cheat sheet `bigop.v` (SSReflect v1.5)

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

Section `Extensionality`

`eq_bigl`	$P_1 =_1 P_2 \to \sum_{\substack{i \leftarrow r\\ P_1(i)}} F(i) = \sum_{\substack{i \leftarrow r\\ P_2(i)}} F(i)$
`eq_bigr`	$(\forall i, P(i) \to F_1(i) = F_2(i)) \to \sum_{\substack{i \leftarrow r\\ P(i)}} F_1(i) = \sum_{\substack{i \leftarrow r\\ P(i)}} F_2(i)$
`big_nil`	$\sum_{\substack{i \leftarrow \emptyset\\ P(i)}} F(i) = 0$
`big_pred0`	$P =_1 \texttt{xpred0} \to \sum_{\substack{i \leftarrow r\\ P(i)}} F(i) = 0$
`big_pred1`	$P =_1 \texttt{pred1}(i) \to \prod_{\substack{i\\ P(j)}} F(j) = G(i)$
`big_ord0`	$\sum_{\substack{i<0\\ P(i)}} F(i) = 0$
`big_tnth`	$\sum_{\substack{i \leftarrow r\\ P(i)}} F(i) = \sum_{\substack{i < \texttt{size}(r)\\ P(r_i)}} F(r_i)$
`big_nat_recl`	$m \leq n \to \sum_{m \leq i < n+1} F(i) = F(m) + \sum_{m \leq i < n} F(i+1)$
`big_ord_recl`	$\sum_{i<n+1} F(i) = F(\texttt{ord0}) + \sum_{i<n} F(\texttt{lift}((n+1), \texttt{ord0}, i))$
`big_const_ord`	$\sum_{i<n} x = \texttt{iter}(n, (\lambda y. x + y), 0)$

Section `MonoidProperties`

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

Section `Abelian`

`big_split`	$\prod_{\substack{i \leftarrow r\\ R(i)}} (F_1(i) \times F_2(i)) = \prod_{\substack{i \leftarrow r\\ R(i)}} F_1(i) \times \prod_{\substack{i \leftarrow r\\ R(i)}} F_2(i)$
`bigU`	$A \cap B = \emptyset \to \prod_{i \in A \cup B} F(i) = (\prod_{i \in A} F(i)) \times (\prod_{i \in B} F(i))$
`partition_big`	$(\forall i, P(i) \to Q(p(i))) \to \prod_{\substack{i\\ P(i)}} F(i) = \prod_{\substack{j\\ Q(j)}} \prod_{\substack{i\\ P(i)\, p(i)=j}} F(i)$
`reindex_onto`	$(\forall i, P(i) \to h(h'(i)) = i) \to \prod_{\substack{i\\ P(i)}} F(i) = \prod_{\substack{j\\ P(h(j))\, h'(h(j))=j}} F(h(j))$
`pair_big`	$\prod_{\substack{i\\ P(i)}} \prod_{\substack{j\\ Q(j)}} F(i,j) = \prod_{\substack{(p,q)\\ P(p)\, Q(q)}} F(p,q)$
`exchange_big`	$\prod_{\substack{i \leftarrow rI\\ P(i)}} \prod_{\substack{j \leftarrow rJ\\ Q(j)}} F(i,j) = \prod_{\substack{j \leftarrow rJ\\ Q(j)}} \prod_{\substack{i \leftarrow rI\\ Q(i)}} F(i,j)$

Section `Distributivity`

`big_distrl`	$\sum_{\substack{i \leftarrow r\\ P(i)}} F(i) \times a = \sum_{\substack{i \leftarrow r\\ P(i)}} (F(i) \times a)$
`big_distrr`	$a \times \sum_{\substack{i \leftarrow r\\ P(i)}} F(i) = \sum_{\substack{i \leftarrow r\\ P(i)}} (a \times F(i))$
`big_distr_big_dep`	$\prod_{\substack{i\\ P(i)}} \sum_{\substack{j\\ Q(i,j)}} F(i,j) = \sum_{f \in \texttt{pfamily}(j_0, P, Q)} \prod_{\substack{i\\ P(i)}} F(i, f(i))$
`big_distr_big`	$\prod_{\substack{i\\ P(i)}} \sum_{\substack{j\\ Q(j)}} F(i,j) = \sum_{f \in \texttt{pffun\_on}(j_0, P, Q)} \prod_{\substack{i\\ P(i)}} F(i, f(i))$
`bigA_distr_big`	$\prod_{i} \sum_{\substack{i\\ Q(j)}} F(i, f(i)) = \sum_{f \in \texttt{ffun\_on}(Q)} \prod_i F(i, f(i))$
`bigA_distr_bigA`	$\prod_{i \in I} \sum_{j \in J} F(i,j) = \sum_{f \in J^I} \prod_{i \in I} F(i, f(i))$

$\texttt{pfamily}(j_0, P, Q) \simeq$ functions Q^P

from `finset.v` also (SSReflect v1.5)

`partition_big_imset`	$\sum_{i \in A} F(i) = \sum_{i \in h\, \texttt{@:}\, A} \sum_{\substack{i \in A\\ h(i)=j}} F(i)$
`big_trivIset`	$\texttt{trivIset}(P) \to \sum_{x \in \texttt{cover}(P)} E(x) = \sum_{A \in P} \sum_{x \in A} E(x)$
`partition_disjoint_bigcup`	$(\forall i\, j, i \neq j \to F(i) \cap F(j) = \emptyset) \to \sum_{x \in \bigcup_i F(i)} E(x) = \sum_i \sum_{x \in F(i)} E(x)$