indicate an *intrinsicizing metaview* (I: *intrinsicizing*) which, starting from the initial, purely observational, transferred description $D^{(0)}$, works out *intrinsic* qualifications of the basic entity-to-be-described $\alpha^{(0)}$ involved in $D^{(0)}$ (intrinsic: word used in order to distinguish from the philosophical term "in itself"). This, inside the new epistemic referential $(G^{(1)}, V_I^{(1)})$, is achieved as follows.

* Let $V_{I_g}^{(1)}$ (I fixed, $g=1,2,\dots,m$, I_g functioning as *one* compact index) be a set of m intrinsicizing meta-*aspect*-views which, together, constitute the intrinsicizing metaview $V_I^{(1)}$.

* Each intrinsicizing meta-*aspect*-view $V_{I_g}^{(1)}$ involves an *abstract*, conceptual $V_{I_g}^{(1)}$ -operation of examination of *the metaentity-to-be-described* $[D^{(0)} + \alpha^{(0)}]$, namely an examination constructed in a way such that its possible results – necessarily values $(I_g)_k$ of $V_{I_g}^{(1)}$, accordingly to the definition D.5.1 – are all *conceivable* as separate intrinsic qualifications $(I_g)_k$ of the basic entity-to-be-described $\alpha^{(0)}$ that are compatible with $D^{(0)}$.

(b) KNOWLEDGE OF PHYSICAL REALITY-IN-ITSELF IS NOT POSSIBLE: this is the first explicit "logical" proof of Kant's assertion of this same proposition.

* The values $(I_g)_k$ of the intrinsizing metaview $V_{I_g}(1)$ are furthermore constructed as: (a) intrinsic qualifications of $\alpha^{(0)}$ at the time t_0 which is the time-origin re-established at the beginning of each succession $[G.V_g]$ having contributed to the elaboration of $D^{(0)}$; (b) qualifications located inside a connected space-volume ∂r which $\alpha^{(0)}$ is posited to occupy at the time t_0 .

The relative metadescription $D(1)/G(1),\alpha^{(1)},V_I(1)/$ constructed as specified above will be called an *intrinsic metaconceptualization of the basic (individual or probabilistic) transferred description $D^{(0)}/G^{(0)},\alpha^{(0)},V^{(0)}/$* and it will be also assigned the alternative more specific symbol $D_I(1)/[D^{(0)},V_I(1)]$.

D19.2. Intrinsic relative model of a physical basic entity-to-be-described. So the intrinsic metaconceptualization $D_I(1)/[D^{(0)},V_I(1)]$ constructs “explanatory” *relations* between its global meta-entity-to-be-described $\alpha^{(1)} \equiv [D^{(0)} + \alpha^{(0)}]$ and the basic entity-to-be-described $\alpha^{(0)}$ involved by $D^{(0)}$, as well as an own space-time representation of this basic entity-to-be-described $\alpha^{(0)}$. Once this construction has been achieved it is possible to extract from it exclusively the representation of the basic entity-to-be-described $\alpha^{(0)}$, in the following way.

The set of intrinsic qualifications of the basic entity-to-be-described $\alpha^{(0)}$ produced by the intrinsic metaconceptualization $D_I(1)/[D^{(0)},V_I(1)]$, when considered *alone*, severed from all the other elements with which it is tied inside the intrinsizing metadescription $[D_I(1)/D^{(0)},V_I(1)]$, will be called an (intrinsic) *model of $\alpha^{(0)}$* and will be symbolized by $M(\alpha^{(0)})/[V^{(0)},V_I(1)]$ in order to remind explicitly of the non-removable relativity of this model to the pair of views $[V^{(0)},V_I(1)]$ which determined its genesis and its characters.

Comment. It is important to realize clearly that an intrinsic model $M(\alpha^{(0)})/[V^{(0)},V_I^{(1)}]$ is *not* a relative description **of $\alpha^{(0)}$** in the sense of the definitions D14.

The intrinsizing meta-aspect-views from $V_I^{(1)}$ that produced the qualifications which the intrinsic model $M(\alpha^{(0)})/[V^{(0)},V_I^{(1)}]$ assigns to $\alpha^{(0)}$, have examined *the meta-entity-to-be-described $\alpha^{(1)} \equiv [D^{(0)} + \alpha^{(0)}]$* , **not** the basic entity-to-be-described $\alpha^{(0)}$.

The model $M(\alpha^{(0)})/[V^{(0)},V_I^{(1)}]$ occupies finally a position of full epistemological saturation and equilibrium of the meaning assigned to what had been initially labelled $\alpha^{(0)}$. Its genetic compatibility with the transferred description $D^{(0)}$, as represented by the intrinsizing metaconceptualization $[D_I^{(1)}/D^{(0)},V_I^{(1)}]$, detached it from $D^{(0)}$ like a mature fruit that has been plucked from its tree. The model $M(\alpha^{(0)})/[V^{(0)},V_I^{(1)}]$ superposes now to the initial purely observational basic description $D^{(0)}$, a pragmatic, economic and stable conceptual closure. Namely a closure consisting of *an invariant with respect to the group of transformations from one succession $[G^{(0)}.V_g^{(0)}]$, $V_g^{(0)} \in V^{(0)}$ that contributed to the elaboration of $D^{(0)}$, to any other such succession with a different aspect-view in it, $G^{(0)}$ being **fixed**: the observable effects of all these different successions $[G^{(0)}.V_g^{(0)}]$, $V_g^{(0)} \in V^{(0)}$, are now all assigned one common and definite "causal" ancestor $M(\alpha^{(0)})/[V^{(0)},V_I^{(1)}]$ which produces various perceptible manifestations, in a "normal" way i.e. in a way that is understandable accordingly to the frame-principle P8.*

When the basic transferred description $D^{(0)}$ on which the model $M(\alpha^{(0)})/[V^{(0)},V_I^{(1)}]$ is founded involves exclusively the human biological sensorial apparatuses, this sort of closure emerges in an unconscious,

non-mediated, genetically wired way: it seems to us to *be* precisely what we perceive, *which* we automatically assign to, exclusively, the involved entity-to-be-described....*in-itself*. The stage of a transferred description $D^{(0)}$ remains unknown. And even when fabricated apparatuses are connected to the biological ones, if the whole apparatus thus obtained still offers a directly intelligible form of space-time-gk-values, this form, again, is irrepressibly felt to reveal how the perceived entity-to-be-described **IS** *in-itself* (think of perceptions via a microscope or a telescope). More: when the observable basic transferred data do not themselves offer a directly intelligible form of space-time-gk-values, so if an intrinsic model $M(\alpha^{(0)})/[V^{(0)},V_I^{(1)}]$ has to be explicitly constructed from these data treated as mere coding signs, still, once a model has been constructed, it is usually felt to be satisfactory and *necessary* to such a degree that its only *hypothetical, retro-active, and relative* character tends to be skipped. Implicitly and fallaciously the intrinsic models $M(\alpha^{(0)})/[V^{(0)},V_I^{(1)}]$ conquer inside our minds a primary and absolute status.

This is the fallacy that instates the irrepressible belief that physical object-entities can be *known* "such as they are in themselves".

The unavoidable dependence of any intrinsic model of $\alpha^{(0)}$, on *both* an initial transferred description $D^{(0)}$ that has had to be achieved first and has involved some particular transfer-view $V^{(0)}$, and a subsequent process of intrinsic metaconceptualization $D_I^{(1)}$ involving a particular intrinsizing metaview $V_I^{(1)}$, tends to be overlooked. In particular, it tends to remain unnoticed that **another** pair $(V^{(0)},V_I^{(1)})$ would have led to a **different** model of $\alpha^{(0)}$.

This occultation marks all the classical descriptions, in physics, in mathematics, etc., as well as in the current thinking expressed by the current language: they are the opaque fictitious platform that floats

above the physical factuality and on which is erected the classical concept of objectivity. *The roots which insert the conceptualizations into physical factuality, with the relativities involved by them, are hidden beneath this fictitious platform.*

Starting from the transferred data that are available for it and on which it takes support without trying to express them, human mind always rushes as rapidly and as directly as it can toward a representation of the involved entity-to-be-described by an intrinsic model. As soon as such a representation has been attained, it is spontaneously felt to be "true" in a primary, certain and absolute way, without reference to the initial transferred data on which it is founded and forgetting that it is just an economic, hypothetical, retro-actively imagined *construct*. While the initial transferred data, even though they are the sole certainties, because of their dispersed unintelligible phenomenal appearance, are implicitly and irrepressibly perceived as nothing more than "subjective" tools for finding access to the "objective truth": *a fallacious, illusive inversion*. We systematically commit what Firth ²⁴ called «the fallacy of conceptual retrojection». Simplicity, invariance, and what we tend to call "truth" and "objectivity", have coalesced in a knot imprinted upon our minds by ancestral processes which, by implicit pragmatic causalizations, optimizes the efficiency of our behaviour, but blocks and botches the reflexive knowledge of our fundamental epistemological functioning. The interpretation as ontological assignments, of the results of our instinctive human adaptive constructs involving the frame-principle, is one of the worst and most stubborn pathologies of thought.

But inside MRC the distinction between illusory ontological assertions concerning an absolute way in which $\alpha^{(0)}$ «really-is-in-itself», and relative methodological intrinsic models of $\alpha^{(0)}$, is quite radical, clear

²⁴ Firth, R., Reply to Sellars, (1981) *The Monist* vol.64 pp. 91-101 (the quotation is from p.100).

and elaborate. It **specifies** and **generalizes** the meaning of the famous "quantum-classical cut". And the genetic order of the descriptive steps is re-constructed correctly and is fully displayed.

In these conditions the irreplaceable pragmatic and heuristic power of intrinsic models can be put to work without triggering any more insoluble philosophical pseudo-problems. Correlatively, the vain and exhausting battle between positivists and defenders of modelling, evaporates: The transferred descriptions are the unavoidable first stage of our processes of conceptualization, while the intrinsic metaconceptualizations of the initial transferred descriptions and the relative models extracted from these are a stabilising *subsequent* stage which, if realized, brings us down onto a (local and provisional) minimum of our potential of conceptualization.


There is no choice to be made. There is just an unavoidable *order of elaboration* to be observed, in a strictly normalized way, or to be recognized when it occurs implicitly.

On the conceptual status of MRC

To what class of conceptual beings does MRC belong? Any representation of "natural facts" is more or less normative, never purely descriptive as the classical myth of objectivity involves. But in the case of MRC the explicitly and resolutely **methodological** character is a major feature of the approach; any confusion between ontological assertions or implications, and methodological constructs, is most carefully avoided. So probably the best characterization is as follows. MRC is a strongly normative representation of the processes of conceptualization, of which the major specificities are: The place explicitly reserved to the consciousness functioning; the radical descriptive relativizations; and the fact that it explicates the structure of the very first step in the construction of objectivity, in the course of which intakes of **a**-[conceptual-linguistic] fragments of *pure* factuality adduce into language and thought the hard semantic core of the possibility of scientific consensus.

An Ideographic Symbolization of MRC

In all the expositions of MRC that preceded the present one I included in a presentation made in usual language, an ideographic symbolization which - without being neither a formalization *stricto sensu* nor a mathematical representation - permits certain suggestive and economic expressions. In this work I present it simplified and separately. In this way the symbolizations are made available while the drawbacks as well as the advantages appear clearly.

- **A consciousness functioning** CF is represented by the sign  suggesting the whirling place from D1 that acts on both the Exterior Universe and the Interior Universe where it belongs, and in particular also on itself.

- **Reality** is again symbolized by the letter R.

- **A generator G of object-entity** will be represented by the sign Δ and will be *re-named* a *delimitator* of object-entity, in order to stress that, whatever the nature of G, the final result is a delimitation, out of R, of a corresponding object-entity. Thereby however one *looses* the accent placed by the term "generator" upon a (possibly) of a *radically creative* character of an operation of object-entity generation. Then:

- The "place" from R where Δ works will then be denoted R_{Δ} .

- The object-entity produced by Δ will be denoted by α_{Δ} .

- **The process of delimitation** by Δ , of an object-entity α_{Δ} , will be represented indifferently by

$$\Delta R_{\Delta} \Rightarrow \alpha_{\Delta} \quad \text{or} \quad \alpha_{\Delta} \Rightarrow \Delta R_{\Delta}$$

where the two arrows do *not* have a logical meaning and cannot be considered separately, they are cemented into the global symbolizations which read respectively: "the delimitator Δ , acting on R at the place R_{Δ} , produces the object-entity α_{Δ} ", and "the object-entity α_{Δ} produced by the

delimiter Δ that acts on R at the place R_Δ ". Notice that the introduction of these symbolization permits to *distinguish* between:

* Δ : an epistemic operator (in the sense of usual language, *not of mathematics*);

* $\Delta R_\Delta \Rightarrow \alpha_\Delta$: a process, that mentions its beginning and its result;

* $\alpha_\Delta \Leftarrow R_\Delta$: an explicit specification of an object-entity *via the process that produced I*, which permits to specify an unobservable object-entity, by the way of producing it.

Thereby the expressivity concerning this zone from MRC is considerably increased.

- **An aspect-view** will be symbolized by the same sign V_g as before;
- **The operation of examination of α_Δ by V_g** will be represented by

$$V_g \alpha_\Delta$$

Notice that the introduction of these symbols permits to *distinguish* between:

* the epistemic operator V_g (in the sense of usual language, not of mathematics)

* the operation of examination $V_g \alpha_\Delta$.

Which, again is an increase of expressivity.

- A **view** will be symbolized as before by V .
- **The global operation of examination of α_Δ by V** (achieved accordingly to the proposition p11), will be represented by $V \alpha_\Delta$.

The remarks concerning V_g hold also concerning V .

- **An epistemic referential** continues to be represented as before by (Δ, V) .

- **The representation of an observer-conceptor [CF,(G, V)]**

becomes: [\bigcirc , (Δ, V)].

- **The mutual inexistence** between an object-entity α_{Δ} and a view V will be symbolized by

$$\nexists \alpha_{\Delta}/V \quad \text{or} \quad \nexists V/\alpha_{\Delta}$$

which reads, respectively, "the object-entity α_{Δ} does not exist with respect to the view V ", "the view V does not exist with respect to the object-entity α_{Δ} ".

- **The mutual existence** between an object-entity α_{Δ} and a view V will be represented by

$$\exists \alpha_{\Delta}/V \quad \text{or} \quad \exists V/\alpha_{\Delta}$$

which reads "the object-entity α_{Δ} does exist with respect to the view V ", "the view V does exist with respect to the object-entity α_{Δ} ". (All these symbolizations can also be used, in particular, with the symbol of an aspect-view V_G instead of V , which changes the meaning correspondingly).

- **A space-time view** is represented as before by V_{ET} .

- **The frame-principle** can be symbolized in the following way:

$$[\exists \alpha_{\Delta}/V_G] \rightarrow [\exists V_{ET}: \exists \alpha_{\Delta}/(V_{ET} \cup V_G)], \quad [\nexists \alpha_{\Delta}/V_{ET}], \quad \forall V_{ET}, \forall \alpha_{\Delta}$$

(where: the arrow, quite independently of any connotation suggesting *formal* logic, reads "entails that" (in the sense of natural logic) \exists and \nexists - outside any *formal* system, just in the sense of usual language or of "natural logic" - read, respectively, "there exists" and "there does not exist"; $(V_{ET} \cup V_G)$ considered as a one-block symbol, reads "the view formed with a space-time view V_{ET} and another *physical* aspect-view V_G ". The global reading of this symbolic picture is the verbal formulation of P8.

- **The symbol of a relative description $D/G, \alpha_G, V/$** becomes: $D/\Delta, \alpha_{\Delta}, V/$, **the symbol for a basic relative description**

$D^{(0)}/G^{(0)}, \alpha_G^{(0)}, V^{(0)}/$ becomes: $D^{(0)}/\Delta^{(0)}, \alpha_{\Delta}^{(0)}, V^{(0)}/$, and a relative metadescription of order n , $D^{(n)}/G^{(n)}, \alpha_G^{(n)}, V^{(n)}/$, $n=0,1,2,\dots$ is now symbolized by: $D^{(n)}/\Delta^{(n)}, \alpha_{\Delta}^{(n)}, V^{(n)}/$.

- Together, these symbolizations constitute **the ideographic representation of MRC** denoted in short by

$$\{ \mathcal{Q}, \Delta, \alpha_{\Delta}, V, (D^{(n)}, n=0,1,\dots) \}.$$

End of the quotations

At this point we stop quoting the author.

We hope that the price paid by reading the preceding pages has been able to entail the perception of the singularity of MCR and to convey the notion that it deserves attention.

In what follows now we shall first add some brief personal comments and then we shall eventually enter upon the ecological problems.

GLOBAL CONSIDERATIONS

The dense kernel of MRC – 10 main definitions, 1 postulate, 3 principles and 6 proved propositions, a total of only 21 one steps – suffices for drawing us *out* from the haze of superficial and vague forms inside which we stay trapped by the current languages with their grammars, by classical logic, classical probabilities, and even by the whole classical scientific thinking. *The kernel of MRC creates a net of direct and clear connexions between well defined operational (material or conceptual or both) descriptive actions, and on the other part the communicable results of these actions.* So the communicable assertions emerge explicitly relativized to all the elements involved in their genesis. This brings into evidence the *conditions* of consensus. The descriptions elaborated accordingly to MRC are endowed by construction with the potentiality to

be made "objective" in the sense of inter-subjective consensus. And since any MRC descriptive chain is directly rooted into a-conceptual physical factuality via transferred basic descriptions, *this consensus is centred upon fragments of **physical** factuality*. This enables us to speak of "factual truth"²⁵ in a new deep way and in a rigorously defined sense where any possibility of confusion with only *formal* coherence is suppressed.

In short, MRC endows us with a rigorously organized structure of rules that applies to any process of conceptualization; a structure that is rooted into the as yet never conceptualized before, and is developed until it comes in direct touch with the limit between rationality and metaphysics.

²⁵ The word 'factual' stresses the validity for any real entity, social, economic, etc.

ALREADY WORKED OUT APPLICATIONS

The nucleus of MRC has numerous applications. Mioara Mugur-Schächter has reconstructed in MRC terms the essence of the classical logic and of the classical theory of probabilities. The result is *unification between classical logic and classical probabilities* into one *non-classical relativized structure* where both these basic conceptual approaches are extended and deepened (MMS [2002B], [2006], [2009C]). With respect to the relativized concept of probability there emerges a clear definition of the 'significances' involved in Shannon's theory of communication, as well as *definitions of complexity measures which preserve the involved semantic* (MMS [2006]).

This author has also succeeded to construct an MRC representation of the concept of time (MMS [2006]), founded on the concepts of "relative change" and "relative identity-difference" (a **two**-dimensional, subjective-public representation).

These abstract conceptual applications constitute already a proof by construction of the epistemological revolution entailed by the generalization to *any* process of conceptualization, called "MRC", of the *primordial* methodological essence identified inside the epistemic substrata of the algorithms of quantum mechanics (where this essence is tied with only the particular case of microstates).

But recently, other researchers have started developing the application of MRC to the construction of a *general relativized engineering* (a general relativized method for designing and constructing artefacts, in particular cars), while the contours of a *relativized systemic* are rapidly emerging)²⁶.

²⁶ H. Boulouet is developing a Ph.D. in this direction (http://www.mugur-schachter.net/adMCR_presentation.html) "Document introductif".

Furthermore applicability in social and economic domains has been suggested²⁷.

ACQUIRED GENERAL CONSEQUENCES

It seems clear that from now on we should cease reasoning accordingly to the classical rules of thought. This might remain useful only in special circumstances in which the difference between MRC-reasoning and classical reasoning can be shown inside MRC to be negligible.

Above all we should learn to steadily resist the huge attractions toward naïve realism, no matter what appearances they put on. Indeed let us concentrate a moment upon the conclusion imposed by *the unremovable relativity of any process of qualification (so of any description or representation or conceptualization), to all the aspect-views V_g involved in the elaboration of this qualification*. Namely that:

* It simply is not **CONCEIVABLE** to "know" physical reality "such as it is in itself".

* It even is illusory to think that one might *asymptotically* reach such a sort of knowledge: indeed no conceivable process does exist of passage to **ONE** definite asymptotic limit, *common* to all the descriptions from the heterogeneous and indefinitely open set of *all* the possible descriptions, where one jumps freely from one qualifying view to another one.

* Even a sequence of descriptions that:
(a) are all realized for *one* same entity-to-be-described α_G (corresponding to only one given operation of G) and **(b)** are all achieved by use of only one aspect-view V_g , always the same one, but **(c)** are endowed with *values* kg of V_g that are progressively brought closer and closer to one another each time that we pass from one description from this sequence, to the next one, already marks its final result by an indelible relativity to V_g . And – even in this very particular limiting case

²⁷ J-M. Fessler, "[Quelques applications de l'oeuvre de M. Mugur-Schächter](#)" , Automates Intelligents, Jean-Marie Fessler, 20 Avril 2009.

that might suggest an asymptotic possibility to reach an absolute knowledge – the non-removable relativity specified above suffices for in fact hiding behind an indestructible opaque screen the unthinkable "way of being in itself" of the involved fragment of reality denoted α_G .

This stubborn resistance opposed to any attempt at reaching some absolute knowledge is a manifestation of conceptual-verbal malformation: The expression "way of being" involves *qualification* while the expression "in itself" means *absence of any qualification*, so the verbal composition "way of being in itself" is semantically self-destructive, it points toward a self-contradicting semantic content.

This illustrates remarkably the desperate subconscious tricks by which man refuses to become aware of the limits of his knowledge: we are in presence of a huge piece of collective occultation.

Let us now fully perceive the weight of the circumstance that inside MRC the conclusion spelled out above – which withstands any attenuation – is **deductively** imposed upon our minds as soon as we have agreed with a basis of assumptions consisting of only 1 postulate (of existence of a reality independent of our existence and our cognitive actions), 3 principles²⁸ and 10 main definitions: this entails that if we reject the formulated conclusion we should be able to declare on the basis of which rejection of a feature from this very reduced and entirely exposed basis of assumptions we do so.

If we perform the suggested exercise there grows inside our understanding the strange, uncomfortable but incontestable intimate revelation that everything that we "know" is but construction of consciousness-functionings of men, nothing else than a shaping by our human cognitive actions, of this substance that we call "reality", of which

²⁸ Here only two have been reproduced, the principle of space-time individualization has been omitted.

we ourselves postulate the existence, but which, if considered separately from us, *will stay forever outside our knowledge.*

And this fact that initially is so difficult to be accepted, once it nevertheless has been imposed upon our rationality, all of a sudden triggers inside our minds, by a sort of adjustment, a clear and coherent understanding of the relations between man and factual "reality". It is true that this adjustment brings into evidence the limits of our knowledge of reality, but it also permits to become aware of the huge degree of *liberty* that stays available for us for constructing this knowledge in an *aimed* way, optimized, cleaned of mysticism, of false problems, and of false absolute "truths" which immobilize the mind in misunderstandings, awes, submissions, and a thick mist of obscure beliefs and hopes.

In particular, this demystifies logic and mathematics, these idols of scientific thought. Inside these two major approaches of human mind such as they now stand the physical and relativizing roots of their contents seem to be absent. The involved entities-to-be-qualified are conceived as just being there, floating a-temporally inside the universe of concepts-and-symbols where they can be "shown" by exclusively other concepts-and-symbols. *Everything* inside these disciplines is of the nature of concepts expressed by symbols. Nothing exhibits a physical or physically operational genetic core. The contents of these disciplines convey the illusion of being all *born* inside the purely conceptual-symbolical and from *there*, as if magically, to succeed to point toward *material* "objects" which would equally pre-exist, and precisely such as we do perceive them. This, we obscurely feel, somehow violates certain unformulated principles of homogeneity that, via progressiveness, underlie any factual interaction. Therefore one cannot form a clear explanation of the prodigious efficiency of mathematics; nor of logic, strictly, if induction, which overflows it, is neglected. Correlatively one cannot perceive the limits of this efficiency. Therefore these approaches seem to be of a divine nature and they arise a peculiar sort of idolatry.

Whereas inside MRC, the conceptual-physical operational structure of the epistemological processes that lead to the construction of a formal system are brought into evidence and they are illustrated by a "genetic logic" and a "genetic" representation of probabilities. This permits to understand the genesis of the power of performance of formal systems and correlatively, to perceive the limits of this power.

MRC AND CLIMATOLOGY: ANOTHER VIEW ON GLOBAL WARMING

A serious problem

Let us now finally consider ecology.

A researcher who tries to thoroughly understand what is now called "global warming" finds out rapidly that the current definitions with which his scientific community works and the various asserted results, do not clearly impose consensual conclusions. This entails scepticism concerning the very existence of the phenomenon. In its turn this scepticism weakens the efficiency of the attempts at dominating the phenomenon, in so far that it really does exist.

In these conditions, what are we to do?

Should we passively permit the unorganized diversity of the current languages and methods to last indefinitely and to withstand consensual political decisions and social actions? Should we permit the usual processes of innumerable scientific meetings and discussions to set in, and then to last indefinitely, thus continuously enforcing the nascent public mistrust? When possibly important and pressing problems stay pending?

In contradistinction to what happens inside the particular field of modern physics, the dominant way of thinking in the other classical scientific approaches is still strongly *absolute*. In particular, this is very much the case in the domains of the geological sciences, as well as throughout the various other studies of the Earth and of the phenomena

correlated with our planet. The facts are conceived to 'be' such as they are perceived, quite independently of man.

Moreover in the mentioned domains *what* is perceived and *how* it is perceived is still permitted to heavily depend on what and how one **wants** to perceive. This might seem to be no more than just a trivial and quite current generality. But when this generality comes to interfere with huge political and financial interests it surreptitiously acquires the power to *pervert* the scientific modalities of observing facts and of establishing results. And so long that these modalities themselves are still weakly organized, this power cannot be clearly perceived, nor, a fortiori, can it be resisted.

Even if a consensual cognitive strategy comparable to that already instated in physics and in biology, were available also in the domain of ecological problems, it might come out that many would simply refuse to apply it. Because in fact, among those who make assertions concerning global warming, quite a number do not speak in order to express a factual truth; they speak only in order to generate advantage for themselves, for their positions and their gains. We are not in presence of a purely scientific debate. We are in presence of an intimate mixture of science and of struggle for profits and power. Global warming is a financially and politically sensitive problem that generates a whole variety of partisan attitudes.

In these conditions it becomes particularly important that those who *are* seeking factual truth, become aware of the possibilities offered by MRC.

What does MRC involve that could avoid drifts?

To begin with, we must accept a sort of intellectual regression:

MRC warns strongly that *what we call warming is **not** a fact that exists in itself*, independently of our own cognitive actions G and V_G by which we try, respectively, to singularize 'it' out of the continuum of

physical reality and to qualify 'it' via carefully relativized descriptions $D/G, \alpha_G, V_G/$.

Let us analyze in more detail.

"Global warming" is just an abbreviating expression for indicating a whole **set** $\{D/G, \alpha_G, V_G/\}$ of relative **DESCRIPTIONS** constructed by interaction between men and what we call physical reality. And these interactions have to be subjected to quite definite constraints if we want them to be scientific descriptions. Namely, in each description from the set $\{D/G, \alpha_G, V_G/\}$:

* G , accordingly to D4, has to be a definite, communicable and repeatable operation which, on the basis of declared previous conceptualization, can be thought of as generating, out of the whole of physical reality, an entity-to-be-qualified, α_G , of which we be authorized to assert that it can exhibit "warming" effects (in some among the descriptions from the set $\{D/G, \alpha_G, V_G/\}$ this entity might be a sample of solidified snow, in another ones it might be a sample of water from the Indian Ocean, or another ocean, or a river or a lake; or it might be some definite sort of tree, or flower, etc.).

* V_G has to be constructed as an aspect-view in the *full* sense of D5.1. And furthermore, accordingly to the condition of relative mutual existence D7, when the examination procedure involved in the definition of V_G is applied to α_G it has to be clearly pertinent for qualifying α_G – in consensual terms – as either manifesting indeed some given "warming" effect, or as not doing so.

So, for constructing each description $D/G, \alpha_G, V_G/$, one has to declare explicitly by *which* consensually achievable and repeatable operation G acting on *which* sort of domain R_G from the physical reality, the entity-to-be-qualified denoted has been generated, i.e. has been made available for qualifications. And then one has to also declare by *what* aspect-view V_G , constructed accordingly to *what* specific *aims*, the qualifications of this entity have been accomplished, i.e. what examination-procedures have

been applied, what sort of devices have been involved in this examination, what sorts of marks have been obtained, and coded accordingly to what sort of communicable system of signs.

And in the end, all the descriptions from the set $\{D/G, \alpha_G, V_G/\}$ have to be composed accordingly to the definitions D14-D19 in order to construct out of them a unique concept of "global warming" that is internally organized in a consensual way.

A definite MRC concept of "global warming", coherent, consensual, genuinely scientific, requires all these precautions. Thereby already, one can estimate the distance between a process of conceptualization of the problem of "global warming" that would be regulated by MRC, and the way in which this conceptualization is dealt with nowadays.

It might be thought that in fact the distance asserted above is not so large, that – in essence - what is required above is precisely what is quite currently done.

But such a belief would be utterly false.

To begin with, this belief would be false because the crucial role of an explicit specification of the operation of generation G *and* of the specific substratum R_G of physical reality on which G works, is still rather unanimously ignored, so it is quasi systematically neglected. This is so because the role of the specification of the operation G has only so recently been dug out from the epistemological substratum of quantum mechanics (MMS [2009B]). It is still quite currently presupposed that the way in which an entity-to-be qualified is made available *as such* is spontaneously and "naturally" conceived by the investigator (just like throughout classical logic as well as in all the grammars of usual languages it is presupposed that the 'object x of a predication' always *pre-exists* ready to be qualified). This is so even in the classical disciplines of physics («let M be a mobile placed at the origin of a Cartesian referential of space and time» is a very usual way of entering upon a problem of classical mechanics, etc.). In the case of quantum mechanics, however,

the object-to-be-qualified, namely a microstate, has – in general – to be *created* in order to then study it. But:

In spite of this circumstance, the operation by which this creation is realized as often as necessary ***is not represented inside the mathematical formalism of standard quantum mechanics***, it is just verbally indicated in certain contexts, and very often it is confused with *another* operation called "state *preparation*" which in fact is the first stage of an operation of ***qualification by an act of measurement***.

(Thereby, surreptitiously, a genetic link which, via a top→down initial process of conceptualization has connected the mathematical formalism of quantum mechanics, to the classical thinking-and-speaking, still subsists, but with respect to an operational epistemological substructure that *ceased* to be consistent with this link; which contributes notably to the stubborn resistance that the "interpretation problems" have up to now opposed to any attempt at a genuine solution).

This knot of confusion and conceptual innovation wher the operation of generation G is involved, illustrates the gap that separates MCR from the current scientific thinking.

In the second place, the requirement, for the concept of "a grid for qualification", of a general and complex operational-conceptual structure like that one expressed by the sequence of definitions D5.1-D5.4, has *never* before MRC been proposed as a general necessity. And let us stress that the operational aspects involved in D5.1-D5.4 entail that – in general – an operation of qualification in the sense of MRC ***creates*** the qualified state of the entity-to-be-qualified. Inside modern physics this is explicitly admitted nowadays. But in this respect also, the whole classical thinking – classical logic, classical probabilities, and the usual languages with their grammars – involves that the 'predicates', just like the entities to be qualified, pre-exist, ready to be made use of, and that merely selecting

this or that already available 'predicate' as adequate to be made use of for some given act of qualification, is just a matter of common sense. So outside the domains of 'hard' sciences like modern physics (and biology perhaps), the utmost importance, in general, of a radical creation of a specifically appropriate structure for qualification, is still very feebly perceived.

In these conditions a consensual utilization of the requirements from D5.1-D5.4, by itself, would already suffice for suppressing a huge variety of misunderstandings that nowadays vitiate the communicability inside the various communities of investigators of Nature.

To summarize: The notion of the necessity to construct a specific, explicit and consensual *strategy* for each given cognitive aim is very far from being unanimously recognized. Whereas according to MRC, in general one has to create – both – the entity-to-be-qualified and the qualified state of this entity, if one wants to construct a consensual description that is certainly free of any ambiguity, and this is new and revolutionary.

So, by acting accordingly to MRC it would be possible to suppress the uncontrolled multiplicity of implicit significances carried by the expression "global warming". This expression would become related in an explicitly and consensually constructed way, with a set $\{D/G, \alpha_G, Vg/\}$ of relative descriptions each one of which would be transparently intelligible and consensual; while the inner structure of the whole formed with these descriptions would also be consensual, and this inner structure would be exposed to all the eyes. The whole approach concerning a possible phenomenon of "global warming" would become transparent, consensual, and verifiable step by step, publicly offered for consensual optimization.

While on the other hand, so long that the nowadays approach continues to be practised, such a result seems impossible. For in the present situation, when an investigation is organized that is considered to

be scientific, quite systematically the declared results are flawed by *methodological variations from one researcher to another one* and by a host of quasi general assumptions of false absolutes in consequence of which these results are – both – heterogeneous and unreadable.

Indeed let us suppose that we want to learn whether some global warming has emerged on earth – or not – during the 20th century, and if it has, what magnitude has to be assigned to it.

If this question is addressed to the French institution of National Meteorology the answer will consist of merely a «yes» or a «no» accompanied by a nude number. Nothing will be communicated concerning the way in which this assertion and this number have been established, via what tests, performed on what set of objects-to-be-described, accomplished via what procedures for qualification, having involved what apparatuses and produced what sorts of brute marks, coded in which language, and how. All I shall know will be this cryptic, uncontrollable pair of a verdict and a figure. This will constitute the absolute “truth” asserted by the French institution of National Meteorology.

For the specialist who seeks the answer in the scientific publications of the researches performed in the framework of the French institution of National Meteorology, the situation will be different, of course. But the conclusion will be much the same: because of the methodological fragmentations and of the involved false absolutes, the specialist also will probably be unable to extract a definite conclusion.

If now I shall address the same question to the American agency NOAA (*National Oceanic and Atmospheric Administration*), the answer will again most probably consist of just a «yes» or a «no» associated *another* figure disguised in an absolute truth that, in fact, will be implicitly marked by other hidden relativities. These, if not radically lost forever, would be very difficult to identify. And so I would find myself in possession of just an alternative absolute and uncontrollable “truth” on global warming according to the NOAA.

As for the specialist, how could he manage to confront now the two sets of published works imagined above, and to form a definite conclusion, notwithstanding the lack of methodological unity and in spite of hidden but certainly present false absolutes?

This is the Babel where our modern “scientific” society is imprisoned.

The step to be taken in order to extract ourselves from this Babel – a giant step – would be to adopt MRC as a common standard imposed upon the processes of scientific conceptualization.

This would be a quite reasonable step, since as far as I can see up to now MRC is the unique rigorous and coherent proposition of a rigorously constructed system of norms regulating the whole domain of the processes of conceptualization. And when it is well known what progress has been achieved in the degree of consensus and efficiency via the – partial – adoption of merely punctual and purely conventional standards like the decimal numeration or the MKS system of units, when one imagines what sophistic chaos must have reigned in the realm of “rational” argumentation before the construction and the adoption of Aristotle’s syllogistic, it is not difficult to form a representation of the extent of the effects that might be entailed by a consensual adoption of this standard of a new type consisting of *a whole method, rooted in the foundations of modern physics, developed in an explicit and coherent way, and concerning the totality of the processes of conceptualization.*

Let us stop a moment to contemplate the perspective suggested above. Let us imagine that the NOAA, the oiler Total, Greenpeace, and the French Ministry of the Environment have agreed to organize together a research for establishing definite results concerning a possible process of global warming during the last century. Let us furthermore imagine that each one among these four institutions chooses its own domain of entities-to-be-described and its own devices, but they agree upon the common decision to work accordingly to all the MRC-norms. For instance,

one of the four partners takes in charge all the studies of water, another one all the studies of air, and the two ones left assume the study of the flora. And finally, let us imagine that each one of these three studies would have led to the same conclusion: a warming has indeed occurred, and its medium value is estimated to be of 1° Celsius.

In this case – since all the procedures would have been performed accordingly to a unique, general and coherent methodology that – *itself* – is fully offered to examination and stays open to criticism and to improvement – the mentioned conclusion could be consensually accepted; relatively to MRC of course, but consensually. And, by construction, this conclusion would indefinitely stay open to optimizing reflexive returns, because each accomplished step, having been performed accordingly to MCR, would be repeatable, verifiable and modifiable. On this first consensual basis it would then be possible to continue the construction, inside MRC. And so, progressively, one could progressively achieve a genuinely scientific definition of a concept of “global warming”, a coherent and consensual definition, as complex as one would like.

But let us get more close to the factual situation.

Consider the epistemic referential (G,Vg) that generates a relative description $D/G, \alpha_G, Vg/$ involved in the estimation of the hypothetical concept of “global warming” considered above. According to all the MRC definitions D14 of various types of concepts of relative descriptions, the repetition of one same succession [G.Vg] of one operation of generation G of a given entity-to-be-described, immediately followed by an examination of the result via the aspect-view Vg, produces – in general – a whole spectrum of different results. So in general, instead of the one value 1° Celsius, one will be led in fact to a whole spectrum of *different* valuations of the hypothetical “global warming”, for instance a spectrum of values contained between 0,5 and 1,5 degrees Celsius. And the values from this spectrum necessarily will manifest themselves with some statistical distribution: in general the revealed situation possesses a statistical

character. When this happens one is confronted with a new problem, namely to identify conditions of stability of the statistical distribution, permitting to reason in terms of probabilities, i.e. offering a basis for predictability; an only global and probabilistic predictability, not an individual and certain one, but nevertheless a form of mathematical predictability that might come out to be remarkably precise, like in the case of microstates.

Now, MRC includes a very elaborate study of the MRC concept of “relative probabilities” (MMS [2006], [2009C]). And this concept can be used as a strong guide for an attempt at deliberately constructing the conditions for relative probabilistic predictabilities.

This last assertion, via the notion of “construction” that it brings in, authoritatively pushes us finally to conceive a quite surprising limiting aim: MRC permits to hope to finally produce, not only consensual intelligible descriptions of the ecological status of our planet, but also *to **artefact** a planned stable physical realization of a desired ecological reality.*

In this way the expression “global warming” that initially was no more than a verbal label, could first undergo a transmutation into a device for mathematical predictions on ecological facts, and then it could found the design of the modalities to realize materially a planned ecosystem.

Obviously such an evolution would be very useful for acquiring support from those who possess the power to trigger political and financial decisions. It could achieve a radical suppression of the opacities which now separate the belief in “global warming”, from actions in order to exclude the phenomenon toward which this expression points.

Let us sum up.

Contrary to what one might have thought initially, it appears that MRC is profoundly different from the classical methods. In particular, as far as “global warming” is concerned, application of the classical methods has been found to lead to procedures the following type of the following type.

Each climatologist starts from the a priori acceptance of a phenomenon that he calls "global warming" and for which he has, more or less explicitly, formed some definition inside his own mind. He usually does not try to confront this definition with other possible definitions. He just works on the basis of his own definition. So some given author will, for instance, incorporate his personal definition of "global warming" in the conclusions he draws from the calculi he performs with the results of his own observations of temperatures measured in the deep oceanic circulations termed as "thermohaline" ?. Some other author will observe exclusively migrations of animals; some other one will take into consideration only the level of snow in the ski-stations at given times in the course of a year; etc. Each one among these various authors will then elaborate statistical calculi that will endow his work with a scientific appearance. But none of them will declare the partial, relative character, of which in fact he even might not be clearly aware.

Of course, there are numerous honest climatologists, and not all of them are unaware of the partial and relative character of their procedures, or unable of efforts aimed at limiting the negative consequences of this character. So, by confronting their results, the ecologists might succeed to explicate from the totality of these some general coherent conclusions. In this case, without knowing it, they will have blindly found some essences of the MRC procedures indicated before. But even in this happy case, at any moment they will run the practically irrepressible risk of reaching only a very poor degree of global coherence, and of gliding into the quasi general error of *reification of the descriptions*, i.e. of identification of a description $D/G, \alpha_G, V_G/$ with "the intrinsic way of being" of the entity-to-be-described α_G involved in this description: This identification is the huge false absolute that flaws naive "realism" in all its recesses, and it seems quasi impossible to get rid of this identification without a long specific training. On the other hand, as we have indicated, this identification entails surreptitiously a host of noxious effects.

In the case of microstates these dangers have been avoided by the very rare circumstance that the involved cognitive situation has imposed constraints so extreme that they have induced into the descriptions all the necessary relativities: For microstates the operations "G" and "Vg" **CANNOT** be performed implicitly, nor simultaneously. One is **compelled** to conceive and to realize them explicitly and successively and, in between, to just *posit* the emergence of an unobservable entity-to-be-described α_G that stays in a one-to-one relation with the operation of generation G.

But in the course of current life or classical scientific activity, the efficient ways of thinking and operating are founded upon an ancestral concealment of the epistemological operations of generation of the entities-to-be-qualified and of qualification of these inside reflex processes undergone by the psychobiological structure of men. And this, in the absence of barriers imposed by an explicit and generally valid epistemological methodology, exposes us to basic insufficiencies in our actions of elaboration of knowledge. In domains where the human beings of this third millennium dwell with cognitive circumstances that have radically ceased to be in automatic harmony with our reflex psychobiological equipment for producing knowledge because they are too small or too huge and too simultaneously diverse for ever having been entered upon before, we dramatically need a narrow methodological guidance.

THE GENERAL FIELD OF APPLICABILITY OF MRC

In contradistinction to our reflex psychobiological equipment, the method of relativized conceptualization is endowed with a fully general efficiency for producing knowledge, because its descriptive core-structure $D/G, \alpha_G, Vg/$ generalizes the essence of the epistemological substratum of the mathematical formalism of quantum mechanics. There, as we have noted above, the cognitive situation imposes constraints so

extreme and severe that they have acted at the same time like a cleaner and like a conceptual-operational prism that has compulsorily performed a maximal decomposition of the processes of description. This has endowed us with the epistemological gift of a fully explicit and displayed perception of the universal structure of the very first stratum of our processes of conceptualization. Without access to this primordial stratum it would have been impossible to grasp the basic form $D/G, \alpha_G, V_G/$. From a more superficial position on the vertical where can be represented the successive stages from a chain of conceptualization, such an integration was a practically impossible event. Several researchers in the domain of "complexity" have tried to construct models representing the way in which an observer is involved in his descriptions. Edgar Morin for instance tried this via his famous recursive notations. But none of these models have been convincing and all have withstood generalization. Whereas the primordial form $D/G, \alpha_G, V_G/$, once grasped, insures a universal applicability throughout the domain of the processes of human conceptualization: our account of MRC, though far from being complete, permits to sense this. So the applicability of the method of relativized conceptualization is by no means limited to the domain of scientific representations. It can be used as a fractal constructive element, or a cleaner or an analyzer, for representations of any sort, whether expressed by current language, or by the language employed by some group of action, and possibly even of artistic expressions. (In particular, it would yield an interesting insight into the political language, so rich of references to "existants" that in fact exist only by the will of the political actors).

The *specific* results of the applications of MRC are genuinely striking mainly in the cases that are relatively rare in everyday life, or when an unusually deep analysis is performed. Therefore, if one wants to apply it systematically, MRC might sometimes seem to be unnecessarily refined, too perfectionist. So, we guess, the reader might have made some fun of the profusion of methodological precautions that we have recommended

for achieving an acceptable concept of "global warming". The expression "drawn in a glass of water" might have come to his mind.

But here we have tried to first construct a scholarly proof, by use of a known example.

And as soon as one is confronted with apparently unsolvable paradoxes or problems, the MRC methodological organization becomes essential and it always leads to a definite solution that often is surprising. In particular – as Lovelock remarks – method becomes an unavoidable instrument as soon as one wants to bring together (to compare, to compose) disciplines that do not fuse spontaneously even though their domains of entities-to-be-described intersect: geology, vulcanology, oceanology, meteorology, biology, anthropology.

It will also be convenient to make use of MRC in circumstances that, in consequence of a particular practice (meteorology or marine meteorology, for instance), have already been approached in a strictly professional way, but a way focused upon only local entities-to-be-described and local aspect-views: inside MRC it will be possible to incorporate the local results into an organized and coherent system of knowledge as large as one wants, and to accomplish this incorporation under detailed and generally valid guidance, in a standardized, consensual manner.

In the cases mentioned above as well as in innumerable other conceptual situations, the use of MRC as an explicit and general reference would first appear to be a strange and tiring choice, then to be an efficient choice, and eventually it be felt to have become indispensable, even if it will always remain possible to also employ – starting from MRC – a classical short cut if and only if the method itself recommends it as "legally acceptable" because it has been found not to entail misinterpretation.

In this way, throughout the processes of conceptualization, one would benefit permanently of consensual guidance and of conceptual security.

Would it be possible along this way, if not to immediately find solution to the dramatic dangers that confront us at the present time, at least to begin to sketch out the contours of a different state of the world, in which the knowledge that we have gathered be preserved and integrated in a way of functioning indefinitely open to optimization?

We are convinced that this is possible. But in order to actualize this possibility, new techniques and procedures of government should be developed, involving considerable leaps with respect to the nowadays standards.

CONCLUSION

The potentialities of the method MRC could be fully actualized only if our human minds acquired the habit to spontaneously refer to this method as soon as they generate descriptions and form reasonings out of these. If this happened we would become far more apt than we now are to achieve a consensual, controlled, optimized navigation through the complex fluxes of our rapidly changing world. The handicap of a naïve realism according to which we stay in direct contact with the inner fabric of "reality" "such as it truly is" would cease to bias and to limit our strategies and our actions. For in this case we would fully realize that *we quite essentially contribute to the emergence of what we perceive and that in consequence of this we could undertake to **construct** deliberately what we choose to want to perceive.*

But on the other hand, is it not illusory to hope for a change of the current ways of thinking installed in our very being by millennia of biological evolution and by centuries of training in classical rationality? In the minds of billions of men, the conception of the world and of themselves is still moulded by religions as old as humanity itself, and these, in many respects, have withstood progress.

In spite of these giant obstacles, though, it does not seem unconceivable that a local break-through be realizable inside the particular domain of investigation of our Earth with its atmosphere and with the

biological world that surrounds and penetrates it. If MRC were experimentally implemented in these domains, this could lead rather rapidly to notable results. Indeed, in contradistinction to the economic, financial and political phenomena – the *technological* components of the processes of observation and information evolve under control, and they quasi spontaneously and they explosively generate huge and highly performing computerized networks. This technical substratum could strongly favour a clear and rapid estimation of the potential utilities of MRC. And if the verdict were positive, this, in its turn, might enhance the political, economical and financial support for the use of MRC.

Nothing is certain in this respect, but the possibility deserves being considered.

BIBLIOGRAPHIC INDICATIONS

?.....?

J-P. Baquiast

?.....?

M. Mugur-Schächter (MMS):

Practically all the works indicated below are dischargeable from
http://www.mugur-schachter.net/publications_fr.htm

- [1964], *Etude du caractère complet de la mécanique quantique*, Gauthier Villars.
- [1979], "Study of Wigner's Theorem on Joint Probabilities", *Found. Phys.*, Vol. 9.
- [1991], "Spacetime Quantum Probabilities I:..... ", *Founds. of Phys.*, Vol. 21, pp. 1387-1449 ;
- [1992A], "Toward a Factually Induced Space-Time Quantum Logic", *Founds. of Phys.*, Vol. 22, pp. 963-994 ;
- [1992B], "Quantum Probabilities, Operators of State Preparation, and the Principle of Superposition", *Int. J. of Theoretical Phys.*, Vol. 31, No.9,1715-1751 ;
- [1992C], "Spacetime Quantum Probabilities II: Relativized Descriptions and Popperian Propensities", *Founds. of Phys.*, Vol. 22, pp. 269-303 ;
- [1993], "From Quantum Mechanics to Universal Structure of Conceptualization and Feedback on Quantum Mechanics", *Founds. of Phys.*, Vol. 23, No 1, pp. 37-122 ;
- [2002A], "Objectivity and Descriptive Relativities", *Foundations of Science* 7, 73-180 ;
- [2002B], "Quantum Mechanics versus Relativised Conceptualisation" in *Quantum Mechanics, Mathematics, Cognition*

and Action, M. Mugur-Schächter & A. Van der Merwe, Kluwer Academic Publishers 2002, pp. 109-307 ;

- [2006], *Sur le tissage des connaissances*, Hermès Science Publishing-Lavoisier, 316 p.

- [2009A], *L'infra-mécanique quantique: une révolution épistémologique révélée dans les descriptions de microétats*, Dianoïa-PUF, 218 p.,

- [2009B], "L'infra - mécanique quantique.....", arXiv:0903.4976v1 [quant-ph], (quasi identical texts, the second one slightly more extended and endowed with an English abstract and ***an important ERRATUM*** (on http://www.mugur-schachter.net/publications_fr.htm, the point 8b, "publications on site").

- [2009C], "Komogov's aporia and solution.....", <http://arxiv.org/abs/0901.2301v1> [quant-ph].

?.....?