Logique & Analyse **155-156** (1996), 411-412

A MINIMAL LOGICAL SYSTEM FOR COMPUTABLE CONCEPTS AND EFFECTIVE KNOWABILITY — SOME CORRECTIONS

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In *A Minimal Logical System for Computable Concepts and Effective Knowability*, an article recently published in this journal (cf. *Logique et Analyse*, 147–148 (1994), pp. 339–366), I made a claim which is not entirely correct. In this short note, I shall indicate how to revise such a claim and explain why the validity of certain statements somehow related to it are not affected by the revision. I shall also take this opportunity to correct some important errata occurring in the same article.

I.

I stated on page 365 that an important consequence from the discussion at the beginning of the paper is (*Cn*), *viz.*, that P is Turing computable (partially Turing computable) if and only if a fully (semi–) computable concept could be formed for which P will stand. This claim is not correct and what actually follows from the aforementioned discussion is (*RCn*), *viz.*, that P is Turing computable (partially Turing computable) if P stands for a fully (semi–) computable concept.

Now, the statements I made on pp. 365–366 concerning Cocchiarella's ramified constructive concepts and the invalidity of both CCP^s and CCP^c remain true, even though what we have now is (*RCn*). This is because the construction in Davis (1958) of certain partially Turing computable predicate *P* and Turing computable predicate *R* shows that they clearly stand for computable concepts[1]. More precisely, the construction of the partially Turing computable predicate *P* (whose negation is not a partially Turing computable predicate) and the Turing computable predicate *R* (whose existential closure, i.e., $\exists y R(x,y)$, does not stand for a Turing computable predicate) shows that such predicates clearly stand, respectively, for a semi–computable and for a fully computable concept. By

[1] *cf.* Davis (1958), pp. 62, 66–68, in particular, theorem 1.6, theorem 1.4 and corollary 1.7.

RCn, it follows that the negation of *P* does not stand for a semi–computable concept and the existential closure of *R* does not stand for a fully computable concept. As in the article, such a result is sufficient for showing, on one hand, that both CCP^c and CCP^s are not valid and, on the other hand, that Cocchiarella's constructive concepts cannot be identified with computable concepts.

II.

I shall now proceed to indicate how to correct important errata occurring in the above mentioned article. I should note that such errata were already in the last draft of the article and so they are not the result of the editing process of *Logique et Analyse*.

1) Page 342, line 3, instead of "algorithms is", it should be "algorithms of numerical total functions is".

2) Page 356, line 20: instead of "$D^* \cup (\cup_{n\in\omega} Y_n)$", it should be "$D^* \cup (\cup_{n\in\omega} \mathbb{P}(D^n)^W$".

[*Please note that* $\mathbb{P}(D^n)^W$ *is the set of functions from W into the power set of* D^n.]

3) Page 356, line 23: instead of "f_i restricted to Y_n is one to one", it should be "f_i restricted to $\mathbb{P}(D^n)^W$ is one to one and for every $k \in W$, $f_k = f_i$".

4) Page 359, lines 20 and 27: instead of "< 1, A >", it should be "{< 1, A >}"; lines 21 and 24: instead of "< 1, B >", it should be "{< 1, B >}".

5) Page 362, line 9: instead of "over the entire power set", it should be "over the entire set of functions from W into the power set".

6) Page 363, lines 6 and 23, replace "A13" by "A12"; line 3, replace "AC^c" by "AC^s".

7) Page 364, line 17: instead of "CP^s and AC^s" it should be "CP^s, Th. 8, Th. 2, A3 and AC^s"; instead of "CP^c and AC^c" it should be "CP^c, Th. 14, Th. 9, Th. 10 and AC^c".

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REFERENCES

M. Davis (1958), *Computability and Unsolvability*, Cambridge University Press.