Note on the papers of J.M.E.Hyland and J.-J.Lévy.

(Corrections and clarifications.)

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Some confusion is apparant in the reference in my paper to that of J.-J.Lévy, and in the conclusion of his to my own and to that of Welch. Since this is largely the fault of a careless abstract of my paper which appeared before the conference, it seems right that I should set the matter straight.

The facts are as follows.

1) Lévy's relationship "$A(M) \subset A(N)$" is not the same as my "$\omega(M) \subset \omega(N)$". My relation is clearly identical with the semantics (E_∞, N) of Welch. Indeed Lévy's relation is neither a continuous semantics in Welch's sense, nor is it sensible in mine. But it is interesting enough for all that.

2) Lévy's relation can be characterized along the lines of (2.3) of my paper, thus: $A(M) \subset A(N)$ iff both (i) whenever $C[M]$ β-reduces to a h.n.f. then $C[N]$ β-reduces to a similar h.n.f., and (ii) whenever $C[M]$ β-reduces to a term with n λ's at the front , then so does $C[N]$.

Conversely, Lévy's work suffices to show that both "$\omega(M) \subset \omega(N)$" and "$\omega\eta(M) \subset \omega\eta(N)$" are substitutive.

3) It is the equality relation "$\omega(M) = \omega(N)$" which is identical with the equality relation "$[\![M]\!]_{P\omega} \equiv [\![N]\!]_{P\omega}$". The corresponding p.o.r.'s differ. One can get a similar result for Lévy's relation by tampering with the coding in $P\omega$. It suffices to start the enumeration of finite sets with e_1, and conventionally interpret $m \varepsilon \tau(e_0)$ in the definition of lambda abstraction, as always true. The equality in the resulting model is the same as the equality in Lévy's model. Again the p.o.r.'s differ.