

HEGEL'S LOGIC AND FREGE'S STAR PARADOX

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ABSTRACT: In 1892 Frege published an essay "Über Sinn und Bedeutung" where he presented a paradox, the so-called Star paradox. The paradox and Frege's own solution to it became later very famous and influential. This paradox of how to relate logical and contingent identities is perhaps the major characteristic problem of Analytic philosophy, and Frege's solution has been celebrated as a brilliant opening of a whole new era of philosophy. Because Analytic philosophy, its British branch in particular, has been regarded as an anti-Hegelian movement *par excellence* it is not only interesting, but fair, to ask how a Hegelian would have reacted to this problem. Any Hegelian approach to the problem must be ready to question the assumption that natural language identity statements are strict logical identity statements. Inspired by their project of logicism, Frege and Russell just decided to formalize natural language identity statement as $a = a$ and $a = b$, and this gave the misleading impression that also natural expressions satisfy the properties of logical identity (reflexivity, symmetry, transitivity, substitutivity). According to Hegel, what looks like a logical identity statement is, in fact, an asymmetric subject-predicate sentence whose predicate is not decomposable. Therefore, logical and contingent identities of natural discourses are never equivalent. This prevents the Star paradox from arising.

KEYWORDS: Hegel; Frege; Dialectics; Paradox

1. *Background.* Frege's paradox of how to relate logical and contingent identities is the major characteristic problem of Analytic philosophy. Not only has Frege's solution attempt in his 1892 essay "Über Sinn und Bedeutung" been celebrated as a brilliant opening of a whole new era of philosophy, but since Russell's "On denoting" (1905) which tackles a closely related kin problem almost all central schools of Analytic philosophy have offered their own solution candidate to this set of problems.

Because Analytic philosophy, its British branch in particular, has been regarded as an anti-Hegelian movement *par excellence* it might be interesting to ask how a Hegelian would have reacted to this famous problem. We must, however, be prepared to acknowledge that the reaction may not look like a

solution to the original problem. Yet the reaction may tell us something of the nature of the original problem too, and illuminate some of the presuppositions and commitments that guided Frege's thinking. A Hegelian reaction may be both a way to keep distance to Frege's original difficulties and a solution to another problem, a Hegelian variant of Frege's problem.

2. *Frege's Star paradox.* Frege (1892/1980) formulated the paradox of logical and contingent identities by resorting to a well-known astronomical fact. Suppose that a person utters the true sentence *The Morning star is the same planet as the Evening star*. This sentence is often formalized as $a = b$, and it seems obvious that the sentence and its formalization are able to transmit astronomical information because both *Morning star* and *Evening star* are colloquial names for the planet Venus. Yet the authority of classical logic itself forces us to doubt this truism.

Now $x = x$ (or, *for any* $x: x = x$; reflexivity of identity) is a logical truth in practically all standard logical systems where identity is available, and therefore, for any a , also $a = a$ is true. If also $a = b$ happens to be true it seems to be quite difficult to distinguish its reference (designation) from that of $a = a$. It holds already in classical propositional logic that if A and B have been introduced to an argument as true then A and B are logically equivalent. This is something that students of propositional logic often find strange. They may find it equally strange that any logical truth is implied by any proposition, even by a contradiction, and that any contradiction implies any proposition.

Thus if the Morning star is the Evening star, and $a = b$ indeed is true then in any argumentation which accepts the rules of classical logic, $a = a$ implies $a = b$, and $a = b$ implies $a = a$. Therefore within any theory or argument where $a = b$ indeed is accepted or introduced as true, regardless of what reference in general is supposed to be, the reference of the two sentences appear to be same, and, therefore, the sentences should be interchangeable or intersubstitutable. Therefore we are faced with a problem: Why, of the two seemingly equivalent formulas, only $a = b$ is able to transmit astronomical information?

A similar paradox was put forward by Russell in his "On denoting" (1905/1956). King Charles IV wanted to know whether Sir Walter Scott is the writer of the *Waverly* novel. Because Scott indeed is the writer of *Waverly* it seems that the poor king wanted to know whether Scott is Scott. But this is absurd.

It is a widely accepted view that Frege's and Russell's famous solution attempts to their respective problems mark the starting point of Analytic philosophy. The founding fathers were able to formulate problems which are extremely rich and complex, so much so that we may, one and half century later, still ask whether they have really been solved. A Hegelian might be inclined to say that the problem jungle into which the master philosophers guided us is actually intractable and the two specific problems unsolvable. One reason that might justify this pessimism is that, strictly speaking, there are no contingent identities in the first place to start the Fregean argument. Another reason might be that logical truth has much less to do with truth *simpliciter* than what is widely believed. If these impieties are accepted we should be particularly suspicious of such a rule which allows a logical truth and a contingent truth to be attached by a conjunction, and which then claims that the resulting conjunction is equivalent with either of the conjuncts separately.

3. *Hegel's theory of objects.* According to Hegel's *Wissenschaft der Logik* (Hegel, 1812/1831/1986, see in particular Erster Teil, Zweites Buch, Zweites Kapitel C: "Der Widerspruch," pp. 64–80; in Miller's translation, *Science of Logic*, Hegel, 1812/1831/1969, Volume One, Book Two, Chapter 2c; "Contradiction:" pp. 431–443), all things (*Dinge*), every subject matter (*Sache*), and all propositions are contradictory. Thus also physical matter is contradictory, and its transitions and movements cannot be described without contradictions. If dialetheist is a person who believes that there are true contradictions, Hegel was a diletheist. But, Hegel's conception of truth is highly unconventional and there exists no serious 20th century formulation of his logic, that is, of his theory of truth, reference and propositions. For example, paraconsistent logic (cf. Priest, 1989) can hardly help us here because it is implausible that the core of Hegel's logic, his conception of meaning, truth, and propositions, could be reconciled with (or be credibly interpreted in terms of) any such theory which resorts to the Tarski schema, Tarski's truth definition, model theory, or possible worlds semantics, or other such popular recent theories.

Already in *Phänomenologie des Geistes* (Hegel, 1807/1970, see, in particular, AII: "Die Wahrnehmung oder das Ding und die Täuschung," pp. 103–104; in Miller's translation, Hegel, 1807/1977, AII, in "Perception: or the thing and

deception,” §125–§129, pp. 75–77) Hegel had described how things, in order to emerge, have to resort to two kinds of unifying processes: in the mode of *Für-sich-sein* (inclusive unity) objects emerge toward determined existence by trying to remain identical with themselves; in the mode of *Sein-für-ein-Anderes* (exclusive unity), objects seek determined existence by being contrasted with other objects. The self-centered and self-referential conceptual reflection, *Für-sich-sein* of an object, can be considered to represent the subjective aspect of the concept of the object which emerges through determining processes, whereas its being for others, *Sein-für-ein-Anderes*, represents its objective aspect. The modes are both inherently and mutually contradictory, but it is the energy of this contradiction that helps the object to transform itself constantly to something that it yet isn't (*Werden*). In perpetually on-going cyclic movement between the modes of existence, a process called *Aufhebung* unifies the opposite modes and allows the determined object to arise. The determined object may temporarily reach relative self-identity, or rather, persistent unity, with respect to other objects and concepts – just in order to lose it again.

In *Wissenschaft der Logik* Hegel developed further his theory of objects (Hegel, 1812/1831/1986, see especially Erster Teil, Zweites Buch, Erstes Kapitel, “Der Schein;” and Zweites Kapitel, “Die Wesenheiten oder die Reflexionsbestimmungen;” these are in Miller's translation, Hegel 1812/1831/1969, Volume One, Book Two, Chapter 1, “Illusory being,” and Chapter 2, “The essentialities or determinations of reflection”). As George Di Giovanni (1993) explains in detail, here again two kinds of transitory processes of the Hegelian reflection differentiate objects from the flux of immediate experience or from nothingness: positing reflection and external reflection respectively. The two reflective processes are finally united in proper *Aufhebung* by the full determining reflection.

As positing reflection approaches immediate experience, the positing reflection presupposes itself by returning from the experience to itself. Respectively, the immediacy presupposes the positing reflection which, in turn, presupposes the altered immediacy. Thus, in this ever-going circular movement, reflection and immediacy mutually qualify each other. But they are able to do this by remaining, at least to some extent, also separate movements, that is, different and indifferent with respect to one another. Therefore the

essence which is reached by reflection can occasionally be experienced also as extrinsic with respect to its immediacy. The result of external reflection represents the objective aspect of the emerging essence, and if this aspect dominates the subjective positing reflection, the external reflection may give the impression of a relatively high degree of independence. In this case, immediate experience, and the essence which arises from positing reflection, do not only appear to be outside one another, but both of them are experienced as separate from the world of external objects. Typically, spatio-temporal material objects, in proper cultural setting, may reach apparent independence from and indifference with respect to their experiential origin and conceptual emergence. Finally the positing and external reflections are unified by the full-fledged determining reflection, and the determined object has reached some unifying persistence which is, however, relative, and remains temporal.

After the unification, the determined object is, of course, also similar with other objects with respect to the particular property that also the other objects have gone through similar unification processes. Because conceptual *Aufhebung* is always needed to unify the two conflicting modes of being, the subjective (or inclusive) aspect of positing reflection, and the objective (or exclusive) one of the external reflection, the emerging object can never really hope to reach full concept-independent existence. This is Hegel's holistic monism: what is, is contradictory in itself but, simultaneously, aims at reaching a temporary equilibrium of the conflicting opposites. To speak of things that somehow succeeded in being purely in themselves, that is, fully independent of concepts, is absurd.

Hegel's overall dialectic (Rolf-Peter Horstmann, 2008, calls it 'transcendentalistic') strategy runs as follows: Assume first only one of the two reflective movements, either the inclusive or the exclusive one, and derive an absurdity or a blatant contradiction; then assume the other one, and derive an opposite absurdity or a blatant contradiction. Then you finally realize that you have to ascent to a unifying position where you reject some presuppositions of both of the opposite alternatives, and introduce some new ideas and meanings too. Expressed in traditional dialectical terms, we accept the contradiction as a ground for a unifying movement of *Aufhebung*. What ultimately is, *Geist*, is able to unify the contradictory movements of reflection into a ever-changing, self-

transforming but potentially self-contradictory whole. Changes in concepts are reflected as changes in objects, and *vice versa*.

In order to participate and generate perpetual change, both objects and concepts have to be self-alienated, self-contradictory, self-organizing, and capable of *Selbst-Aufhebung*, self-initiated transition, but, simultaneously, they must be ready to aim at intrinsic unity, and also capable of reaching it – at least temporarily. They are to themselves something else, and their strange 'identity' is just relative perspectival unity or inherent coherence which they reach in their perpetual change. They always point toward something they presently are not, toward their becoming something else (*Werden*). Due to this inherent otherness which is effective in every concept, a concept necessarily represents, as Adorno put it in his *Negative Dialektik* (Adorno, 1973, in particular Zweiter Teil, "Negative Dialektik. Begriff und Kategorien," pp. 137–208) both more than it is expected or intended to represent, and, simultaneously, less than it is expected or intended to represent. By utilizing its self-contradictory inherent tensions every object is able to transform itself qualitatively to something else than what its alleged *Ansichsein* alone would allow. It is said to be *das Andere seiner selbst*. Its selfness already contains something of its otherness.

This ability of any object to be something else than itself, or other than itself, is according to Wilhelm Lütterfelds (1993), the core principle of Hegel's remarkable theory of objects – if not his whole logic. Hegel's theory is quite unusual in our intellectual climate, and it is hard to see how it could be reconciled with any recent Analytic views of objects, for example with such a view which arises from Robert Brandom's theory of the reference of singular terms. In *Articulating Reasons* Brandom (2000) articulates what he calls his "expressive transcendental deduction of the necessity of objects". Its main goal is to show that "any language with sufficient expressive power concerning its own conceptual contents [---] must take the form of sentences containing singular terms and predicates. That is, it must at least purport to state facts about objects and their properties and relations" (Brandom, 2000, p. 41). However, Brandom derives his category of singular terms by applying a Fregean substitution method (*ibid.* pp. 129–141) which is based on the idea that two expressions belong to the same grammatical category, like that of singular terms for particulars, if the expressions are interreplacable "saving

sentencehood” (ibid. p. 136). If the two expressions indeed belong to the same grammatical category no well-formed sentence in which one of them occurs can be turned into a nonsentence by substituting the other for it. (ibid. p. 130). It is obvious that Brandom's view of the significance of sentences is compositional: the significance of a sentence is determined by the content of its subsentences (ibid. pp.124–130). This commitment to the principles of semantic (de)compositionality and substitutivity as the criteria of categorical sameness effectively distances Brandom's view of objects from any genuinely Hegelian notion of objects.

4. *Hegel's notions of negation and contradiction.* From this we see immediately that even the Hegelian notion of 'negation' must radically differ from the prevailing formal notion (which switches the truth value of a proposition or sentence to the opposite truth value.). The formal negation is a sentential operation, and, respectively, contradiction is defined as a complex sentence schema of the form $p \ \& \ \text{not-}p$, whereas the Hegelian negation can modify, not only sentences but practically any conceptual or grammatical unit whatsoever. Thus negation isn't just an extra-sentential operation directed toward a sentence or proposition from the outside of it, but often also an inner-sentential operation which is able to modify any grammatical or logical unit, including grammatical or logical subjects and predicates. Because the Hegelian double negation seems often to be directed as much to the first negation itself as to the earlier negation-sentence combination, it is easy to understand why *not-not-p* cannot usually be equivalent with p . The Hegelian double-negation works as a destructive source of energy which destroys conceptual order rather than switches truth values. This is not the only case where Hegel rejects the principle of compositionality. In his eyes the Tarski schema would have represented an ultimate case of formally correct, but dialectically worthless, *Verstand*.

5. *Self-identity and change.* It is obvious that self-identity of an innerly contradictory object, like an organism, which is in the state of perpetual self-inflicted qualitative change doesn't satisfy the conditions of the formal self-identity of classical logic. According to Marcello Barbieri's semiotic biology (Barbieri, 2003), even a single living cell is an epigenetic system that tends to increase *meaningfully* its own complexity by exchanging information with its

environment, and it uses semantic codes and related stores of memory to accomplish this. A Hegelian would add to this only that the information it has access to is not only incomplete but contradictory and ambiguous. In general, the Hegelian self-identity is never more than a temporary equilibrium kind of unification in perpetually on-going cycles of self-nihilation and self-organizing, and, as such, dialectic self-identity is always tied to an ever-changing conceptual perspective. This provides the Hegelian logic and grammar with superior flexibility to reflect meaning change as conceptual change: all of what is, is in a state of perpetual becoming (*Werden*).

Due to perpetually on-going processes of unification, destruction, and determining, one of the central laws of classical logic, the law of self-identity, expressed formally as *for all x: x = x* (reflexivity of identity), doesn't necessarily hold in Hegel's logic. And we could add: it usually doesn't hold in philosophically sensitive contexts. Thus, in Hegel's use, the term 'identity' itself shouldn't be confounded with 'identity' as it is used in classical logic (where it is a reflexive, symmetric and transitive two-place relation with the substitutivity property). Because a Hegelian object is inseparably tied to its concept, the object can go through concept-inflicted transitions, and even doubled negation processes, in which destructive transitions of the object are initiated by the object itself. To use an anachronistic expression: a Hegelian object self-organizes and self-disorganizes itself by negating itself in interaction with a perpetually changing conceptual environment. In other words, what holds for organisms and social organizations, holds for every object. *Change* as understood by Hegel is a strongly holistic and contradiction-tolerant version of the Aristotelian qualitative change, and isn't closely related to the modern idea of change as relative movements of identity-preserving objects in a three-dimensional space. Thomas Kuhn (Kuhn 1987/2000) has illuminated how incommensurable the two conceptions of change are.

6. *Hegel on grammatical subject and predicate.* In order to finally open a Hegelian perspective to Frege's Star paradox we should condense Hegel's view of grammatical subject and predicate which again differs radically from the prevailing theories of Analytic philosophy, logical studies of language, modern linguistics, and cognitive science. Because for Hegel everything is contradictory, and necessarily and inseparably entangled with movement, change, meaning

change, becoming (*Werden*), and to overall unruliness and turbulence of life, also grammatical subject and predicate, or the objects and concepts that occupy the positions of grammatical subject and predicate, are contradictory. First of all, they are innerly contradictory or self-contradictory. But, in addition, their grammatical concatenation generates a new wave of contradictions. And this is necessarily so if the emerging sentence hopes to be, not just a formal tautology or blatant formal contradiction, but a genuinely (dialectically) meaningful assertion.

According to any standard semantic analysis, as often performed say in an academic course on 'reasoning and critical thinking,' a sentence like 'Tom painted a fence' is formalized as Pt where P is a shorthand for the predicate – *painted a fence*, and t respectively for the name *Tom*. If t denotes Tom, and P the property of those who have painted a fence, then the sentence Pt is true iff Tom indeed has the property that he painted a fence.

The matter is somewhat more complicated if Tom has painted *the* fence instead of *a* fence, and usually then we take the fence to be an object with a name, say f , and analyze the sentence as a relation between Tom and the fence: tRf . The sentence is true exactly when the relation – *painted* – between Tom and the fence obtains.

One place predicates are often interpreted à la Tarski in terms of set-membership, such that P is, for example, the set of all those who have painted a fence, and t is an individual in a proper domain. According to this story, Pt is true iff t belongs to P . As to two-place relations, R can be interpreted as a set of all those ordered pairs where the first member painted the second member. What kind of entities the sets of individuals and n-tuples are supposed to be is, of course, an open question. If the sets are finite 'small' state of affairs or courses of events of everyday life, the mathematics of the semantic analysis differs considerably from an analysis with genuine set-theoretical sets or full-scale models or possible worlds.

According to any seriously Hegelian view, if the above caricature-like text book analysis (or any other, more sophisticated model-theoretical analysis) were adequate the sentence would be analytically true, and thus unable to be genuinely informative. If, for example, Tom as a definite (*bestimmt*) object simply had the property that he painted a fence, the sentence, *Tom painted a fence*, would be analytically true and not capable of being used to transmit

information or reduce ignorance; if Tom, as a definite object, hadn't the property, the sentence would be, not only false, but a formal (external) and uninformative contradiction. Similarly with the property described by the predicate – *painted a fence*. If the set all of all those who have painted a fence already contains Tom as a member, the sentence would be an analytic truism; if not, it would be contradictory false. From the Hegelian point of view, this kind of collapse of contingent meaning to analyticity weakens the credibility of the whole Frege-Russell-Carnap-Tarski project.

According to Hegel, the original conceptual situation from which a grammatical predication emerges is always contradictory. Asserting a new sentence destroys and reconstructs, and thus modifies the previous identity (unity) of its grammatical subject which itself is always a complex self-unifying and self-destructive process. Otherwise there would be no point to assert the sentence in the first place. Let us first assume that concatenating a grammatical subject and grammatical predicate generates a (non-analytically) true sentence in a sense that asserting it is genuinely able to reduce ignorance. This means that the unification of subject and predicate has been successful and the meaning of them has become partly destroyed and partly revised: (i) Tom, both as an object and as a concept which has occupied the role as a grammatical subject, is transformed into a new object (or object-cum-concept, if you like) such that it/he now has at least the property that it/he has painted a fence; simultaneously (ii) the meaning of the predicate is altered such that also Tom satisfies it. However, these are not the only changes in properties which the subject and object must go through, but (iii) every conceptual change emanates holistically in its conceptual environment a whole wave of other changes as well. Therefore, a true sentence which genuinely succeeds in reducing conceptual ignorance doesn't just describe a model (possible world) or a smaller concrete situation but quite literally alters the world. And unlike what text books of logic and linguistics typically suggest, the assertion and verification of such a simple-looking declarative sentence as *Tom painted a fence* is actually a highly complex process with a rich variety of perpetually on-going perceptual, cognitive, social and cultural sub-processes. Such a sentence doesn't just describe the result of these processes as a finished state of affairs; it actively participates the processes.

The grammatical predicate represents a new subjective-epistemic perspective to the ever-evolving grammatical subject, namely to Tom as a new object-determining concept. As opposed to the object-likeness of Tom, this subjective-epistemic perspective comprises a new thought, a proposition, which is able to reduce ignorance of those who participate the discourse: the sentence not only reflects how the world and concepts that constitute it have already been changed, but the sentence is engaged in effecting the change. The emergence of this new meaning is *Aufhebung*. Tom is transformed to something else, to something that he/it wasn't before the sentence was uttered: in the process of world-making and world-transforming, some of Tom's old properties are destroyed as some new ones emerge. And this is not all. By uttering the sentence, the speaker unifies her own subjectivity. The new meaning arising from the unifying *Aufhebung* participates unifying the speaking subject too. (About the background of these ideas in Hegel's early thinking, see Baum 1986, pp. 95–105.)

7. *Hegel on contingent identity statements.* If a speaker is unable to break the illusory symmetry of such natural language statements which we tend to formalize as $a = a$ the statements remain empty and asserting them is simply absurd. Therefore such seeming tautologies of ordinary language as 'boys are boys' are, as regards meaning, not strictly symmetric. According to Hegel, contingent identity statements, formalized as $a = b$, are never symmetric either but hidden subject-predicate sentences which are inherently contradictory: a represents grammatical subject, whereas $= b$ represents grammatical predicate (see Hegel, 1812/1831/1986, Erster Teil, Zweites Buch, Zweites Kapitel, A; for the asymmetry of self-identity statements, see in particular Anmerkung 2, pp. 41–45; in Miller's translation, Hegel, 1812/1831/1969, Volume One, Book Two, Chapter 2, in particular, "Remark 2," pp. 413–416). Due to this hidden meaning, the expression – *is identical with b* is not further decomposable, but should be taken – if an anachronic expression is again allowed – more like a one-place logical predicate to be, perhaps, read as – *is same, with respect to some conceptual criteria of sameness, as b*. In other words, natural language statements which are formalized as $a = b$ are, in spite of the appearance of the formula, not really formal identity statements at all, and the symbol $=$ used in the formalization shouldn't be handled as a symbol for the standard identity notion

of classical logic. According to Russell, (1914; see the long footnote on pp. 48–49) this view of Hegel's exemplifies just a “stupid and trivial confusion” arising from Hegel's inability to distinguish the *is* of identity from the *is* of predication. Just few pages later (ibid. p. 56) Russell teaches us as follows: “Everyone knows that to read an author simply in order to refute him is not the way to understand him[---]”.

8. *Hegel's logic and the Star paradox.* In normal parlance, both in colloquial and scientific context, the term *identity* is a highly ambiguous and amorphous term. It occurs often in such combined expressions as *personal identity*, or *national identity* where it neither satisfies nor is intended to satisfy the conditions of classical logical identity. In Hegel's use the meaning of the term *identity* resembles that of the standard *logical identity* only in rare special cases where he usually specifies the term with attributes like *formal* or *external* and locates it among other logical tools of low-quality *Verstand*. Otherwise, that is, in frequent dialectical cases, the meaning of *identity* approaches that of *unity* or perhaps *inherent coherence*. According to Hegel's theory of objects, objects do not usually satisfy the formal law of self-identity (the reflexivity property of identity). In the realm of *Geist*, nothing, no object or concept, preserves, strictly speaking, its formal or classical identity.

In Hegel's logic, contingent identity statements, formalized as $a = b$, are synthetic statements whose underlying or hidden structure is that of an asymmetric subject-predicate sentence. Thus in the sentence *the Morning star is the Evening star*, or *the Morning star is the same as the Evening star*, the expression *the Morning star* represents a grammatical subject, and, as such, an entity which satisfies the Hegelian conditions for the reflection of objects (see, in particular, section 3 above). The Morning star is not only self-contradictory as a perpetually evolving and self-negating substance, but is, as any grammatical subject must be, in open contradiction with the predicate of the sentence, in this case, the expression – *is the Evening star* or – *is the same as the Evening star*. The subject, *the Morning star* and the predicate – *is the Evening star*, or – *is the same as the Evening star*, are separate concepts (or, actually, multi-layer conceptual networks) which clearly differ in meaning from one another, and therefore no law of substitution is expected to apply here – assuming that such a law would make sense in the Hegelian context in the first place. Within Hegel's logic there are

no concept-independent objects. The meaning of the sentence *the Morning star is (the same as) the Evening star* emerges through the following unifying *Aufhebung*: the initial tension-generation contradiction which arises as the grammatical subject and the grammatical predicate are concatenated is reconciled by transforming the concept of Morning star in such a way that it now contains the property of *being (the same as) the Evening star*. Similarly, the predicate – *is (the same as) the Evening star* is modified to be applicable to the Morning star. This reconciliation and modification includes both destruction of earlier meaning ingredients and emergence of new elements. The unification is a complex process because changing the meaning of only one concept is never possible. A change necessitates a whole wave of other conceptual alternations.

Thus the kind of sameness which is asserted in the Star sentence, if it obtains, commits the speaker who asserts it to many conceptual and pragmatic consequences. Similarly, the sameness relation with Venus is just seemingly a formal identity relation, even though it were expressed by the formula $a = v$. In the conceptual context of (more or less scientific) astronomy, the Morning star (and the respective concept of ordinary language) is the same as the planet Venus (and its respective scientific concept). This commits the speaker to adopt a framework of scientific convictions (with many other scientific concepts, theories, presuppositions, norms, traditions) but doesn't bind her to accept the classical identity of the Morning star and Venus. Yet the sameness assertion commits her to a strong kind of conceptual coherence. For example, the use of the concept *Venus* in a sentence like *The Morning star is Venus* commits the speaker to unify a folk-astronomical concept-object, the Morning star, with a concept-object of relatively modern astronomy, namely the planet Venus. In the name of conceptual coherence, this forces her to reject, among other things, such a statement as *the Morning star is Saturn*. The Hegelian view of identity sentences as copula-sentences with the asymmetric subject-predicate structure authorizes the speaker to relativize the classical law of the substitutivity of identities, and this helps her keeping a safe distance to Frege's paradox. It doesn't really solve the paradox. Rather, Hegel's logic prevents it from arising, that is, becoming dialectically too threatening.

In general, the law of substitutivity of identities and equivalents holds only in special, strictly limited, cases within Hegel's dialectics. Similarly, Hegel's

dialectical semantics doesn't appreciate the principle of compositionality: the meaning of a whole expressions is usually not a function of the meaning of its parts. Hegel's full conception of truth can never be reduced to the Tarski schema according to which truth, T, is a structural property of a sentence p , such that for every p : $Tn(p)$ iff p , where $n(p)$ is the metalanguage name of p , typically a Gödel number, or systematic structural description of p .

According to any seriously Hegelian dialectic view, when a sentence A is presented as true in a given discourse, and the B is presented as true in the same discourse, no formal rule can legitimate anyone to claim that also A & B is true. Even within a most strict scientifically ordered discourse the conceptual content of A and the content of B are usually not so transparent and controllable that such a movement could be automatically legitimated. There may be good reasons to suggest that A & B is true too, but after the judgment A & B is presented a process of conceptual reconciliation must be started, and the result of the reconciliation is insecure. If the truth status is indeed reached through an *Aufhebung* the meaning of the concepts related to A may have required modifications of varying degree. In order to meet the demands of the conceptual content of B, some of the modifications of A may have been even radical, for example such that they have destroyed some of the ingredients of the conceptual networks related to A. And, of course, respectively A may demand changes in the conceptual content of B.

9. *Conclusion: consequences.* From the Hegelian point of view, it is a colossal mistake to translate natural language statements into a logical formal language, and pretend that the translation doesn't falsify the essential meaning. Essential meaning is always engaged in changing the world. Particularly hazardous the formalization enterprise turns if sameness expressions of a natural language are translated into a two-place relations with the classical properties of reflexivity, symmetry, transitivity, and substitutivity. Yet Analytic philosophy was founded on the project of formalization, and, quite unfortunately, it focused from the very beginning at the notion of identity.

Even if we may sketch with some plausibility how Hegel would have dealt with the Star paradox it must be conceded that Hegel's approach would have necessarily altered the character of the problem. To put it bluntly: he would have dealt with another problem, not with that of Frege's; and, had he been

able to solve it, he would have solved it in another sense of 'solving,' not in a sense which Frege would have accepted as a solution. In fact, this is something that we expect to happen within the Hegelian sphere of *Geist*. Identity was, of course, central for Frege's logicist program as he tried to show that all mathematical truths are analytical. The program was directed against Kant's famous thesis that arithmetic truths are synthetic. It is perhaps understandable that, in the formalization of arithmetic, identity was first taken to be the strict identity of classical logic. The second-order formulation of Leibniz's law of the indiscernibility of identities is an axiom in Frege's *Begriffsschrift* system (see Cocchiarella, 1986). But it may be sobering to remember that before the logicist enterprise was launched hardly anyone had seriously suggested that sameness expressions of a natural language should or could be translated into strictly logical identity formulas. One reason for this inactivity with strict identities may have been that, without proper quantification theory, the Aristotelian syllogistic of Hegel's time was quite unable to systematize the properties of the logic of individual identity. Therefore, obviously, it would have been quite impossible for Hegel to formulate Frege's paradox as Frege himself did it. Logicism didn't only enliven the Leibnizian dream of a perfectly disambiguated universal calculus, *Ars characteristica*; logicism, as it was gradually transformed into Analytic philosophy of natural language, also invented a set of its own problems. One of them was the Star paradox.

Today, after almost one hundred and fifty years of hegemony that Analytic philosophy has exercised upon logical and grammatical studies, it might be proper time to delineate an up-dated dialectic perspective to what sentences, meanings, and thoughts are. In order to accomplish this project, it doesn't suffice just to dispense with the formal notions of identity and negation. It must be acknowledged that all meaning, verbal meaning included, arises from contradictions, and thus contradictoriness and ambiguity are not our philosophical enemies to be eliminated but the substrate of all thinking, speaking, and change.

Unlike what the prevailing academic view (at least in logic, linguistics, cognitive science, Analytic philosophy of language, and so on) suggests, natural discourse and related thinking hardly ever just describe and represent a ready-made and immutable world (or model, possible world or situation); rather, they

perpetually introduce new concepts and entities, and by doing that participate making, maintaining and changing the worlds that comprise our *Geist*. Therefore, the alternative project should start by sketching a dialectical perspective to sentences and judgments. This amounts, first of all, to asking what logico-grammatical subject and predicate really are. Hegel's view (which is sketched and condensed in section 6 above) provides an interesting ground for this kind of work, but in order to be seriously competitive in the present-day academic context, Hegel's contribution must be radically modified, up-dated, and supplemented. For example, the phenomenological ground (*cogitationes*) of Hegel's system is too narrow, and must be supplemented to include aconceptual and unconscious experience. In addition, this experience must be allowed to vary beyond the borders of European and Indo-European experience, and permit broad cultural and linguistic variance which is, to some extent, untranslatable.

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