Notes on changes from Version 12 of SemigroupII to Version 13

Small changes in formatting, spelling corrections, and obvious minor typos will not be mentioned. I made no major changes, but I mention the other changes below. Some of these are questions of ascetics, in which case I am quite happy to do something else.

1) Page 3 (of Version 12) Definition 1.1: I moved the sentence "When .. $\phi \in \Gamma$" to the line above the statement of the Definition. There was also a typo in this line which I fixed: "ϕ_1" should be ϕ_i. I thought it was better to keep the definition as short as possible, but if you want to move the sentence back into the definition, this is fine with me.
2) page 3, line -10: λ_i is changed to λ_{i-1}.
3) Page 4: In the proof of Lemma 1.2, I changed all λ_i to τ_i, as we just defined λ_i to be a projection map.
4) On page 4: before Theorem 1.1, and on Page 5 before Theorem 1.3 we have almost the exact same sentences defining $p_2 \subset p_1 \subset p_0$ and the e_{m_i}. I did not change anything. Probably better to repeat than have people not able to figure out our notation.
5) On Page 5: line 10: I changed "$y \in \mathbf{N}$" to $y \in \mathbf{Z}_+$" because there is a little trouble in the bound when $y = 0$, as 0^0 is an indeterminate form. Of course $\mathbf{N}$ is the natural place to start, but we probably should address the fact that the bound is a little different in this case if we want to use $\mathbf{N}$.
6) First 1/2 of page 5: You commented that we can use Neumann here, as I understand it to conclude that T is well ordered? I think that well ordering follows from much more elementary considerations in this case than quoting Neumann. Our set U has 1 as its minimum element, and there are only finitely many elements of U which are less than or equal to any positive integer n. Thus for any $n \in \mathbf{N}$, the set $mU \cap [0, n[$ is the empty set for $m > n$. Since for each $m \in \mathbf{N}$, the set $mU \cap [0, n[$ is a finite set, we have that $T \cap [0, n[$ must be a finite set. This is enough to conclude that T is well ordered. Have I missed some subtle (or maybe not so subtle) point?
7) page 7: In the statement of Corollary 1.6, I removed "from the Lemma", so that it now reads "we deduce that when". The corollary is stated as a corollary to Theorem 1.3.
8) Page 7, Statement of Theorem 1.7: I did not change anything here. With the notation introduced in the previous paragraph it is OK. I have mixed feelings about this nota-

tion, as the interval would not be correct when $p_i = p_{i+1}$, except that we have defined it to be something other than what it appears to be in this case. On the other hand, if we use notation to distinguish the 2 cases we have to go to a more cumbersome statement of the theorem, such as the one that I sent to you. Certainly the theorem looks a lot nicer the way you stated it.

9) Page 8, line 13: I changed the definition of $s_1(\epsilon_1, \phi_2)$ to reflect the fact that we have to keep track of the whole history of ϕ.

10) Page 8, line 15: I changed the inequality to an equality on this line. It does not affect the final statement, but this is the actual statement of Theorem 1.3 b).

11) Page 8, after line 15: I added "and define $s_1(\epsilon_1, y_2) = 1$". Evidently s_1 could be anything here, but we are expected to produce some kind of s_1 to finish the statement of the theorem.

12) page 14, lines 18 and 19: I changed the ϕ_i to η_i.

13) Page 15, line 14 - 15: The statement "One can check .. $+\nu(P_{i-1}$", seems not to fit (we are working with Q_i, not P_i).I removed it since the information which is recorded here is stated a few lines later, in notation appropriate for this result. I do not think that this information is needed until it is stated, but there could be a reason for stating these formulas here, at an earlier place

14) page 17 line 13: In this sentence the αs and βs need to be interchanged, to reflect the fact that the role of α and β has been changed in the rest of the proof.