Assgnment 0

In the Warlpirli system:

1. Can I marry my first cousin ?
2. Can I marry my second cousin ?

In each case, draw the family tree, and solve by using the notations M (mother) and S (spouse)

Answers. For lack of ability with the computer I will not draw the family tree.

Let x be my clan and y the clan of my cousin. We can marry if $x = Sy$

Question 1 I have three kinds of first cousins:

1. Parallel cousins on my father's side: we share the same grandfather:

   $$SMSMx = SMSMy$$

   But we know that $SMSM = I$, the identity. So this equation reduces to $x = y$. So we are of the same clan, and cannot marry. We could have used the grandmother instead. We would have gotten:

   $$MSMx = MSMy$$

   Multiplying by S on both sides, we get the same equation $SMSMx = SMSMy$, hence $x = y$ again

2. *Parallel cousins* on my mother 's side, we share the same grandmother

   $$MMx = MMy$$

   But M^2 is a rotation by 180°. Performing the inverse rotation, we get $x = y$. We can also multiply both sides by M^2. The equation becomes $M^4x = M^4y$. But $M^4 = I$, so we get $x = y$ again. We are of the same clan, so we cannot marry.

3. *Crossed cousins*: our parents are brother and sister.

   $$MMx = MSMy$$

   We multiply both sides by S on the left, with $SMSM = I$, and we get $y = SMMx$. But M^2 (a rotation of 180°) is different from I, the identity, so SMM is not S, and we cannot marry

Qestion 2 I have four kinds of second cousins

1. Our parents are *parallel cousins*. We have seen that they are of the same clan. So our mothers are of the same clan, we are of the same clan, so we cannot marry.

2. Our parents are *crossed cousins*. We have seen that the clans of our mothers then differ by SMM. So:

   $$Mx = SMMMy$$

   Multiplying both sides on the left by SM, with $(SM)^2 = I$, we get $SM^2x = M^2y$, and multiplying again by M^2, with $M^4 = I$, we get $y = M^2SM^2x$. Using the cardboard model, one can check that $M^2SM^2 = S$, so that, YES, I can marry this second cousin !