betaBurau

Relates to BurauCalculus.nb

```mathematica
Bu[n_Integer, β_B] := Bu[h /@ Range[n], β];
Bu[ηs_List, B[ω_, μ_]] := Module[{λ},
    λ = (1 + Coefficient[μ, #] /. t[i_] → 1) & /@ ηs;
    Bu[ω,
        Thread[ηs → λ],
        -μ + (ηs /. h[j_] :→ t[j] h[j]).λ
    ] // βCollect
  ];

{R[1, 2],
  R[1, 2] // βForm,
  Bu[2, R[1, 2]],
  Bu[2, R[1, 2]] // βForm
} // ColumnForm
```

B[1, h[2] (-1 + T₁) t[1]]

$$\begin{pmatrix} 1 & h[2] \\ t[1] & -1 + T_1 \end{pmatrix}$$

Bu[1, {h[1] → 1, h[2] → T₁}, h[1] t[1] + h[2] ((1 - T₁) t[1] + T₁ t[2])]

$$\begin{pmatrix} 1 & h[1] → 1 & h[2] → T_1 \\ t[1] & 1 & 1 - T_1 \\ t[2] & 0 & T_1 \end{pmatrix}$$

B — world

w	h_1	h_2	h_3	---
t_1	α_{11}	α_{12}	α_{13}	
t_2	α_{21}			
t_3	α_{31}	---		

$\longleftrightarrow$

Bu — World

W	h_1	h_2	---
t_1	γ_{11}	γ_{12}	γ_{13}
t_2	γ_{21}	γ_{22}	---
⋮			

the sum of column
#j is $\lambda_j - 1$, where
λ_j is a monomial

$(h_1 → \lambda_1, \ldots, h_n → \lambda_n)$
column sums are 1.

So

$$\gamma_{ij} = \begin{cases} -\alpha_{ij} & i \neq j \\ -\alpha_{jj} + \lambda_j & i = j \end{cases}$$

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