More information about this function can be fount at :
http://googology.wikia.com/wiki/Veblen_function

Every non-zero ordinal $\alpha < \Gamma_0$, where $\Gamma_0$ is the smallest ordinal $\alpha$ such that $\varphi_\alpha(0) = \alpha$, can be uniquely written in normal form for the Veblen hierarchy:
$\alpha = \varphi_{\beta_1}(\gamma_1) + \varphi_{\beta_2}(\gamma_2) + \cdots + \varphi_{\beta_k}(\gamma_k)$,
where
$\varphi_{\beta_1}(\gamma_1) \geq \varphi_{\beta_2}(\gamma_2) \geq \cdots \geq \varphi_{\beta_k}(\gamma_k)$ $\gamma_m < \varphi_{\beta_m}(\gamma_m)$ for $m \in \{1, ..., k\}$

Now we will see how we can find the fundamental sequence of an ordinal written in this notmal form.
From the rule defining addition of a limit ordinal :

$$\alpha + lim(f) = lim(n \mapsto \alpha + f(n))$$

we deduce the fundamental sequence :

$$(\alpha + \beta)[n] = \alpha + \beta[n]$$

if $\beta$ is a limit ordinal.
In particular, we have :
$(\varphi_{\beta_1}(\gamma_1) + \varphi_{\beta_2}(\gamma_2) + \cdots + \varphi_{\beta_k}(\gamma_k))[n] = \varphi_{\beta_1}(\gamma_1) + \cdots + \varphi_{\beta_{k-1}}(\gamma_{k-1}) + (\varphi_{\beta_k}(\gamma_k)[n])$, where $\varphi_{\beta_1}(\gamma_1) \geq \varphi_{\beta_2}(\gamma_2) \geq \cdots \geq \varphi_{\beta_k}(\gamma_k)$ and $\gamma_m < \varphi_{\beta_m}(\gamma_m)$ for $m \in \{1, 2, ..., k\}$,
Then, $\varphi_0(\gamma)$ is $\omega^\gamma$.
For $\gamma = 0$ it is 1.
From the rule of multiplication by a limit ordinal :
$\alpha \cdot lim(f) = lim(n \mapsto \alpha \cdot f(n))$
we deduce the fundamental sequence :
$(\alpha \cdot \beta)[n] = \alpha \cdot \beta[n]$ if $\beta$ is a limit ordinal.
In particular, for $\omega$ :
$(\alpha \cdot \omega)[n] = \alpha \cdot \omega[n] = \alpha \cdot n$
Then we have :
$\varphi_0(\gamma + 1) = \omega^{\gamma+1} = \omega^\gamma \cdot \omega = \varphi_0(\gamma) \cdot \omega$
So the corresponding fundamental sequence is :
$\varphi_0(\gamma + 1)[n] = (\varphi_0(\gamma) \cdot \omega)[n] = \varphi_0(\gamma) \cdot n$
If $\gamma$ is a limit ordinal, the fundamental sequence is defined canonically :
$\varphi_0(\gamma)[n] = \varphi_0(\gamma[n])$

This function can be defined with fundamental sequences.
The fundamental sequences for the Veblen functions $\varphi_\beta(\gamma) = \varphi(\beta, \gamma)$ are :

1. $(\varphi_{\beta_1}(\gamma_1) + \varphi_{\beta_2}(\gamma_2) + \cdots + \varphi_{\beta_k}(\gamma_k))[n] = \varphi_{\beta_1}(\gamma_1) + \cdots + \varphi_{\beta_{k-1}}(\gamma_{k-1}) + (\varphi_{\beta_k}(\gamma_k)[n])$, where $\varphi_{\beta_1}(\gamma_1) \geq \varphi_{\beta_2}(\gamma_2) \geq \cdots \geq \varphi_{\beta_k}(\gamma_k)$ and $\gamma_m < \varphi_{\beta_m}(\gamma_m)$ for $m \in \{1, 2, ..., k\}$,
2. $\varphi_0(0) = 1$,
3. $\varphi_0(\gamma + 1)[n] = \varphi_0(\gamma)n$

4. $\varphi_{\beta+1}(0)[0] = 0$ and $\varphi_{\beta+1}(0)[n+1] = \varphi_\beta(\varphi_{\beta+1}(0)[n])$,
5. $\varphi_{\beta+1}(\gamma+1)[0] = \varphi_{\beta+1}(\gamma)+1$ and $\varphi_{\beta+1}(\gamma+1)[n+1] = \varphi_\beta(\varphi_{\beta+1}(\gamma+1)[n])$,
6. $\varphi_\beta(\gamma)[n] = \varphi_\beta(\gamma[n])$ for a limit ordinal $\gamma < \varphi_\beta(\gamma)$,
7. $\varphi_\beta(0)[n] = \varphi_{\beta[n]}(0)$ for a limit ordinal $\beta < \varphi_\beta(0)$,
8. $\varphi_\beta(\gamma+1)[n] = \varphi_{\beta[n]}(\varphi_\beta(\gamma)+1)$ for a limit ordinal $\beta$.

These fundamental sequences can be reformulated to get a definition of the function $\varphi$.

1. This does not concern the definition of the $\varphi$ function but the definition of addition
2. and
3. are equivalent to $\varphi_0(\gamma) = \omega^\gamma$.
4. $\varphi_{\beta+1}(0) = lim(n \mapsto {\varphi_\beta}^n(0)) = {\varphi_\beta}^\omega(0)$ which is the least fixed point of $\varphi_\beta$.
5. $\varphi_{\beta+1}(\gamma+1) = lim(n \mapsto {\varphi_\beta}^n(\varphi_{\beta+1}(\gamma)+1))$, which is the least fixed point of $\varphi_\beta$ strictly greater than $\varphi_{\beta+1}(\gamma)$, so $\varphi_{\beta+1}(\gamma)$ is the $1+\gamma$-th fixed point of $\varphi_\beta$.