And, for Marx, man's state appropriate to his consciousness is nothing other than "his own vital activity", "the production of his own means of existence".

> "Conscience can never be anything else than conscious existence, and the existence of men is their actual life-process... That is to say, we do not set out from what men say, imagine, conceive... We set out from real, active men, and on the basis of their real life-process..." (163)

> "Men can be distinguished from animals by consciousness, by religion or anything else you like. They themselves begin to distinguish themselves from animals as soon as they begin to produce their means of subsistence, a step which is conditioned by their physical organization. By producing their means of subsistence men are indirectly producing their actual material life. The way in which men produce their means of subsistence depends first of all on the nature of the actual means they find in existence and have to reproduce. This mode of production must not be considered simply as being the reproduction of the physical existence of the individuals. Rather it is a definite form of activity of these individuals, a definite form of expressing their life, a definite mode of life on their part. As individuals express their life, so they are. What they

> are, therefore, coincides with their production both with what they produce and with how they produce. The nature of individuals thus depends on the material conditions determining their production." (164)

Not only is the Marxian man the sole cause of a work, but he alone is the cause of himself qua man, not just indirectly, in that producing the means of subsistence he produces his material life, but directly in that he makes himself while acting upon nature:

> "In acting upon nature...and in transforming it, he at the same time transforms his own proper nature. He develops the potentialities that slumber within him and subjects them to his control." (165)
>
> "Changes made in the environment...in turn react upon and change their originators." (166)
>
> "The coincidence of the changing of circumstances and of human activity or self-changing can only be comprehended and rationally understood as revoluntionary practice." (167)

Hence, the Marxian man in the very making of himself, becomes master of his own

essence, man is as man produces. In this very making of self, he realizes, he enjoys his "self" as its own end.

> "The most that the animal can achieve is to collect; man produces, he prepares the means of life in the widest sense of the words, which, without him, nature would not have produced. This makes impossible any immediate transference of the laws of life in animal societies to human ones. Production soon brings it about that the so-called struggle for existence no longer centers upon simple means of existence but a means for enjoyment and development." (168)

It is here, as Marx points out, that "he can move himself around himself, that is to say, around his own real sun". (169)

As the production of the means of subsistence become more complete, more perfected, so too, in the same proportion does the Marxian man, by himself, cause, for himself, his own essence. Production can grow, change without end, so too, proportionately, can man make, for himself, his own nature. Briefly, the more he produces, the more he becomes man. Man himself is the cause of his

ways: first, by way of participation, in transgressing the (divine) precepts; secondly, in a formal way, when the sinner attains to the very sin of hating God. For when one wilfully steals, he rejects God's precept, and in so doing he rejects in an interpretative way, God who prohibits that which is contrary to the will according to which the sinner desires to possess that which does not belong to him. If, however, the malice is carried to the point where the sinner directs the force of his intention against the very one who forbids the theft, there arises the hatred of abomination of God as a thing contrary to the sinner's love of concupiscence. And because, as has been shown, the hatred of abomination of a person redounds into hatred of enmity toward that same person, for that very reason there is enclosed in every sin, by way of participation, a hatred of God in both ways: namely as the sinner rejects God as the one who ordains, and the sinner, though in an interpretative way, wishes upon God, the ordinator, the opposite evil, such as not-be-be the ordinator. Then, if the crime becomes greater, the sinner formally hates God, the ordinator, and, if the crime becomes immense, it pursues God Himself in Himself with a hatred of enmity, in which he achieves the summit of iniquity. It is for this reason that every sin which is called mortal is truly worthy of eternal death, in that it offends God not just in any way, but with hostility, as if with the intent of casting God down from His very Deity." (188)

Let us recall that the Marxist has expressed himself very clearly on this point. He professes that "man is the supreme being for man." (189) He glories in his "divinity", "You may be sure, I would not exchange my miserable lot for your slavery. I prefer to be riveted to a rock rather than to be the faithful servant, the messenger of Zeus, the Father..." (190) Such a man, in the light of Christian principles, is moreover subjected to that vice, "the immediate offspring of pride", - vainglory. (191) As the Angelic Doctor indicates:

> "Now the sin of vainglory, considered in itself, does not seem to be contrary to charity as regards the love of one's neighbor; yet as regards the love of God it may be contrary to charity in two ways. In one way, by reason of the matter about which one glories: for instance when one glories in something false that is opposed to the reverence we owe God, according to Ezech xxviii. 2, Thy heart is lifted up, and Thou hast said: I am God, and I Cor. iv. 7, What hast thou that thou hast not received? And if thou hast received, why dost thou glory, as if thou hadst not received it? Or again when a man perfers to God the temporal good in which he glories: for this is forbidden (Jerem ix. 23,24):

> Let not the wise man glory in his wisdom, and let not the strong man glory in his strength, and let not the rich man glory in his riches. But let him [illegible] glory in this, that he understands and knoweth Me." (192)

We have insisted on the fact that the Marxist does not primarily desire to enjoy material goods, but that he seeks, above all, the excellence of being the cause of self. For this reason, insofar as he seeks immoderately the good of excellence, the wisdom of the Marxist is strictly speaking a devilish one:

> "Now whoever turns away from his due end, must needs fix on some undue end, since every agent acts for an end. Wherefore, if he fixes his end in external earthly things, his wisdom is called earthly, if in the goods of the body, it is called sensual wisdom, if in some excellence, it is called devilish wisdom, because it imitates the devil's pride, of which it is written (Job.xli, 25), 'He is king over all the children of pride'." (193)

He is Divine, because He is so infinitely perfect above man. In the words of Cajetan:

> "The question (Whether it is possible for anyone to hate God) can be understood in two ways. Wrongly, if we assume from its wording that hatred cannot terminate in God Himself as He is in Himself, but only as displeasing to Him. This is a superficial reading quite foreign to the Angelic Doctor's intention. It is a false one, since by an iniquitous will I can wish that God be not, although I know this to be impossible. For a perverse will can also be of impossible things. For the sinner says: although I know this cannot be, nevertheless I should want it to be as I wish. -This so notwithstanding the fact that the will of impossible things is but a velleity. For such a velleity is the greatest sin; and it proves how wicked an efficacious will would be, if it could as can be seen in the damned." (187)

And since Marxism fiercely seeks to overpower by denial even God Himself by hunting the heads of believers, the Marxist commits in this respect the greatest of iniquities. Again, as Cajetan points out:

> "From this one can see how the sinner hates God. First, as a sin contrary to his perverse will. And this in two

d'entre eux sont toujours en cours dans la langue du peuple et des savants. Ce sont les philosophes de l'heure qui persistent à confondre ces sens très différents, comme lorsqu'ils disent que toute science qui cherche à connaître les natures au sens de 'ce que les choses sont', est de la philosophie de la nature.) Autant dire que la mathématique, (comme science distincte du calcul), et la métaphysique sont des disciplines strictement naturelles.)

Le Philosophe disait que la génération est 'l'oeuvre la plus naturelle des vivants', parce qu'elle est la plus commune aux êtres de la nature. On trouve, en effet, des changements radicaux même dans les choses inanimées. Dans les vivants, toutefois, la génération est dite univoque lorsqu'elle est non seulement une propagation, mais une propagation dont le terme est semblable à son principe, en tant qu'un chêne, par exemple, produit des chênes, et non des oliviers. Dans les animaux, la génération comporte, dans une certaine mesure, de la connaissance, une expérience vivante produisant une délectation.

La nature, pour assurer la propagation des vivants, sans parler de leur évolution, est appelée à un effort proportionnel à l'hostilité dont elle paraît être l'objet de la part du monde inanimé (naturel, lui aussi), des autres vivants, parfois de la même espèce, sans parler des éléments physiques qui leur sont communs. Pour maintenir leurs espèces, les champignons doivent produire des spores en nombres fantastiques, dont quelques unes, de très rares exceptions, donneront lieu à d'autres champignons. Si les éléphants mâles qui

tuellement peuplent terre

essaient d'emettre es spermes par milliards et milliards pas des millions de spermes, ils seraient les derniers survivants de leurs espèces. De même pour les saumons et les hommes. La prolifération le gaspillage d'éléments géniteurs, nécessaire au simple maintient

d'une espèce déjà donnée prend des proportions inouies.

La vie la plus rudimentaire ne peut pas se Pour propager sa nuture, le vivant, permettre de la parvificence. à tous niveaux, doit employer des stratagèmes, dont la prolifération n'est qu'un cas des plus simples. Ces voies labyrinthiques agaçent ceux physico-mathématique qui n'ont d'attention que pour l'espect chimique ou/ des choses.

Toute cette oeuvre de reproduction cependant est/soutenue par la nutrition, dont l'objet immédiat est la croissance et le maintien de l'individu.

l'abeille mâle ne s'nourrissant à la ruche.

Cette nutrition est, elle aussi, une oeuvre très naturelle, mais, étant propre aux vivants, elle l'est moins que la génération, qui est quelque commun et, en un sens, plus chose de plus/profond. Aussi, la tendance à se propager, telle qu'on la voit dans les bêtes, et même dans les hommes, est, à son heure, de beaucoup plus véhémente et accompagnée d'une délectation plus absorbante que celle de se nourrir. Or, dans les animaux, c'est le plaisir précisément/ accompagnant la nutrition et toute délectation de ce genre, alors que, au point de vue de l'espèce et de la nature, n'est qu'une fonction du bien de l'espèce, un pour moyen de l'assurer; bien concrétisé, si l'on entend, dans les individus.

génération, qui recherché par ndividu,

Si l'animal ne se nourrirait pas comme animal; s'alimenter était dépourvu de délectation/

alors que les plantes, celles du moins qui apparemment ne sont que des plantes, se nourrissent spontanément, suivant ce que l'on appelle, par analogie, un 'appétit' naturel, mais quand même plein de ressources, et d'ingénieux efforts, l'animal, lui, pour qu'il vive, devrait se faire remplir comme un réservoir d'essence, indifférent. Dans son cas, la délectation se présente comme une ruse de la nature.

S.Thomas observe que, dans l'animal, les délectations du toucher, le plus fondamental des sens, sont aussi les plus véhéments. Mais le mot 'toucher' n'est pas sans équivoque. Le goût, lui aussi, est 'une sorte

de toucher', et l'odorat n'est pas étranger à ce dernier.(On l'éprouve en mangeant le nez bouché.) Cependant,c'est le toucher,comme sens de le génération, et qui caractérise l'animal, recherchée et la plus passionnée. dont la délectation est la plus/

C'est une destitution pour l'homme d'être assujetti à une loi inférieure à celle qui convient à sa nature d'agent raisonnable. Etre dominé par cette loi convient aux chevaux et aux chiens, ils s'y conforment en suivant la pente de l'inclination. C'est un déshonneur pour l'homme d'être dominé par une loi qui est normale pour les bêtes, et de se permettre la promiscuité des singes, comme les occidentaux le réclament parfois au nom de la civilisation, où la voracité des fauves sous prétexte de sélection naturelle.

Nous avons choisi comme sujet de ces trois leçons le matérialisme dialectique.

- Dans la première leçon nous allons apprendre ce qu'en disent les marxistes eux-mêmes;
- " " deuxième, nous allons montrer l'intime cohérence logique de cette philosophie, et comment elle peut se déduire à partir d'une première confusion : et nous allons identifier chaque étape de la déduction avec un texte très explicite de Marx et de Engels, et nous ~~ne prendrons~~ n'utiliserons que les textes ~~confirmés par~~ approuvés par le comité Central du P.C.(b) de l'U.R.S.S. 1938, et publiés en français à Moscou en 1939.
- Dans la troisième leçon, nous allons étudier cette philosophie au point de vue historique pour montrer en quel sens elle est l'accomplissement le plus logique de la tendance caractéristique des philosophies modernes vers l'émancipation totale de l'homme sous le signe de la primauté de l'action : Au commencement était l'action.

I

A Le matérialisme dialectique est pour nous d'une grande importance :

1° au pdv spéculatif : en tant qu'il nous montre les conclusions auxquelles l'on aboutit en partant d'une confusion initiale qui n'a l'air de rien. Et vice versa après coup et scholies p. l'importance de certains problèmes posés dès l'origine

2° au pdv. historique : il nous montre l'unité profonde de toute la philosophie moderne laquelle, en apparence, n'est qu'un assemblage incohérent d'élucubrations personnelles et libre.

3° au pdv. pratique : (a) en tant qu'elle est la doctrine fondamentale, non de quelques individus isolés, mais ~~de~~ du puissant parti communiste auquels les pays ne croient qu'au moment où ils les engloutit;

(b) en tant qu'elle est une doctrine très facile et très accessible à l'intelligence du peuple;

(c) en tant qu'elle prétend libérer la masse de misères très réelles dont elle doit être libérée;

(d) en tant qu'elle est incontestablement attrayante pour ceux des savants modernes qui s'occupent en même temps de questions sociales et qui n'ont pas eu de profonde formation dialectique.

(e) en tant que les ouvrages de vulgarisation scientifique les plus attrayants disposent l'intelligence du lecteur au marxisme quand ils ne sont pas ouvertement marxistes.

(f) et enfin, parce que le marxisme est une philosophie qui se propose et qui doit logiquement mettre fin à toute philosophie, non pas par la réfutation ~~et par~~ ~~l'anéantissement~~ de l'adversaire, mais par son anéantissement. La période de réfutation est provisoire.

B. L'importance du matérialisme dial. dans le marxisme et dans le communisme de l'état soviétique.

Je sais par expérience que dans nos milieux l'on n'entend jamais dire que le ~~marxisme est une~~ matérialisme dialectique est une doctrine, qu'elle est la doctrine fondamentale du marxisme et du communisme, ~~et~~ et que l'état soviétique et le communisme international la considère comme telle. L'on essaie même de se tromper en croyant que la critique marxiste de la religion ne s'est pas greffée au communisme, alors que cette critique est ce qu'il y a de plus fondamental dans le marxisme.

1° Cf. Marx, T.C. : p. 19/33
11/31-41

2° Parti communiste : p. 98

C. Quelle est cette doctrine ? Parcourons quelques textes.

1° Qu'est-ce que n'est selon ses auteurs : cf. P.C., p. 98

2° En quoi consiste, selon Marx, l'idéalisme de ~~la dialectique~~ ..... de Hegel : cf. T.C., p. 2/1 – 3/26.

Le procédé décrit par Marx consiste à vouloir déduire le réel du Logique.

Notez aussi que cette ~~conception contient la réalité~~ identification du Réel avec ses ~~êtres~~ suppose mobilité dans l'essence comme telle : c'à d. contrariété : Lénine dira que "la dialectique, au sens propre du mot, est l'étude des contradictions dans l'essence même des choses." (Cahiers philosophiques, édit russe, p. 26 : P.C. p. 103

Il a fait la même chose pour les ~~Mouvements~~ diverses sortes de mouvements : p. 3/27 – 4/38.

~~Le mouvement logique~~

3° La Méthode dial. de Marx : T.C., p. 4/39 – 5/23. Critique = révol. pratique

4° Tout provisoire, rien d'immuable, pas de vérité absolue, pas de principes : TC p. 6/1

5° Plus d'activité spéculative, mais pratique Rt: négation de l'O comme tel :

T.C. 7/ – 8/20

6° Matérialisme historique : T.C. 10/1 – 11 ; 13/9 – ~~14/19~~ 15/47

7° Industrie : p. 15/48 – 16/15

8° Le rôle du prolétariat : privation, proie des faibles : p. 16/16 – 31.

9° Destruction de ceux qui sont et qui possèdent : 17/1 – 11.

10° S'émanciper de tout cadre, destruction de l'ordre, et des limites qu'impose

La nature : division du travail, p. 17/12 – 18/31

abolir nationalité, p. 18/32 – 19/32.

11° Critique de la religion : 21/1 – 23/8

12° Humanisme : 23/5 – 25/3.

Prolégomènes

Cohérence logique du Marxisme

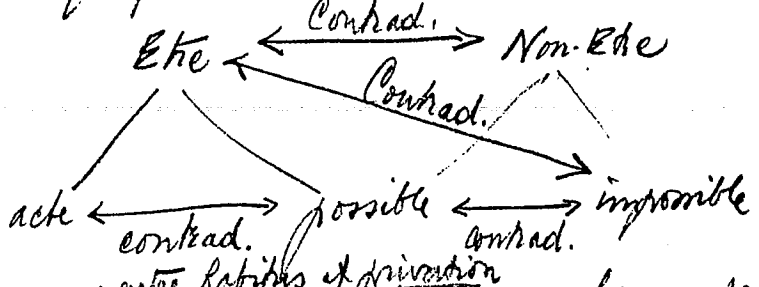
A. Les Oppositions :

1. Nous distinguons 4 sortes d'opposition : toutes impliquent négation, mais diversmo

(a) de contradiction : être et non-être : en tant qu'il est impossible d'être et de n'être pas en même et sous le même rapport. L'accomplissement de la contradiction serait l'accomplissement de l'impossible.

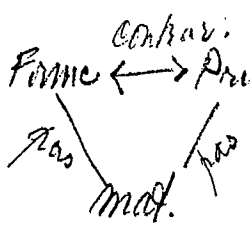
Non-être peut s'entendre de deux manière : soit pour ce qui n'est pas, mais qui est possible ; soit pour ce qui est purement et simplement impossible.

Être peut se dire de ce qui existe en acte, ou de ce qui peut exister.

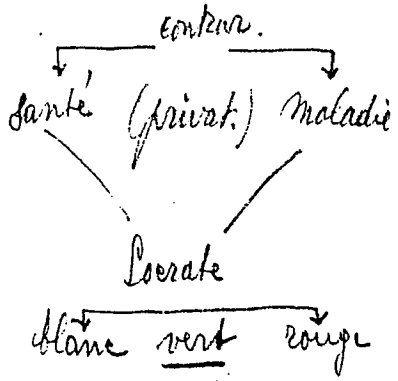


(b) de privation : entre habitus et privation : connaissance - ignorance ; forme - privation.

La contradiction s'applique ici, car, impossible ..... Mais dans la mesure où la privation est la négation de qq chose dans un sujet apte, elle suppose dans le sujet une possibilité positive pour le terme opposé : donc pas opposition entre possible et impossible : mais entre ce qui est, et son absence dans un sujet apte : sujet apte dit qq chose de positif dans le sujet.



(c) de contrariété : deux termes positifs contraires : vérité et erreur : notez que les deux sont des connaissances ; un et multiple : pair et impair les deux sont qq ch. de positif ; la vertu et le vice. Cette opposition suppose la privation, mais elle y ajoute qq chose, qq chose de positif : comme la maladie qui n'est pas pure privation : elle nous met dans un état positif contraire à la santé.



(d) de relation : père - fils : le fils n'exclut pas la paternité purement et simplement comme incompatible dans un même sujet : la négation se dit simplement qu'il ne peut pas être le père de celui dont il est le fils : mais le fils peut être père d'un fils.

B. Logique et réel :

Fondée sur distinction entre l'être réel et l'être de raison.

Ratio entis : ici indifférence et identité

- ens reale
  - act.
  - possible
- ens rationis (ratio pour la raison elle) réellement impossible

La ratio entis dite même et impossible, mais n'exclut pas l'être réel, ni ~~l'impossible, ni réel ni de raison~~ ce qui est réellement impossible.

C'est au niveau de l'opposition entre "ens reale" et "ens rationis" en tant que celui est impossible par rapport au réel, ~~celui~~ que l'opposition de contradiction s'exerce. Par contre, dans la ratio entis il y a indifférence. Elle implique être et non-être : son identité ne fonde nullement contradiction : elle est ens in communi.

La métaph. a pour objet : ens reale
La logique démonstrative : ens rationis
La dialectique s'étend aux deux, mais non pas indifféremment : Elle tend vers l'un ou l'autre des termes : le réel ou le logique.

Donc, au point de vue dialectique l'identité est principe de mouvement : Le fruit abstrait, indifférent, vers les espèces. ~~dont elle est à la fois l'affirmation et la négation~~

Mais, si du fruit qui comprend indéterminément les espèces dans une identité, nous pouvons rejoindre déterminément la pomme, nous accomplissons la contradiction : car, cela nous permettrait de dire que la pomme est une poire.

Cela serait possible, si le logique et le réel étaient identiques.

Donc, si l'identité était premier principe, la contradiction serait possible

Ière Partie

1. Le toucher et la raison — antipodes de la nature de l'homme.

Le t, le sens animal le plus naturel et, en un sens, le plus divin.
Par excellence le sens de la délectation sensible; objet de la vertu de tempérance.
Mais, la délectation sensible, (de soi bonne, n'en est pas moins purement, considérée en elle-même,) purement instrumentale; ne peut avoir le caractère de fin ni pour la nature ni pour la raison.
Chez la bête, tous les sens sont sens de la nature, c'à d fonction de la conservation et de la propagation donc, et le sens et la délectation sont en vue d'autres choses.

Dans l'homme, les sens ont à la fois une fin de nature et une fin de raison. De nature en tant que le toucher surtout sert la conservation de l'individu et la propagation. De raison, en tant que les sens, depuis le toucher jusqu'à la vue, sont au principe de la vie de la raison, servant à la connaissance, poursuivi pour elle-même.

Le besoin le plus primitif de l'homme et le plus fondamental c'est le besoin de nourriture, car son être en dépend; le suivant est celui de la propagation. Ce sont des besoins qu'il a en commun avec tous les vivants naturels. La conservation et la prolifération de la vie sont toutes deux premières, Aristote voyait quelque chose de très divin. On voit, dans les animaux, que les êtres animés tendent à se maintenir au risque de leur vie.

2. La difficulté de la vie. L'hostilité de la nature. Cette hostilité naturelle, comme la mort. Le vivant incessamment menacé, prêt toujours par succomber. Difficulté de la vie, manifesté dans la lenteur, les grands écarts et impasses de l'évolution; aussi dans la mort, inévitable en raison d'une "nécessité qui crève de la matière." Toute chose corruptible sera corrompue. (On en trouve une dém. repris dans le De Caelo I, c. 12.)

3. La vie naturelle, perpétuellement provisoire. En même temps, le manifeste la générosité de la nature. L'antithèse n'est pas entre entre le vivant et le non-vivant, d'où il est tiré, mais entre la vie et la mort.

Le grand mal dans la nature, ce n'est pas la difficulté de la vie, mais le fait que chaque vivant est mal à l'aise dans l'existence. Dans cette perspective, la vie de l'individu est sans espoir. On dira, avec l'Ecclésiaste: .. ....

2. Quand la raison ne sert qu'à satisfaire, non pas elle-même,
mais les besoins fondamentaux de l'animalité.
La raison se laisse entraîner par les élucubrations fastueuses,
et ne s'applique qu'à les rendre impunément plus intenses et variées.

Le Marxisme ~~incarne~~ incarne la substance de toutes les hérésies qui ont eu cours depuis la fondation de l'Eglise. Celle qui nous occupera dans ce quelques lignes sera le manichéisme.

La contingence

Réapparaît en notre temps après des siècles, chez les existentialistes, qui posent le probl. de l'homme, du bien et du mal.

Depuis des siècles on abordait le probl. de la contingence en termes de ce que Aristote et S. Thomas appelait "nécessité absolue": ab agente et materia.

Stoïciens p. 20 n. 23

La physique déterministe semblait leur donner raison. Les scolastiques, les thomistes, du 19e s. et de nos jours, se font de la nature une conception déterministe. Voici un exemple. (cit. Mar. p. 21)

Tout cela n'a absolument rien à voir avec ce que les anciens avaient appelé "contingent".

En physique mathém. il ne peut être question de contingence, parce qu'elle est formellement mathém. (cf. de Finance.) Pour parler de conting. dans la nature, il faut passer par une phi. 4/7

Tout cela est de conséquence. P.ex. pour la démonstration de l'exist. de Dieu. Argument devient circulaire: postulat: toute créature est-elle contingente? Pour S.Th. il y aurait des créatures abst nécessaires: celles qui n'auraient en elles aucune possibilités ad non esse.

Cela affecte aussi notre conception de l'histoire — humaine et naturelle. Si tout est prédéterminé d'avance, alors, pour celui qui connaît les antécédents, dont les événements ne sont que le développt répercuté, tout est déjà arrivé: il n'y aurait jamais de nouveau que l'existence: non seulement la forme de ce qui sera était déjà inscrite dans une constellation antérieure, mais même le fait que la chose sera était déjà donné.

Ex.gr. Marit. p. 21.

Comparer avec Stoïciens. p. 20, n. 23. (Ne parle jamais de l'action pour une fin, un bien).

Existe-t-il une "potentia simul contradictionis"? C'est le probl. central.

Titre donné sous forme de question.

S'agit pas de nihilisme anarchique que marxisme a combattu en Russie au 19e s.

Mais nihilisme au sens philos. de ce mot.

I Toute réalité renferme sa propre négation : le devenir l'expression de la contradiction de la matière avec elle-m. Qu'il n'y a que la matière en perpétuelle contradiction qui soit indestructible, alors que tout ce qui provient de cette contradiction est d'avance voué à l'anéantissement.

Héraclite : Πολεμος πατηρ παντων. Tout ce qui vient à l'être est déjà voué à la destruction.

Aristote : tout ce qui est corruptible, périssable, sera éventuellement détruit.

Mais autre chose : Héraclite : Logos au-dessus contraires.
Aristote : l'intellig. au-dessus "

Confusion de Hegel que marxistes se sont fait-leur : l'état des contraires dans l'esprit et leur état dans la réalité. Matérialisme marxiste conséq. logique d'une erreur idéaliste.

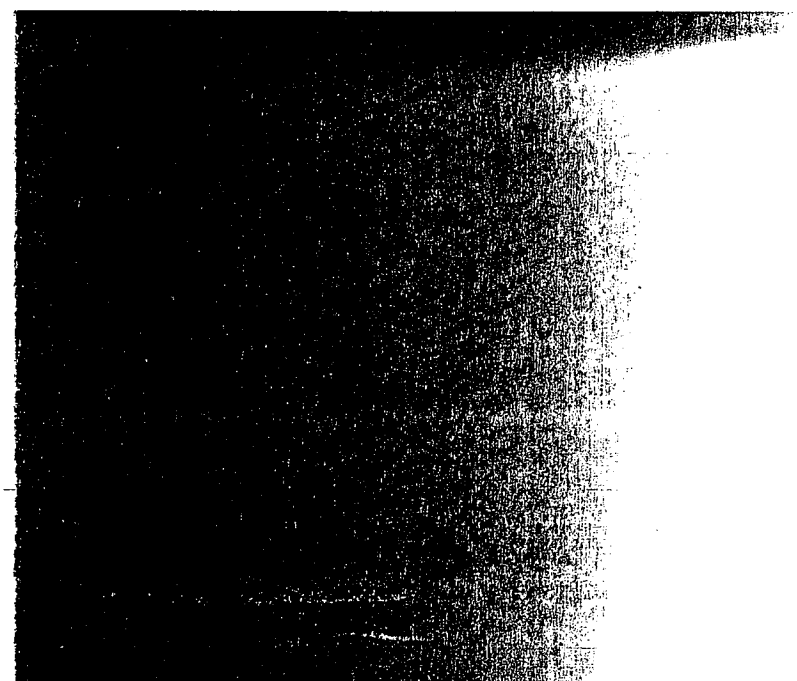
Aboutit à nihilisme universel. Matière aveugle.

II Humanisme nihiliste.

L'esprit produit supér. de la matière. Supériorité indéfinissable. Le plus qui sort du moins dominateur.

Considérons cependant cette supér. dans le contexte de la doctrine marxiste.

Différ. entre l'homme et la bête : l'homme produit lui-même ses moyens de subsistence → humanité
1° besoins supérieurs qui se multiplient... (art et science)
Aliénation...
Toujours conflit. Normal.
L'état politique forme d'aliénation : bien commun : bonum alienum. Bon. hum. perfection. Nihil. polit.
2° besoin intér. d'être cause de soi-même quant à sa propre humanité.
S'affirmer pratiq^t comme cause de soi-même → l'idée d'un créateur.
Marxisme pas sensualisme – encore que celui-ci soit née : concupiscence déréglée.
A détruire par la discipline d'atelier – jusqu'à l'habitude d'obéir.
3° Le terme de cette autocréation ? Tout ce qui vient à l'être mérite d'être détruit.
Non est destruction de l'individu mais de l'humanité toute entière.
A quoi aura servi l'histoire des conflits, des misères ? Il n'en subsistera même pas le souvenir. La matière indestructible qui produit fatalement la vie et l'esprit n'a pas de mémoire : elle n'est elle-même ni vie ni esprit.
Nihilisme diabolique. L'ange déchu ne peut rien rien. Mais il peut réussir à le faire rien par l'homme. De l'homme il demande tout pour rien.



It takes brains to make a revolver, ~~[illegible]~~ now ~~it calls~~ to ~~[illegible]~~ pull the trigger.

We will eventually know how the mind works, and meanwhile forget what it can know: ~~[illegible]~~ ~~[illegible]~~

There has been more fooling around with ~~[illegible]~~ mind than with anything else

COURS

Philosophy of Mathematics – version [redacted]

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coupures de journaux

(1)
- Introd. pp. 1-à 4.
- Words and Symbols pp. 5-8
- Symbol and infinite name pp 9-12
- a dialectical Consideration pp. 13-16
- Symbols of Math. Sc. and the Symbols of algebra ~~pp 13~~ p. 13.

(2) De Trin. V, 3, c. pp. a à f

(3) pp. 1 à 27 (num. à gauche)
manquent pp. 11-16-18-

Pages détachées - certaines allaient dans la série (3)
mais ont été retirées par CDK.

Résumé 4 pp. à la fin

The status of mathematics has been a troublesome problem in philosophy from its very beginnings. Pythag. thought that numbers were the very substance of things. Plato accorded them a separate reality, analogous to that of the realm of subsisting ideas more real than anything we can touch or see. Aristotle confined math. subjects to the order of pure abstraction: they had neither physical being, nor were they purely mental constructs.

The problem is still with us. (Quote Weyl & von Neumann.) However shaky the foundation, there is a measure of agreement as to what the mathematician is now doing. This can be seen most plainly when we ask what number means to him.

The very title of this series raises many problems:

1. Philosophy of Mathematics. Quoad Mathematics? And, for that matter "Quoad Philosophy?" If we, cautiously, call mathematics a 'science,' we should, nevertheless, be aware of the fact that this name 'science' is not less ambiguous today. We should be made vividly aware of the new impositions which the words 'science' and 'mathematics' have received — whether we want to defend or reject what they stand for or not. A clear understanding of the diverse meanings might even lead us to accept, not only the diverse meanings as meanings, but also the validity of what the different acceptations refer to.

Personally, I hold both the ~~Aristotelian~~ conception of what Arist. called mathem., and that of the moderns — inasmuch as the latter have something in common. But to justify this view, I must try to make clear to you some of the more basic differences. This will not be easy, ~~and~~ as you can see from the ~~fact that~~ so many hold these different conceptions to be incompatible. Lord Russell, for instance, dismisses number, as Aristotle understood it, from mathematics altogether; more generally, he considers "quantity" inessential to math. as such. In this sense, he has many followers.

A greater difficulty arises from the historical fact that the ancient conception of mathematics (e.g. Arist. & Euclid), as ~~that~~ it is often represented today, is quite unacceptable. ~~What~~ ~~the ancients thought of geometry~~ Thus, we are sometimes led to believe that what they called geometry was conceived as a natural geometry, whose truth depends upon verification in experience.

Admittedly, such problems belong to the phil. of mathematics. Many agree that this has something to do with the foundations of mathematics. Not forgetting the ambiguity of the term 'mathematics' here again we shall have to take into account the different meanings of 'philos. of Mathem.' In Aristotle, for instance, it is a function of first philosophy or what we call metaphysics. Nowadays and more frequently, an attempt is made to establish or justify

the basis of mathematics by what is now called the mathematical way of thinking. At least at first sight, this appears to be somewhat as if Aristotle had said that each science must establish and defend its own subject and principles. This, of course, would be contrary to his actual view that no particular science can do such a thing. But this could be countered by those who hold that mathematics is the most general of the sciences; or that math. is the same as logic, ~~and~~ that logic is the most general, and that this logic, identified with mathematics, must account for the foundations of mathem. This may seem true, and opposition to it trivial, when we realize that, for the Aristotelian, the subject of logic is coextensive with that of metaphysics.

~~From all this~~ This particular question raises the problem of generality. What did Arist. mean by 'generality' in connection with science? What do Whitehead & Hadamard mean when they use the term 'generalisation'? We will have to study the question of abstraction, if only to know what Arist. meant, and how his conception compares to the modern one, no matter whether this obliges us not to choose or reconcile.

One might suggest that such general problems are of more special concern only to those who are interested in mathematics. This attitude would certainly not be Aristotelian, when we realize how much of Arist's Metaph. is about Plato's theory of numbers. Why did he go into these matters ~~to such a length~~ at such length?

Let me make one observation here. In the Post. Analytics, where he treats of what he means by 'science', or knowledge acquired by demonstration, he refers us to an example taken from geometry by way of verifying what he means by the word science in his strict sense. But we know what has happened to these examples. The proposition that the sum of the ~~the~~ angles of any triangle is equal to that of two right angles, ~~which~~ apparently depends upon what we call Euclid's fifth postulate, about parallel lines. If the principles of this so-called demonstration are not self-evident, there is no demonstration. Where, then, shall we find one?

Arist. refers to such examples in support of what he calls science. If it does not do so, what happens to his notion of science? It seems to fade out of the picture, if we have to get on without self-evident principles.

This is of some consequence both to philos. and to what St. Thomas called theology. Both Arist. and St. Thomas saw in mathem. the most certain of the sciences, and a kind of model for all other. What, then, happens to phil. and theol. as sciences ...

We shall see, in due course, that the modern canon of exactness or rigour could never be achieved by the disciplines which Arist. & Euclid had in mind. This rigour depends upon complete formalization, upon the substitution of symbols for words. A formalization so complete, and utterly detached from reason as something once held to be proper to man, that the operations of what is now called mathematics can be performed are purely mechanical and can be most efficiently performed by machines.

As you may realize, there is a considerable amount of philosophical literature on the computers. We cannot ignore this. In fact, we might to find it helpful to make clear what we mean by "to apprehend", "to conjoin", "to judge", and "to reason" in connection with what is supposed to be proper to the rational animal. We cannot ignore that any basic diff. between man and machine has been called into question. No amount of rhetoric is going to get us out of this predicament.

From what we have said you can see that the field to be explored is extremely vast. It calls everything into question, and all of philosophy in particular. In fact, B. Russell would like to see philosophy reduced to the operations performed by computers. (Quote pp. 118-119.)

We cannot, of course, go into this whole field and discuss all its problems. But, during the brief time allotted us, we will try to show the importance of the simplest notions involved in any investigation of what mathematics is about.

The foregoing remarks have been very general. To get down to particulars, what could be the principle of our choice?

1° The problem of words & symbols.
In Math. and in applied mathematics.

2° The word "existence". (As in "the equil. triangle exists.")

3° The notions of "one" and "per se one" in conn. with number.

4° Various meanings of mathematical abstraction. "Pure triangle?"

5° Infinity and the part-whole principle.

6° Logic & mathematics.

7. Science & calculation.

8. Mathematics & experience (Math. physics Today.)

Words & Symbols

Mathematics & math. physics, plainly, must resort to symbols as distinguished from names. (The Logic of Mod. Phys.)

Eddington & Bridgman most explicit. They show convincingly that such is the case. N.Rw. Not too clear about the reason why.

In pure mathematics, too, the necessity of having recourse to symbols is plain, if only for reasons of economy. ~~We get clear so a reader~~ Thanks to the use of symbols, the operations of calculation can be carried on in a mechanical fashion. The use of words would be clumsy and inexact. Here, again, we see that it is so. ~~But why? What diff. betw. names and symbols?~~

Sometimes pointed out that words are ambiguous, inexact; symbols avoid this ambiguity. That sc. can be true to itself only when resorting to symbols.

Note, however, that many those who write about the subject of symbols do so by using words. Thus, Hermann Weyl, stating Hilbert's views, says: "The mathematical game is played in silence, without words, like a game of chess. Only the rules have to be explained and communicated in words, and of course any arguing about the possibilities of the game, for instance beyond its consistency, goes on in the medium of words and appeals to evidence." (The Mathematical Way of Thinking, N. of M. 1848.) This is an observation. No proper reason is given. And he does use words today where he does. Why?

Words, too, are symbols, or signs. Both are conventional. Yet, Weyl apparently distinguishes the two. We are left with the question: What is their basic difference?

We have just said that both word & symb. are signs. But signs signify something: they stand for something other than themselves. The definition refers us to a knower.

On the other hand, the modern math. insists, rightly, that the operations bear upon the symbols, not upon what they stand for. They are 'meaningless' and must be so taken if the operations are to be carried out mechan. ~~The operation~~ In the course of the operation, the symbols are not taken as signs and do not require a knower. Machines can do the wk.

What, then, is a symbol, as distinguished from a name? Greek 'σύμβολον' from 'σύν' & 'βάλλειν.' Throw, together, bring together, number up, collect. # Hence, symbol, the sign of bringing together, like a wedding ring, a contract, a receipt, etc., Also, the ~~act~~ things brought together, & the collection itself. This retained in Symbol of Faith. (In III S. 25/q. 1, a 5; II II 1/9.)

When idea of coll. retained, symb. diff. from name, q, as St. Thomas says "Omne nomen... significat aliquam naturam determinatam, ut homo; aut personam determinatam, ut pronomen; aut utrumque determinatum, ut Boëth." Perih. I, 4, 13.

Words like 'man', 'Socrates', 'magnitude', 'cicle', 'run', 'add', etc., signify something 'one per se', as opposed to 'incidentally one'.

Diffic.: 'ens per accidens', 'contingent', 'resp.' These are names. Resp.: yet one in notion.

Many things can be brought together, which do not, in fact, have a simple name, as in 'a pale house-building flautist.' The man named 'Dean' may be all that, one and the same subject, and he is one per se. But this does not make 'pale', 'builder', and 'flautist' to be 'one in notion'. No per se connection between these things. Though there may be a reason why these things are found together in this individual. Historical

We need a thing of words to express all that.

But we can say that 'Oral' belongs to the class of people who are all those things together. Although we can devise no name to signify the characteristic of such a class, we can assign to it a symbol, e.g. Ψ. This symbol then stands for the property of a class whose every member is both 'pale', a 'builder', and a 'flutist:' a combination of notions, an accidental assemblage.

logical product of three classes.

Diff: If things together into a sequence of syllables ... still ~~have~~ had distinct separable meanings.

Diff.: the name 'triangle' also stands for something that implies many notions: 'figure', 'plane,' 'bounded,' 'three', 'lines,' 'straight.' But may combine to form a single definable notion. If 'triangle' is a name.

Num.: numbers contain elements, a collection of elements. Is 'three' a name? If intended to signify the collection, could not be. But if the collection is something one per se, then yes. Y not, 'three' is a symbol.

Note: by using symbols, the mind can bring together objects which cannot form something 'one per se,' by means of a simple, arbitrary sign that is not a name. In doing so we bypass the distinction between 'one per accidens' and 'one per se.' In such a context, the nature of the things brought together is indiff.

Application to geometry:

~~Poincaré, Weyl, Russ, 98-99~~

Weyl states explicitly that "For the mathematician it is irrelevant what circles are." (Phil. of Math. & Nat. Sc. Princeton 1948, p. 8)

Russell, apropos def. of number: "it is clear that number is a way of bringing together certain collections, namely those that have a given number of terms." Introd. 1930, p. 14.

Where brought together, how?

His own def. of number ~~[illegible]~~ is confined to the collection: RR. 90.

Weyl, ibid, 91.

Russell calls numbers "logical ~~[illegible]~~ fictions" obtained by "symbolic construction." Shall come back to these expressions. But we can already see why they are apt. From Weyl, "creative definition." Pp. 4: the class of.... distinction between "one person" and "one property" recognized here, otherwise could have no special meaning. Expressly distinguishes them from Aristotle "logos," rather a concept. "They certainly are not concepts in the sense of Weyl's theory of abstraction."

Note, further, that when Russell says "In fact, the class of all couples will be the number 2, according to our definition," he intends, as he later explains, that the unity of the class is bound to the symbol: that the class which he, as a math., deals with, is a symbolic construction. (RR 9 One that abstracts from the number 2, "which is a metaphysical entity...."

[A difference: Can symbols be predicated? Problem: Name-conception-thing. Name can be said of "Socrates," not of the conception or person. Prob. of predication.]

Symbol & infinite name.

[We have distinguished name and symbol. { one per se / one per accidens }
Russell def. n. as a collection. (p. 90.)]

Consider now the opposite scheme of a name, which may throw ~~further~~ light on what a symbol is. For symbol pono in between. I mean the infinite name, such as 'not-man'. The inf. n. is not a name, strictly, because, as we said, every name must signify something determinate, like 'man', 'this', a 'Socrates'. But not-man signifies neither a determinate ~~nature~~ nature nor a determinate person. ~~because~~ for it is imposed pro the negation of 'man', and places nothing determinate in its stead. Cf. Perih. I, l. 4, n. 13.

~~Note two kinds of negation { absolute / relative~~ ~~Metaph. IV, l. 3, 565~~

Inf. name yet something one according to reason: the same 'not-man' can be said of..... But cannot say 'not-man' means this and that, etc. Meaning opened to only in actual predication. Infinite in sense of indefinite. Perih. II, l. 1, n. 3.: Omo name-contradict. Absolute negation opened by infinite name not to be compared with the negation confined to a given genus. Cf. Metaph. IV, l. 3, 565.

E.g. 'not-white', 2 ex: { as infinite name: 'anything either white or not-white'; as 2dat. neg., in genus colour: then said only of colours that are not-white }

in genus triangle non-equilateral either isosceles or scalenum;
in genus 'tree', non-oak...

[Hegel's confus. leads to neg. of contradictions as having no intermediates. Actually, even not-white in genus colour is 5 opp. of contrad. But not-white may be said of all other colours. ~~Hence~~ The 'not-white that is black' not contradictorily opposed, and there are intermediary terms. Therefore, he concludes, Contrad. ~~become~~ may have a middle. (Thus lump and no-b. merge into becoming.)

A similar indiff. to dist. betw. contrad. and contrar. in Formal Logic of Augustus de Morgan. A propos of 'man' and 'not-man', contrary and contradictory, I intend to draw no distinction between these words". (Londa, Taylr and Walsh, 1847, p. 37.)

Inf. n. implies absolute negation of any determinate meaning, it cannot be interpreted. It cannot be made to stand for anything. In this differs from both name and symbol.

But symbol & inf. name have in common: whatever unity involved, it is provided by the mind. In the case of symbol, there may be a unity on the part of what the symbol is made to stand for, but this unity is not expressed by the symbol as such. E.g., the symbol 3, ~~does~~ in $3+x=5$, does not tell us whether the three referred to is one three or three ones. It prescinds from the kind of unity of what it refers to: it is indiff. to natures. In this regard, 3 is a symbolic construction, or as Russell also calls it, a logical fiction. (p. 94) (whether this is realized or not, do not affect us) But 3 may be used to stand for three apples, or for a relation of Sears, a home, and the a cipher 3.

Cf. Whitehead, Symb., p. 83.

The infinite name cannot stand for anything, although it may be predicated of anything, except that which it negates. We cannot say Not-man is home, cloud, non-being, etc.. It does not stand for a collection. Neither name nor symbol.

What about the negative symbol, as in p or $-p$? First must note whether the symbols are taken as meaningful, as signs, or as mere marks engaged in a mechanical operation, according to known rules, like in dem.

If as meaningful signs, then interpretation. Manipulation will refer to orders where words ... a complex of words. Thus, ~~not~~ could be used to stand for non-proposition, or the negation of

Infinite name not a symbol: does not stand for collection.
(If used for that purpose, then taken as symbol. Like in p or ~~∞~~-p

Interpretation: of name .....
of infinite name: complexe: name & negat.
of symbol: not essential to operational function
must refer to concept.

Symbols of Aristotelian logic:
They stand for anything with the logical
intention of scheme (A, C) or middle (B) term.
Here is how St Albert describes them: Prima, I, tr. I, c. 9.
tr. II, c. 1.

'Everything & nothing' must be qualified:
Each symbol ~~refers to~~ must refer to
a determinate kind of second intention, syll.
and, through this, to what may be
either a major extreme, a minor one, or a middle
They do transcend the categories; e.g. B.
When interpreted, must refer to one per se:
They are lacking in 'generality'.

Must be distinguished from the symbols of Math. &c. in A's & E's sense:
they are engaged in a diff kind of operation.
E.g., in demonstrating the proposition: "If from an
even number an even number be subtracted, the
remainder will be even" (I X, 24), the actual
subtraction of the even number BC from the even
number AB, is not itself the demonstration, though
essential to it. Diff. from syll. terms. (a) Here they stand
for and are confined to even numbers. (b) Used for
the sake of demonstrating a property revealed by
the subtraction. The result of AB - BC is AC.
AC is not a 'conclusion'. But on the basis of it we do
conclude that 'If from an even n. . . .'
AB stands indeterminately for any even number, from
which we may subtract any even number BC, part of AB.
differ defined by different operations.

AB & BC stand for what may be the subject of calculation. Now, even in this proof, the middle term (viz. the def. of even number: 'divisible into two equal parts') is not a subject of calculation, while it may be said of what can be such a subject. 'Even number', as such, cannot be symbolized. The symb. of math. do not stand directly for universals; neither do those of logical science.

Note: It appears that we cannot consider the syll. as to form without attending to the symbols as standing for a certain type of syll. form. Whereas in calculating, you may attend to what you are doing, but this is not necessary. The interpretation is extrinsic to, and comes after, the operation. This brought out by the assertion ... 'meaningless symbols'. When a ~~machine~~ slide-rule, a a machine .... It does not have to apprehend anything, nor judge, nor reason. To register the speed, the speedometer does not have to know speed, nor what a mile is, etc...

Poincaré 106
cf. Nagel 1645

The symb. of logical &c. are not complete formalizations. The rules are not arbitrary: the second intentions are based upon first intentions. When the syll., in its one formula, is reduced to the elementary calculus of propositions and the calculus of propositional functions, the rules are transcendent and become particular rules, instances, which, from the viewpoint of complete formalization, are as arbitrary as any other purely chosen rule. The subject of completely formalized logic is not second intentions, but symbols in the most detached sense.

The symbols of the Pr. Anal. are not complete formalizations, referring as they do special kinds of second intentions. They signify 'omnia et nihil' but within certain limits. A stands for the major term... and only for what is apt to be such a term in a syllogism. Cf. S. Albert

The rules applied to the symbols, here, are not arbitrary: The ~~X~~ second intentions are based upon first intentions. The second intentions, when the syll., in its one formale, is reduced to Barb, the elementary calculus of propositions and the calculus of propositional functions, these necessary rules are transcended and become particular rules, instances of rules which, from the viewpoint of complete formalization, are as arbitrary as any other set of purely chosen rules.

The subject of completely formalized logic is not second intentions, but symbols in the most detached sense, i.e. symbols drained of any meaning. The operations engage the symbols merely as marks. Performing ~~in~~ upon them, one is not concerned with what the marks stand for. It is this indifference which accounts for the mechanical proficiency of calculation.

Such a symbol can be made to stand for 'anything'. In this regard it has a kind of ~~ambiguity~~, a complete indetermination. (Can it stand for itself? It would stand for the mark which it is; or 'represent to the Knower something other than itself.)

Question here: are the operations upon such symbols universally applicable? Paradox: provided they are not used as signs; and that nothing new is ~~arrived~~ at concerning that to which they are applied.

To show this, we will have to ~~[illegible]~~ investigate what is meant by mathematical abstraction today. cf. Hadamard, p. 87, n. 1. Then on to greater detachment. Then Poincaré: "Math^ns do not study objects; it is therefore indifferent to them when the objects are replaced by other objects, so long as the relations do not change. Not the matter, but the form is their concern." Sc. & Hyp. 92.

What is this generalisation? These relations?

Consider what we mean by abstraction in the case of 'abstract to this'. E.g. Socrates, man, animal. The latter are abstracted. We go towards generality, more and more empty. But always represents some 'nature'. Called 'this' because 'man' is like a whole compared to individual men, etc. These 'subjective parts', i.e. in the order of predication.

Hadamard not in this sense. Abstraction will mean symbolization by way of substitution. The substitute in 12 pence is not something general. It is a mark. You may substitute the stroke | for each mark, and when you count the strokes, you do not have to keep in mind what they stand for. Even when you interpret them, you do not have to return to pence. Any group or collection of 12 will do. ~~In the problem of Arnold, you~~ The problem at hand is twofold: How much to pay? An empirical question. How does one find out? A computation. This formally independent of empirical problem.

Problem: when counting strokes, are you counting 'strokes'? These could be replaced by ... Here notion of class of classes: the class comprising 12 strokes, circles, men, etc... You settle on a symbol.

Must present from homo- pom quantity!

The twelve strokes are not taken as strokes. They, as so many strokes, are an instance of 12. But what if the strokes are taken as mere symbols? We could make them stand for billions. Hence strokes, and strokes as symbols not the same. If symbols interpreted of so many strokes, then billions.

Of the number 12 it is said that it ~~symbols~~ is the class of all classes that are ~~by~~ similar to it.

Russell, 90. The class of all classes that have the same number. A collection which can be put into one-to-one correspondence with ~~with~~ a given collection will have the same number. But what is that number which is the same? Thus, the number two will be the class of all couples: of all the classes that have the same number. [Like 'man' is the 'class of all men'? This can be done. But that is an interpretation of a name, not of what man is. But this would be an object. "All definitions are of names." Otherwise circular.

Consider point in light of what Aris. says about predicates with identity. Phys. Θ, 14, 224a2. The principle: A genus can be predicated with identity of distinct individuals of the same species; and the remote genus of the species.

E.g. Two spec. of triangle: { equilateral / ~~scalene~~ isosceles } scalene.

Figure, the genus of triangle, div. by { Or. / ortho

Cannot say that eq. and ~~scalene~~ isosceles are the same triangle. But they are the same figure.

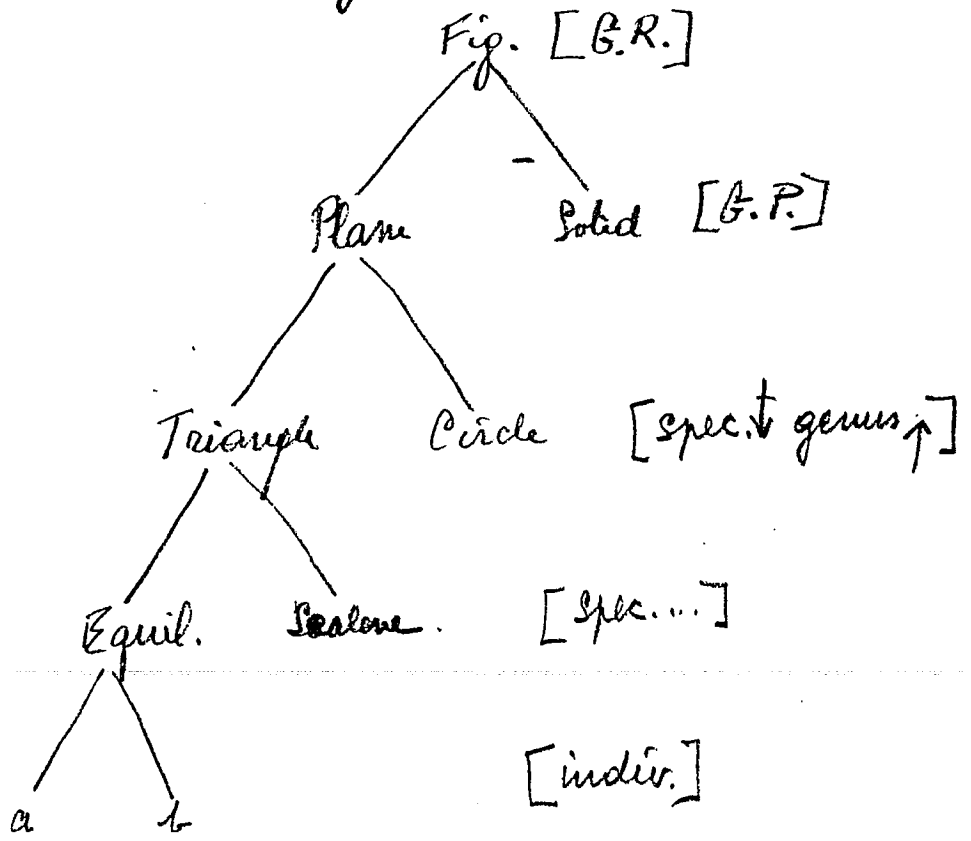
Reason: a genus cannot be ~~predicated~~ said with identity of those things which divide it but equilateral & unequal-sided divide triangle; they differ by a difference of triangle.

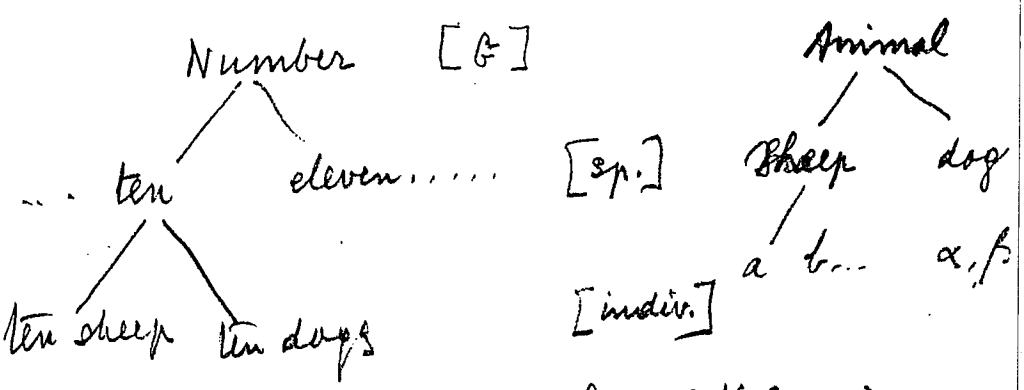
Definition: Meta Δ 15, 1021a10 (l. 17, 1022)

'same' equivocal.

αὐτὸς ἀριθμὸς

But equil. and scalene triangles do not divide figure, the remote genus.





The number of sheep and the number of dogs, here, is the 'same' number, but not the 'same ten'. But same number does not tell us what their number is. The latter cannot be said with identity. Their numbers are 'equal'. Thus we can say without knowing how many there are in each group. But not its value without counting.

Today, all this meaningless: proof of universals, genera, spec., div., individ.

A dialectical consideration.

'The same number', as we understand it, is no particular number. But the predicate with identity is true only when there is equality: ten horses, ten sheep. Knowledge of 'equal number' is presupposed, not to number, but to 'same number' in the above sense. Equality is established by one-to-one correspondence. But this is an operation of comparison. Classes will be called equal when there are as many elements in the one as in the other: one in quantity. When, if we rise to the unity of an undivided genus, we can make a true predication of identity. But that which is predicated is not a class: it is a definable nature: one per se. Nor is it a certain number, but simply number. And it is a universal: a genus. Ten a species. Ten horses, a group of individuals, an instance of a physical number; not of the math. number 10! Although this may be applied; but not vice versa.

Russell does not proceed in this way. Classes are called similar when they have an equal number of terms. What does he mean by 'same'? Not what we do. 'Same', to him, appears to mean: as many in A as in B. To us, this means a relation of equality between them. We predicate equality. This true if,... Follows: same number; but not the same ten. Shows we are dependent in predicational order. But when R. says ~~'ten', cited~~ 'ten' of a class of ten things, does he take 'ten' as a species of number? No; that would raise the problem of universals. Actually, he predicates equality of certain classes or collections. Then we ask: what is their number? We answer: the class of all those classes. But what is a class of classes? Like the class of all classes containing ten members. Now, to call this ~~ten~~ the number ten, (is the number...) entails a problem. ~~The class containing~~ One might ask (thickly?), what is the number of the class? Surely more than ten. Unless, of course, ~~xxxxx~~ ten is 'one towards many'. But this is a universal, and a nature. And we can't have that. Not a class of classes must be something diff. R. p. 94.

Actually, in counting, we use something identical. E.g., if this be ~~ten, et, cet~~ 10 : ||||..., and there are as many horses in this stable --- there are ten horses. R. would say that the class 'these ten horses' belongs to the ~~ten~~ class of all tens. ~~10~~ But where is this class? Something of the mind, like the intension of universality? Should not raise this question. Ten is a mere bundle, diff. from other bundles, those that have more members or less. But where is it?

Kasner and Newman (Math. for the Imag. Simon Schuster, N.Y. 1949, p. 31) put it this way:

> "The cardinal number of the class C is thus seen to be the symbol representing the set of all classes that can be put into one-to-one correspondence with C. For example, the number five is simply the name, a symbol, attached to the set of all classes, each of which can be put into one-to-one correspondence with the fingers of one hand."

Note that this is what is actually used in the act of computing, and not what the symbol may stand for. Eg. 25×25=

Perhaps we may ask, here, that the unity implied by 'a class that is not a heap,' is purely symbolic. Universal and predication are not at all involved in calculation — if Kasner & N. correct. Cannot calculate with a universal. Nor can one predicate a collection; nor predicate a symbol anymore than a given name qua name. The name Socrates is a name, but that which this name stands for is not a name.

Although in operation we may prescind from meaning, we do produce symbols for a purpose, viz. for the sake of the operation. Although the operation is mechanical, the mechanical operation has a purpose. But the operation itself can be carried out without having any purpose in mind.

The symbols employed in calcul. are a means of side-stepping the limits imposed by knowledge of natures, by the distinction between per se unity & per accidens. To count objects, you don't have to know what they are. The 'intention' of object is enough to enable us to make it correspond to something that is indifferent to its nature. Objects in this room: put down a stroke for each. Many hypotheses involved. But we finally can say how many, provided we are primarily concerned with the number of strokes or with some other symbol to replace them. This is all that is required of the subject of calculation, as distinguished from demonstration.

The generality of the symbol 5 does not differ from that of five fingers: this means that the number of fingers can be put into one-to-one correspondence with any other group equal to them in number. Not necessary to know ~~[illegible]~~ equal to them in number. Not necessary to know 5 to do this. A potato-sorting machine 'selects' potatoes according to size.

This is not predicational generality. The correspondence of universal to particulars under it, not a one-to-one... Ten, here, is not the same as ten units, or as three five. Russell aware of this. [Generalisation of numbers...]

How do we define 'the metaphys. entity'? A plurality measurable (or measured) by one (in sense of unit). Probl. of one and many. 'One', analogical term. 'One', principle of number, unless. Plato.... 'Plurality', also anal. The plurality of n must be of a certain kind: one whose elements are of same nature: homogeneous: no formal differna. Then, measurable: measure, id quo quantitas cognoscitur primo. Could not make quantity known if not of same nature. Measure in the part of the number, not first on mind. Though we come to know the quantity by the measure. Met. VIII, 3, 1039a (VIII, l. 13, nn. 1588...
X, 1, 1055a 24 (X, l. 2)
VIII, 3, 1044a (VIII) l. 3, 1722, sq.

Metaph. VII, 13, 1039a

The number 5 either actually one or actually two. If actually two, then only an aggregate. For a line to be divided into two halves is not the same as to be divided. Item circle. Unity secondary.
Cf. S. Th.: l. 13, nn. 1588-1589.

Metaph. VIII, 3, 1044a.

Number is either not one or else a sort of heap. If one, what makes it one? The ultimate unit.
We: if not, then sheer aggregate to be symbolized.
Cf. S. Th. l. 3, n. 1725 — "semel sex ..." V, 16, n. 992.
S. Th. on def. of n.: X, 8, 2090 (Ar. c. 6, 1057).

Calculation does not take into account these distinctions.
Whether the numbers are aggregate or species, individual. Item whether actually divided or only divisible. No part or whole. No quantity: "divisible in part, of which each is by nature a one and a this" V, 13, 1024
Same for continuum. Whether line actually divided into parts or no, result of measurement the same. Infinity of points, as many as we wish.

Calculation distinguished from Math. sc. Cf. S. Th. de Trin. V, 1, 3m
Art of calculation negatively transcendental. (Even with regard to metaph..?) Any plurality can be counted, but not in number per se one. This supposes homogeneity.

Why negatively?
Consider what math. abstr. means. 'Abstractio formae.'

10 modes of defining. 20 Diffic.

Abstractio { totius: unit. a particulari. formae: quantitas a mat. sensib.: not from subst. But this, too, abstract sec. intellectu. sec. esse: metaph.
Modes of dif. [separatio]
matter { comm. indiv. from sensit. matter, but no another from every matter.

Abstractio formae, not from very matter, but from sensible.
Why 'intelligible matter'? In number & continu.: homogeneity! Both in universal & in individual.
Homogeneous plurality.

Symbols of Math. Sc. & the Symbols of algebra:

In the example of demonstrated even numbers, we have not seemed to identify any particular value of the variables AB and BC. These are not signs of unknown quantities, to be determined by way of calculation. They are not algebraic symbols if by these we mean the signs representing the unknown values of an equation to be resolved.

Note first that, in this context, a symbol, e.g. x, may stand for the unknown in two ways:

[a] as in the algebraic rule: $x = -\frac{b}{a}$, when the values are indifferent, in the manner of logical symbols;

[b] as in the particular equation $x + 2 = 5$. (The general of this is $ax + b = 0$)

In the first instance, x stands for any value such that $x = -\frac{a}{7}$; this is no more than the expression of a general rule applied in solving equations of with one unknown value, of the first degree. The general form of the rule ($ax + b = 0$) raises no problem of determinate values.

In the second instance, x stands for an unknown yet wholly determinate value, viz. the difference between 5 and 2, or 5-2. (Note, this subtraction is not used to demonstrate a property, but merely to identify the value of x, viz. 3.

Hence x may be a different kind of symb.

Still, both the signs for determinate quantities, and those to represent the unknown, are indiff. to the nature of what they mean be referred to — apples, men, or a mixture of all ---

De Trin. V, 3, c.

1/ 2x operatio intell. [quibus duo resp. in rebus] { qua quid; sive res completam (ut totum), sive incompletam (ut pars vel accidens

qua componit et dividit: respicit ipsum esse rei, qd resultat vel ex congreg. principiorum vel ipsam naturam simplicem concernibilem, ut in substantiis simplicibus

2/ In 2ª oper., intellectus non potest abstrahere quod secundum rem conjunctum est. Si homo et albus, separatio falsa.

In 1ª operat., potest intellectus quaedam abstrahere.

Princip.: unaquaeque res intelligibilis, sec. pd in actu, qui actus est illud ex quo unaquaeque natura suam rationem (essentiam) sortitur.

Ergo, quando hoc, per pd constituit ratio naturae et per pd intelligitur habet ordinem et dependentiam ad aliquid aliud, hinc unum sine alio intelligi non potest:

- sive conjuncta ut pars toto (pes et animal);
- sive ut forma materiae, ut accidens et subj., simum et nasus;
- sive separata sec. rem, ut pater et filius.

Sed, quando unum non dependet ab alio secundum id quod constituit rationem naturae, hinc unum sine alio potest intelligi:

- non solum si separata secundum rem (homo et lapis),
- sed etiam si sec. rem conjuncta:
  - sive ut pars et totum (littera sine syllaba, sed non e converso); animal sine pede
  - sive ut forma materiae, et accidens subjecto (albedo sine homine, et e converso)

3/ In 2a oper. intellectus intelligit unum alii non inesse: separatio.

In 1a oper.: distinguit unum ab alio, dum intelligit quid est hoc, nihil intelligendo de alio, neque quod sit cum eo, neque pot sit ab eo separatum. Haec est propriè abstractio quando ea, quorum unum sine altero intelligitur, sunt simul secundum rem. Et est duplex:

[a] quo forma a materia aliqua, quando ratio essentiae non dependet a tali materiâ. (Unde non accidentia a substantia) Accidentia vero supervenient substantiae quodam ordine: primo quantitas; deinde qualitates (sensib.), deinde passiones et motus. Unde quant. sine qual. Non tamen sine subst., sed subst. materia intelligitur intell. dicitur, quia remotis accid. non remanet intell. comprehensibilis. De hujusmodi abstractis est ma

[b] abstractio totius: quando partes non sunt de ratione totius (ut semi-circuli); partes quae de ratione totius (ut litterae syllabae) dicuntur speciei. Aliae dicuntur materiae vel accidentales
- ut semicirculus. (Sed non linea hiangle
- ut digitus, pes....
- ut partes signatae (hoc corpus, hoc os, de ratione Socratis, sed non communis). Et haec est universalis a particulari.

4/ Unde duae abstractiones intellectus:

[a] una respondet unioni formae et materiae, vel accidentis et subjecti: et est formae a materiâ sensi

[b] alia respondet unioni totius et partis: unius a pa dicitur 'totius': in qua consideratur natura absolute ab omnibus partibus quae non speciei.

5/ His duabus mullae abstractiones oppositae, ut
pars a toto, vel materia a forma; quia
– pars vel non potest abstrahi a toto per intellectum,
si sit de partibus materiae, in quarum
definitione ponitur totum (ut nasus, circulus,
vel pes);
– vel potest etiam sine toto esse, si sit de partibus
speciei, sicut linea sine triangulo, vel littera sine syllaba

6/ In his autem quae sec. esse possunt esse divisa, magis
habet locum separatio quam abstractio. Notandum vero quod

XX "Abstractio formae a materia" non intelligitur de forma
substantiali (quia unum sine alio non potest intelligi:
corpus in definit. animae), sed de forma accidentali
quae est, quae est quantitas et figura, a qua quidem
mat. sensib. abstrahi non potest; nec motus sine
quanto* substantia, quae est materia intelligibilis
quantitatis, potest esse sine quantitate. Sed ista
consideratio magis pertinet ad genus separationis quam
abstractionis. (Hic compar. math. & metaph.)

(*a.4, ad 7)

7/ Sic ergo in operatione intellectus 3x distincte invenitur:
[a] componentis et dividentis: separatio; competit divisae sive mixtis.
[b] qua formantur quidditates rerum: abstractio formae
a materia sensib.: competit mathematicae;
[c] secundum eandem operationem, universalis a
particulari: competit etiam physicae et
est communis omnib. scientiis, quia in
omn. scit. praesupponitur quid est per accidens.

8/ Si haec duae non dist. a prima, math. & universalia essent
a sensibilibus separata.

Materia intelligibilis

1. Compositum ex hac materia potest { sicut universale, ut homo et animal: ex determinata materia et determinata forma.
sicut singulare, ut Socrates et Callias: ex ultima materia: ex hac anima et hoc corpore.

Illa materia est pars speciei (μέρος τοῦ εἴδους): quod quid erat esse.
Ista est pars huius quod est "ex specie et materia", i.e. singularis, quod significat speciem in hac materia determinata.

2. Partes quae in definitione: partes rationis, formales, speciei.
"Quod quid erat esse" et "idem cum eo cuius est": maxime sunt universalia. 'Circle' and 'what it is to be circle' identical. Item 'soul' and 'the soul'. But not "this circle". "Loquitur loquendo": VII, 11, 1536

3. The same holds of the 'sensible singulars' and of 'intelligible singulars'. Bronze circles and wooden circles. Intelligib.: Mathematical circles: there many of same species: equal lines, similar circles.
These called intelligible "quia absque sensu comprehenduntur per solam phantasiam, quae quandoque intellectus vocatur: (III de An.) "intellectus passivus corruptibilis est."

4. Intelligible singulars (as circles) are not definable: quia illa proprium est definiri, cognoscuntur per suam definitionem: but singulars are not known except "dum sunt sub sensu vel imaginatione, "quae hic intelligibilia dicitur, quia ut considerata sine sensu, sicut intellectus." Are they when not actually considered? Inquantum sunt circuli, non inquantum hi circuli.

Why? 1496 (VII, l. 10)
Not mere: { 1480 (VII, l. 9)
1481

5. If 'circle' is not 'this circle,' there must be something because of which this circle is this; i.e. not a 'pars speciei'. As in case of Socrates: he is not his own humanity: he has humanity. Therefore he has parts which are not parts of the Species: quae sunt partes hujus materiae individuali, quae est individuationis principium. Likewise, in this circle, these lines, not parts speciei. Hence not parts of universal 'circle': circuli qui est universalis?

If there were an individual arbor that would be its own species, if Socrates were his humanity, there would be in Socrates no parts which would not be parts of humanity. Hen. III de An., l. 8.

6. Why natural & math. definitions are 'one': unum ut materia, alius ut actu

cf. VIII, 5, 1760-1762.

1. Materia intelligibilis ad de ratione quantitatis, secundum quod in singulis partibus ~~formatio~~ subjecti forma recipitur ejusdem rationis. Ipsa quantitas nihil aliud quam ordo talium partium. de Trin. V, 3, ad 3.

2. "Materia intelligibilis consideratur secundum quod aliquid ~~intelligibile~~ divisibile accipitur vel in numeris vel in continuis." 2 Post. Anal. II, l. 9, n. 5.

But one more 'material' than other. Ratio potentiae differt.

3. First manifest in imagined individuals. Hic, materia intell. = imaginable. Then we see that quantity cannot be understood { without a subject, and this homog. parts: parts speciei. } intell

4. 'Circle' not same as 'this circle'. Dist. between what this circle is and this. Hence, plurality of this possible. Metaph. VII, 10 § 11. Freedom of imagination: analogy with convergent minors.

5. Hence universal and particular; and, correspondingly, mat intell. { univ. indiv. de Ver. II/6/1m

6. The mathem. indiv. abstracted from sensible matter of what primo sensible. Can be differentiated only by symbols, having no names. Met. VII, 9, 1480- 'Ratio' of individual named, but not this. Reason: complete homog. 'circle' aequivoce { nature indiv. (when appropriated, as 'man' taken as name of Socr

7. 'Circle' and 'this', comparable only as univ. & particular. Thus, 'circle' and 'this circle', not two circles. If so, then genus common to both, and 'tertium quid', etc. ad infinitum. Thus, 'man' and 'Socrates' are two men. Duality, and 'this duality', not two dualities.

8. When identity of 'what' and 'that of which it is the what', then something one and incommunicable: if an indiv., a 'hoc aliquid'; is not by reason of something extrinsic to 'what it is', then only one possible: Deus and indiv. idem. (Hence, separated subst., if many, must be individual species. Hence not in number, because neither 'materia pars speciei,' nor 'haec materia.') de An. III, l. 8, 705.

6. Abstraction of math. indiv. → sensib. individual.
Perfect homogeneity. Not numerable. (Met. VII 9, 1480-1)
Differentiated only by symbol. No first equivalent to.
But ratio of individual named; but not this one.
"Circle" would be gomodo equiv. a case: if taken as proper name of this one, viz. 'a'.
But if taken to signify universal and particular, analogical.
(SPK. Met. I, l. 14, n. 224)

7. 'Circle' and 'this circle', comparable only as univ. to particular. Thus, they do not form two circles. Nor could there be a genus common to both. Many, not in numerical sense, but 'multiplicitas analogiae': as per se & per accidens. Hence, genus impossible. But 'quoddam commune' is possible. But if 'unum genere' and 'unum proportione' were same, then enough to form a genus, then, in this context: @ ¢ c = 2c; @ ¢ c ¢ c = 3c, etc. ad inf. Here only symbols. For, C, in C+c, either univ. or particular. If taken as particular: then either one or both. (i.e. univ. & particular.) Here prob. of Averroës. My intelligible species & ypers. If assimilated to object (i.e. identity of quo & quod), then one intellect. Actually, two universals here: "intelligible species of circle" and 'circle'. Of both, individuals [Man & Socrates, 2 two men]

8. If we take into account dist. between univ. & partic., then we cannot compare a number, like 2, with an instance of it, as one number to another number. Yet that is what Russell appears to be doing. (H. of W. Phil. p. 829)
— But A cannot stand for univ., but for particular. Then B.
But then B is not part of A. Just as semicircle is not part of circle, but of this circle: pars materiae.
— If A univ., and even part, then, if even removed, no more even, and A is

3, 5, 7, 9, ...

And the even 2, 4, 6, 8 ... where both equal wholes.

Let us put down Russell's series:

(A) 1, 2, 3, 4, 5, 6, ...
(B) 2, 4, 6, 8, 10, 12, ...
(C) 1, 3, 5, 7, 9, 11, ...

Clearly, no matter how far ..., as many in each as in other. All three have the 'same number', in sense of one-to-one corr.

But are B or C part of A?

Possibilities: the series stand either

(a) for universals: then B and C are parts of A:

(A)	1,	2,	3,	4,	5,	6,
(B)		2,		4,		6,
(C)	1,		3,		5,	

(b) for individual series. Then either

(α) comparison of part & whole;

(β) " " whole to whole.

If (β), then we are merely counting the individual terms of each series, and there are as many elements in B or C as in A.

(c) A for universals, and B or C for particulars; or the other way around. No one-to-one corresp. in numerical sense.

(d) A for 'class of classes', and B and C as well. Then A, B, C, are symbolic constructions in the sense already defined. Then, presented from universal and particular; from part & whole.

Hence, Russell uses the ~~words~~ words 'part' & 'whole' equivo

One man, two legs: parts greater than whole. More instances of 2 than 2; more subjective parts of 'odd' than 'odd'.

μέρος

Pars: quotuplex modi quibus aliquid dicitur pars: Met. v, c. 25. fl(

(i) in quam dividitur aliquid secundum quantitatem; hoc duplex:

Pars quantitativa.

(a) quantitas minor, in quam quantitas major dividitur, dicitur ejus pars. Semper enim id quod auferitur a quantitate, dicitur pars ejus. Ut duo trium.

(b) quantitas minor, quae mensurat majorem. Et sic duo non sunt pars trium, sed pars quatuor, quia bis duo sunt quatuor.

(ii) ea partes dicuntur, in quae dividitur aliquid sive quantitate, ut species partes generis. Dividitur enim in species, non sicut quantitas in partes quantitatis. Nam tota quantitas non est in una suarum partium. Genus autem est in qualibet specierum. Sic species est pars generis: pars subjectiva totius universi.

Pars subjectiva

(iii) dicuntur partes, in quas dividitur, aut ex quibus componitur aliquod totum, sive sit species sive individua. Sunt enim quaedam partes speciei, quaedam partes materiae, quae sunt partes individui.

Partes substantiae

Pars rei

E.g., aes est pars sphaerae aereae ut materia; et aes est pars enti aerei, sicut materia in qua species est recepta.

Sed cubus est corpus contentum a superficiebus quadratis; et angulus pars trianguli sicut species.

(iv) dicuntur partes, quae ponuntur in definitione cujusl. re

Pars rationis

quae sunt partes rationis sicut animal et bipes sunt partes hominis. Sic genus est pars speciei.

NB. Primo, tertio, et quarto modis pro parte integrali.

(3) f(d.1)

Whole [ὅλον, totum] Met V, 26
l. 21, nn. 1098 sq.

1. Common notion comprises duo:
   (a) "That from which is absent none of the parts of which it is constituted according to its nature." (1098)
   (b) "The parts are united in the whole: the contained must be such that they are ~~wanting~~ something one in the whole."

2. Two ways of being a 'whole', or of being called a whole:
   (a) In such a way that each of the parts contained (unumquodque contentorum a toto) is the containing whole, inasmuch as this whole is predicated of each of its parts. This is the universal whole, defined by predication; hence logical. (1099)
   "If a 'whole' "quasi multa continens ut partes, in eo quod praedicatur de unoquoque. Et omnia illa sunt unum in toto universali, ita quod unumquodque illorum est illud unum totum sicut animal continet hominem et equum, quia animal praedicatur de unoquoque." (1100) The wholeness is in the logical order. Cf. de Ente et Ess., c. 4 (Hyacinthus).
   (b) The second mode of whole is had when, of the parts which constitute something one, not any of these parts is the 'one'. This is the integral whole, which is predicated of none of its parts.
   [i] Common notion of integral whole.
   Most plain in whole whose division is into quantitative parts. Thus the "continuum and finite [= limited]", "idest perfectum [complete] et totum" (St. adds): viz. when something one is made up of many that are "in it": "ex pluribus quae insunt toti."
   NB. The unlimited = infinite in potency is not a whole, but has the nature of part. (Viz. series of whole numbers, not an integral whole. Requires further investg.) But 'number' is a universal whole, like animal. Hence 'integer' not an integral whole, although each is.
   The parts of an integral whole may be 'in it' in two ways:
   (a) Potentially: as in "continuous whole". More one, ergo more whole. Parts of integral whole must be infinite in it. Parts in potency are so: actually one, potentially many

(B) Actually: as in the non-continuous, as stones actually in the heap. Each part is actually a whole apart from the whole. This whole is a 'heap'.

N.B. [a] Ambiguity of 'actual'. The parts potentia in whole are truly in whole potentia. Otherwise not 'in it'.

[b] Diffic. in S.Th's comm. n. 1103. — Possible solution: Parts 'in potency' said with regard to act. Thus parts in act have more the nature of part than parts in potency. Which the whole has less the nature of whole when its parts are in act; as 'a whole of wholes'? Compare the lines in a line with the series of whole numbers: to be discussed later, when dist. between 'all' (omne) and 'whole'.

[ii.]

~~[illegible]~~ Two kinds of differences whole (integral):

(α) By nature: as a man; by art, as a house. Principle of unity intrinsic or extrinsic. Eg. number, intrinsic; bundle, extrinsic.

(β) Differ. based on distinction between 'all' (πᾶν, omne) and 'whole' (ὅλον), as related ~~position of parts~~ to order or position of parts. Thus is position, where there is beginning, middle, and end (a ultimate). (Thus the parts of a continuum differ by position, not by something intrinsic. Number, no position.) Now, with regard to position of parts, the continuous whole may have its parts in three ways:

① Such that diverse positions of parts do not affect the whole, i.e. a different position is indifferent. E.g. in water, inasmuch as all parts are of the same nature. Here, the whole is signified by 'all' (πᾶν, omne): all the water, not the 'whole water'. [If, in Greek, ὅλον, then metaph.; but not in Latin.] In English? Quidquid sit, 'all' must be can

(5)

(2) There are things in which a different position of parts makes a difference. These are described as a 'whole', like a man or a house. Its being whole depends upon a certain position of parts.

(3) Some things may change in form but not in matter. different figures in same way. These may be called both 'all' and 'whole'. But the form must be proper to it, and not due to an intrinsic term as in liquids.

(γ) The reason for this difference in naming:

(α) 'Omne' or 'πᾶν', taken distributively, as in 'every' (not 'each'), requires a multiplicity in act, or in 'potentia propinqua'. We say 'all the water' when we consider its parts as of the same nature, such things as water, or a line, being divisible into parts that are similar to the whole so that here is a multiplication of the whole. Each part of water is water: (Each part of a house not a house.) So that in every water there are waters ...., though only potentia. Here, in a single number, there are many units in act. [i.e. number discrete quantity: units actually ~~divided~~ units, actually parts, though only potentially other numbers.]

(β) 'ὅλον' or 'totum' signifies a collection of parts into something one. Hence 'whole' is said properly in the case of things in which, out of all the parts taken together, a complete 'one' is made, an 'unum perfectum', whose perfection belongs to none of its parts, as a house or an animal. Hence 'omne animal' is not said of one animal but of many. 'The whole animal' is said of one animal, not of a plurality.

('Hence, in the case of the wholes or totalities where we can say all ('all the water'), we can use both the singular and the plural: all the water, all the waters.) →

(6a)

1. Common notion of whole.
   Duo, a & b.
2. Two modes:
   (a) universal whole: predicated of each part.
   (b) integral whole: not predicated of parts.
      [i] Parts in esse: both.
         (α) potentially
         (β) actually
      [ii] Two kinds of diversities of wholes:
         (α) by nature, by art.
         (β) by position: diff. of position of parts either:
            ① does not affect the whole (e.g. water): then whole signified by "all" (πᾶν, o
            ② does affect the whole (e.g. man, house): then 'whole', ὅλον, totum.
            ③ changes form, not matter [way of figure]: then both 'all' and 'whole' and 'totum': ①
         (γ) Differ. between 'omne' (πᾶν, all): sign of
            ① distrib., as 'every': requires multiplicity either { - in act / - potentia proxima.
            We say 'all the water' because of apparent continuity: parts consimiles both: there is a multiplication of the whole. In every water there are waters; line, lines. [In every number, units in act; potentially other numbers, in some.];
            ② ὅλον or 'totum' (whole): signifies collection of parts into something one. Properly said of complete or perfect one: i.e. when all parts, taken together. Animal or house

[Robbins & Leonard: 'Totality & Integers' p. 78]

(6)

[iii] Corel. prm (β) and (γ):

(α) 'Omne animal' is said, not of one, but of many. (Expl. 'all animals').

(β) 'Totum animal' said of one, not of many. ('whole an

(γ) of the 'wholes' of which we can say 'all' (like 'all this number, or all this water), we can also use the plural (all these units, all these waters).

Application to the infinite.

"Infinitum non habet rationem totius, sed partis."

Potentiality proper to infinite. Phys. III, 6, 206a 9 - b 27. & Themist. (p. 10 lect. 10, n. 4 (373).

Infinite and whole. Phys. ~~III, 6, 206b 33 - 207a 2.~~ III, 6, 207a - 15. (lect. 11).

Note the following differences: (Note 'distribution' and 'completeness'.

{ 'All the points on a line' : true, potentia proxima.
{ 'The whole of the points in a line' : 'whole' not proper.

{ 'All the whole numbers' : omnes numeri.
{ 'The whole of whole numbers' : totum numerorum.

Totality of integers R. fc. 78

The sign of distribution does not signify a totality, not even when plural as in 'omnes numeri pares'.

If 'all whole numbers' meant a 'whole' (totum perfectum), then infinite in act. Possible? A first whole number.

'Infinite sets'. "There are obviously infinitely many different natural numbers". WM 1594.

(7) If 'all the integers' ≡ 'the totality of the integers', then inf. in act. Self. evident? (Hans Hahn). If notion of 'all' and 'whole' idem All, sometimes a proper whole. But this not evident in case of infinity.

The inf. in potency exists, physically (time), and mathematically. But infinite in act?

Now, problem of existence.

"Esse" can mean many things. Threefold division { extep. / in anima {cog di / act & potency.

Cf. de Ente et Ess. c. 1.
Met. V, l. 9; VI, l. 4.

Nota: { entitas = privatio entis. / relatio identitatis = ens rationis. There are entia rationis. / disp. = inconm.

What about mathem. things? Prescind from real existence. de Pot. V, Ergo, my 'mental', like second intentions? Like relations of reason and negations?

Noted that verification in experience impossible. In the abstract. E.g. geometry not natural. Cf. Met. XI, 1, 1059 b 5 (l. 1, 2161)

[If math. sc. same as calcul., and this applies to all: then universal materialism.]

But how are mathematicals in mind? Remember nature of math. abstraction. Consider separately, and produce not same. Constructio ejus quoddam. But...

How do they diff. from 'entia rationis'? Cf. Met. V, l. 11, 91

[Here Poincaré: ability of mind... Symbolic. No reality required; except reality of symbol. But this not mathem. abstr.; not logical, either.]

Now 'symbolic fiction' and 'existence'. What kind? Not of a fiction. But here, useful.

Diff. between poetic fiction and mathemat. or logical. Centaur e.g. of a traced figure; a man who can run post as a horse.

Pay no attention to math. here

[Example of relation of reason as ens rationis, and of the infinity which the reflexive nature of intellect reveals.

Notandum: – identity is not the same as the relation of identity.

– what identity is not the same as affirm. or negation of identity.

Expl.: to be identical is to be 'one in substance'. Like Socrate, talking and Socrate the teacher. Three terms here.

– Identity 'subjecto' (ut supra) (or as matter & privation) does not exclude 'number' according to reason. Matter a kind of number, and also 'one in number'? 'Unum subjecto, duo ratione.' Phys. I 19ob.

– But here, in predication of numerical identity by means of rational doubling, as in $S \equiv S$, ~~where~~ a thing is predicated of itself. Here lies the relation of reason we chose to single out. This is why we chose the text from Ref. V, l. 11, n. 912.
To show relat. as of reason and not real, STh. points out that as real would involve contrad., because then infinity related and therefore non-identity. But this infinity is found in reason & intellect, as we read. S. Th's example implies the following:

$$S \equiv S,\ (\equiv) \equiv (\equiv),\ [(\equiv) \equiv (\equiv)] \equiv [(\equiv) \equiv (\equiv)],\ \infty$$

Also $[(S \equiv S) \equiv (S \equiv S)] \equiv$, etc.

– Note: no particular relation of identity has a name; can only be symbolized: a mark 'out there', in the way that symbols are 'out there'. (Note 'out-thereness' typical of symbols. Not same as ends. Former have mechanical imprd.)

Applic.: This rel. of id. can be attached to the symbol itself, as $a \equiv a$, etc. Thus we express pure rational doubling, and this can be carried on ad infinitum; and this process, once symbolized, can, in its turn, be carried on ad infinitum, i.e. infinities in infinitum, and this in turn. An infinity of infinite series; but, an infinity of an infinity of infinite series? Can be symbolized, if the first can be symbolized: any one expression can be taken over again.

~~(Note 'rational space' & 'infinities & pure doubling'.~~

~~Why can the intellect do this? Cf. In S. I, d. 17, a. 5, ad 3 & 4 / Adam. 408-409).~~

He loves", then, "the act of loving what he loves and the act of loving this love is numerically one: "sic idem actus diligitur per actum qui et ipse [actus]."

(b) If the love bears upon one's own acts of loving as an object of love, then the act by which he loves the he loves and that by which he loves the act itself are numerically distinct.

(86) Repeat:

Relation of identity, not identity.

Implies purely rational doubling: "unum secundum esse, sed intellectus utitur eo ut pluribus ad hoc quod relationem intelligat." Meta. V, 11, 912. Infinity.

No particular rel. of id. has a name; same as in math. indiv. Hence symbolization. 'Not-thereness' typical of symbols.

Then relation of identity attached to symbol itself. Infinity; hence new symbolic structures. Infinity of infinity ad infinitum.

Why can the intellect do this?

Vd. In I S., p. 17, a. 5, ad 3 & 4 (Mand. 406-407).

3m - The act of the power by which we know (a any potentia immaterialis) is not excluded from "being an object": the act by which we know an object is also an object and known as an act which is an object. If I know & know that I know, and if what I know is an object, then my knowing is itself an object. In such knowing, 'to know' is present to itself by reflection.

Item I, p. 14, a. 6, 1m

Item for the good. The object of the will is the good, and can love its act as a good. This, in turn is a good.

4m - The act of charity which has neighbor as its object differs numerically from the act of charity which is loved in the other (i.e. neighbor). But the self-same person can also love his own act of charity. Hence distinction:

(a) If his own act of charity is ~~loved~~ loved only as that by reason of which (ut ratio diligendi) he loves, then, the act of loving what he loves and the act of loving this love is numerically one: "sic idem actus diligitur per actum qui est ipse [actus]."

(b) If the love bears upon one's own acts of loving as an object of love, then the act by which he loves and that by which he loves the act itself are numerically distinct.

This is more plain in the case of intellect.

Acts are distinguished by their objects: acts terminating in different objects are different acts.

E.g. the act by which our intellect understands 'horse' differs from the act by which it understands 'man'. Likewise, the act by which it understands 'horse' and the act by which the intellect understands its act of understanding as an act, are numerically distinct.

And this can go on ad infinitum in potentia. Same holds for the 'relationes consequentis actum ...

Also I^a q. 28, a.4, ad 2: "... In nobis, relationes intelligibiles ... multiplicantur; quia alio actu intelligit homo lapidem, et alio actu intelligit se intelligere lapidem, et alio etiam intelligit se hoc intelligere; et sic in infinitum multiplicantur actus intelligendi, et per consequens relationes intellectae." But this is typical of finite mind. "Sed hoc in Deo non habet locum, quia uno actu tantum omnia intelligit."

Comp. Phys., III, l. 7, 6.

Such is the basis of the symbolic structure we referred to. It is a purely mental one. But the structure itself is 'out there' in the way that symbols are. We can forget about the basis.

Rational exteriority: the numerically different referred to. Also 'rational space', if referring to symbols together with their basis.

Rational time: (tempus discretum): succession of acts → simultaneity.

But they can be symbolized without time.

Rational 'first': a, a, a, : relata.
1 2 3

" 'direction': ←——→

" 'next' (consecutive): no intermediary of same kind. Here 'act'. But symbol.

[Note two 'next': next act and next act about 'a'. Here in spirit compatible with numerically one in re.]

Only postulate: 'to take the same over and over again.' This can be substituted by symbolic construction. Important: no assent in re.

But reflection, we see that the relation of identity provides a reasonable minimum basis and starting-point, and a well-defined indifference.