

## UNITY IN VARIETY

A *unity* in mathematics is a quantity which multiplied by any other gives that other. There can thus be but one unity in an algebra, although there may be many units.

*Aesthetic unity*: singleness or congruence of effect immediately produced through sensuous presentation.

*Formal and material unity*: scholastic terms, derived from Aristotle. Material unity is that which pertains to an individual as such, and which cannot be abstracted even in thought from the individual; the material unity of Socrates is just that which constitutes him Socrates. Formal unity is that which pertains to an individual in such a way as to be distinguishable from his individuality; the humanity of Socrates can be conceived apart from Socrates, and as such constitutes a formal unity. Cf. *IDENTITY* (formal, and material).

*Functional unity*: a unity which consists not in the composition of elements or parts of structure as such, but in the conspiring or working together of these various parts—a unity of value effected—also termed teleological unity. The term ideal unity properly has the same meaning.

*Logical unity*: that which is constituted by the mutual support given to one another by the various terms and propositions of reasoning in the process of establishing a conclusion.

*Metaphysical unity*: that whose identity is inherent, having within itself a principle of being or action which makes it essentially distinct from all other beings.

*Moral unity*: that which is produced by a variety of factors co-operating intentionally, and under the control of some consciously regulating principle, to bring about a particular result; in this sense the state, as well as the person, may be a moral unity.

*Numerical unity*: that the identity of which is external, rather than intrinsic; whatever is sufficiently marked off or separate from other things to be counted as one; also termed physical or mechanical unity. Cf. *NUMBER* (different topics).

*Organic unity*: a unity which is constituted in and through diversity, since it requires a manifold of parts or members which are mutually dependent upon one another; opposed to a mechanical unity or unity of an aggregate in which every part is so homogeneous with the other parts and with the whole as to be capable of being itself a unity.

which in quality (though not in quantity) is regarded as the same as the original unit. Cf. *ORGANISM*.

The Kantian philosophy also supplies a number of technical distinctions (see *KANTIAN TERMINOLOGY*,—especially the synthetic or transcendental unity of apperception—and above).

We owe most of the main distinctions to Aristotle, who differentiated absolute and relative unity; the former being continuous and indivisible within itself, the latter complex and diversified, as of an orchestra. Unity proper he subdivided into four forms: first, that of continuity, not due to contact; second, natural unity of form and figure—that is, original, not due to violence or external force; third, individual, that which is numerically distinct; fourth, unity of the universal, that constituted by thought as present in a variety of objects—practically equivalent to the formal unity of the Scholastics.

But the philosophic interest of the idea of unity cannot be gathered from any cluster of formal definitions or distinctions. It attaches to the content of the idea. All philosophy is a search for unity, or, if this cannot be found, for unities; and it is the nature and quality ascribed to unity or unities, together with the reasons given for selecting it as such, that constitute the true philosophic history of the term. See *MONISM*, *MONADS*, *PLURALISM*, *ONE AND MANY*.

Moreover, *unum* was with the Scholastics one of the three ultimate predicates of being, and it was an axiom of philosophy that every real being is unity, and every true (not artificial) unity is being. Hence the standard and definition of unity and substance are the same. See *SUBSTANCE*, and *TRANSCENDENT*. The whole question of the philosophic ground of mathematics (on the side of arithmetic and algebra) is connected with the question of unity.

*Unity in Variety*: Ger. *Einheit in der Mannigfaltigkeit*; Fr. *unité dans la variété*; Ital. *unità nella varietà*. An agreement in certain respects of several objects or parts of one object, which differ in other respects, thus capable of being grasped as a whole, while at the same time they are distinguished.

This is the objective correlate of the law of all intelligence which is a synthetic process of discrimination and identification or relation. The unity may be that of a spatial or temporal whole, that of identity of quality, that of conformity to some idea or law, or

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that of co-operation to a single end. It relates to both form and content of the aesthetic object. While absolute unity becomes emptiness or monotony, and absolute variety would be chaos, the varying degrees in which unity or variety is prominent give rise to a range of aesthetic values. In addition to the formal element of adjustment or adaptation, and the connected free play of mental powers in apprehending objects where unity in variety is conspicuous, there seems to be involved to some extent in 'unity' the value attaching to the maintenance and recognition of one's own identity, while variety tends to enlargement and freedom.

The principle was enunciated by Plato and Aristotle in reference to literary composition, and has been given recognition as at least an important condition of formal beauty by nearly all aestheticians.

*Literature*: see titles under *AESTHETICS*, *ART*, and *BEAUTY*; see especially FECHNER, *Vorschule d. Aesth.* (1876), chap. vi; KÜSTLIN, *Aesthetik* (1869); DONKIN, *Mind*, 1897, 511 ff.

*Unity of God* (in theology): Ger. *Gottes-einheit*; Fr. *unité de Dieu*; Ital. *unità di Dio*. The doctrine that in the last analysis God is one and not many, and that the distinctions in the divine nature presuppose its substantial oneness.

Unity is the principle of monotheism. The Christian doctrine of tripersonality made it necessary to emphasize the unitary side of the divine nature. Unity may be asserted in such a way as to be inconsistent with personal distinctions. This gives abstract monotheism. Judaism rests on the monotheistic conception of Jahveh or Jehovah, which is consistent with internal distinction if not with a plurality of persons.

*Literature*: see *MONOTHEISM*, *JEHOVAH*, *TRINITARIANISM*, and *UNITARIANISM*. (A.T.O.)

*Universal* (and *Universality*) [Lat. *universalis*, pertaining to all]: Ger. *allgemein*; Fr. *universel*; Ital. *universale*. (1) This word was used in the middle ages where we should now use the word *GENERAL* (q.v.). Another synonym was *praedicabile*: 'Praedicabile est quod aptum natum est praedicari de pluribus,' says Petrus Hispanus. Albertus Magnus says, 'Universale est quod cum sit in uno aptum natum est esse in pluribus.' Burgersdicius, literally translating from Aristotle, says, 'Universale (τὸ καθ' ὅλου) appello, quod de pluribus suapte natura praedicari aptum est,' i.e. ὁ ἐν πλείονων πέφυκε κατηγορεῖσθαι. When the

Scholastics talk of universals, they merely mean general terms (which are said to be *simple universals*), with the exception here following.

(2) The five terms of second intention, or more accurately the five classes of predicates, *genus*, *species*, *difference*, *property*, *accident*, were in the middle ages (as they still are) called 'the predicables.' But since predicable also means fit to be a predicate, in which sense it is almost an exact synonym of universal in the first sense, the five predicables came to be often referred to as 'the universals.'

(3) Predicated, or asserted, in a proposition *de omni*; said to be true, without exception, whatever there may be of which the subject term is predicable. See *QUANTITY* (in logic).

Thus 'any phoenix rises from its ashes' is a universal proposition. This is called the *complex* sense of universal. The subject must be taken in the distributive sense and not in the collective sense. Thus, 'All man is all redeemed,' which is Hamilton's 'toti-total proposition,' is not a universal proposition, or assertion *de omni*, in the sense defined by Aristotle in the *dictum de omni*; for it means that the collection of men is identical with the collection of the redeemed, and not that each man without exception is all redeemed. Leibnitz rightly insists that a universal proposition does not assert, or imply, the existence of its subject. The first reason for this is that it accords with the definition; that is, the *dictum de omni*, which is that that is asserted universally of a subject which is said to be predicable of whatever that subject may be predicable. For this may be done without asserting that the subject is predicable of anything in the universe. The second reason is that the term *universal proposition* is a term of formal logic. Now the principal, or at least the most essential, business of formal logic is so to formulate direct syllogism as not to represent it as requiring more or less than it really does. Now the major premise of a direct syllogism must be universal, but need not imply the existence of anything of which the subject should be predicable. Hence a form of universal proposition not asserting the existence of the subject is indispensable. Now that no second kind of universal proposition is needed will presently appear. The third reason is that it is necessary that formal logic should be provided with a form of proposition precisely denying every proposition coming

under each of its simple forms. Now, if a universal proposition asserting the existence of its subject is regarded as a simple form of proposition—as, for example, 'There are inhabitants of Mars and every one of them without exception has red hair'—its precise denial would be a particular proposition not asserting the existence of the subject, which would be a most singular form, hardly ever wanted, and manifestly complex, such as, 'Either there is no inhabitant of Mars, or if there be, there is one at least who has not red hair.' It is obviously far better to make the simple particular proposition assert the existence of its subject, 'There is an inhabitant of Mars who has red hair,' when the universal form will not make the same assertion, or imply it: 'Whatever inhabitant of Mars there may be must, without exception, have red hair.' If every particular proposition asserts the existence of its subject, then an affirmative particular proposition implies the existence of its predicate also. It would be a contradiction in terms to say that a proposition asserted the existence of its predicate, since that of which a proposition asserts anything is its subject, not its predicate. But perhaps it is not quite accurate to say that the particular proposition asserts the existence of its subject. At any rate, this must not be understood as if, in such assertion, *existence* were a predicate not implied in a proposition which does not make this assertion (see Kant, *Krit. d. reinen Vernunft*, 1st ed., 599).

Every proposition refers to some index: universal propositions to the universe, through the environment common to speaker and auditor, which is an index of what the speaker is talking about. But the particular proposition asserts that, with sufficient means, in that universe would be found an object to which the subject term would be applicable, and to which further examination would prove that the image called up by the predicate was also applicable. That having been ascertained, it is an *immediate inference*, though not exactly asserted in the proposition, that there is some *indicable object* (that is, something *existent*) to which the predicate itself applies; so that the predicate also may be considered as referring to an index. Of course, it is perfectly legitimate, and in some aspects preferable, to formulate the particular proposition thus: 'Something is, at once, an inhabitant of Mars and is red haired,' and the universal proposition thus: 'Everything that exists in

the universe is, if an inhabitant of Mars, then also red haired.' In this case, the universal proposition asserts nothing about existence; since it must already be well understood between speaker and auditor that the universe is *there*. The particular proposition in the new form asserts the existence of a vague something to which it pronounces 'inhabitant of Mars' and 'red haired' to be applicable. See the remarks on 'existence' under PROPOSITION.

The universal proposition must be understood as strictly excluding any single exception. It is thus distinguished from the proposition 'The ratio of the number of A's to that of the A's that are B is as 1:1,' not merely in being distributive in form instead of collective, but also in asserting much more. Thus the ratio of the multitude of all real numbers to those of them that are incommensurable is as 1:1; yet that does not prevent the commensurable numbers from existing, nor from being infinite in multitude. Were it proved that the ratio of frequency of all events to such of them as were due to natural causation was 1:1, that would be no argument whatever against the existence of miracles; although it might (or might not, according to circumstances) be an argument against explaining any given event as miraculous, if such a hypothesis can be called an explanation. Now induction may conclude that the ratio of frequency of a specific to a generic event is 1:1, in the same approximate sense in which all inductive conclusions are to be accepted. Indeed, the ratios 1:1 and 0:1 may be inductively concluded with stronger confidence in their accuracy than any other ratio can be so concluded. But under no circumstances whatsoever can induction establish the accuracy or approximate accuracy of a strictly universal proposition, or that any given series of phenomenal events is, properly speaking, general (and therefore represents a possibly infinite class), or is even approximately general. Such propositions, outside of mathematics (taking this word so as to include all definitions and deductions from them), must either be entirely unwarranted, or must derive their warrant from some other source than observation and experiment. It might conceivably be established by testimony, as, for example, by a promise by a possibly immortal being to act in a certain way upon every occasion of a certain description; and thus it would not need to be an *a priori* judgment. (C.S.P.)

(4) The logical use (3) passes easily into the metaphysical. Provided the common attribute is regarded as important or essential, provided it is regarded as constituting a 'natural' genus or class, it expresses the *essence* of the thing under consideration—its permanent and abiding reality as distinct from transitory accidents. But since this essence is also what is *common* to a number of individuals, the class itself taken as an objective whole is regarded as a universal. When a predicate of this sort is applied to a subject, it expresses not merely an empirical, but a necessary, application to the whole of the subject-matter; the relationship ceases to be simply a quantitative one, and becomes qualitative or essential; e.g. 'All swans are white' would be a quantitative universal judgment, and so empirical. But 'all events must have a cause' is a qualitative universal—it is the 'essence' of an event to be caused. Now mediaeval thought was thus led to identify the universalia or generic notions with essences and with classes. Thus arose the discussion regarding the relation of universals to individual things (see REALISM, 1). Cf. ABSTRACT IDEAS.

(5) Aristotle had illustrated the common as the basis of a 'natural' class, by the common strain in various members of a family—those of common descent. This aspect of the term tends to identify the universal not merely with the static qualities or essence, but with the productive force—the generic is the generative—by which numerically distinct individuals are really connected with one another. This meaning presents a picture of what is meant by the objective reality of a universal. With modern science and the growth of the conception of force, causation, and the tendency to define (as in geometry) by reference to mode of production, this dynamic sense got the upper hand of the static. It is used in this sense in the school of Hegel to mean the general which, as function or activity, exists only in the specific differences to which it determines itself. (J.D.)

(6) Kant, in sundry places (as in *Logik* by Jäsche, § 21), draws a rather insignificant distinction between 'generale' or 'gemeine' Sätze and 'universale' or 'allgemeine' Sätze. The former are what are ordinarily called universal propositions. The latter are something more, apparently relating to any object whatsoever.

(7) Descartes, Leibnitz, Kant, and others appeal to the universality of certain truths

as proving that they are not derived from observation, either directly or by legitimate probable inference. There is only one such passage in Descartes; and even Leibnitz, though he frequently alleges the *necessity* of certain truths (that is, their being propositions of necessary mode) against Locke's opinion, yet in only one place (the 'Avant-Propos' of the *Nouveaux Essais*) distinctly adds the criterion of universality. Descartes, Leibnitz, and Kant more or less explicitly state that that which they say cannot be derived from observation, or legitimate probable inference from observation, is a universal proposition in sense (3), that is, an assertion concerning every member of a general class without exception. Descartes (*Letter xcix*) argues that no legitimate inference can be made from external phenomena to the proposition that 'Things equal to the same are equal to each other,' since that would be to infer a 'universal' from a 'particular.' Leibnitz uses almost the same language: 'D'où il nait une autre question, savoir, si toutes les vérités dépendent de l'expérience, c'est-à-dire de l'induction et des exemples, ou s'il y a un autre fondement. . . . Or, tous les exemples qui confirment une vérité générale, de quelque nombre qu'ils soient, ne suffisent pas pour établir la nécessité universelle de cette même vérité: car il ne suit pas que ce qui est arrivé arrivera toujours de même.' Kant expresses himself still more unmistakably (*Krit. d. reinen Vernunft*, 2nd ed., Einleitung, ii): 'Erfahrung giebt niemals ihren Urtheilen wahre und strenge, sondern nur angenommene und comparative Allgemeinheit (durch Induction), so dass es eigentlich heissen muss: so viel wir bisher wahrgenommen haben, findet sich von dieser oder jener Regel keine Ausnahme. Wird also ein Urtheil in strenger Allgemeinheit gedacht, d. i. so, dass gar keine Ausnahme als möglich verstatet wird, so ist es nicht von der Erfahrung abgeleitet, sondern schlechterdings *a priori* gültig. Die empirische Allgemeinheit ist also nur eine willkürliche Steigerung der Gültigkeit, von der, welche in den meisten Fällen, zu der, die in allen gilt, wie z. B. in dem Satze: alle Körper sind schwer; wo dagegen strenge Allgemeinheit zu einem Urtheile wesentlich gehört, da zeigt diese auf einem besonderen Erkenntnisquell derselben, nämlich ein Vermögen des Erkenntnisses *a priori*. Nothwendigkeit und strenge Allgemeinheit sind also sichere Kennzeichen einer Erkenntnis *a priori*, und gehören auch unzertrennlich zu einander.' But notwithstanding

ing the fact that the whole logic of all these writers, especially Kant, requires the word universal to be understood in that sense, yet there are, in the works of all of them, some passages which lend a certain colour of excuse to the stupid blunder of some interpreters who teach that by necessity they mean the irresistible psychical force with which the proposition demands our assent, and that by universality they mean catholicity, i.e. the catholic acceptance of it *semper, ubique, et ab omnibus*. Descartes in particular, and Leibnitz in some measure, perhaps even Kant (though it would be very illogical for him to do so), did more or less attach weight to the irresistible apparent evidence, and to some degree to the catholic acceptance, of propositions as tending to persuade us of their truth; but not as criteria of their origin. It is, however, to be noticed that false interpreters of Kant have used the word universal in the sense of being accepted by all men—the sense of *κοινός*, in the phrase *κοινὰ ἔννοια*.

The words universal and universality enter into various technical phrases:—

**Aesthetic universality**: a term of Kant for a universality not formally stated but illustrated by examples.

**Complex universality**: see above.

**Natural universal**: a natural sign predicable of a plurality of things, as smoke is a sign of fire. The nominalistic doctrine is that nothing out of the mind is universal in that sense. See Ockham, *Logica*, I. xiv. ad fin.

**Objective universality**: the universality of a concept or rule; a Kantian phrase.

**Posterioristic dictum de omni** and **Posterioristic universal**: universal predication as defined by Aristotle in the fourth chapter of the first book of the *Posterior Analytics*, where it is defined as the negative of the particular: *κατὰ παντός μὲν οὖν τοῦτο λέγω ὃ ἂν ἢ μὴ ἐπὶ τινός μὲν τινός δὲ μὴ μηδὲ ποτὲ μὲν ποτὲ δὲ μὴ*—‘I call that universally predicated (*de omni*) which is not in something, in something not, nor now is, now is not.’

**Prioristic dictum de omni** and **Prioristic universal**: universal predication as defined by Aristotle at the end of the first chapter of the first book of the *Prior Analytics*: *λέγομεν τὸ κατὰ παντός κατηγορεῖσθαι ὅταν μηδὲν ἢ λαβεῖν τῶν τοῦ υποκειμένου καθ’ οὗ θάτερον οὐ λεχθήσεται*—‘We say that anything, *P*, is predicated universally (*dictum de omni*) when nothing can be subsumed under the subject of which *P* is not intended to be predicated.’

**Simple universality**: the generality of a general term. See (1) above.

**Universal cause**: a cause which with one and the same efficiency concurs with others in producing different effects. The idea is that ‘particular causes,’ that is, finite beings, generate only their own kind. But God and heaven produce all sorts of results natural and moral in one and the same manner.

**Universal consent**: catholicity (see above).

**Universal conversion**: the conversion of a proposition into a universal proposition. See Hamilton, *Lect. on Logic*, Appendix V, iii. footnote 14.

**Universal grammar**: grammar so far as it applies to every possible language. The ordinary doctrine of the middle ages was that in its main features, and even in great detail, one grammar was common to all languages. See Thurot, in *Notices et Extraits*, xxii. 125 ff.

**Universal logic**: the unusual division of logic into a universal and a particular part is due to Avicenna, who makes the former to consist of the matter of the *Predicaments*, *Peri hermeneias*, and *Prior Analytics*, while the latter, treating of special kinds of reasoning, demonstrative, probable, and sophistical, embraces the matter of the *Posterior Analytics*, *Topics*, and *Sophistici Elenchi*. Kant uses precisely the same division in the introduction to the transcendental logic (*Krit. d. reinen Vernunft*, 1st ed., 53).

**Universal moods of syllogism**: those in which both premises and the conclusion are universal.

**Universal parts and whole**: the parts and whole of the logical breadth of a term, proposition, or argument.

**Universal unity** is that sort of unity which belongs to generalness. Burgersdicius (*Instit. Metaph.*, I. xiii. § 1) explains it in these words: ‘Unitas universalis est quae convenit rebus quatenus indivisae sunt in plures res eiusdem nominis et essentiae, et apta in eas dividatur. Universalitas enim haec duo postulat, unitatem sive indivisionem, et communitatem sive aptitudinem ad divisionem et multitudinem. Sic animal, ut est universale, in se unum est, una enim definitione potest explicari, et aptum est dividi in hominem et bestiam.’

**Universal validity**: according to some logicians is the validity of such reasonings as are ‘calculated to operate conviction on all reasonable minds’ (Hamilton, *Lect. on Logic*, xxvi). If he had omitted the word reason-

able, and said ‘calculated to work conviction on all minds,’ this would not have proved they had any validity at all; for the validity of a reasoning depends upon whether it really will lead to the truth, and not upon whether it be believed that it will. Thus the word reasonable is the only pertinent word in the definition. But in fact there is no division of logical validity into universal and particular.

**Universal ante rem**: Albertus Magnus, in his commentary on the *Organum*, which is valuable on account of being largely drawn from Algazeli, Alfarabius, and Avicenna (*Liber de Praedicabilibus*, chapter beginning, ‘Quamvis autem haec determinata sint supra vires logicae’), says after an explanation too long to quote: ‘Et hoc est quod dixerunt antiqui, triplices esse formas, ante rem, scilicet, quae sunt formae secundum se acceptae principia rerum existentes, et in re, sive cum re ipsa, quae sunt formae existentes in ipsis dantes eis nomen et rationem per id quod sunt aptae esse in multis et universales (non tamen secundum quod sunt in illis; secundum enim quod sunt in illis particularizatae et individuitatae et ad singularitatem ductae sunt). Sunt etiam formae post rem quae sunt formae per abstractionem intellectus ab individuantibus separatae, et in quibus intellectus agit universalitatem. Et primae quidem substantia rerum principia sunt. Secundae autem rerum substantiae. Tertiae autem accidentia et qualitates, quae notae rerum in anima acceptae vocantur et dispositiones vel habitus.’ There is much more. They are also called *ante multa*, *in multis*, and *post multa*.

**Universal in causando**: same as *Universal cause* (above).

**Universals in essendo**: according to the Conimbricenses are common natures existing in many inferiors. Burgersdicius and others identify them with universals *ante rem*, otherwise called the metaphysical universals, or Platonic ideas.

**Universals in praedicando**, otherwise called **logical universals**: the universals concerning which the principal dispute between the sects in the 12th century took place. Tataretus, whose tendencies are Scotistic, says: ‘Universale in praedicando potest capi dupliciter, uno modo prime-intentionaliter, alio modo secunde-intentionaliter seu pro per se significato. Unde universale prime-intentionaliter captum non est aliud quam aliquid cognitum ut unum in multis et de multis cui ex natura rei non repugnat sic esse, cuius

modi sunt significata adaequata terminorum communium. Sed universale secunde-intentionaliter captum non est aliud quam quidam respectus rationis causatus per actum comparativum intellectus comparantis aliquid in ordine ad sua inferiora, ut unum in multis et de multis.’

**Universal in significando**: a sign which signifies a number of things. The Conimbricenses instance a comet, which presages that many persons are to be seized with maladies, also general words, whether spoken, written, or thought.

**Universal per voluntariam institutionem**: a term of Ockham’s, opposed to natural universal. A conventional sign having a general signification.

**Universal simpliciter** and **secundum quid**: a proposition is said to be *universal simpliciter* which asserts itself of any individual object of the subject term; that is, an ordinary universal proposition. A proposition is *universal secundum quid* if it is asserted not of every object individually, but of some representative (in some definite sense) of each individual, as *Omnia animalia fuerunt in arca Noachi*. (C.S.P., C.L.F.)

**Universal Consent or Catholicity** (in philosophy): see UNIVERSAL, and TESTS OF TRUTH.

**Universal Happiness**: Ger. *allgemeine Glückseligkeit*; Fr. *félicité universelle*; Ital. *felicità universale*. The ‘happiness of the greatest number.’ See HAPPINESS, GREATEST HAPPINESS, and ETHICAL THEORIES (Hedonism). (J.M.B.)

**Universal Postulate**: no foreign equivalents in use. The term is used as a technical one by Spencer, to denote the ‘inconceivableness of the negative’ of any proposition as the supreme test of the necessary coexistence of a given subject and predicate. It has psychological necessity—the necessity of thinking the proposition in such and such a way; and also logical—the reason for holding it valid. This criterion is in effect nothing but the criterion of RATIONALISM (q.v.) as stated by Leibnitz—the impossibility of the opposite. As such, it was shown by Kant to be applicable only to ‘analytic judgments.’ Cf. TESTS OF TRUTH. (J.D.)

**Universalism**: Ger. *Lehre der Universalisten*; Fr. *universalisme*; Ital. *universalismo*. The doctrine of the final salvation of all men, founded by its advocates on the following postulates. (1) God’s essential goodness and love; (2) the unlimited scope of Christ’s redemption;