1)

$$\frac{\langle p, \sigma \rangle \Downarrow z, \sigma'}{\langle write_n(p), \sigma \rangle \Downarrow n++z, \sigma'} \text{(write)}$$
$$\frac{}{\langle write_m(write_n(p)), \sigma \rangle \Downarrow m++n++z, \sigma'} \text{(write)}$$

$$\frac{\langle p, \sigma \rangle \Downarrow z, \sigma'}{\langle write_{m+n}(p), \sigma \rangle \Downarrow m++n++z, \sigma'} \text{(write)}$$

By the natural notion of equivalence provided, $write_m(write_n(p)) \sim write_{m+n}(p)$

Other equivalences:

→ $write_m(write_n(p)) \sim write_n(write_m(p))$

$$\frac{\langle p, \sigma \rangle \Downarrow z, \sigma'}{\langle write_n(p), \sigma \rangle \Downarrow n++z, \sigma'} \text{(write)}$$
$$\frac{}{\langle write_m(write_n(p)), \sigma \rangle \Downarrow m++n++z, \sigma'} \text{(write)}$$

$$\frac{\langle p, \sigma \rangle \Downarrow z, \sigma'}{\langle write_m(p), \sigma \rangle \Downarrow m++z, \sigma'} \text{(write)}$$
$$\frac{}{\langle write_n(write_m(p)), \sigma \rangle \Downarrow n++m++z, \sigma'} \text{(write)}$$

→ $p; write_m(q) \sim write_m(p; q)$

$$\frac{\langle p, \sigma \rangle \Downarrow z, \sigma' \qquad \dfrac{\langle q, \sigma' \rangle \Downarrow r, \sigma''}{\langle write_m(q), \sigma' \rangle \Downarrow m++r, \sigma''} \text{(write)}}{\langle p; write_m(q), \sigma \rangle \Downarrow z++m++r} \text{(seq)}$$

$$\frac{\dfrac{\langle p, \sigma \rangle \Downarrow z, \sigma'}{\langle write_m(p), \sigma \rangle \Downarrow m++z, \sigma'} \text{(write)} \qquad \langle q, \sigma' \rangle \Downarrow r, \sigma''}{\langle write_m(p; q), \sigma \rangle \Downarrow m++z++r, \sigma''} \text{(seq)}$$

➤ $\text{write}_m(p); \text{write}_n(q) \sim \text{write}_{m+n}(p);q$

$$\dfrac{\langle p,\sigma\rangle \Downarrow z,\sigma'}{\langle \text{write}_m(p),\sigma\rangle \Downarrow m++z,\sigma'} \text{(write)} \qquad \dfrac{\langle q,\sigma'\rangle \Downarrow r,\sigma''}{\langle \text{write}_n(q),\sigma'\rangle \Downarrow n++r,\sigma''} \text{(write)}$$
$$\rule{}{} \text{(seq:)}$$
$$\langle \text{write}_m(p); \text{write}_n(q);\sigma\rangle \Downarrow m++z++n++r,\sigma''$$

$$\dfrac{\langle p,\sigma\rangle \Downarrow z,\sigma'}{\langle \text{write}_{m+n}(p),\sigma\rangle \Downarrow m++n++z,\sigma'} \qquad \langle q,\sigma'\rangle \Downarrow r,\sigma'' \qquad \text{(seq)}$$
$$\langle \text{write}_{m+n}(p);q,\sigma\rangle \Downarrow m++n++z++r,\sigma''$$