Problem #3

We break the Georgian words into their components. We derive the suffixes -e and -ob by comparing vinadire and nadirob, and the suffix -eb by contrasting visadileb and vsadilob. We can't tell if -ob is contained in ambob, -eb in vigoreb, or -e in (v)itavmGdomareve, because we have nothing to compare these forms to. Also we don't know if the word izam-t contains a suffix. We shall assume that all initial v- and i- are prefixes.

		amb	-ob	
v-	i-	gor	-eb	
		keni		-t
v-		keni		
	i-	nadir	-e	-t
		nadir	-ob	
v-	i-	nadir	-e	
v-		sadil	-ob	-t
v-	i-	sadil	-eb	
v-	i-	tavmGdomarev	-e	
	i-	tavmGdomarev	-e	
v-		tkvi		
		tkvi		
v-	i-	vli		-t
	i-	zam		-t

We analyse the translations as well.

I	←	say
you	←	say
you	○	say
I	←	do
you *(pl.)*	←	do
you *(pl.)*	→	do
I	→	roll
we	○	dine
I	→	dine
you *(pl.)*	←	hunt
I	←	hunt
you	○	hunt
I	←	preside
you	←	preside
we	→	walk

There are 9 Georgian roots but only 7 English ones, meaning that some Georgian verbs have two or even three different roots (cf. *go* and *went* in English).

How are the person/number of the subject expressed? Let us count: 'I' occurs 6 times, 'you' 4 times, 'we' 2 times, 'you *(pl.)*' 3 times. This must correspond to some combination of prefixes and suffixes. It turns out that the combination of the first prefix and the last suffix serves our purpose: v+0, 0+0, v+t, 0+t occur exactly that many times. (From this it follows that in Georgian the subject person/number markers are constructed of markers of 1st/2nd person and singular/plural number.) So the problem is divided into four smaller ones. We can identify two pairs instanty: vigoreb 'I will roll', vivlit 'we will walk'; hence vsadilobt 'we dine' and visadileb 'I will dine' follow also. We are done with 'we'.

We have forms with the root nadir in all three remaining persons/numbers; this must be 'hunt'. The roots keni and zam mean 'do', consequently vkeni is 'I did'. Assuming that tense is marked in the same way in different persons/numbers, we also compute kenit 'you *(pl.)* did' and izamt 'you *(pl.)* will do'.

Most likely the form ambob, which bears the least similarity to the others, means 'you say', since no other present tense forms remain. We are left with (v)-tkvi and (v)-i-tavmGdomarev-e for 'I/you presided' and 'I/you said'. We can't be sure what is what, but common sense suggests that the more common concept should be expressed in a more compact way. The problem has been solved.

vtkvi	'I said'	nadirob	'you hunt'
kenit	'you *(pl.)* did'	visadileb	'I will dine'
inadiret	'you *(pl.)* hunted'	vinadire	'I hunted'
itavmGdomareve	'you chaired'	ambob	'you say'
vsadilobt	'we dine'	vitavmGdomareve	'I chaired'
tkvi	'you said'	izamt	'you *(pl.)* will do'
vigoreb	'I will roll'	vivlit	'we will walk'
vkeni	'I did'		

What did we learn about the tense markers? Let us make another table:

	do	say	walk	roll	dine	hunt	preside
←	keni	tkvi				i-nadir-e	i-tavmGdomarev-e
○		amb-ob			sadil-ob	nadir-ob	
→	i-zam		i-vli	i-gor-eb	i-sadil-eb		

It turns out that the present tense has the suffix -ob and the future has the prefix i-. We have two groups of verbs: weak verbs with the same prefix i- in the past and the suffixes -e in the past and -eb in the future; strong verbs with no suffixes in these two tenses and with different roots for different tenses.

Problem №4

Precisely half of the names of squares include the word nif. It is reasonable to assume that these are the greater numbers – from 36 to 100, – with nif being the least among them. The frequently occurring word abo probably denotes addition. We notice the pair of squares nif abo tondor abo mer abo thonith and nif <u>thef</u> abo tondor abo mer abo thonith; this supports our guess that 36 is a key notion in the formation of the number names, since in that case we would expect the names of 64=36+28 and 100=64+36=36·2+28 to be very similar.

So the base of the number system is 6. There is one peculiarity: not only 36 but also 18 has a special name; accordingly, instead of multiplying 6 by 4 or 5, one adds 6 or 6 times 2 to 18. The multiplication of 6 by 2 is marked by the function word an; the multiplication of 36 by whatever number is not marked at all.

§1.   mer an thef abo thonith = $6 \cdot 2 + 4 = 16$
nif thef abo mer abo ithin = $6^2 \cdot 2 + 6 + 3 = 81$
nif abo mer an thef abo sas = $6^2 + 6 \cdot 2 + 1 = 49$
nif abo tondor abo mer abo thonith = $6^2 + 18 + 6 + 4 = 64$
nif thef abo tondor abo mer abo thonith = $6^2 \cdot 2 + 18 + 6 + 4 = 100$
tondor abo mer abo sas = $18 + 6 + 1 = 25$
mer abo ithin = $6 + 3 = 9$
thonith = 4
sas = 1
nif = $6^2 = 36$

§2.   mer abo sas × meregh   =   tondor abo mer an thef abo meregh
      $7 \times x = (6+1) \times x$ = $18 + 6 \cdot 2 + x = 30 + x$

It follows that meregh is 5, and the equality is $7 \times 5 = 35$.

§3.   nif ithin abo ithin = $6^2 \cdot 3 + 3 = 111$
mer an thef abo meregh = $6 \cdot 2 + 5 = 17$

§4. $58 = 6^2 + 18 + 4$ = nif abo tondor abo thonith
$87 = 6^2 \cdot 2 + 6 \cdot 2 + 3$ = nif thef abo mer an thef abo ithin