Al-Shahrabi A.M., Kirsanov M.N.

Line of influence of the deflection for cantilever truss

НИУ МЭИ, г. Москва

Lines of influence deflection truss required to determine the deflection of the structure at an arbitrary load. For a truss with cross bars (Fig. 1) an analytical expression of the influence line for any number of panels is unknown.

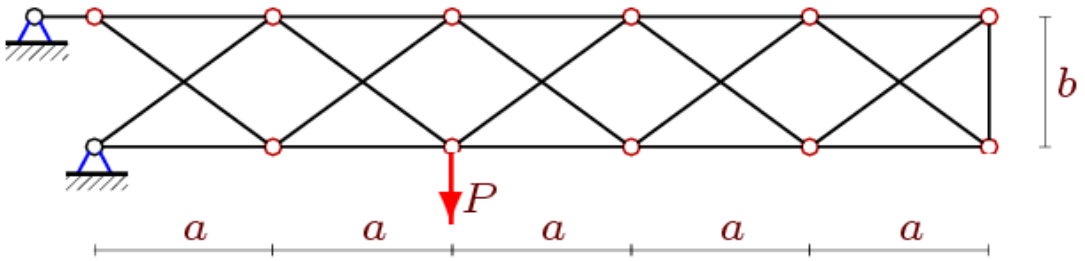

Fig. 1. Truss, $n = 5$, $i = 2$

Previously similar statically determinate plane [1-5] and space trusses [6] obtained the exact expression for the deflection on the basis of induction. Here the task is complicated by the fact that induction should be carried out by two parameters – the number of panels and the number of the loaded assembly. Solution of the problem begins with the finding the analytical expressions for the forces in action on the truss the unit forces at the end of the console, where the deflection is determined , and at the node number i of the lower belt. The calculation is made by cutting out the nodes using a system of computer mathematics *Maple*. To determine the deflection the Mohr's integral is used. In the course of the decision is necessary to solve the recurrence equations. The is a special package *genfunc* and operators *rgf_findrecur* and *rsolve* in the system *Maple* for this purposes. First operator found the recurrence equations on the sequences of coefficients of factors in the solution, the second – solves this equation is the general terms of the sequences. These coefficients form the desired analytical solution. Solutions performed in numerical mode of the program solves much faster than symbol one. As a result, we obtained the following formula $\Delta_{(i,n)} = P(A_{in}a^3 + B_{in}b^3 + C_{in}c^3)/(EFb^2)$, where $c = \sqrt{a^2 + b^2}$, EF – rigidity of the rods, and the coefficients are of the form:

$$A_{in} = 2n - 1 + \sum_{j=3}^{i}\left[(2n-1)\left(j - 1 - \left(\frac{1-(-1)^j}{2}\right)\right) - \left(j - 1 - \left(\frac{1-(-1)^j}{2}\right)\right)\left(j - 2 - \left(\frac{1-(-1)^j}{2}\right)\right)\right],$$

$$B_{in} = \left(\frac{1+(-1)^i}{2}\right)\left(\frac{1-(-1)^n}{2}\right), \; C_{in} = \left(\frac{1+(-1)^i}{2}\right)n + (i-1)\left(\frac{1-(-1)^i}{2}\right).$$

Using linear problems of stress, deflection of the console from the action of any load is easy to find by summation. Since the deflection of a uniform load P in half the length of the console is determined by the formula $\Delta^{(1/2)}{}_n = P\sum_{i=2}^{n/2}\Delta_{(i,n)}$. Similarly, the deflection is determined by a unevenly distributed load: $\Delta^{(P_i)}{}_n = \sum_{i=2}^{n/2}P_i\Delta_{(i,n)}$, where P_i – the load on the node i.

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Samatova G.N.
Using Native Language in the English Classroom

Samarkand State Institute of Foreign Languages

There have always been contradicting views about whether to use the mother tongue of the students in the foreign language classroom. The monolingual approach suggests that the target language ought to be the sole medium of communication, implying the prohibition of the native language would maximize the effectiveness of learning the target language.

A proponent of the monolingual approach, Krashen has argued that people learning foreign languages follow basically the same route as they acquire their mother tongue, hence the use of the mother tongue in the learning process should be minimized .Authors of some introductory books on teaching EFL, such as Haycraft, Hubbard, and Harmer, do not address this issue or pay very little attention to it. This suggests either the mother tongue does not play an important role in foreign language teaching or the issue of native language use does not exist in the classrooms of these authors, since most of them are native speakers of English accustomed to working with multilingual groups of students. Professionals in second language acquisition have become increasingly aware of the role the mother tongue plays in the EFL classroom. Nunan and Lamb, for example, contend that EFL teachers working with monolingual students at lower levels of English proficiency find prohibition of the mother tongue to be practically impossible. Dörnyei and Kormos find that the L1 is used by L2 learners as a communication strategy to compensate for deficiencies in the target language. Auerbuch not only