APPENDIX

Change of point A

From the multiple regression analysis in table 7 it was found that both ΔUIa and ΔUI had a significant influence on ΔA. When considering ΔUIa and ΔUI separately the linear regression equations were obtained as follow:

$$\Delta A = 0.322 + 0.423\ \Delta UIa$$
$$\Delta A = -1.205 + 0.294\ \Delta UI$$

Therefore the ratio of ΔA to ΔUIa was approximately 0.5:1 ($\Delta A:\Delta UIa \sim 0.5:1$) and that of ΔA to ΔUI was approximately 0.2:1 ($\Delta A:\Delta UI \sim 0.2:1$).

Change of point B

From the multiple regression analysis in table 8 it was found that both ΔLIa and ΔLI had a significant influence on ΔB. When considering ΔLIa and ΔLI separately the linear regression equations were obtained as follow:

$$\Delta B = 0.019 + 0.598\ \Delta LIa$$
$$\Delta B = -1.062 + 0.514\ \Delta LI$$

Therefore the ratio of ΔB to ΔLIa was approximately 0.6:1 ($\Delta B:\Delta LIa \sim 0.6:1$) and that of ΔB to ΔLI was approximately 0.5:1 ($\Delta B:\Delta LI \sim 0.5:1$).

Change of point A'

From the multiple regression analysis in table 9 it was found that both ΔUL and ΔA had a significant influence on $\Delta A'$. When considering ΔUL and ΔA separately the linear regression equations were obtained as follow:

$$\Delta A' = -0.401 + 0.576\ \Delta UL$$
$$\Delta A' = 0.471 + 0.676\ \Delta A$$

Therefore the ratio of $\Delta A'$ to ΔUL was approximately 0.5:1 ($\Delta A':\Delta UL \sim 0.5:1$) and that of $\Delta A'$ to ΔA was approximately 0.6:1 ($\Delta A':\Delta A \sim 0.6:1$).

Change of point B'

From the multiple regression analysis in table 10 it was found that ΔLL, ΔB and ΔLIa had a significant influence on $\Delta B'$. When considering ΔLL, ΔB and ΔLIa separately the linear regression equations were obtained as follow:

$$\Delta B' = -0.223 + 0.616 \; \Delta LL$$
$$\Delta B' = 0.826 + 0.974 \; \Delta B$$
$$\Delta B' = 0.636 + 0.746 \; \Delta Lia$$

Therefore the ratio of $\Delta B'$ to ΔLL was approximately 0.6:1 ($\Delta B':\Delta LL\sim0.6:1$), the ratio of $\Delta B'$ to ΔB was approximately 0.9:1 ($\Delta B':\Delta B\sim0.9:1$) and that of $\Delta B'$ to ΔLIa was approximately 0.7:1 ($\Delta B':\Delta LIa\sim0.7:1$).

Change of upper lip

From the multiple regression analysis in table 11 it was found that ΔLL, $\Delta A'$, ΔUI and ΔLI had a significant influence on ΔUL. When considering ΔLL, $\Delta A'$, ΔUI and ΔLI separately the linear regression equations were obtained as follow:

$$\Delta UL = -0.211 + 0.676 \; \Delta LL$$
$$\Delta UL = 1.091 + 0.129 \; \Delta A'$$
$$\Delta UL = -1.128 + 0.608 \; \Delta UI$$
$$\Delta UL = -0.211 + 0.554 \; \Delta LI$$

Therefore the ratio of ΔUL to ΔLL was approximately 0.6:1 ($\Delta UL:\Delta LL\sim0.6:1$), the ratio of ΔUL to $\Delta A'$ was approximately 0.1:1 ($\Delta UL:\Delta A'\sim0.1:1$), the ratio of ΔUL to ΔUI was approximately 0.6:1 ($\Delta UL:\Delta UI\sim0.6:1$) and that of ΔUL to ΔLI was approximately 0.5:1 ($\Delta UL:\Delta LI\sim0.5:1$).

Change of lower lip.

From the multiple regression analysis in table 12 it was found that ΔUL, ΔLI and $\Delta B'$ had a significant influence on ΔLL. When considering ΔUL, ΔLI and $\Delta B'$ separately the linear regression equations were obtained as follow:

$$\Delta LL = 1.130 + 1.018 \ \Delta UL$$

$$\Delta LL = -0.758 + 1.030 \ \Delta LI$$

$$\Delta LL = 1.197 + 1.096 \ \Delta B'$$

Therefore the ratio of ΔLL to ΔUL was approximately 1:1 ($\Delta LL:\Delta UL \sim 1:1$), the ratio of ΔLL to ΔLI was approximately 1:1 ($\Delta LL:\Delta LI \sim 1:1$) and that of ΔLL to $\Delta B'$ was approximately 1:1 ($\Delta LL:\Delta B' \sim 1:1$).

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