Actuarial Society of India

Examinations

November 2005

SA4 – Pension & Other Employee Benefits

Indicative Solutions

Note: It is realized that there could be other points correct with reference to the question and Examiners need to take that in to account while awarding marks.

Q.1) An Enterprise employing about 10,000 employees is operating as a company under Indian Companies' Act 1956 and has been in operations for the last about 15 years. Besides Statutory Employee Benefits of Provident Fund and Gratuity under Payment of Gratuity Act, which is funded, it has an approved superannuation scheme of DB type. You are advisor to the Enterprise on all Employee Benefits matters including actuarial valuation for reporting in financial statements and funding. In the context of recent developments on various aspects of employee benefits you have been asked by the Enterprise to prepare Notes on the following aspects expected to facilitate management understanding and necessary decision. Please draft such a note;

a. Key differences between AS 15 and AS 15 (Revised, 2005) and the impact which AS 15 (Revised, 2005) will have on financials of the Company in P&L A/C expensing and Balance Sheet disclosure, if the Enterprise were to move over to AS 15 (Revised, 2005) reporting for DB schemes.

(15)

Key differences between AS 15 and AS 15 (Revised, 2005), referred to as AS 15 (R) herein after:

i) AS 15 (R) is more prescriptive. It prescribes the actuarial method and bases to be used for valuation of assets and liabilities. AS15 specifies neither the actuarial method nor the bases to be adopted.

ii) AS 15 leaves the method and basis to be decided by the actuary whereas under AS 15 (R) the "Enterprise" has to decide the bases unless specified otherwise. In general the responsibility for the assumption setting is on the Enterprise and the actuary has an advisory role.

iii) The disclosure requirements under AS15 (R) are much more elaborate as compared to AS15.

(3)

Impact on company accounts due to moving to AS 15 (R):

AS 15 and AS 15 (R) are similar in following aspects:

i) The scope of both the standards is same i.e. it covers statutory and voluntary benefits under formal agreements, whether funded or unfunded.
ii) Both are balance sheet driven.
iii) Both don't allow any spreading.
iv) There is immediate recognition of liability due to benefit improvement and actuarial losses/gains in the profit & loss account.

Therefore, there will be no impact so far as above aspects are concerned, except greater level of disclosure.

(4)

However, AS15 does not prescribe the actuarial method and bases to be adopted. The ASI has therefore prescribed the method and bases vide its Guidance Notes.

GN11 prescribes the actuarial method as **projected unit method**

(1)

GN 12 prescribes the following basis on assumption setting:

- **Discount rate** : Gross Redemption Yield (GRY) on 20 year government security plus 2%
- **Salary escalation** : Discount rate less 4%
- It also prescribes **annuity rate**, **escalation rate** (for index-linked pensions)
- Other assumptions in respect of **withdrawal**, **mortality**, **morbidity** are left to the actuary to assume.

(3)

On the other hand AS 15 (R) prescribes **projected unit method** to be used.
Further, it also prescribes discount rate equal to the yield on G-sec of term similar to liabilities. Other assumptions are to be decided in consultation of the reporting entity referred to as the Enterprise.

(1)

- In view of the above, so far as valuation is concerned, the actuarial method is not going to change.

(1)

- However, discount rate after implementation of AS 15 (R) may probably be lower. It may increase the liabilities and hence the cost of benefits for accounting purposes.

(1)

- Other assumptions are not prescribed. Their financial may be on either side..

(1)
[15]

b. The consequences of Fringe Benefit Tax on Superannuation scheme contribution to the Enterprise and alternatives that could be available if it were to avoid paying the Fringe Benefit Tax but still would want to pay to the employees the cash equivalent of contribution.

(15)

The taxation aspects under approved superannuation funds in pre -FBT regime are as under:

Elements	Employer	Employees
Contribution	Treated as business expense with a cap of 15% of the salary (27% for PF + Superannuation)	Not treated as perquisites and hence not taxed
Investment Income of the Fund (assets are regulated)	Tax free	Tax free
Benefits – commutation	-	Tax free
Benefits –	-	Treated as taxable income

annuity/pension		

(1)

Effect of FBT:

i) 30% of the contribution, say 15% of the salary, i.e. 4.5% of the salary is on the employer.
ii) All other aspects for the employer remain unchanged
iii) Employees are not affected.

(1)

Issues and implications:

Case 1: Existing Superannuation Funds (DB or DC or hybrid) :

Issues: additional tax @ 30.00% of the contribution. Will affect the financials i.e. it will reduce profits or if marginally profitable then losses

Options available to employers

(1)

1. Do nothing

Implications for the employer : Bear additional FBT burden

(0.5)

2. Close the existing pension scheme for future contributions and pay cash allowance to the extent of existing contribution :

(0.5)

Implications for the Employer:

i) Saving on FBT
ii) Approval required from Income Tax authorities for closing the scheme/fund to future contributions
iii) Issues : HR and procedural consequential to the decision to close the fund to future contributions.

(1)

Implications for the employees:

i) The cash allowance is taxable, hence net gain is less than the amount of contribution
ii) No benefit of tax-free investment accumulation
iii) No benefit of tax-free commutation lump sum amount
iv) The employee is free to utilize the amount in any manner

(1)

What should an employer do?

i) Depends on his financial condition
ii) Depends on employees' attitude; if young then may prefer to take cash rather than wait for pension

(1)

Case 2: Employer having an approved superannuation fund under section 35 of EPS 95

Issues:

i) All consequences of case 1
ii) If not having exemption then under EPS '95 and contribution not under FBT

(1)

Case 3: Start-up companies or companies not having any superannuation arrangement but wanting to do so :

(1)

Options available to employer;

1. Offer the pension benefits under an approved superannuation fund and pay FBT on the contribution (DB or DC)
2. Pay cash allowance equal to the intended contribution with the upper cap of 15% with implications for the employees as under ;

i) The cash allowance is taxable, hence net gain is less than the amount of contribution
ii) No benefit of tax-free investment accumulation
iii) No benefit of tax-free commutation lump sum amount
iv) The employee is free to utilize the amount in any manner

(2)

Alternative/s to approved superannuation fund:

1) Have a superannuation fund but not an approved one –

- The contribution though may be allowed as an expense for P/L (under AS 15) may not be allowed as such for Tax purposes
- The accumulations may be taxed and commutation may not be tax-free
- The contribution may still attract FBT under section 115WB (2) (E) of the Income Tax Act, 1961.

(1.5)

2) Have an unfunded, unapproved, though reserved superannuation scheme –

- Create a scheme applicable to all or specified class of employees
- The scheme has objective to purchase pension/annuities from insurer on exit from employment or to pay lump sum if the accumulation is small (a pre-determined limit).
- The scheme will be x% of the salary accumulated at y% to be available to pay lump sum or purchase annuity as the case may be

(1)

Implications for the Employer;

- No FBT, since no funding
- Need to be reserved for P/L and disclosed in the Balance Sheet
- As reserved and disclosed, will count as expense under AS 15

- Can easily be included in CTC for compensation counting
- Since not actually paid in the year of service, Income Tax may not allow as expense for tax computation, but when actually paid should then count as expense for income tax
- When paid will count as taxable and thus may not count as perquisite for employee tax in the year of service, when reserved

(1.5)
[15]

c. The Enterprise has decided to freeze the contribution to approved superannuation fund to which employees have agreed and have proposed to purchase instead annuities from life insurer for the contribution that the Enterprise has now agreed to pay them in lieu of the earlier superannuation rights. Such contribution rate is pre-determined as percentage of the salary. The Enterprise has proposed to continue your services as an actuary to help individual employees to achieve their target pensions combining the benefits under both the existing superannuation scheme and annuity schemes. You will, therefore, be monitoring the pension provisions of the individual employees from now onwards and submitting an annual report recommending the contributions required by concerned individual employees in order to achieve their target pension ;

i. List the main items of data you would need

(3)

Data required

Scheme level: Age of retirement **(0.5)**

Personal data:

- Date of birth
- Date of commencement of personal pension/annuity

(0.5)

Contribution data:

- Current level of contributions under existing superannuation scheme
- View of employee on maximum contributions that are affordable (or desirable in view of tax exemptions)
- View of employee on future pattern of contributions

(1.5)

Value of existing benefits:

- Value of benefits under existing superannuation scheme

(0.5)

Salary details:

- Current salary
- Expected future growth in earnings

(0.5)

Investment information:

- Historical investment performance
- Expected future investment performance
- Annuity rates, if guaranteed

(1.5)

Expense charging structure:

- Current level of charges
- Whether charges guaranteed. If not likely charges over next 5 year

(0.5)
[Max 3]

ii. **List the assumptions you would make and describe how you would arrive at such assumptions.**

(4)

Price inflation:
Consider:

- Current level
- Future outlook
- Policies of Central Government and Reserve Bank of India

(1.25)

Pre-retirement investment return:
Discuss with the employer and, if possible, with the employees in respect of investment strategy they would like to choose. If number of employees are not many, discuss with them individually otherwise in groups

(0.25)

Consider:

- Current level under different asset classes
- Investment strategy of underlying funds for different employees as per their choice
- Consistency with rate of inflation

(1.25)

Expenses:

- They may be allowed explicitly or by taking an arbitrary margin in the choice of interest rate.
- It is better to allow them explicitly

(0.5)

Consider:

- Present level of charges of insurance companies
- Investment choice of the employer/employees
- Likely increases in future

(0.75)

Salary growth:
Needs discussion with the employer and employees.

Consider:

- Present level of salaries
- Likely increases in view of discussion with employer/employees
- Consistency with inflation rate/pre-retirement investment return

(0.75)

Pre-retirement decrements:
It is better to assume withdrawal and mortality to be nil before retirement.

(0.25)

Dependants:
Better to assume on average basis, say, 85% 0r 90% have dependants at retirement. However, if the number of employees are very few, consider individual dependants.

(0.25)

Post-retirement investment return/mortality etc :
Either individual assumptions may be taken or likely annuity rates of life insurance companies as annuities will be purchased on retirement.

(0.25)
[Max 4]

iii. Describe your approach in helping individual employees in assessing the likelihood that they will be able to retire with their target benefits.

(5)

- The actuary should first consider the effect of investment strategy upto retirement of individual employees on their likely retirement benefits.

(0.5)

- At retirement the benefits will be commuted value (i.e. cash) and an annuity payable during life time of the concerned employee.

(0.5)

- In particular, we have to consider the effect of changes in asset values relative to
  - cash i.e. risk of fall in asset value at retirement and
  - annuity prices (i.e. the portion of the fund to buy an annuity) where the risk is of a change in asset value that differs to any change in the price of annuities.

(1)

- In other words, cash will be affected due to affect on market value of assets whereas annuities will be affected due to change in asset values relative to annuity prices.

(1)

- Gilts are expected to match changes in annuity prices, and

(0.25)

- Cash or very short-term investments offer no falls in market values

(0.25)

- However, equities are expected to provide higher return over the long term with volatility in market values.

(0.25)

- The investment strategy needs to be discussed with the employer and employees showing the likely effect of different approaches on target benefits.

(0.25)

- Different approaches may be:
  - Maintain 100% in unit-linked products of insurers upto retirement with majority held in equities, or
  - A gradual switch to a matched position at retirement which may be 33% cash and 67% in gilts, or
  - A variety of other approaches

(0.75)

- For each investment strategy, show the effect of variability in target benefits is a particular level (e.g. current one maintained) or the level of contributions needed to achieve these target benefits

(0.5)
[Max 5]

iv. **Discuss the applicability of GN14 of ASI under this case and summarise the points you would keep in mind while preparing the report.**

(8)

Applicability of GN 14

GN 14 is applicable where an actuary is providing an illustration of defined contribution benefits including defined contribution underpins and target benefit arrangements.

Under this case, the actuary has to provide illustrations under defined contribution scheme with target benefits.

GN 14 is, therefore, applicable under this case.

(2)

Points to consider while preparing the report

- It should be ensured that the illustration is presented to the ultimate recipient in a complete and balanced way.

  (1)
- The principal assumptions used are mentioned

  (0.5)
- There should be description or illustration as to how the result would differ if the assumptions are not borne out.

  (0.5)
- If the illustration shows different investment returns for different categories of investment, the relative risks of these different classes of investment should be explained.

  (1)
- Care should be taken to provide sufficient information so that employees are able to relate their benefits to their current income.

  (1)
- It should mention as to what level of future contributions/increases in future contributions have been considered.

  (1)
- The report should provide sufficient information to enable employees to understand the difference between defined benefit and defined contribution.

  (1)
- The illustration should show benefits separately from existing assets and from future contributions.

  (1)
- The report should include appropriate risk warnings and also an advice for monitoring the scheme benefits/contributions in future at regular intervals.

  (1)

[Max 8]

Q 2 A manufacturing company under Indian Companies Act 1956 is listed on New York Stock Exchange and besides having all statutory employee benefits has an approved superannuation scheme, Death-in-service benefits related to service and salary at the point of death and a post retirement health plan. The Gratuity scheme is funded. In

the context of required financial statements of the Company, prepare Notes explaining the following;

a. The applicable Accounting Standards and the body issuing the same.

(2)

The Applicable Accounting Standards and respective issuing body are;

1. *Accounting Standard 15 (AS 15) issued by the Institute of Chartered Accountants of India*
2. *Financial Accounting Standard 87 (FAS 87) issued by the Financial accounting Standards Board of US.*

b. General aims and objectives of the Defined Benefit Retirement schemes related accounting standards, explaining as to what problems might be caused if the amount of contributions that the company actually paid in to the Trust Funds were expensed as "cost" of the benefits in the Company's Financial statements.

(10)

Aims of accounting Standards: The aims of Accounting Standards is to ensure that in respect of Defined Benefit schemes the liabilities are disclosed to shareholders and potential shareholders in a manner that enables them to make informed judgments about the ownership of shares of the Enterprise. Accordingly Practice Standards are issued by Accounting body to ensure that Auditors and Actuaries are advised in respect of necessary disclosures in the financial statements.

(3)

Objectives of Accounting Standards: The Objective of Accounting Standards is to ensure that an accurate picture of the financial impact of the defined benefits scheme arrangements is provided. In order this to happen the expected cost of such benefits needs to be recognized and other relevant information disclosed in a systematic and rational way over the period the employer derives benefits from the employee's services. This allows the shareholders to gain a much better picture of the true finances of the Enterprise if they can investigate the realistic cost to the Enterprise of the Defined Benefit scheme being run.

(3)

Expensing contribution as cost of benefits: Before the Accounting Standards were introduced it was rather common for the contribution to a fund being taken as the cost for the year. The idea behind Accounting Standards is that the cost reported each year should be a realistic value of the benefits accruing net of employee's contribution, if any for the year. The amount of contribution, depending on the methodology of funding, may be quite different from the cost of accruing benefits for the year. Aside from the funding methodology chosen, the contribution is affected by reasons such as; cashflow problems, tax issues, surplus/deficit removal and the funding *basis having considerable margin (in assumptions) for prudence. Problems thus which might occur if contribution were to be taken as cost are;*

i. The Enterprise profit/loss would fluctuate with contribution changes which is not reflective of the accruing cost for the accounting year.

ii. The cost will be susceptible to manipulation for a desired level of profit/loss which may depress security of benefits to the employees.

iii. Different enterprises under the same circumstances will report different financials thus making comparison meaningless.

iv. Over rime funding methodology and underlying assumptions may change giving rise to misleading trends in profit/loss.

(4)

c. **For the purpose of financial statements required as a listing condition on New York Stock Exchange of the Company, define the following;**

i. Net Periodic Pension Cost including elements constituting it. (10)
ii. Projected Benefit Obligation (01)
iii. Accrued Benefit Obligation (01)
iv. Vested Benefit Obligation (01)

C (i) Net Periodic Pension Cost (NPPC) and its elements;

Under the applicable accounting standard, FAS 87 there are four elements to the NPPC;

i. Service Cost – the value of liabilities accruing over the year.
ii. Interest cost – the liabilities change due to removal of one year of discount.
iii. Return on Assets – the investment return achieved over the year of account.
iv. Amortisation – the year's part of spreading any gains and losses.

C (ii) Projected Benefit Obligation – past service liability including future salary growth.

C (iii) Accrued Benefit Obligation – past service liability without future salary growth.

C (iv) – Vested Benefit Obligation – vested past service liabilities.

d. From the financials of the Company given hereinafter, calculate stating assumptions, if any;

i. Net Periodic Pension Cost at the beginning of the year

(5)

ii. Actual Return on assets

(1)

iii. Net Periodic Pension Cost at the end of the year

(4)

The Financials;

- Standard Contribution Rate – 09.50 percent.
- Rate of actual contribution to be paid by the Employer – 10.00 percent
- Discount rate – 05.50 percent.
- Long-Term expected return of Assets – 07.00 percent
- Pensionable Payroll for the year – 1,250,000/-
- Expected Net Benefits Outgo – 100,000/-
- PBO at the beginning of the year – 1,300,000/-
- Value of Assets at the beginning of the year – 1,300,000/-
- Value of Assets at the end of the year – 1,450,000/-
- Past Amortised amount – Nil
- Contribution paid during the year – 165,000/-
- Net Benefit Outgo during the year – 120,000/-

d (i) -

Elements of NPPC	**Amount in 000**
Service Cost {0.095*1,250}	118.80
Interest cost{0.055*1,300+(1.055$^{1/2}$-1)*(0.095*1,250-100)}	072.00
Expected return on Assets {0.07*1,300+(1.07$^{1/2}$-1)*(0.10*1,250-1000)}	091.90
Amortisation	000.00
Net Periodic Pension cost {118.80+72.00-91.90+00.00	098.90

Assumtion:

The SCR is calculated using PUC method.

The benefit payments and company contributions are uniformly distributed through out the year.

d (ii) (amount in 000)

Actual Return on assets = 1,450-(1,300+165-120) = 105

d (iii)

Elements of NPPC	**Amount in 000**
Service Cost {0.095*1,250}	118.80
Interest cost{0.055*1,300+(1.055$^{1/2}$-1)*(0.125*1,250-100)}	073.00
Return on assets	105.00
Amortisation	000.00
Deferred Asset gain/loss	011.90
Net Periodic Pension cost {118.80+73.00-105.0+11.90+00.00	098.70

e. Describe the treatment of lump sum Death–in-service benefit for funding valuation. **(3)**

The death -in-service lump sum benefit is normally valued as a "risk premium". No allowance is made for it in the Actuarial Liability. The value of benefit if it were to become payable in the year following the valuation date , is added tp the cost of accrual of that year's pension benefits to give the total contribution rate to be paid in that year.

f. For the valuation of DB schemes of the Company in the context of Financial Statements as requirement of listing under New York Stock Exchange describe and explain the difference between "Discount rate" and "Long-term return on Assets".

(5)

Discount rate: The discount rate is used in calculating;

i. the past service liabilities,
ii. the service cost, and
iii. the interest cost

The discount rate should reflect the yields available at the (annual) measurement date to purchase annuities and have regard to returns on high quality fixed-interest corporate bonds of a suitable term. This rate should vary to reflect changes in market conditions.

Long-term return on assets: The Long-term return on assets reflects the average rate of future earnings expected on the fund allowing for the re-investment of future income. It should take in to account returns likely to be earned on the assets held and the current and future investment policy. This rate would be expected to be relatively stable from year to year. This is used to determine return on assets.

g. You are required to draft a Guidance Note for ASI for valuations carried out normally for reporting Enterprises in India such as the one described in this question under requirements of Accounting Standards applicable for listing in New York Stock Exchange. List and describe the key points to be included in the GN.

(7)

The required draft GN relates to GN 13 of ASI which covers following key aspects. Student is expected to capture most if not all the text of this GN.

1. Objective

This Guidance Note gives actuaries guidance on certain aspects of FAS 87 and FAS 88 as amended by FAS 32 and should be read in conjunction with these documents. Section 2 sets out the methodology in relation to specific calculations required for Retirement Benefit Schemes of accounting entities in India in connection with FAS 87.

2. Valuation Methodology

2.1 ***For arriving at the actuarial values of liability for the purpose of Financial Accounting Standard No. 87, actuary will adopt the methodology as applicable under the Projected Unit Credit Method as described in Para 3.6.1 of GN 11, for the calculation of PBO.***

2.2 ***In calculating the ABO and PBO it is necessary to include an allowance for the accrued portion of certain prospective benefits which are dependent on the member remaining in service for their payment but which are not directly attributable to accrued service – such as lump sums payable on death in service at a fixed multiple of salary and future notional years of service counting for ill health or death-in-service pensions. Thus, as indicated in FAS 87 paragraph 42(b), allowance should be made for the accrued portion of all these non-vesting-type benefits, even if they are insured by the plan concerned.***

2.3 ***To calculate the ABO, projections should be made which exclude allowance for prospective salary increases which the member may receive during service if they are dependent upon the member continuing in service (*).***

2.4 ***The Financial Accounting Standards Board adopted FAS 88 Employers' Accounting for Settlements and Curtailments of Defined Benefit Pension Plans and for Termination Benefits in December 1985. FAS 88 deals with the specific items named in its title and, where these circumstances arise, the pension information needed for the employer's financial statements is significantly different from that prescribed in FAS 87 which pertains to the routine events of an ongoing plan. The terms 'settlement' and 'curtailment' need to be interpreted according to the definitions given in FAS 88.***

(*)However, revaluation required under the plan (statutory or otherwise) related to external indices, such as national average earnings or prices, which are not dependent on the service of a member should be allowed whilst in service or after leaving e.g. D A relief, each company has different practice in relation to D A. However the result produced should give higher value than those calculated without allowing for D A increase.

3. Actuarial Assumptions

3.1 ***FAS 87 describes the method which the actuary is required to use to determine the various figures to be incorporated in the employer's accounts, and it also sets out the basis upon which the various assumptions to be used in his calculations are to be determined. It should be noted that the responsibility for setting these assumptions rests with the employer not the actuary, although this does not preclude the actuary from advising his or her client on the interpretation of FAS 87 and on the various assumptions, nor from commenting on any assumptions which the client may specify which he or she believes do not conform with the requirements of FAS 87.***

3.2 ***Paragraph 44 of FAS 87 describes how assumed discount rates are to be determined. The normal interpretation is that the rates shall be the nominal rates according to the criteria adopted. However, as per FAS 87 where a scheme provides increases automatically linked to the retail prices index, where the typical asset cover would be index-linked bonds and the annuity contracts for settlement would be index-linked contracts, it will be in order for the discount rate for calculating the service cost and the projected benefit obligation to be the real rate after allowing for price inflation. The equivalent nominal rates should be used for calculating the interest cost and the asset return. When this approach is adopted the fact that the discount rate is a real rate should be clearly stated. For disclosure to be made in financial statements pursuant to paragraph 5(j) of FAS 132 the***

equivalent discount and salary assumptions should be shown for that purpose in nominal terms(**).

3.3 ***FAS 87 paragraph 10 explains that suitable approximations may be made in applying the standard, 'provided the results are reasonably expected not to be materially different from the results of a detailed application'. Materiality is the responsibility of the employer and the auditor who will have regard to the aggregate accounts as well as the Indian component. Any questions of materiality should therefore be discussed with the client and the actuary should in all cases disclose the nature of any approximations made. This point is particularly relevant in connection with the frequency of valuations. When valuation data are not available annually, the actuary may make suitable approximations provided the client is fully informed and the client is satisfied that the effect of these approximations is not material. Materiality is further considered in Appendix A to FAS 132 (paragraph A51).***

3.4 ***It is the employer and the auditor who together determine whether an event is material to the extent that the provisions of FAS 88 must be implemented. (***)***

*****Most Pension schemes in India have to buy the annuity from approved insurer, and for the purpose of calculation of the pensioners liability such current rates have to be taken into account as there are immediate outflow from the fund, these rates may not be consistent with valuation assumptions and changes over a period of time. For calculation of liabilities of active member other rates consistent with valuation rates could be used.***

(***)A similar set of explanatory questions and answers has been published by the Financial Accounting Standards Board entitled 'A Guide to Implementation of Statement 88 on Employers' Accounting for Settlements and Curtailments of Defined Benefit Pension Plans and for Termination Benefits' FASB Staff Implementation Guides.

4. *Actuarial Gains and Losses*

4.1 ***FAS 87 provide an option to recognise actuarial gains and losses either: by following a 'Corridor Approach', which results in deferred recognition of the actuarial gains and losses, or immediately in the statement of profit and loss. It is left to the sponsor of the scheme to decide on this. Once the treatment of Actuarial Gains and Losses is determined, this can not be changed for subsequent accounting years.***

4.2 ***The results obtained for FAS 87 should not be taken for those required for any other purposes. Thus, it should be made clear to the client that figures produced for FAS 87 should not be regarded as valid for funding purposes or for statutory certificates required in India. Attention is drawn to the fact that the requirements of the Indian accounting standard, AS - 15, and the international accounting standard IAS19 are in general different from those of FAS 87.***

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