OPINION

for the dissertation of Venera Russo

“Neurophilosophy of Second-Language Learning”

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The dissertation encompasses 190 pages, including an introduction, three chapters, a conclusion, a bibliography and acknowledgments. I would like to note right away that the choice of topic is extremely original, and its development is more than adequate. Evidence in support of the first thesis is the fact that the first scientific model of learning multiple languages was proposed by Edna Andrews quite recently - in 2014 (p. 66). Apparently, up to this point the topic did not seem interesting enough either to philosophers, since for them it is too "technical" (p. 16), nor to linguists, since for them it is too "trivial" (p. 73). The dissertation can be seen as an extended refutation of these two prejudices.

The introduction has a mainly methodological, preparatory character and aims to clarify the division of labor between the various disciplines involved in the research, primarily between philosophy and neuroscience, but also psychology, (cognitive) linguistics, etc. (p. 10). The probable reasons why philosophy (or philosophers?) show a certain reluctance for this type of cooperation are indicated: that " contemporary neuroscience is challenging the sovereignty of philosophy and its right to claim such phenomena are exclusively the object of philosophical inquiry " (p. 7). The main philosophical attitude that underlies the development of neuroscience is also briefly discussed: this is eliminative materialism, according to which "common sense mental states such as beliefs and desires do not really exist and thus could not be used as categories of the science of the mind" (p. 8). Finally, the topic of the study is set: second language acquisition, juxtaposed with the better studied first (native) language acquisition (p. 9).

The short first chapter is dedicated to clarifying the methodological premises on which the research is based, as well as the key concepts that are employed: (1) Reasons for distancing from the classical behavioristic attitude are given (p. 14); (2) The significance of the sociological and "strictly linguistic" aspects of the problem is indicated, in addition to the neuroscientific data (p. 16); (3) A distance was maintained from the two extreme positions (materialism and idealism) regarding the ontology of mental states (p. 21); (4) Sympathies are expressed regarding relativism, which is declared "a useful ally rather than a threat to the same idea of the possibility of acquiring a [second language]" (p. 30); (5) The modular hypothesis is rejected in favor of the hypothesis that “language as a part of cognition, that in its turn is shaped by experience, so it is essentially a social experience for human beings” (p. 33), accordingly, language should be treated as “crystallization of collective experience” (p. 109), “reification of the collective memory” (p. 112), “a shared collective skill” (p. 130), etc.

The voluminous second chapter lays out the neuroscientific data relevant to (second) language learning. In agreement with the methodological assumptions listed above, it is claimed that linguistic ability (or at least the handling of object words and action verbs) “depends (in part or in whole) on the same neural systems that underlie actions and high-level perceptions” (p. 41). The dual coding model, according to which linguistic meanings are associated with modality-specific representations, is also discussed (p. 45). Along the way, a topic closely related to the philosophy of language is touched upon: where should the meaning be sought: at the level of sentences, at the level of individual words, or at that of "lemmas", which are devoid of morphological characteristics (pp. 47-56). Next, different perspectives on the main topic of the study are proposed: (1) the possibility that the difference is not between first language learning and second language learning, but between high-level and low-level language acquisition is explored: the higher activation of areas in the right hemisphere and the lower activation of areas in the left hemisphere, as well as the high activity of areas responsible for the control of speech (e.g., dorsolateral prefrontal cortex and anterior cingulate cortex) may be associated with the level, rather than the order of language acquisition (p. 69); (2) data on aphasic people fluent in two or more languages are presented, which do not allow making definite conclusions about differences in the neural basis, respectively degree and speed of recovery from impairment (p. 72); (3) the hypothesis of the so-

called "critical periods" is examined, according to which "in humans and animals, the cortex stabilizes its structures in limited time intervals". It is rejected by reference to the plasticity of the brain, the possibility of the "critical period window re-opening", evidence that the lateralization process is not irreversible as previously assumed, and the fact that white matter gain in second language acquisition at early and late ages is similar (pp. 82-84). In connection with the last circumstance, I would note that part of the discussed data seems to point in another direction - according to the cited research of Costa, the age at which a given word is learned determines the neural activation during its use (p. 91). This should probably mean that the topic of "critical periods" remains more or less open, even if it is true that "there is no clear evidence for an exact “cut-off” point at which language acquisition processes change". The conclusion that Rousseau reaches - that "the notion of a critical period ... have to be put aside from the discussion as not really shedding light on the problem of second language acquisition" (p. 100) seems to me stronger than is warranted by the data, discussed extensively in the second chapter.

The second half of the second chapter is devoted to the topic of the grounding of language ability. In this regard, the key distinction between language learning and acquisition is introduced. Based on it, it can be argued that differences in the level of proficiency in a second language may be based on the fact that it is usually learned rather than acquired (p. 89). In other words, "more recent controlled studies showed that the type of brain activity changes with proficiency rather than with age" (p. 102).

The third chapter sums up the argument and deals with the relationship between language, consciousness and cognition. This is an occasion to reinforce the conclusions made in the previous chapter: "first or second language acquisition are not two different cognitive activities, but, when they occur in different contexts they could differ not only in the level of performance, but most probably even in the way they are mapped in neurobiological terms” (p. 109). Further, based on the understanding that "human beings use the same neuronal substrate both to experience the world and to understand and process language [therefore] language comprehension consists largely or entirely of constructing an appropriate embodied simulation" (p. 118) Asher’s thesis that “There is a common belief that children are better able than adults to learn a foreign language. This belief may be an illusion if children living in a foreign country learn the new language through play activity while their parents try to learn independently of physical behavior” (p. 125) is substantiated.

The conclusion identifies the main findings of the study: (1) " the neural underpinnings of language acquisition themself are shaped by experience" (p. 143) and (2) regarding the critical periods hypothesis it is shown that “it is not supported by enough evidence, and that late acquisition and early acquisition are different just because they usually happen in different settings” (p. 144).

I would like to ask PhD student Russo two questions (hoping that the answers will help me better understand the positions defended in the text): (1) For what reasons, even fragmentary data on "language deprivation", for example in "feral children" were not taken into account in the research? This seems important, since traditionally the critical period hypothesis has relied heavily on them in seeking experimental confirmation. In this regard I would add: can we say that individuals raised in conditions of language deprivation acquire a first language in the same way that all other people acquire a second language? Or would that be an inappropriate metaphor? (2) If it is claimed that "the considerations made in this research project could be useful to design more effective frameworks in the research on language faculty and language acquisition" (p. 146), what exactly would they be? How can the general idea of the grounding of linguistic ability be translated into methodological recommendations regarding efficient foreign language learning?

In conclusion, I would note that I find the stated contributions of the study to be valid. The presented documentation testifies to the fact that the minimum national requirements are met, accordingly I will confidently vote Venera Russo to be awarded the educational and scientific degree "Doctor of Philosophy".

January 13, 2023
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