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governed in some way by the size of $\sum_{i=1}^{j} 1/k_i$. There is no obvious heuristic that comes to mind to support this, however.

We suspect that the case $j = 3$, $k_1 = k_2 = k_3 = 4$ is, in some sense, minimal for (2.1) to have infinitely many solutions with (2.2). Indeed, we would guess that if $j = 2$ and $k_1 \geq 4$ then (2.1) has at most finitely many solutions with (2.2). The hypothesis that $k_1 \geq 4$ is certainly necessary here (even when we cannot apply Theorem 2.1) as it is easy to show that (2.1) has infinitely many solutions with $j = 2$ and $(k_1, k_2) = (3, 4)$ (as before, one can construct at least two families from recurrence sequences). An argument of P. G. Walsh (private communication) provides reasonable support (via the ABC conjecture) for the belief that the number of solutions to (2.1) with (2.2) if $j = 2, k_1 = k_2 = 4$ is finite.

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