Lifecontingencies package numerical accuracy tests

Giorgio Spedicato

May 4, 2013

1 Introduction

This vignette shows numerical tests that compares lifecontingencies computations with figure shown in published textbooks. Yet very incomplete.

```
R> #load lifecontingencies package
R> library(lifecontingencies)
```

2 Actuarial mathematics

[1, p 111], whole life insurance., at 4%.

```
R> data(soa08Act)
R> #should be 0.01577285
R> Axn(soa08Act, x=30, n=10, i=0.04)
```

```
[1] 0.01577283
```

[1, p 111], variance of above mentioned insurance.

```
R> #should be 0.01247099
R> Axn(soa08Act, x=30, n=10, i=0.04,power=2)-Axn(soa08Act, x=30, n=10, i=0.04,power=1)^2
```

```
[1] 0.01247098
```

[1, p 112], A_{30}, at 6%.

```
R> #should be 102.4835
R> 1000*Axn(soa08Act, x=30,i=0.06)
```

```
[1] 102.4835
```

[**?**, p 437], $\ddot{a}_{50:\overline{20}|}$

```
R> #should be 0.01155
R> Axn(soa08Act, 50,20)/axn(soa08Act, 50,20)
```

```
[1] 0.0115451
```

References

[1] N. L. Bowers, D. A. Jones, H. U. Gerber, C. J. Nesbitt, and J. C. Hickman. *Actuarial Mathematics, 2nd Edition.* SOA, 1997.