International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

Projection Based Text Line Segmentation with a Variable Threshold on Various Projection Plane

Prof. S. J. Vansadiya

Assistant Professor, Department of Mechanical Engineering,
Birla Vishvakarma Mahavidyalaya Engineering College,
Vallabh Vidyanagar, Anand, Gujarat, India

Abstract: ***Projection of Line is very imported in Engineering Graphics. A straight line is the shortest distance between two points. Position of Straight Line in space can be fixed by various combinations of data like distance of its end points from reference planes, inclinations of the line with the reference planes, distance between end projectors of the line etc.in This we see the different position of line like: (a) vertical line perpendicular to HP & parallel to VP, (b) line parallel to both HP & VP, (c) line inclined to HP & parallel to VP, (d) line inclined to VP & parallel to HP, (e) line inclined to both HP & VP .***

Keywords: projection of line, document recognition, handwriting processing, engineering drawing, line inclination

1.Introduction

In Projection of line image segmentation is an important problem in document recognition. This concerns both machine writing and hand drawing. However, other Problems are encountered in both cases. Multi-position of line layouts and multi-line text are often used in printed documents. This kind of documents has multi-skew text and a combination of text and images. These problems are typically not present in handwritten documents, because they represent often a one-page document template. The main challenge in handwritten documents is different: variation of the text skew in each text line, while the most important one is touching and overlapping text-line elements between neighboring lines. Furthermore, single words or short text lines may appear between the principal text lines. Their use in the processing of handwritten documents has been ineffective. Hand writing processing and pattern recognition may consist of Projection line of several stages: (a) wright given documents as one side as in 12^{th} standard physic problem we solved.

As per interpretation [θ = TL inclination with HP, φ=TL inclination with VP, α = FV inclination of line with HP, β = TV inclination of line with VP, distance between end projector means horizontal distance between vertical line aa' & bb ', always for getting TL of line we make FV OR TV horizontal to xy line [i.e. Take a' as centre & radius = a'b' make arc on Length of FV, it gives TL in TV. Lastly, we see the meaning of other data like: TL = True length of line, HP =horizontal plane, VP = vertical plane.

2.Literature Survey of Projection of Line

In any Engineering drawing book Projection line is explained very critical way so student could not understand properly although he knows everything but could not solve problem very fast & accurate way and ultimately exam is the time process so at the time of exam student lost the problem of projection of line because he could not understand that what he took first to solve the problem of projection of line. He knows the projection of point but in other data like apparent inclination of line he could not understand but it is F.V. inclination with HP & T.V. inclination with VP. Similarly other thing like distance between end projectors means vertical distance between line a'a & b'b.

3.Process of Drawing

In Engineering Drawing, we sole very easy way of projection of line problems like the we solved problem in 12^{TH} standard physics problem. i.e.

Stage: 1 by interpreting data from given problem wright one side of problem like in 12^{th} standard we solved problem of physics.

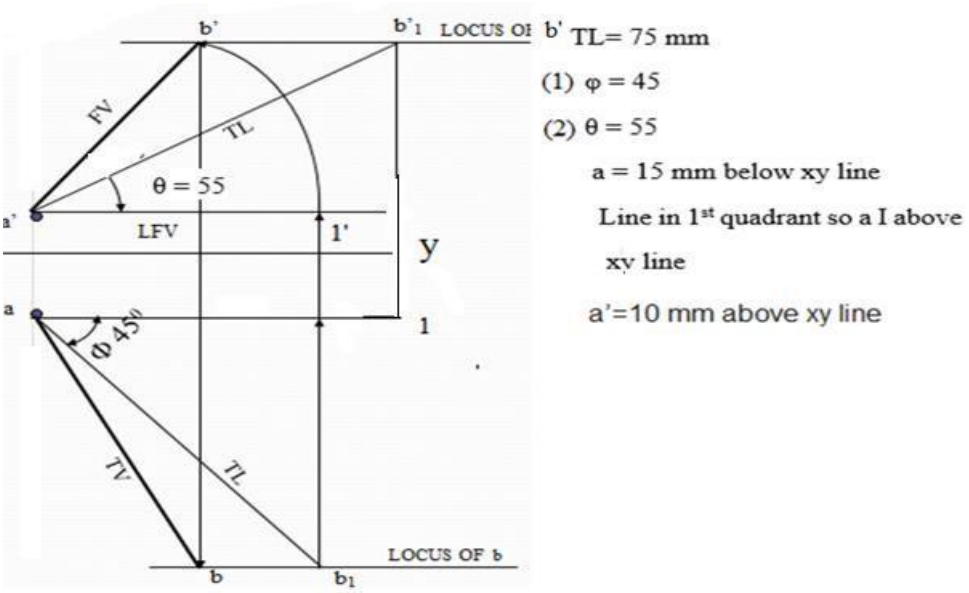
Stage: 2 from data written at one side from interpretation we start to drawing like 1^{st} we draw the projection of point location like above HP. than from other data we continue drawing.

Stage: 3 from require data we try to guess for answer by applying all information us. So, this way we sold any critical problem of Projection of line.

Let us start with taking any simple problem.

[A] Line AB 75mm long makes 45° inclination with V.P. while its F.V. makes 55°.End A is 10 mm above H.P. and 15 mm in front of V.P. If line is in First quadrant draw its projections and find it's inclination with HP.

Solution.

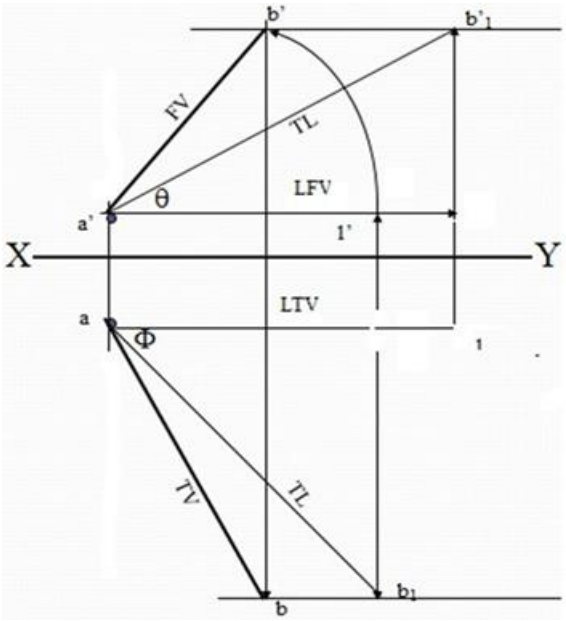


Steps:(1) Draw x-y line. (2) Draw one projector for a' & a, (3) Locate a' 10mm above x-y &TV 15 mm below xy.(4) Draw a line 45° inclined to xy, from point a and cut TL 75 mm on it and name that point b_1 Draw locus from point. b_1 (5) Take 55° angle from a' & locate B'1 AT 75 mm for F.V. above xy line. (6) Draw a vertical line from b_1 up to locus of a and name it 1. It is horizontal component of TL & is LFV. (7) Continue it to locus of a' and rotate upward up to the line of F.V. and name its b'. This a' b' line is F.V. (8) Drop a projector from. b' on locus from point b1 and name intersecting point b. Line a b is T.V. of line AB. (9) Draw locus from b' and from, a' with TL distance cut point b (10). Join a' b1' as TL and measure its angle at a'. It will be true angle of line with H.P.

Similar way we solve so many problems. Let us see other problems.

[B] Line AB is 75 mm long. It's F.V. and T.V. measure 50 mm & 60 mm long respectively. End A is 10 mm above H.P. and 15 mm in front of V.P. Draw projections of line AB if end B is in first quadrant. Find angle with H.P. and V.P.

Steps: (1) Draw xy line (2)Locate a' 10 mm above xy and a 15 mm below xy line.(3)Draw locus on these points.(4) Cut 50 mm distance on locus of a' & mark 1' on it as it is Length of FV .(5)Similarly cut 60 mm on locus of a and mark point 1 as it is Length of TV.(6)From 1' draw a vertical line upward and from a' taking TL (75mm) in compass, mark b'1 point on it. Join a' b'1 points. (7) Draw locus from (8) With same steps below get b1 point and draw also locus from it. (9) Now rotating one of the components i.e. a-1 locate b' and join a' with it to get F.V. (10) Locate TV similarly and measure Angles b'1



a '= 10 mm above xy line
a = 15 mm below xy line
LTV =60 mm
LFV = 50 mm
TL =75 mm

[For HT {horizontal trace} & VT {vertical trace}: H.T is always on T.V. & V.T. always on F.V.

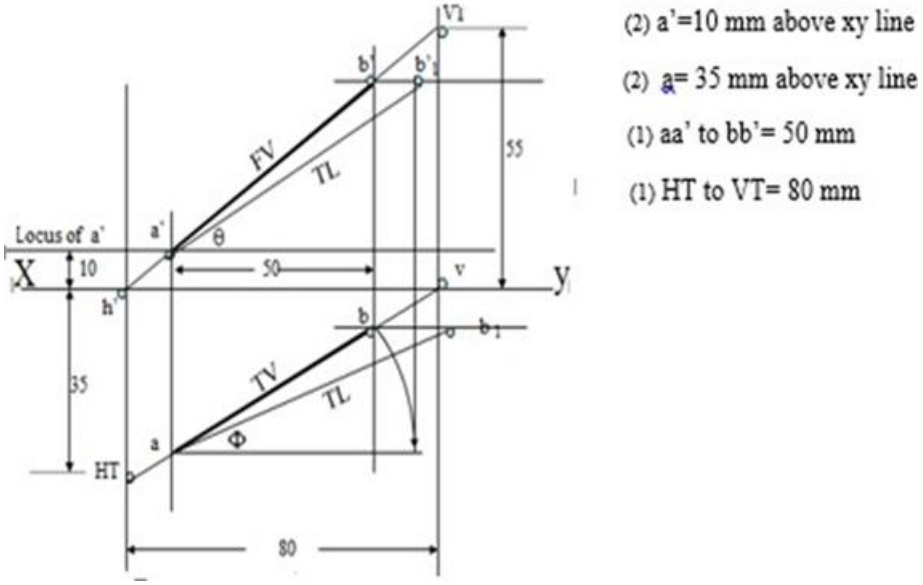
So, for

(a) H.T. firstly we extend **F.V up to xy Line name that points h '&** from that point h' draw straight vertical line & get intersecting point by extension line of T.V. similarly for(b) V.T. Firstly you get point **v** than get point by intersection of straight vertical line of FV]

Let us see one critical problem of real life

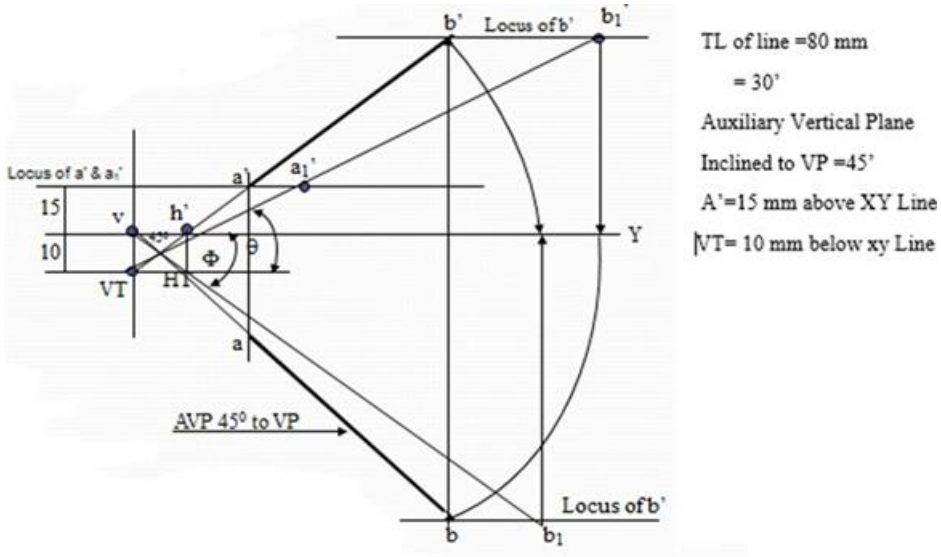
[C] Projectors drawn from HT and VT of a line AB are 80 mm apart and those drawn from its ends are 50 mm apart. End A is 10 mm above H.P. & is 35 mm in front of VP. End B is 10 mm in front of VP & F. V makes angle 45' to HP. Draw the projections of line & locate traces and find TL of line & inclinations with H.P. and V.P.

Solution

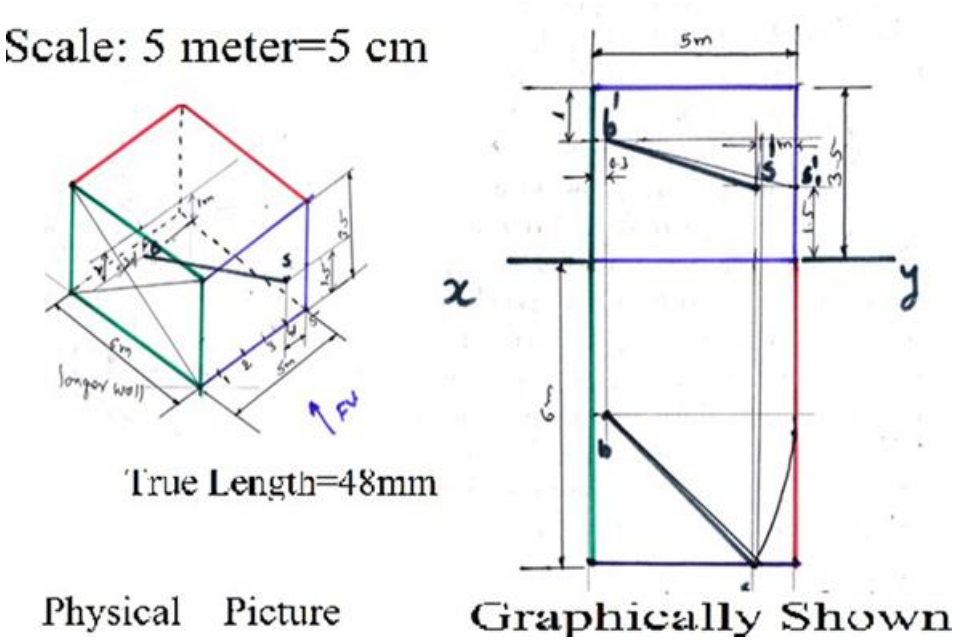


[D] Line AB 80 mm long, makes 30' angle with H.P. and lies in an Aux. Vertical Plane 45' inclined to V.P. End A is 15 mm above H.P. and VT is 10 mm below X-y line. Draw projections, fine angle with V.P. and H.T

Solution.



n[E] A room is 6m x 5m x 3.5 m high. An electric bracket light is above the centre of the longer wall and 1 m below the ceiling. The bulb is 0.3 m away from the wall. The switch for the light is on an adjacent wall, 1.5m above the floor and 1m away from the other longer wall. Find graphically the shortest distance.



References

[1] Engineering drawing by Ps. Gill, https://library.niti.gov.in/cgi-bin/koha/opac-detail.pl?biblionumber=73142&shelfbrowse_itemnumber=83705
[2] Engineering drawing by K Venkata Reddy, https://ia800105.us.archive.org/0/items/TextbookOfEngineeringDrawing_201802/Textbook%20of%20Engineering%20Drawing.pdf
[3] Engineering drawing by: Dr. Mohamed Othman Ibrahim, https://www.scribd.com/document/618500837/Engineering-Drawing-Book-2022-2023-1st-Term-2
[4] Engineering drawing by: Er. C.S. Baladhiya, https://agrimoon.com/wp-content/uploads/Engineering-Drawing.pdf
[5] Engineering drawing by MRCET College of Engineering, https://mrcet.com/downloads/digital_notes/HS/R20/ENGINEERING%20GRAPHICS.pdf
[6] Engineering drawing by ND Bhatt, https://ggnindia.dronacharya.info/Downloads/Sub-info/ME-RAA/ENGINEERING
[7] Engineering drawing by R K Dhavan, https://www.goodreads.com/author/list/14595190.R_K_Dhawan
[8] Engineering Drawing by S R SINGHAL & OP SAXENA, http: ISBN: 978-81-7317-563-3. A Textbook of Engineering Drawing.
[9] Engineering Drawing by Dr. C. Muraleedharan, https://nitc.ac.in/imgserver/uploads/attachments/Ed5c3343c5-c3f9-468a-b114-8f33556810b4_.pdf