Review of "Two identities of derangements" by Le Anh Vinh

Two main comments:

Theorem 1 is really just equation (1) with the indices changed, so it probably shouldn't be stated as a new theorem. Specifically, we can show Theorem 1 using equation (1) as follows:

$$\begin{aligned}
\sum_{k=0}^{n} \binom{n-l}{k-l} d(n-k) &= \sum_{k=l}^{n} \binom{n-l}{k-l} d(n-k) \\
&= \sum_{k=0}^{n-l} \binom{n-l}{k} d(n-(k+l)) \\
&= \sum_{k=0}^{n-l} \binom{n-l}{k} d((n-l)-k) = (n-l)!
\end{aligned}$$

where the last line is equivalent to equation (1). Since the theorem isn't used in the rest of the paper it can be omitted.

The result of Theorem 2 should just be stated as:

$$\sum_{k=0}^{n} k^i \binom{n}{k} d(n-k) = B_i \, n!$$

for any i. Equation (5) then follows by linearity. It would be nice (but not necessary) to have a combinatorial proof of this identity.

Some minor notes:

Page 1, after equation (2), should read "The number of ways a set of n elements..."

Page 2, in the statement of Theorem 2, and elsewhere, it would be useful to specify the limits on k in the summation.

Page 2, proof of Lemma 1: In 2(a) and 2(b), indicate which term in the statement of Lemma 1 these cases apply to (2(a) corresponds to the third term and 2(b) corresponds to the second term).

Page 5, second to last line: Change “is the one sending” to “sends”.