Changes in the Notes

New note

NOTE 162

The purpose of this note is to explain how we handle forms with parameters in models with and without parameters. For example form $45(n)$ in the model $\mathcal{N}22(p)$. If a form is true for any values of the parameters we list it as being true and specify in the description of the model for which values of the parameters the form is true. Similarly, if a form is false for any values of the parameters it is listed as being false and the details are given in the description of the model. For example, form $45(p)$ is false in $\mathcal{N}(p)$ and therefore "45" appears in the list of all forms known to be false in the model. On the other hand $45(n)$ is true for any $n < p$ and therefore "45" also appears in the list of all forms known to be true in the model.

Suppose that $A(n)$ and $B(n)$ are forms with one natural number parameter and with form numbers m and k respectively. Then a '1' will occur at position (m, k) in Table 1 (meaning "Form m implies Form k") if and only if it is known that for every allowable value n of the parameter $A(n)$ implies $B(n)$. Similarly the entry at position (m, k) in Table 1 will be a 3 or 4 (5 or 6) if and only if it is known that for every allowable value n of the parameter there is a Cohen model (Fraenkel-Mostowski model) in which $A(n)$ is true and $B(n)$ is false.

This means that when searching for a result of the form "$A(n_1)$ does not imply $B(n_2)$" using the project software you should first get a listing of the models in which Form m is true and Form k is false. (Assuming, as above, that $A(n)$ is form number m and $B(n)$ is form number k.) Then look at the description of the models to determine whether or not there is a model in which $A(n_1)$ is true and $B(n_2)$ is false.

Changes in the Models Chapter

Replace the description of model $\mathcal{N}22(K, p)$ with:

$\mathcal{N}22(p)$: Makowski/Wiśniewski/Mostowski Model. (Where p is a prime) Let $A = \bigcup\{A_i : i \in \omega\}$ where The A_i's are pairwise disjoint and each has cardinality p. For each $i \in \omega$, let g_i be a permutation of A_i which is a p-cycle. Let $\mathcal{G}$ be the group of all permutations of A which are the identity on all but a finite number of the A_i's and are equal to some power of g_i on the others. Let S be the set of all finite subsets of A. In this model,

1. $45(n)$ $(C(\infty, n))$ is true for every $n < p$.
2. $46(K)$ $(C(\infty, K))$ is true for every $K \subset p$. Mostowski **[1945]**
3. 88 $(C(\infty, 2))$ is true if $2 < p$.

4. $308(p)$(Every group has a maximal p-subgroup) is true. Howard/Yorke [**1987**]

5. 285 is false. (The function $f : A \to A$ defined by $f(a) = g_i(a)$ if $a \in A_i$ is a counter example.) Makowski/Wiśniewski [**1969**].

6. $373(p)$ $(PC(\aleph_0, p, \infty))$ is false since $\{A_i : i \in \omega\}$ has no partial choice function in the model.

$\mathcal{N}22(K, p) \models 6$, 37, $45(n)$ (for $K = \{n\}$), $46(K)$, 88 (for $K = \{2\}$), 91, 130, 191, 273, 305, $308(p)$, 309, 313, 361, 363, 368, and 369, but 285 and $373(p)$ are false. References Howard/Yorke [**1987**], Makowski/Wiśniewski [**1969**], Mostowski [**1945**], and note 120(56).

Changes in References for Relationships between forms

These are the lines that have been added to the file rfb1.tex the most recent version or rfb1.tex is available on the "Changes and Additions" page.
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