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FRAMES VERSUS MINIMALLY RESTRICTED STRUCTURES

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0 *Introduction* I have argued in [2] that the semantic theory of higher-order languages should be based on what I called the class of minimally restricted structures, *cf.* definition (4) below, rather than the more conventionally acceptable class of frames, *cf.* definition (9) below. In this paper, I will prove that these superficially similar classes of higher-order structures are in fact *semantically* distinguishable from one another and that the latter is isomorphically representable as a *proper subclass* of the former.

1 *Syntactic preliminaries* Let **ST** denote the type-theoretic language which is based on the following system of *type indices*: **i** is the primitive index, i.e., the index assigned to individuals; and if **B** is a finite, but unempty, sequence of indices, then (**B**) is a nonprimitive index. The primitive, i.e., unabbreviated, *lexicon* of **ST** admits the following symbols:

(1) variables of type **a**: u^a, v^a, x^a, y^a, z^a, . . ., with and without numeric subscripts
sentential connectives: $\sim$ (negation), $\rightarrow$ (conditional)
universal quantifier: $\forall$
punctuation: (,)

I will say that $\overline{X}$ (read: X bar) is a **B**-sequence of variables iff **B** is a finite, but unempty, sequence of indices; the length of **B** (i.e., $\mathrm{lh}(\mathbf{B})$), is equal to the length of $\overline{X}$ (i.e., $\mathrm{lh}(\overline{X})$); and for all j, $0 \leq j < \mathrm{lh}(\mathbf{B})$, $\overline{X}(j)$ is a variable of type $\mathbf{B}(j)$.

(2) *Well-formed formula, wff*

(i) if $\overline{X}$ is a **B**-sequence of variables, then $x^{(\mathbf{B})}(\overline{X})$ is an atomic wff
(ii) if p is a wff, then $\sim p$ is a wff
(iii) if p and q are wffs, then $(p \rightarrow q)$ is a wff
(iv) if p is a wff, then $\forall x^a p$ is a wff
(v) and nothing is an unabbreviated wff unless its being so follows from (i) through (iv).

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