



NEW IDEAS

An argument regarding the nature of hooligan behavior

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We refer to the remarkable thought of Erwin Schrödinger expressed in his book “What is life?” regarding the connection between life and a decrease of entropy realized via feeding (eating). This thought is “transferred” into the field of human psychology, explaining hooligan behavior (e.g. the “days of violence”) as a natural human response to the improper (in its content or form) “informational feeding” that does not allow one to normally treat (“digest”) the received information, i.e. to make ones thoughts simpler in their logical structure. Delivering information without pedagogical, psychological, and (when children are involved) neurological supervision or assistance is supposed to be the cause for the hooliganism that more and more often obtains a dangerous organized form.

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SCHRÖDINGER’S ARGUMENT REGARDING ENTROPY, WHICH WE SHALL USE

In order to contribute to the understanding of the hooligan behavior, — a quite genuine and very serious problem in which we see an evidence of something wrong taking place in the human psychology, and a kind of mental disorder, — let us introduce into the psychological world some logical structures that *are similar to those we use when explaining the physical world*. In this view, let us consider the opinion expressed in the semi-popular, but very useful, book “*What is life?*”, written by one of the outstanding scientists of the 20th century (Schrödinger, 1944, see esp. chapters 6 and 7). This opinion is that the important feature/role of the physiological digestion (eating) is expressed in the *decrease of the body’s entropy* (whose maximization, according to Schrödinger, means death). The concept of entropy belongs both to physics and information theory (e.g., Brillouin, 1956; Gindikin, 1985; Barzdin and Kolmogorov, 1970, and references there). The replacement of “entropy” by “*microscopic disorder*”, or “*complexity*”, or “*degree of structurality*” may suffice in the present analogy. Schrodinger’s explanations are very brief, and some formulations are imprecise (in particular, in Section 7 some back-reservations to the main Section 6 arose). However, the basic correctness

of his opinion is seen very simply, as follows. On the one hand, correct absorption of the molecules received with the food by the body’s internal structures is the very purpose of the feeding (eating), i.e. the source of life. On the other hand, this absorption increases the degree of order in the whole molecular system, i.e. decreases the entropy of the body receiving the food. Accordingly, life is indeed associated with generating “*nega-entropy*”, and the correct (healthy) *digestion* is the mechanism of the decrease of entropy. This item is somewhat unclear in the book where it is simply said that we *receive* the *nega-entropy* with the food. In fact, we receive the *possibility* to decrease the entropy, and the healthy organism uses this possibility. Even if the food includes all the needed materials (proteins, carbons, etc.) but is not prepared so that the physiological digestion can be successful, then life will be replaced by death. The latter can also be understood in terms of the entropy change, — the entropy can then just increase with the supply of food.

THE “INFORMATIONAL FEEDING”

Our life certainly is not only the physiological digestion, it is also a continuous intellectual enterprise, and in order to see the mechanism of

the danger expressed (exposed) by the hooligan behavior, as simply as possible, let us compare our intellectual “food”, i.e. *the information given to us* by society’s informational means, with the usual food.^a

This “food-analogy” means that for one to be able to intellectually live, i.e. to satisfactorily co-exist with the informational media, this media must be such that one not only would be able to find in it the information he formally needs, but this information must be presented so that one could *treat* it in his thought. Indeed, one has to order and improve the received information, and derive from it conclusions, thus *decreasing the “entropy”* of his thoughts associated with the treatment, i.e. making these thoughts clear and more ordered. This is very similar to what we need regarding our usual food that not just supplies us with the energy and material components, but also (and in the long time scale, *mainly*: Schrödinger, 1944) allows us to *keep the structure* of our body and physiology, which is associated with a decrease of entropy. Just as we cannot deal with all types of food, we cannot deal with all types of information. The *treatment* of information in our mind/brain must, from time to time, decrease the activated area of the brain and thus the entropy of the logical scheme. It is very important to see that it is *insufficient* to roughly understand information, and that one has to *treat* it in order to feel that it belongs to him. This is precisely as with the distinction between our understanding of what we are eating and the healthy digestion process. Thus, what is the entropy of the *appearing text* (the information in focus) *per se* (Gindikin, 1985; Barzdin and Kolmogorov, 1970, and references there) is *not* important; the question is what is the *entropy change in the structure of our thoughts*, associated with (our ability of) thinking out this text/information. Since treatable information has to order human thinking, an editor preparing information for delivery has to deeply study the rules of thinking. Thus, in the context of the question of “What is life?” (Schrödinger, 1944), we more need to preserve our ability to extract information from the *received signal* than this very information; information itself can be written in very different kinds of “memories” that need not have any relation to life, of course.

The well-known fact that technical students prefer gradual and thorough development of equations on the “blackboard”, instead of being shown slides by the teacher, is a perfect support of the thesis that the information being recorded (received) has to be *treated* by the listeners/watchers. It may be observed that the students often even like the teacher’s error, allowing them to enthusiastically suggest improvements, receiving teacher’s compliments.

It is also appropriate to express here the opinion that the attempt of a *child’s* brain to understand the advertisements which quickly jump onto the TV screen, can lead to the development of *autism* (e.g., Caronna et al., 2008 and references there), a very serious organic disorder leading to very *low communication ability*, a feature that by itself can cause hooliganism in the future. See for example the extended analysis in Silva (2007) where it is written, in particular: “*To be successful in teaching children positive nonviolent behaviors, adults need to take action based on what children are capable of understanding and doing at different ages and stages of development*” (p.3). The developing brain of the child perceives the visual information very seriously, and as the result of the honest attempt *to understand the nonsense*, i.e. as the result of the seeking, in the frightening-looking situation of the jumping pictures, of non-existent logical connections, the specific *macroscopic (biological)* connections between different parts of the brain, typical for autism (Caronna et al., 2008) can be developed. For these reasons, *professional neurological supervision* should be applied to the TV programs. *Easiness* in the treatment of the information, which requires a proper good presentation of the information for the wide public, is the “good cooking” of the given “food”, in terms of our analogy.

Finding the threshold criteria for the difficulties in treatment of the information, these criteria to be connected with hooliganism, is seen here as a challenge for academia. In particular, characterizing these difficulties in entropy units would be very interesting. Students’ projects with measurement of the brain’s electrical activity, observed during sufficient time, and for very different kinds of patients, *when the “input” is a common information source*, should be made.

Such experimental data are relatively simple to obtain and would be very important. The *responsibility* of the information means has to be understood, — if one cannot *normally treat* the information, i.e. *easily extract it from the signal received*, well connecting it with what he already knows, then receiving the information *increases* the complexity of the logical system of the action of our brain. This is the problem that threatens to become a coherent mental illness of many.

CONCLUSIONS

According to the existing situation and the suggested outlook, the defined hooliganism can be a kind of almost normal human reaction to the *intellectual overstress* imposed on one by society. The defined hooligans try to destroy the society that does not allow them to think in a healthy way (according to the hypothesis of Gluskin (2009) they can feel a danger in this). The intellectual “entropy-overstress” caused by improper informational “feeding” is by far not something innocent; we face here a serious societal problem. This problem arises in a long-time scale, quite similarly to many problems with our health, associated with improper feeding.

It becomes obvious that in order to solve the problem of hooliganism expressed in the recent, not-understood, “days of violence” (Parle, 2011), the field of public information must become a serious concern of the whole society, and in particular of academy, and many customs and approaches have to be changed in this field.

Finally, we believe that the remarkable inspiring thought of Erwin Schrödinger is not only instructive here, but also finds here a confirmation, at least in the sense of *system theory* (the professional field of the author) which always has wide targets and seeks generalizations. The presented line of thought is directly based on the undoubted fact that our development and survival, i.e. our life, depends both on our physical and intellectual states. We see the present argumentation to be a direct continuation of the line started by Schrödinger (1944), where consideration of the role of the entropy is done not in terms of any bulky formulae but by using the concept of system structure.

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Endnote - a: Unfortunately, it is still impossible to be more constructive regarding the relevant scientific measures, and we can observe these things only phenomenologically, in the spirit of positivistic (descriptive) philosophy (see, e.g. Gluskin, 1997) that is always useful when a theory of poorly understood systems has to be developed.

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