Tabla Kal-Akshar Notation System
Part 1: Kal, Taal, Jaati and Laya Notations

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As you know a particular Taal is always divided in to subparts (Vibhag or khanda) and each Vibhag begins with either Taali or Khaali. For example, Teen Taal of 16 Matras is divided into four subparts (Vibhag) of 4 Matras each. Sam[1] or the beginning of Taal (also the first Tali or clap) is always on first note. In Teen Taal, second Clap (Taali) is on 5th Matra, which is the beginning of second sub part, Khaali (no clap) is on 9th Matra, which is the beginning of third sub part and lastly the final Taali is on 13th Matra, which is the beginning of last sub part.

In Pt. Bhatkhande Notation System and Pt. Paluskar Notation System, the various symbols for showing Taal are as follows.

Description	Pt. Bhatkhande System	Pt. Paluskar System
Sam	x	1
Tali (Clap)	Tali Number below Matra	Matra Number below Matra
Khali (No Clap)	O	+
End of Sub Part (Vibhag)	|	No Sign
End of Taal (Aavaratan)	|	|

[1] Sam is the first matra of a Taal.

Our Notation system will be a combination of above two systems and we will have some new symbol. We will have dotted vertical line symbol for end of Vibhag and use + sign for Khaali and the rest of the symbols will be per Pt. Bhatkhande's Notation System. Dotted vertical line will differentiate between end of Vibhag and end of Aavartana. Since we are going to use lot of circles in our notation system, we will use + symbol for Khaali. The revised symbols are shown below.

Description	Kaal-Nikas System
Sam	x
Tali (Clap)	Tali Number below Matra
Khali (No Clap)	+
End of Sub Part (Vibhag)	¦
End of Taal (Aavaratan)	|

We will give the basic Taal information (Sam, Taali, Khali, etc.) at the beginning of the Bandish (composition). For example,

Zap Taal	2	¦	3	¦	2	¦	3	|			
10 Matra	x		2		+		3				
Ek Taal	2	¦	2	¦	2	¦	2	¦	2	¦	2 |
12 Matra	x		+		2		+		3		4
Teen Taal	4	¦	4	¦	4	¦	4	|			
16 Matra	x		2		+		3				

After giving information on basic Taal configuration let us see how we can define Jaati and its associated speed in the given composition.

There are many compositions (Kayda, Tukada, Chakradhar, etc.) where within the full note there are sub-parts like half note, quarter note or in Tabla lingo Laghu. There can be any number of laghus in a Matra [or a full note can be divided in any number of division from 2 (half note or minim) to 16 (semiquaver or 16th) or even more]. Compositions having up to 8 laghus (quaver or eighth note) in one full note are very common; division up to 12 laghu (12th part) in one full note is also seen in some composition. Division of full note to more than 12 laghu (more than 12th part, like 16th, semiquaver), though theoretically possible, is very rare statistically.

In Tabla time measurement, we also have to pay attention 'Jaati'. Jaati represents the basic division of laghus in a full note. Various types of Jaati like Tisra (three laghus), Chatasra (four laghus), Khanda (five laghus), Mishra (seven laghus) or Sankirna (nine laghus) are known. There is always a confusion regarding the Jaati of a Taal or Jaati of a composition (bandish). The basic Teen Taal is considered as Chatasra Jaati Taal since its total 16 Matras (16 full notes) are divisible by 4. Likewise EkTaal is Tisra Jaati Taal (12 Matras are divisible by 3), ZapTaal is Khanda Jaati Taal (10 Matras are divisible by 5); Roopak Taal is Mishra Jaati Taal (divisible by 7), etc. However this is a complete misconception regarding Taal having Jaati. There are NO Jaati for a Taal. Jaati is for composition and not for a Taal. If a articular composition has 3 laghus in one Matra (full note) consistently, then that composition is considered as Tisra Jaati composition. For example, we take a Tisra Jaati Kayda in Teen Taal.

DhaGeNa DhaTraKa DhiKiTt DhaGeNa

DhaTraKa DhiNaS DhiNaDhi NaGiNa

This compostion has three laghus in each matra, as such this composition is in Tisra Jaati. One should not confuse that Teen Taal is in Chatasra Jaati as there are no Jaati for a Taal.

For Tabla player it is important to know Jaati as it determines the playing speed for that composition. Hence, we will have to focus Jaati than a Taal. As seen before there are five basic Jaatis as Tisra (3), Chatasra (4), Khanda (5), Mishra (7) and Sankirna (9). Now let us do some mathematical analysis of Jaatis. Jaati represents the smallest number in that family. For example, if a particular composition has 6 laghus in each Matra, then it is considered as Tisra Jaati with double speed. Thus, if there are 3 laghus in one Matra, it is still Tisra Jaati, but will be played at normal speed (Thaya Laya or Barabar). Let us consider the possibilities of having 2 to 16 laghus in one Matra.

Laghus	Jaati	Speed	Remark	Laghus	Jaati	Speed	Remark
1			Prime No.	9	Sankirna	Normal	
2	Chatasra	Half	Prime No.	10	Khanda	Double	
3	Tisra	Normal	Prime No.	11	?	Normal	Prime No.
4	Chatasra	Normal		12	Tisra	Quadriple	
5	Khanda	Normal	Prime No.	13	?	Normal	Prime No.
6	Tisra	Double		14	Mishra	Double	
7	Mishra	Normal	Prime No.	15	Khanda	Triple	
8	Chatasra	Double		16	Chatasra	Quadriple	

As you can see the basic Jaati number is a prime number. One full note without any laghu or subpart is also a prime number. In the present notation history, there is no Jaati for 11 or 13 laghus as it is not in any multiple of traditional Jaati and it is a prime number. As 9 is not a prime number, being a multiple of 3, we will need an exception to the rule. Any tabla composition that begins with Tisra Jaati (with three laghus in a matra) and then have multiple of Tisra Jaati having

9 laghus in a matra will be considered as Tisra Jaati with triple speed. For example, DhaTraKa DhiKiTt KaTaGaDiGaNaa composition, which starts with Tisra Jaati at normal speed and then if in this composition if the word consists of DhiKiTtKaTaGaDiGaNaa then it will be consider as a Tisra Jaati in triple speed. However, if the composition begins with 9 laghus or the words are such that it cannot be broken in-group of three, then it will be considered as Sankirna Jaati. For example, DhaTiDhaGeNaTiNaKiNaa, here the composition will begin playing all 9 laghus in one matra, and then it is a Sankirna Jaati. At present, there is no Jaati for 11 or 13 laghus. In order to have a complete notation system, we must have Jaati for 11 or 13 laghus composition as theoretically it is possible to have these kind of compostion but statistically it's use will be rare. We will now introduce two NEW Jaati's for these laghus as

Ekadash (Eka – One, Dash – Ten, a Sanskrit word for 11) for 11 laghus.

Trayodash (Tri – 3, Dash – Ten, a Sanskrit word for 13) for 13 laghus.

As explained earlier, theoretically, it is possible to have more than 16 laghus in one Matra, but these compositions are very very rare and we will not consider it in our discussion.

Having considered the number of laghus in a given Matra lets study it is Laya or speed. Since the Laya by definition is the fixed time interval between two matras, we cannot vary time between two matras even if different matras have different laghus within the same Jaati. For example, in a given Tisra Jaati composition, one matra can have three laghus (1/3rd value each) while another matra can have six laghus (1/6th value each). However, time scale being same or the speed of the beat is same, one has to play both matras in the same time. Thus first matra having three laghus needs to be played at normal speed (having 1/3rd value), but the next matra should be played at double speed, because in the same time period one has to play six bols or strokes instead of three. Thus, the laya or speed is double. For example,

Therefore, a Tabla player needs to know this speed change in the notation system. Therefore, in our notation system we will use following letters to indicate various Jaatis and the number associated with its speed.

Letter Signs for Jaati

Laya	Half		Normal		Double		Triple		Quadriple	
Jaati	Laghu	Sign	Laghu	Sign	Laghu	Sign	Laghu	Sign	Laghu	Sign
Tisra	-	-	3	T	6	T2	9	T3	12	T4
Chatasra	2	CH1/2	4	CH	8	CH2	-	-	16	CH4
Khanda	-	-	5	KH	10	KH2	15	KH2	-	-
Mishra	-	-	7	M	14	M2	-	-	-	-
Sankirna	-	-	9	SK	-	-	-	-	-	-
Ekadash	-	-	11	ED	-	-	-	-	-	-
Trayodash	-	-	13	TD	-	-	-	-	-	-

Now we will use these symbols to write one 'Tripalli'[2].

[2] Tripalli (Hindi Word). The word consists of two parts Tri means three and Palli, a short form for palla meaning group of words. Tripalli means group of tabla words, which are repeated three times, but in different laya (speed).

TeenTaal 4 ¦ 4 ¦ 4 ¦ 4 ¦	Tripalli	Band Baaz
16 Matra x 2 + 3		

T DhaTraKa	DhiKiTt	KaTaGa	DiGaNa	¦
X CH Dha	DhaTraKaDhi	KiTaKaTa	GaDiGaNa	¦
2 T2 Dha	DhaTraKaDhiKiTt	KaTaGaDiGaNa	DhaSSDhaTraKa	¦
+ DhiKiTtKaTaGa	DiGaNaDhaSS	DhaTraKaDhiKiTt	KaTaGaDiGaNa	¦
3 Dha X				

In this Tripalli, we have given characteristics of the Taal in the beginning. On the top of first matra, the letter 'T' indicates Tisra Jaati at Normal Laya. On the fifth matra, the letters 'CH' indicates Chatasra Jaati at Normal Laya and on the letters 'T2' above 9th matra indicates Tisra Jaati at Double Laya. As such tabla player needs to play this composition in the Jaati and Laya per given letter symbols until the next symbols appears. In addition, the type of composition is written at the top and type of Baaz[3] is given. Taal characteristics like end of Vibhag or sub-part is shown by broken vertical line and end of taal is shown by solid straight line. The symbols for Sam, Taali and Khali are also shown clearly.

Now if we give picture symbols for Jaati and Laya it will be even easier. Similar to that we have developed the symbols as follows.

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[3] Baaz (Urdu Word) meaning type. Here in tabla context, there are two ways of playing tabla as Band (closed) and Khula (open). Delhi Gharana composition and way of playing is Band Baaz and Banaras Gharana is Khula Baaz.

Jaati Symbols

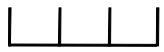
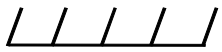
Jaati	Symbol	Description
Tisra		Slanted line towards left drawn below letter
Chatasra		Vertical line drawn below letter
Khanda		Slanted line towards right drawn below letter
Mishra		Curved line towards left drawn below letter
Sankirna		Curved line towards right drawn below letter
Ekadash		Two curved lines towards left drawn below letter
Trayodash		Two curved lines towards right drawn below letter

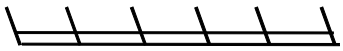
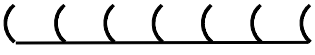
Laya Symbols

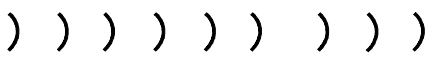
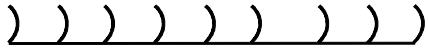
Laya	Symbol	Description
Half		Horizontal zigzag line between BolJaati lines
Normal		One horizontal straight line between BolJaati lines
Double		Two horizontal straight lines between BolJaati lines
Triple		Three horizontal straight lines between BolJaati lines
Quadriple		Four horizontal straight lines between BolJaati lines

Now let us use the Jaati and Laya Symbols in actual tabla writing. This consists of three steps. In the first step, we will write words. Secondly, we will draw BolJaati symbols and lastly we will draw horizontal lines for laya. Let us examine some examples.

Jaati and Laya Notations

Laghu	1	2 Laghus	3 Laghus	4 Laghus	5 Laghus
Jaati	Full Matra	Chatasra	Tisra	Chatasra	Khanda
Laya		Half	Normal	Normal	Normal
Step 1 Bols	Dha	Dha Ti	Dha Ge Na	Ti Naa Ki Naa	Dha Ti Dha Ge Na
Step 2 Jaati	No Symbol	Dha Ti 	Dha Ge Na 	Ti Naa Ki Naa 	Dha Ti Dha Ge Na 
Step 3 Laya	No Symbol	Dha Ti 	Dha Ge Na 	Ti Naa Ki Naa 	Dha Ti Dha Ge Na 

Laghu	6 Laghus	7 Laghu
Jaati	Tisra	Mishra
Laya	Double	Normal
Step 1 Bols	Dha Ge Na Dha Tr Ka	Dha Ge Na Ti Naa Ki Naa
Step 2 Jaati	Dha Ge Na Dha Tr Ka 	Dha Ge Na Ti Naa Ki Naa 
Step 3 Laya	Dha Ge Na Dha Tr Ka 	Dha Ge Na Ti Naa Ki Naa 

Laghu	9 Laghus	9 Laghus
Jaati	Tisra	Sankirna
Laya	Triple	Normal
Step 1 Bols	Dha Tr Ka Dhi Ki Tt Dha Ge Na	Dha Ti Dha Ge Na Ti Naa Ki Naa
Step 2 Jaati	Dha Tr Ka Dhi Ki Tt Dha Ge Na 	Dha Ti Dha Ge Na Ti Naa Ki Naa 
Step 3 Laya	Dha Tr Ka Dhi Ki Tt Dha Ge Na 	Dha Ti Dha Ge Na Ti Naa Ki Naa 

The above examples show how Jaati and Laya are symbolically written. The vertical lines (straight, slanted or curved) represent Jaati and horizontal lines represents Laya. As one can see, it is very easy and complete in all respect. In these examples, we have taken only one bol or letter for each laghu. Many a times there are more than one letter for a laghu. Letter like 'DhirDhir', 'KiTa', etc. are played at double speed within a matra while other laghu in the same matra is at normal speed. For example,

4 Laghus: Dha S TiRa KiTt

In this matra there are four laghus as Dha (¼ value), S (¼ Value), TiRa (1/8 value each making a total of ¼ value) and KiTt (together ¼ value). Here the symbol S represents empty space or Avagraha[4] or Vishram. In this particular matra, the first two letters as Dha and S are played at normal speed and last two letters TiRa and KiTt are played at double speed the keep the equal value of each laghu in a matra. This is shown in our notation system as follows.

[4] Avagraha or Vishram (Hindi word) means nothing is played in that time period. An empty portion of the composition.

Laghu	4 Laghus
Jaati	Chatasra
Laya	Mixed
Step 1 Bols	Dha S Ti Ra Ki Tt
Step 2 Jaati	Dha S Ti Ra Ki Tt | | | | | |
Step 3 Laya	Dha S Ti Ra Ki Tt ⌊ | ⌊‾‾‾‾⌋

The above example shows how easy it is to express two speeds within one note or matra. Not only it shows two speeds but it also shows where it starts and ends. This is very valuable for us.

Now, we will come to the last step where we need to write Bol Samuha in the phrase manner and not in broken form to show various matra. We will again take the Delhi Kayda example. Our basic Delhi Kayda “DhaTiTt DhaTiTt DhaDhaTiTt DhaGaTiNaaKiNaa" will be written in Pt. Bhatkhande Notation system as

DhaTiTtDha TiTtDhaDha TiTtDhaGa TiNaKiNa

Our challenge is to write it in the same phrase manner in which we are going to do Padhant or remember it as

DhaTiTt DhaTiTt DhaDhaTiTt DhaGaTiNaaKiNaa

In addition, we must show matra location correctly. It will be done per following example.

TeenTaal 4 | 4 | 4 | 4 | 16 Matra x 2 + 3	Delhi Kayda	Band Baaz
Step 1 Bols	Dha Ti Tt Dha Ti Tt DhaDha Ti Tt Dha Ga Ti Naa Ki Naa	
Step 2 Jaati	Dha Ti Tt Dha Ti Tt DhaDha Ti Tt Dha Ga Ti Naa Ki Naa	
Step 3 Laya	Dha Ti Tt Dha Ti Tt DhaDha Ti Tt Dha Ga Ti Naa Ki Naa	

Now one can clearly see Four different Matras (Step 3) and see that we have not broken the Bol Samuha. This is also very important feature of this system. Now let us write this Kayda with one Palta using all symbols together.

TeenTaal 4| 4| 4| 4| 16 Matra x 2 + 3	Delhi Kayda	Band Baaz

Base CH

Dha Ti Tt Dha Ti Tt DhaDha Ti Tt Dha Ge Ti Naa Ki Naa

X

Ta Ti Tt Ta Ti Tt Ta Ta Ti Tt Dha Ge Dhi Naa Gi Naa

2

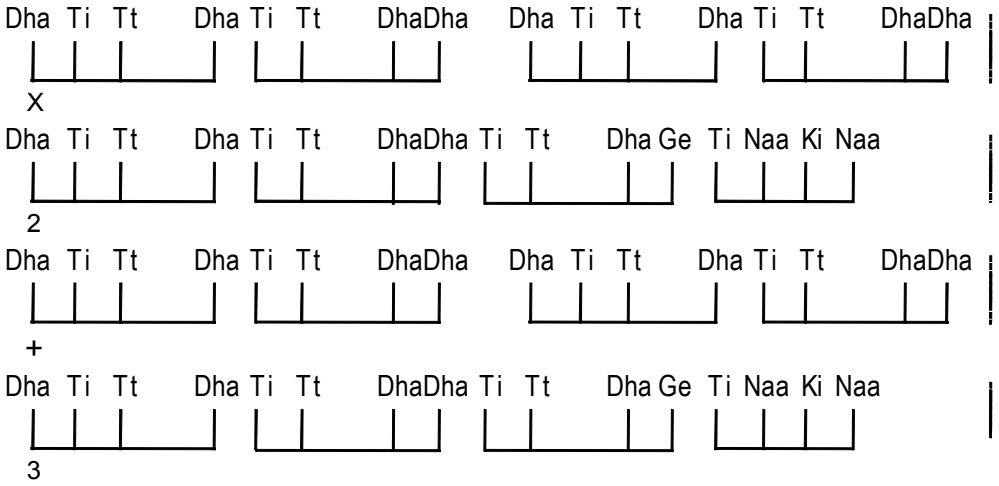
Dha Ti Tt Dha Ti Tt DhaDha Ti Tt Dha Ge Ti Naa Ki Naa

+

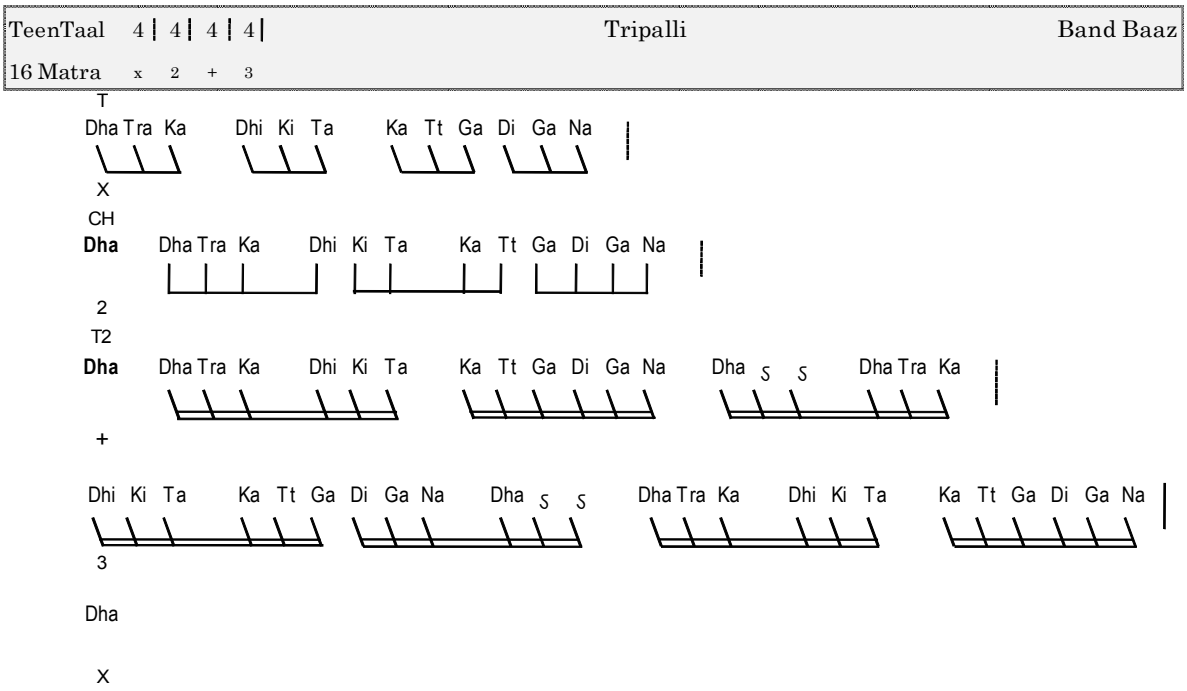
Ta Ti Tt Ta Ti Tt Ta Ta Ti Tt Dha Ge Dhi Naa Gi Naa

3

Palta 1



Now let us take an example of Tripalli, which clearly shows the three laya conspicuously.



Now lastly we will take a complicated example of a Choupalli[5]. This choupalli is given in the books as follows:

(DhaGaS̱TaKiTt DhaGeTiRaKiTt DhaTraKaDhiKiTt KaTaGaDiGaNa DhaS̱)4

In some books, it is given four times as follows.

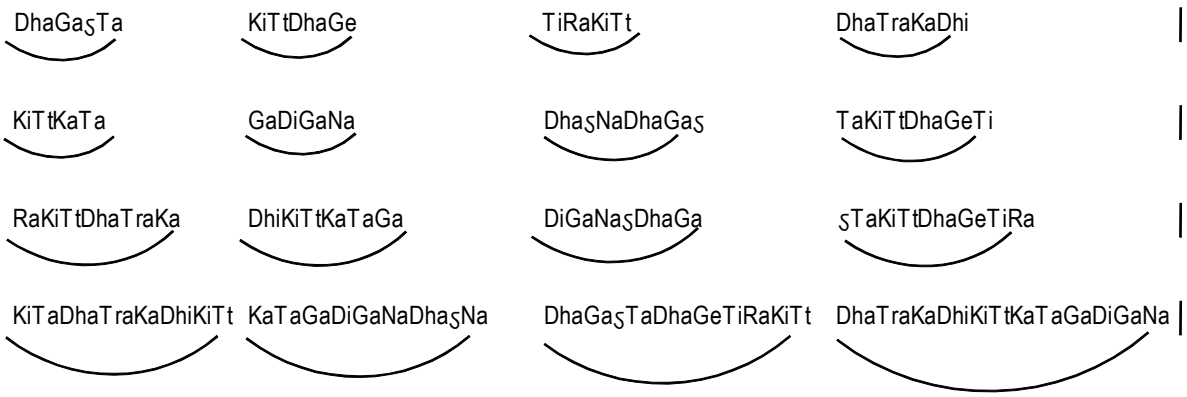
DhaGaS̱TaKiTt DhaGeTiRaKiTt DhaTraKaDhiKiTt KaTaGaDiGaNa DhaS̱

DhaGaS̱TaKiTt DhaGeTiRaKiTt DhaTraKaDhiKiTt KaTaGaDiGaNa DhaS̱

DhaGaS̱TaKiTt DhaGeTiRaKiTt DhaTraKaDhiKiTt KaTaGaDiGaNa DhaS̱

DhaGaS̱TaKiTt DhaGeTiRaKiTt DhaTraKaDhiKiTt KaTaGaDiGaNa DhaS̱

If an author of the books takes an extra effort to write it down in Pt. Bhatkhande system it will appear as follows.



As you can see the word group is broken and that is not what we say while doing Padhant or speaking. Besides one does not know Jaati and laya of the choupalli. It does not show four layas at all as the name suggest. One does not the laghus and its value. In Pt. Paluskar system, it will be written as follows.

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[5] Choupalli (Hindi Word). It is very similar to Tripalli, but here the composition has Four different layas or speed.

DhaGaSTaKiTt DhaGeTiRaKiTt DhaTraKaDhiKiTt KaTaGaDiGaNa DhaSNa

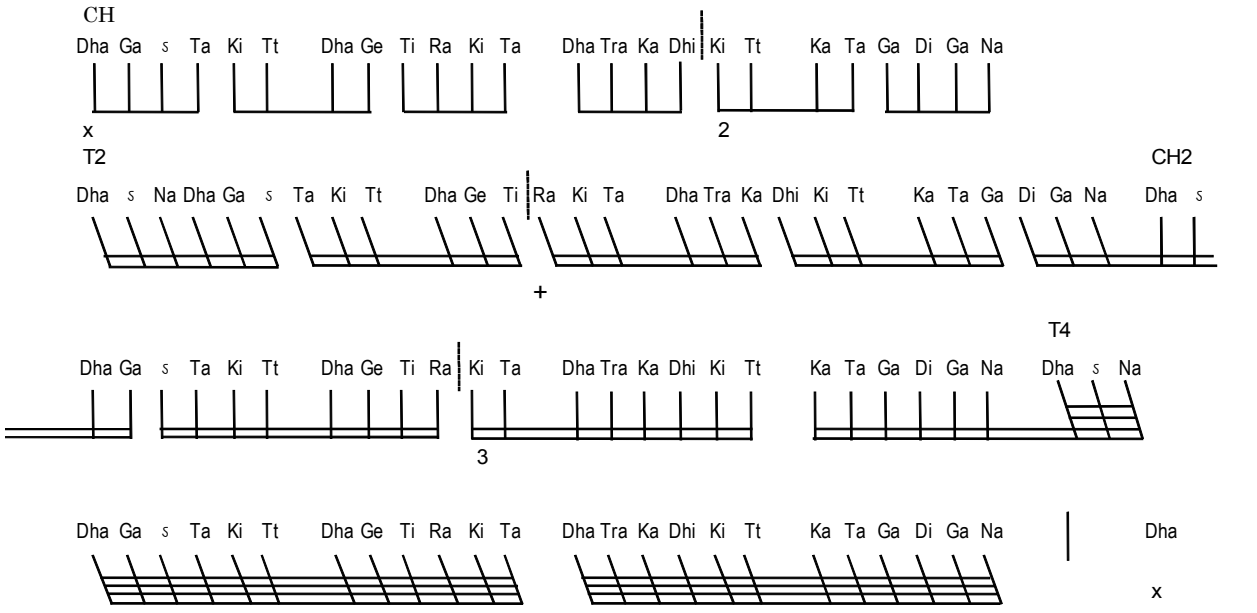
DhaGaSTaKiTt DhaGeTiRaKiTt DhaTraKaDhiKiTt KaTaGaDiGaNa DhaS

DhaGaSTaKiTt DhaGeTiRaKiTt DhaTraKaDhiKiTt KaTaGaDiGaNa DhaSNa

DhaGaSTaKiTt DhaGeTiRaKiTt DhaTraKaDhiKiTt KaTaGaDiGaNa DhaSNa |

Here one does not know where the matra starts and ends. One has to keep counting each laghu and when this choupalli is in quadruple laya, there are no symbols in the notation system. All these deficiencies will overcome in Kal-Akshar system as follows.

Teen Taal 4	4	4	4		Band Baaz
16 Matra x 2 + 3		Choupalli			



Here each matra is clearly shown, the word group is not broken, and the Jaati and laya are clearly seen. Besides 11th and 14th matra has mixed boljati, which is obviously, seen. The original structure of the composition is shown as it is. None of the traditional notation system is capable of showing this. As such, Kal-Akshar notation system is perfect in all respect.

Advantages and Disadvantages of the Kaal-Akshar Notation System

As we know and acknowledge that Pandit Bhatkhande and Pandit Paluskar notation system for Tabla are incomplete. We have eliminated all the lacunas of those two system as well added so many features that this is an independent notation system by itself and that too complete in all respect. Let us see its advantages and disadvantages.

Advantages.

1. Taal and its distribution are given in the beginning.
2. Name of composition (bandish), its gharana, Khula or Band Baaj is given.
3. Composition's Jaati is right on first matra and at locations where it changes Jaati or Laya (speed), a very important feature.
4. Taali and Khaali, etc. Taal characteristics are shown.
5. It shows where Matra starts and ends
6. One does not need to count laghus to determine its Jaati or speed as it is graphically shown.
7. Various laya within a matra can also be shown.
8. No breaking of Bol Samuha, thus one will play it by phrase (the way it should be).
9. Easy to do Padhant (remembering).
10. It will keep the originality of the bandish (composition).

Disadvantages

1. It takes time to accept and get used to, to the new system. This time depends on one's understanding of the subject and his knowledge. This time can vary individually. Some may find it little complicated. It should be noted that we have not used even 1/10th of the number of symbols present in the western musical notation system (which is very popular).
2. Some may find that it takes too long to write. Since we have added how the strokes are played, it will take time in the beginning.

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Part II

In the next part, we will see how to notate the Akshar. There is a difference in saying (Padhant) and playing it on tabla. The words like DhiKiTt are played as DhiTiTt. The letter Tt is played differently in TiRaKiTt and TiTt or the word group DhirDhir is actually played as DhirTir on tabla. All these can be shown by using symbols, which is explained in the next part. Even without Akshar symbol, the notation system is complete in all respect and can replace traditional Pt. Bhatkhande and Pt. Paluskar notation system.

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Hindi Words used in the Article

Avagraha	Rest position
Avartana	One complete cycle of Taal. For example when all 10 matras are played in Zap Taal it is said to have completed one Avartana or cycle.
Baaj	The way of playing Tabla
Band Baaj	Specifically Delhi Gharana style, having sharp and close strokes on tabla
Bandish	Composition
Barabar Laya	Same as Thhaya Laya or the base laya.
Bee-Aaad	One and Three-Fourth speed than Thhaya laya
Bol	Letter that is played on Tabla
Chatasra Jaati	Four laghus in one Matra
Chougun	Quadruple speed than Thhaya laya
Dedi (Dedhi)	One and Half speed than Thhaya laya
Dugoon	Double speed than Thhaya laya
Ekadash	Eleven laghus in one Matra
Jaati	Caste of the Composition
Kayada	The basic concept of Tabla playing
Khaali	No Clap: This is shown by having palm of the hand shown in reverse direction of clap.
Khanda Jaati	Five laghus in one Matra
Khula Baaj	Banaras Gharana style, having open and bass mixed strokes.
Ku-Aaad	One and Quarter speed than Thhaya laya

Laghu	Sub-part of Matra like half note (minim). In this system we can have from 1 to 16 lughus or sub parts of a Matra or full note.
Laya	Speed. It is the constant time between two matras. Laya is normally Vilambeet (Slow), Madhya (Medium) or Drut (Fast). From the base laya (which is usually vilambeet or Madhya-vilambeet), one has to determine its base speed, which is called as Thhaya Laya or Barabar.
Matra	Full Note in a time scale
Meend	Stokes on Bayan having bass mixed sound
Mishra Jaati	Seven laghus in one Matra
Sam	The first matra of the Taal.
Taal	Rhythamic pattern of notes and beats having definite structure
Taali	Dictionary Meaning: Clap. Though we usually clap at Taali, one has to understand the concept behind it. Each Taala has a definite structure. Taal is divided into Vibhag (Sub-parts). Each Vibhag either begins with Taali (clap) or Khaali (no clap) depending on the Varna or Bol or Letter associated with that note.
Thhaya Laya	The base laya.
Tigun	Triple speed than Thhaya laya
Tisra Jaati	Three laghus in one Matra
Trayodash	Thirteen laghus in one Matra
Tripalli	Composition having three different speeds
Varna	Same as Bol
Vibhag	Sub-part of a Taal. For example, Teen Taal (total 16 matra) has 4 Vibhag of 4 Matra each; Zap Taal (total 10 matra) has 4 Vibhag of 2, 3, 2 and 3 Matra each.