`big_morph` $\qquad (\forall x\, y, f(x+y) = f(x)\hat{+}f(y)) \to f(0) = \hat{0} \to f\left(\sum_{\substack{i \leftarrow r \\ P(i)}} F(i)\right) = \hat{\sum}_{\substack{i \leftarrow r \\ P(i)}} f(F(i))$

Section Extensionality

`eq_bigl` $\qquad P_1 =_1 P_2 \to \sum_{\substack{i \leftarrow r \\ P_1(i)}} F(i) = \sum_{\substack{i \leftarrow r \\ P_2(i)}} F(i)$

`eq_bigr` $\qquad (\forall i, P(i) \to F_1(i) = F_2(i)) \to \sum_{\substack{i \leftarrow r \\ P(i)}} F_1(i) = \sum_{\substack{i \leftarrow r \\ P(i)}} F_2(i)$

`big_nil` $\qquad \sum_{\substack{i \leftarrow \emptyset \\ P(i)}} F(i) = 0$

`big_pred0` $\qquad P =_1 \texttt{xpred0} \to \sum_{\substack{i \leftarrow r \\ P(i)}} F(i) = 0$

`big_pred1` $\qquad P =_1 \texttt{pred1}(i) \to \prod_{\substack{i \\ P(j)}} F(j) = G(i)$

`big_ord0` $\qquad \sum_{\substack{i<0 \\ P(i)}} F(i) = 0$

`big_tnth` $\qquad \sum_{\substack{i \leftarrow r \\ P(i)}} F(i) = \sum_{\substack{i < \texttt{size}(r) \\ P(r_i)}} F(r_i)$

`big_nat_recl` $\qquad m \leq n \to \sum_{m \leq i < n+1} F(i) = F(m) + \sum_{m \leq i < n} F(i+1)$

`big_ord_recl` $\qquad \sum_{i<n+1} F(i) = F(\texttt{ord0}) + \sum_{i<n} F(\texttt{lift}((n+1), \texttt{ord0}, i))$

`big_const_ord` $\qquad \sum_{i<n} x = \texttt{iter}(n, (\lambda y.x + y), 0)$

Section MonoidProperties

`big_nat_recr` $\qquad m \leq n \to \prod_{m \leq i < n+1} F(i) = \prod_{i<n} F(i) \times F(n)$

Section Abelian

`big_split` $\qquad \prod_{\substack{i \leftarrow r \\ R(i)}} (F_1(i) \times F_2(i)) = \prod_{\substack{i \leftarrow r \\ R(i)}} F_1(i) \times \prod_{\substack{i \leftarrow r \\ R(i)}} F_2(i)$

`bigU` $\qquad A \cap B = \emptyset \to \prod_{i \in A \cup B} F(i) = (\prod_{i \in A} F(i)) \times (\prod_{i \in B} F(i))$

`partition_big` $\qquad (\forall i, P(i) \to Q(p(i))) \to \prod_{\substack{i \\ P(i)}} F(i) = \prod_{\substack{j \\ Q(j)}} \prod_{\substack{i \\ P(i)\, p(i)=j}} F(i)$

`reindex_onto` $\qquad (\forall i, P(i) \to h(h'(i)) = i) \to \prod_{\substack{i \\ P(i)}} F(i) = \prod_{\substack{j \\ P(h(j))\, h'(h(j))=j}} F(h(j))$

`pair_big` $\qquad \prod_{\substack{i \\ P(i)}} \prod_{\substack{j \\ Q(j)}} F(i,j) = \prod_{\substack{(p,q) \\ P(p)\, Q(q)}} F(p,q)$

`exchange_big` $\qquad \prod_{\substack{i \leftarrow rI \\ P(i)}} \prod_{\substack{j \leftarrow rJ \\ Q(j)}} F(i,j) = \prod_{\substack{j \leftarrow rJ \\ Q(j)}} \prod_{\substack{i \leftarrow rI \\ Q(i)}} F(i,j)$

Section Distributivity

`big_distrl` $\qquad \sum_{\substack{i \leftarrow r \\ P(i)}} F(i) \times a = \sum_{\substack{i \leftarrow r \\ P(i)}} (F(i) \times a)$

`big_distrr` $\qquad a \times \sum_{\substack{i \leftarrow r \\ P(i)}} F(i) = \sum_{\substack{i \leftarrow r \\ P(i)}} (a \times F(i))$

`big_distr_big_dep` $\quad \prod_{\substack{i \\ P(i)}} \sum_{\substack{j \\ Q(i,j)}} F(i,j) = \sum_{f \in \texttt{pfamily}(j_0, P, Q)} \prod_{\substack{i \\ P(i)}} F(i, f(i))$ $\qquad \texttt{pfamily}(j_0, P, Q) \simeq$ functions Q^P

`big_distr_big` $\qquad \prod_{\substack{i \\ P(i)}} \sum_{\substack{j \\ Q(j)}} F(i,j) = \sum_{f \in \texttt{pffun\_on}(j_0, P, Q)} \prod_{\substack{i \\ P(i)}} F(i, f(i))$

`bigA_distr_big` $\qquad \prod_{i} \sum_{\substack{i \\ Q(j)}} F(i, f(i)) = \sum_{f \in \texttt{ffun\_on}(Q)} \prod_i F(i, f(i))$

`bigA_distr_bigA` $\qquad \prod_{i \in I} \sum_{j \in J} F(i,j) = \sum_{f \in J^I} \prod_{i \in I} F(i, f(i))$

`partition_big_imset` $\qquad \sum_{i \in A} F(i) = \sum_{i \in h\, @:\, A} \sum_{\substack{i \in A \\ h(i)=j}} F(i)$

`big_trivIset` $\qquad \texttt{trivIset}(P) \to \sum_{x \in \texttt{cover}(P)} E(x) = \sum_{A \in P} \sum_{x \in A} E(x)$

`partition_disjoint_bigcup` $\qquad (\forall i\, j, i \neq j \to F(i) \cap F(j) = \emptyset) \to \sum_{x \in \bigcup_i F(i)} E(x) = \sum_i \sum_{x \in F(i)} E(x)$