Using (2) once more, with $F(z)=(1+z)^{a+bk-k}$ and $\phi(z)=(1+z)^{b-tb}$, we get from (5)

$$(6)\qquad \begin{aligned}(1+z)^{a-c} &= \sum_{k=0}^{\infty}(-1)^k A_k(c,tb)\left[z/(1+z)^{b-tb}\right]^k \\ &\quad\cdot \sum_{j=0}^{\infty} A_j(a+bk-k,\, b-tb)\left[z/(1+z)^{b-tb}\right]^j \\ &= \sum_{k=0}^{\infty}\sum_{j=0}^{\infty}(-1)^k A_k(c,tb)A_j(a+bk-k,\, b-tb)v^{k+j},\end{aligned}$$

where $v=z/(1+z)^{b-tb}$. Letting $k+j=n$, we find from (6)

$$(7)\qquad (1+z)^{a-c} = \sum_{n=0}^{\infty} v^n \sum_{k=0}^{n}(-1)^k A_k(c,tb)A_{n-k}(a+bk-k,\, b-tb).$$

On the other hand, the application of (2) with $F(z)=(1+z)^{a-c}$ and $\phi(z)=(1+z)^{b-tb}$ yields

$$(8)\qquad (1+z)^{a-c} = \sum_{n=0}^{\infty} v^n A_n(a-c,\, b-tb).$$

Equating the coefficients of v^n in (7) and (8), we obtain

$$\sum_{k=0}^{n}(-1)^k A_k(c,tb)A_{n-k}(a+bk-k,\, b-tb) = A_n(a-c,\, b-tb).$$

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1. E. T. Copson, An Introduction to the Theory of Functions of a Complex Variable, Oxford, 1935, pp. 121–125.

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ON A THEOREM OF H. PÉTARD

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In a classical paper [4], H. Pétard proved that it is possible to capture a lion in the Sahara desert. He further showed [4, no. 8, footnote] that it is in fact possible to catch every lion with at most one exception. Using completely new techniques, not available to Pétard at the time, we are able to sharpen this result, and to show that *every* lion may be captured.

Let $\mathfrak{L}$ denote the category whose objects are lions, with "ancestor" as the only nontrivial morphism. Let ℓ be the category of caged lions. The subcategory ℓ is clearly complete, is nonempty (by inspection), and has both a generator and cogenerator [3, vii, 15–16]. Let F: $\ell \to \mathfrak{L}$ be the forgetful functor, which forgets the cage. By the Adjoint Functor Theorem [1, 80–91] the functor F has a coadjoint C: $\mathfrak{L} \to \ell$, which reflects each lion into a cage.

We remark that this method is obviously superior to the Good method [2], which only guarantees the capture of one lion, and which requires an application of the Weierkäfig Preparation Theorem.

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CLASSROOM NOTES

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ON (WHAT SHOULD BE) A WELL-KNOWN THEOREM IN GEOMETRY

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The following theorem is not as well known as it should be:

(a) *If ABC is a given triangle, V a point in the plane of ABC which does not lie on a side of the triangle, and $A'B'C'$ is a triangle which has $B'C'$ parallel to VA, $C'A'$ parallel to VB and $A'B'$ parallel to VC, then lines through A' parallel to BC, through B' parallel to CA and through C' parallel to AB will be concurrent at a point V'.*

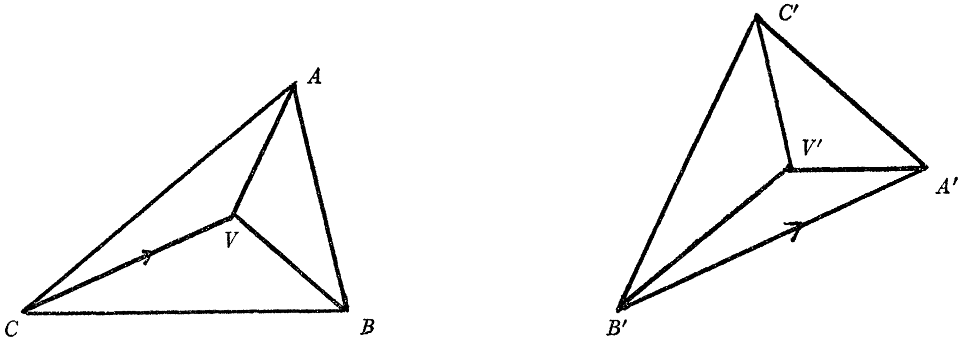

FIG. 1

The theorem is, however, more familiar to geometers in the form:

(b) *If ABC and $A'B'C'$ are two triangles which are such that lines through A*