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**page= 1 paragraph= 2 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='ON'**

**page= 1 paragraph= 2 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='SOFTWARE'**

**page= 1 paragraph= 2 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='ENGINEERING'**

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**page= 1 paragraph= 2 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='.'**

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page= 1 paragraph= 3 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='of'

page= 1 paragraph= 3 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='IBM'

page= 1 paragraph= 3 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='’'

page= 1 paragraph= 3 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='s'

page= 1 paragraph= 3 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='Santa'

page= 1 paragraph= 3 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='Teresa'

page= 1 paragraph= 3 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='Laboratory'

page= 1 paragraph= 3 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='during'

page= 1 paragraph= 3 sentence= 1 line= 2 word in sentence= 9 word in line= 0 text='the'

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page= 1 paragraph= 3 sentence= 1 line= 2 word in sentence= 13 word in line= 4 text='and'

page= 1 paragraph= 3 sentence= 1 line= 2 word in sentence= 14 word in line= 5 text='1983'

page= 1 paragraph= 3 sentence= 1 line= 2 word in sentence= 15 word in line= 6 text='.'

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page= 1 paragraph= 3 sentence= 2 line= 2 word in sentence= 1 word in line= 8 text='has'

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page= 1 paragraph= 3 sentence= 2 line= 3 word in sentence= 4 word in line= 2 text='in'

page= 1 paragraph= 3 sentence= 2 line= 3 word in sentence= 5 word in line= 3 text='switching'

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page= 1 paragraph= 3 sentence= 2 line= 3 word in sentence= 7 word in line= 5 text='automata'

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page= 1 paragraph= 3 sentence= 2 line= 4 word in sentence= 13 word in line= 5 text='operating'

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page= 1 paragraph= 3 sentence= 2 line= 5 word in sentence= 17 word in line= 1 text=','

page= 1 paragraph= 3 sentence= 2 line= 5 word in sentence= 18 word in line= 2 text='and'

page= 1 paragraph= 3 sentence= 2 line= 5 word in sentence= 19 word in line= 3 text='most'

page= 1 paragraph= 3 sentence= 2 line= 5 word in sentence= 20 word in line= 4 text='recently'

page= 1 paragraph= 3 sentence= 2 line= 5 word in sentence= 21 word in line= 5 text=','

page= 1 paragraph= 3 sentence= 2 line= 5 word in sentence= 22 word in line= 6 text='software'

page= 1 paragraph= 3 sentence= 2 line= 5 word in sentence= 23 word in line= 7 text='engineering'

page= 1 paragraph= 3 sentence= 2 line= 6 word in sentence= 24 word in line= 0 text='and'

page= 1 paragraph= 3 sentence= 2 line= 6 word in sentence= 25 word in line= 1 text='software'

page= 1 paragraph= 3 sentence= 2 line= 6 word in sentence= 26 word in line= 2 text='metrics'

page= 1 paragraph= 3 sentence= 2 line= 6 word in sentence= 27 word in line= 3 text='.'

page= 1 paragraph= 4 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Stephen'

page= 1 paragraph= 4 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='M'

page= 1 paragraph= 4 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='.'

page= 1 paragraph= 4 sentence= 2 line= 1 word in sentence= 0 word in line= 3 text='Thebaut'

page= 1 paragraph= 4 sentence= 2 line= 1 word in sentence= 1 word in line= 4 text='('

page= 1 paragraph= 4 sentence= 2 line= 1 word in sentence= 2 word in line= 5 text='S'

page= 1 paragraph= 4 sentence= 2 line= 1 word in sentence= 3 word in line= 6 text='’'

page= 1 paragraph= 4 sentence= 2 line= 1 word in sentence= 4 word in line= 7 text='79-M'

page= 1 paragraph= 4 sentence= 2 line= 1 word in sentence= 5 word in line= 8 text='’'

page= 1 paragraph= 4 sentence= 2 line= 1 word in sentence= 6 word in line= 9 text='83'

page= 1 paragraph= 4 sentence= 2 line= 1 word in sentence= 7 word in line=10 text=')'

page= 1 paragraph= 4 sentence= 2 line= 1 word in sentence= 8 word in line=11 text='received'

page= 1 paragraph= 4 sentence= 2 line= 1 word in sentence= 9 word in line=12 text='the'

page= 1 paragraph= 4 sentence= 2 line= 2 word in sentence= 10 word in line= 0 text='B'

page= 1 paragraph= 4 sentence= 2 line= 2 word in sentence= 11 word in line= 1 text='.'

page= 1 paragraph= 4 sentence= 3 line= 2 word in sentence= 0 word in line= 2 text='A'

page= 1 paragraph= 4 sentence= 3 line= 2 word in sentence= 1 word in line= 3 text='.'

page= 1 paragraph= 4 sentence= 4 line= 2 word in sentence= 0 word in line= 4 text='degree'

page= 1 paragraph= 4 sentence= 4 line= 2 word in sentence= 1 word in line= 5 text='in'

page= 1 paragraph= 4 sentence= 4 line= 2 word in sentence= 2 word in line= 6 text='mathematics'

page= 1 paragraph= 4 sentence= 4 line= 2 word in sentence= 3 word in line= 7 text='from'

page= 1 paragraph= 4 sentence= 4 line= 2 word in sentence= 4 word in line= 8 text='Duke'

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page= 1 paragraph= 4 sentence= 4 line= 3 word in sentence= 10 word in line= 4 text=','

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page= 1 paragraph= 4 sentence= 5 line= 3 word in sentence= 1 word in line=10 text=','

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page= 1 paragraph= 4 sentence= 5 line= 3 word in sentence= 3 word in line=12 text='Ph'

page= 1 paragraph= 4 sentence= 5 line= 3 word in sentence= 4 word in line=13 text='.'

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page= 1 paragraph= 4 sentence= 6 line= 3 word in sentence= 1 word in line=15 text='.'

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page= 1 paragraph= 4 sentence= 7 line= 4 word in sentence= 2 word in line= 2 text='computer'

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page= 1 paragraph= 4 sentence= 7 line= 5 word in sentence= 15 word in line= 8 text='and'

page= 1 paragraph= 4 sentence= 7 line= 5 word in sentence= 16 word in line= 9 text='1983'

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page= 1 paragraph= 8 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='FL'

page= 1 paragraph= 8 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text=','

page= 1 paragraph= 8 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='as'

page= 1 paragraph= 8 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='an'

page= 1 paragraph= 8 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='Assistant'

page= 1 paragraph= 8 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='Professor'

page= 1 paragraph= 8 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='in'

page= 1 paragraph= 8 sentence= 1 line= 2 word in sentence= 9 word in line= 0 text='1983'

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page= 1 paragraph= 8 sentence= 1 line= 2 word in sentence= 14 word in line= 5 text='by'

page= 1 paragraph= 8 sentence= 1 line= 2 word in sentence= 15 word in line= 6 text='an'

page= 1 paragraph= 8 sentence= 1 line= 2 word in sentence= 16 word in line= 7 text='IBM'

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page= 1 paragraph= 8 sentence= 1 line= 3 word in sentence= 19 word in line= 1 text='Fellowship'

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page= 1 paragraph= 8 sentence= 1 line= 3 word in sentence= 21 word in line= 3 text='the'

page= 1 paragraph= 8 sentence= 1 line= 3 word in sentence= 22 word in line= 4 text='1983-'

page= 1 paragraph= 8 sentence= 1 line= 4 word in sentence= 23 word in line= 0 text='1984'

page= 1 paragraph= 8 sentence= 1 line= 4 word in sentence= 24 word in line= 1 text='academic'

page= 1 paragraph= 8 sentence= 1 line= 4 word in sentence= 25 word in line= 2 text='year'

page= 1 paragraph= 8 sentence= 1 line= 4 word in sentence= 26 word in line= 3 text='.'

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page= 1 paragraph= 8 sentence= 2 line= 4 word in sentence= 1 word in line= 5 text='current'

page= 1 paragraph= 8 sentence= 2 line= 4 word in sentence= 2 word in line= 6 text='research'

page= 1 paragraph= 8 sentence= 2 line= 4 word in sentence= 3 word in line= 7 text='interests'

page= 1 paragraph= 8 sentence= 2 line= 4 word in sentence= 4 word in line= 8 text='include'

page= 1 paragraph= 8 sentence= 2 line= 4 word in sentence= 5 word in line= 9 text='software'

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page= 1 paragraph= 9 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='program'

page= 1 paragraph= 9 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='maintenance'

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page= 1 paragraph= 9 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='and'

page= 1 paragraph= 9 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='the'

page= 1 paragraph= 9 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='large-scale'

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page= 1 paragraph= 9 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='development'

page= 1 paragraph= 9 sentence= 1 line= 2 word in sentence= 10 word in line= 0 text='process'

page= 1 paragraph= 9 sentence= 1 line= 2 word in sentence= 11 word in line= 1 text='.'

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page= 1 paragraph=10 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='.'

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page= 1 paragraph=10 sentence= 2 line= 1 word in sentence= 1 word in line= 3 text='is'

page= 1 paragraph=10 sentence= 2 line= 1 word in sentence= 2 word in line= 4 text='a'

page= 1 paragraph=10 sentence= 2 line= 1 word in sentence= 3 word in line= 5 text='member'

page= 1 paragraph=10 sentence= 2 line= 1 word in sentence= 4 word in line= 6 text='of'

page= 1 paragraph=10 sentence= 2 line= 1 word in sentence= 5 word in line= 7 text='the'

page= 1 paragraph=10 sentence= 2 line= 1 word in sentence= 6 word in line= 8 text='Association'

page= 1 paragraph=10 sentence= 2 line= 1 word in sentence= 7 word in line= 9 text='for'

page= 1 paragraph=10 sentence= 2 line= 1 word in sentence= 8 word in line=10 text='Computing'

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page= 1 paragraph=10 sentence= 2 line= 2 word in sentence= 12 word in line= 2 text='IEEE'

page= 1 paragraph=10 sentence= 2 line= 2 word in sentence= 13 word in line= 3 text='Computer'

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page= 1 paragraph=10 sentence= 2 line= 2 word in sentence= 15 word in line= 5 text=','

page= 1 paragraph=10 sentence= 2 line= 2 word in sentence= 16 word in line= 6 text='and'

page= 1 paragraph=10 sentence= 2 line= 2 word in sentence= 17 word in line= 7 text='the'

page= 1 paragraph=10 sentence= 2 line= 2 word in sentence= 18 word in line= 8 text='356'

page= 1 paragraph=10 sentence= 2 line= 2 word in sentence= 19 word in line= 9 text='Registry'

page= 1 paragraph=10 sentence= 2 line= 2 word in sentence= 20 word in line=10 text='.'

page= 1 paragraph=11 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Tze-Jie'

page= 1 paragraph=11 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='Yu'

page= 1 paragraph=11 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='received'

page= 1 paragraph=11 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='the'

page= 1 paragraph=11 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='B'

page= 1 paragraph=11 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='.'

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page= 1 paragraph=11 sentence= 2 line= 1 word in sentence= 1 word in line= 7 text='.'

page= 1 paragraph=11 sentence= 3 line= 1 word in sentence= 0 word in line= 8 text='degree'

page= 1 paragraph=11 sentence= 3 line= 1 word in sentence= 1 word in line= 9 text='in'

page= 1 paragraph=11 sentence= 3 line= 1 word in sentence= 2 word in line=10 text='electrical'

page= 1 paragraph=11 sentence= 3 line= 2 word in sentence= 3 word in line= 0 text='engineering'

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page= 1 paragraph=11 sentence= 3 line= 2 word in sentence= 5 word in line= 2 text='National'

page= 1 paragraph=11 sentence= 3 line= 2 word in sentence= 6 word in line= 3 text='Taiwan'

page= 1 paragraph=11 sentence= 3 line= 2 word in sentence= 7 word in line= 4 text='University'

page= 1 paragraph=11 sentence= 3 line= 2 word in sentence= 8 word in line= 5 text='in'

page= 1 paragraph=11 sentence= 3 line= 3 word in sentence= 9 word in line= 0 text='1979'

page= 1 paragraph=11 sentence= 3 line= 3 word in sentence= 10 word in line= 1 text=','

page= 1 paragraph=11 sentence= 3 line= 3 word in sentence= 11 word in line= 2 text='and'

page= 1 paragraph=11 sentence= 3 line= 3 word in sentence= 12 word in line= 3 text='the'

page= 1 paragraph=11 sentence= 3 line= 3 word in sentence= 13 word in line= 4 text='M'

page= 1 paragraph=11 sentence= 3 line= 3 word in sentence= 14 word in line= 5 text='.'

page= 1 paragraph=11 sentence= 4 line= 3 word in sentence= 0 word in line= 6 text='S'

page= 1 paragraph=11 sentence= 4 line= 3 word in sentence= 1 word in line= 7 text='.'

page= 1 paragraph=11 sentence= 5 line= 3 word in sentence= 0 word in line= 8 text='degree'

page= 1 paragraph=11 sentence= 5 line= 3 word in sentence= 1 word in line= 9 text='in'

page= 1 paragraph=11 sentence= 5 line= 3 word in sentence= 2 word in line=10 text='computer'

page= 1 paragraph=11 sentence= 5 line= 3 word in sentence= 3 word in line=11 text='science'

page= 1 paragraph=11 sentence= 5 line= 4 word in sentence= 4 word in line= 0 text='from'

page= 1 paragraph=11 sentence= 5 line= 4 word in sentence= 5 word in line= 1 text='Purdue'

page= 1 paragraph=11 sentence= 5 line= 4 word in sentence= 6 word in line= 2 text='University'

page= 1 paragraph=11 sentence= 5 line= 4 word in sentence= 7 word in line= 3 text=','

page= 1 paragraph=11 sentence= 5 line= 4 word in sentence= 8 word in line= 4 text='West'

page= 1 paragraph=11 sentence= 5 line= 4 word in sentence= 9 word in line= 5 text='Lafayette'

page= 1 paragraph=11 sentence= 5 line= 4 word in sentence= 10 word in line= 6 text=','

page= 1 paragraph=11 sentence= 5 line= 4 word in sentence= 11 word in line= 7 text='IN'

page= 1 paragraph=11 sentence= 5 line= 4 word in sentence= 12 word in line= 8 text=','

page= 1 paragraph=11 sentence= 5 line= 5 word in sentence= 13 word in line= 0 text='in'

page= 1 paragraph=11 sentence= 5 line= 5 word in sentence= 14 word in line= 1 text='1983'

page= 1 paragraph=11 sentence= 5 line= 5 word in sentence= 15 word in line= 2 text='.'

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='From'

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='1981'

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='to'

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='the'

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='present'

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text=','

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='he'

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='has'

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='beena'

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='Ph'

page= 1 paragraph=12 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='.'

page= 1 paragraph=12 sentence= 2 line= 1 word in sentence= 0 word in line=11 text='D'

page= 1 paragraph=12 sentence= 2 line= 1 word in sentence= 1 word in line=12 text='.'

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page= 1 paragraph=12 sentence= 3 line= 2 word in sentence= 1 word in line= 1 text='and'

page= 1 paragraph=12 sentence= 3 line= 2 word in sentence= 2 word in line= 2 text='Research'

page= 1 paragraph=12 sentence= 3 line= 2 word in sentence= 3 word in line= 3 text='Assistant'

page= 1 paragraph=12 sentence= 3 line= 2 word in sentence= 4 word in line= 4 text='at'

page= 1 paragraph=12 sentence= 3 line= 2 word in sentence= 5 word in line= 5 text='Purdue'

page= 1 paragraph=12 sentence= 3 line= 3 word in sentence= 6 word in line= 0 text='University'

page= 1 paragraph=12 sentence= 3 line= 3 word in sentence= 7 word in line= 1 text='.'

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page= 1 paragraph=12 sentence= 4 line= 3 word in sentence= 2 word in line= 4 text='for'

page= 1 paragraph=12 sentence= 4 line= 3 word in sentence= 3 word in line= 5 text='IBM'

page= 1 paragraph=12 sentence= 4 line= 3 word in sentence= 4 word in line= 6 text='’'

page= 1 paragraph=12 sentence= 4 line= 3 word in sentence= 5 word in line= 7 text='s'

page= 1 paragraph=12 sentence= 4 line= 3 word in sentence= 6 word in line= 8 text='Santa'

page= 1 paragraph=12 sentence= 4 line= 3 word in sentence= 7 word in line= 9 text='Teresa'

page= 1 paragraph=12 sentence= 4 line= 4 word in sentence= 8 word in line= 0 text='Laboratory'

page= 1 paragraph=12 sentence= 4 line= 4 word in sentence= 9 word in line= 1 text='as'

page= 1 paragraph=12 sentence= 4 line= 4 word in sentence= 10 word in line= 2 text='a'

page= 1 paragraph=12 sentence= 4 line= 4 word in sentence= 11 word in line= 3 text='Systems'

page= 1 paragraph=12 sentence= 4 line= 4 word in sentence= 12 word in line= 4 text='Analyst'

page= 1 paragraph=12 sentence= 4 line= 4 word in sentence= 13 word in line= 5 text='during'

page= 1 paragraph=12 sentence= 4 line= 4 word in sentence= 14 word in line= 6 text='the'

page= 1 paragraph=12 sentence= 4 line= 5 word in sentence= 15 word in line= 0 text='summer'

page= 1 paragraph=12 sentence= 4 line= 5 word in sentence= 16 word in line= 1 text='of'

page= 1 paragraph=12 sentence= 4 line= 5 word in sentence= 17 word in line= 2 text='1983'

page= 1 paragraph=12 sentence= 4 line= 5 word in sentence= 18 word in line= 3 text='.'

page= 1 paragraph=12 sentence= 5 line= 5 word in sentence= 0 word in line= 4 text='His'

page= 1 paragraph=12 sentence= 5 line= 5 word in sentence= 1 word in line= 5 text='research'

page= 1 paragraph=12 sentence= 5 line= 5 word in sentence= 2 word in line= 6 text='interests'

page= 1 paragraph=12 sentence= 5 line= 5 word in sentence= 3 word in line= 7 text='include'

page= 1 paragraph=12 sentence= 5 line= 6 word in sentence= 4 word in line= 0 text='software'

page= 1 paragraph=12 sentence= 5 line= 6 word in sentence= 5 word in line= 1 text='quality'

page= 1 paragraph=12 sentence= 5 line= 6 word in sentence= 6 word in line= 2 text='assessment'

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page= 1 paragraph=12 sentence= 5 line= 6 word in sentence= 10 word in line= 6 text=','

page= 1 paragraph=12 sentence= 5 line= 7 word in sentence= 11 word in line= 0 text='and'

page= 1 paragraph=12 sentence= 5 line= 7 word in sentence= 12 word in line= 1 text='software'

page= 1 paragraph=12 sentence= 5 line= 7 word in sentence= 13 word in line= 2 text='cost'

page= 1 paragraph=12 sentence= 5 line= 7 word in sentence= 14 word in line= 3 text='modeling'

page= 1 paragraph=12 sentence= 5 line= 7 word in sentence= 15 word in line= 4 text='.'

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page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 0 word in line= 2 text='Yu'

page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 1 word in line= 3 text='is'

page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 2 word in line= 4 text='a'

page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 3 word in line= 5 text='member'

page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 4 word in line= 6 text='of'

page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 5 word in line= 7 text='the'

page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 6 word in line= 8 text='Association'

page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 7 word in line= 9 text='for'

page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 8 word in line=10 text='Computing'

page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 9 word in line=11 text='Machinery'

page= 1 paragraph=13 sentence= 2 line= 1 word in sentence= 10 word in line=12 text='and'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 11 word in line= 0 text='its'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 12 word in line= 1 text='Special'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 13 word in line= 2 text='Interest'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 14 word in line= 3 text='Group'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 15 word in line= 4 text='on'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 16 word in line= 5 text='Software'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 17 word in line= 6 text='Engineering'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 18 word in line= 7 text=','

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 19 word in line= 8 text='and'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 20 word in line= 9 text='a'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 21 word in line=10 text='member'

page= 1 paragraph=13 sentence= 2 line= 2 word in sentence= 22 word in line=11 text='of'

page= 1 paragraph=13 sentence= 2 line= 3 word in sentence= 23 word in line= 0 text='the'

page= 1 paragraph=13 sentence= 2 line= 3 word in sentence= 24 word in line= 1 text='IEEE'

page= 1 paragraph=13 sentence= 2 line= 3 word in sentence= 25 word in line= 2 text='Computer'

page= 1 paragraph=13 sentence= 2 line= 3 word in sentence= 26 word in line= 3 text='Society'

page= 1 paragraph=13 sentence= 2 line= 3 word in sentence= 27 word in line= 4 text='.'

page= 1 paragraph=14 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Lorri'

page= 1 paragraph=14 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='R'

page= 1 paragraph=14 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='.'

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page= 1 paragraph=14 sentence= 2 line= 1 word in sentence= 2 word in line= 5 text='the'

page= 1 paragraph=14 sentence= 2 line= 1 word in sentence= 3 word in line= 6 text='B'

page= 1 paragraph=14 sentence= 2 line= 1 word in sentence= 4 word in line= 7 text='.'

page= 1 paragraph=14 sentence= 3 line= 1 word in sentence= 0 word in line= 8 text='S'

page= 1 paragraph=14 sentence= 3 line= 1 word in sentence= 1 word in line= 9 text='.'

page= 1 paragraph=14 sentence= 4 line= 1 word in sentence= 0 word in line=10 text='degree'

page= 1 paragraph=14 sentence= 4 line= 1 word in sentence= 1 word in line=11 text='in'

page= 1 paragraph=14 sentence= 4 line= 2 word in sentence= 2 word in line= 0 text='mathematics'

page= 1 paragraph=14 sentence= 4 line= 2 word in sentence= 3 word in line= 1 text='from'

page= 1 paragraph=14 sentence= 4 line= 2 word in sentence= 4 word in line= 2 text='Wagner'

page= 1 paragraph=14 sentence= 4 line= 2 word in sentence= 5 word in line= 3 text='College'

page= 1 paragraph=14 sentence= 4 line= 2 word in sentence= 6 word in line= 4 text=','

page= 1 paragraph=14 sentence= 4 line= 2 word in sentence= 7 word in line= 5 text='Staten'

page= 1 paragraph=14 sentence= 4 line= 2 word in sentence= 8 word in line= 6 text='Island'

page= 1 paragraph=14 sentence= 4 line= 2 word in sentence= 9 word in line= 7 text=','

page= 1 paragraph=15 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='NY'

page= 1 paragraph=15 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text=','

page= 1 paragraph=15 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='in'

page= 1 paragraph=15 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='1968'

page= 1 paragraph=15 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='.'

page= 1 paragraph=16 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='She'

page= 1 paragraph=16 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='joined'

page= 1 paragraph=16 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='IBM'

page= 1 paragraph=16 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='in'

page= 1 paragraph=16 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='1968'

page= 1 paragraph=16 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text=','

page= 1 paragraph=16 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='and'

page= 1 paragraph=16 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='is'

page= 1 paragraph=16 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='currently'

page= 1 paragraph=16 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='a'

page= 1 paragraph=16 sentence= 1 line= 2 word in sentence= 10 word in line= 0 text='Program'

page= 1 paragraph=16 sentence= 1 line= 2 word in sentence= 11 word in line= 1 text='Development'

page= 1 paragraph=16 sentence= 1 line= 2 word in sentence= 12 word in line= 2 text='Manager'

page= 1 paragraph=16 sentence= 1 line= 2 word in sentence= 13 word in line= 3 text='for'

page= 1 paragraph=16 sentence= 1 line= 2 word in sentence= 14 word in line= 4 text='IBM'

page= 1 paragraph=16 sentence= 1 line= 2 word in sentence= 15 word in line= 5 text='General'

page= 1 paragraph=16 sentence= 1 line= 3 word in sentence= 16 word in line= 0 text='Products'

page= 1 paragraph=16 sentence= 1 line= 3 word in sentence= 17 word in line= 1 text='Division'

page= 1 paragraph=16 sentence= 1 line= 3 word in sentence= 18 word in line= 2 text='at'

page= 1 paragraph=16 sentence= 1 line= 3 word in sentence= 19 word in line= 3 text='Santa'

page= 1 paragraph=16 sentence= 1 line= 3 word in sentence= 20 word in line= 4 text='Teresa'

page= 1 paragraph=16 sentence= 1 line= 3 word in sentence= 21 word in line= 5 text='Laboratory'

page= 1 paragraph=16 sentence= 1 line= 3 word in sentence= 22 word in line= 6 text=','

page= 1 paragraph=17 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='San'

page= 1 paragraph=17 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='Jose'

page= 1 paragraph=17 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text=','

page= 1 paragraph=17 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='CA'

page= 1 paragraph=17 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='.'

page= 1 paragraph=17 sentence= 2 line= 1 word in sentence= 0 word in line= 5 text='During'

page= 1 paragraph=17 sentence= 2 line= 1 word in sentence= 1 word in line= 6 text='her'

page= 1 paragraph=17 sentence= 2 line= 1 word in sentence= 2 word in line= 7 text='IBM'

page= 1 paragraph=17 sentence= 2 line= 1 word in sentence= 3 word in line= 8 text='career'

page= 1 paragraph=17 sentence= 2 line= 1 word in sentence= 4 word in line= 9 text=','

page= 1 paragraph=17 sentence= 2 line= 1 word in sentence= 5 word in line=10 text='she'

page= 1 paragraph=17 sentence= 2 line= 1 word in sentence= 6 word in line=11 text='has'

page= 1 paragraph=17 sentence= 2 line= 2 word in sentence= 7 word in line= 0 text='been'

page= 1 paragraph=17 sentence= 2 line= 2 word in sentence= 8 word in line= 1 text='associated'

page= 1 paragraph=17 sentence= 2 line= 2 word in sentence= 9 word in line= 2 text='with'

page= 1 paragraph=17 sentence= 2 line= 2 word in sentence= 10 word in line= 3 text='systems'

page= 1 paragraph=17 sentence= 2 line= 2 word in sentence= 11 word in line= 4 text='design'

page= 1 paragraph=17 sentence= 2 line= 2 word in sentence= 12 word in line= 5 text='and'

page= 1 paragraph=17 sentence= 2 line= 2 word in sentence= 13 word in line= 6 text='development'

page= 1 paragraph=17 sentence= 2 line= 3 word in sentence= 14 word in line= 0 text=','

page= 1 paragraph=17 sentence= 2 line= 3 word in sentence= 15 word in line= 1 text='working'

page= 1 paragraph=17 sentence= 2 line= 3 word in sentence= 16 word in line= 2 text='on'

page= 1 paragraph=17 sentence= 2 line= 3 word in sentence= 17 word in line= 3 text='the'

page= 1 paragraph=17 sentence= 2 line= 3 word in sentence= 18 word in line= 4 text='ASP'

page= 1 paragraph=17 sentence= 2 line= 3 word in sentence= 19 word in line= 5 text='Version'

page= 1 paragraph=17 sentence= 2 line= 3 word in sentence= 20 word in line= 6 text='3'

page= 1 paragraph=17 sentence= 2 line= 3 word in sentence= 21 word in line= 7 text='and'

page= 1 paragraph=17 sentence= 2 line= 4 word in sentence= 22 word in line= 0 text='JES3'

page= 1 paragraph=17 sentence= 2 line= 4 word in sentence= 23 word in line= 1 text='products'

page= 1 paragraph=17 sentence= 2 line= 4 word in sentence= 24 word in line= 2 text='.'

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page= 1 paragraph=17 sentence= 3 line= 4 word in sentence= 1 word in line= 4 text='1979'

page= 1 paragraph=17 sentence= 3 line= 4 word in sentence= 2 word in line= 5 text='she'

page= 1 paragraph=17 sentence= 3 line= 4 word in sentence= 3 word in line= 6 text='became'

page= 1 paragraph=17 sentence= 3 line= 4 word in sentence= 4 word in line= 7 text='involved'

page= 1 paragraph=17 sentence= 3 line= 5 word in sentence= 5 word in line= 0 text='with'

page= 1 paragraph=17 sentence= 3 line= 5 word in sentence= 6 word in line= 1 text='the'

page= 1 paragraph=17 sentence= 3 line= 5 word in sentence= 7 word in line= 2 text='measurement'

page= 1 paragraph=17 sentence= 3 line= 5 word in sentence= 8 word in line= 3 text='of'

page= 1 paragraph=17 sentence= 3 line= 5 word in sentence= 9 word in line= 4 text='programmer'

page= 1 paragraph=17 sentence= 3 line= 5 word in sentence= 10 word in line= 5 text='’'

page= 1 paragraph=17 sentence= 3 line= 5 word in sentence= 11 word in line= 6 text='s'

page= 1 paragraph=17 sentence= 3 line= 5 word in sentence= 12 word in line= 7 text='productivity'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 13 word in line= 0 text=','

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 14 word in line= 1 text='which'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 15 word in line= 2 text='led'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 16 word in line= 3 text='to'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 17 word in line= 4 text='her'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 18 word in line= 5 text='research'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 19 word in line= 6 text='with'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 20 word in line= 7 text='Software'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 21 word in line= 8 text='Science'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 22 word in line= 9 text='metrics'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 23 word in line=10 text='and'

page= 1 paragraph=17 sentence= 3 line= 6 word in sentence= 24 word in line=11 text='the'

page= 1 paragraph=17 sentence= 3 line= 7 word in sentence= 25 word in line= 0 text='prediction'

page= 1 paragraph=17 sentence= 3 line= 7 word in sentence= 26 word in line= 1 text='of'

page= 1 paragraph=17 sentence= 3 line= 7 word in sentence= 27 word in line= 2 text='error-prone'

page= 1 paragraph=17 sentence= 3 line= 7 word in sentence= 28 word in line= 3 text='modules'

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page= 1 paragraph=17 sentence= 4 line= 7 word in sentence= 1 word in line= 6 text='is'

page= 1 paragraph=17 sentence= 4 line= 7 word in sentence= 2 word in line= 7 text='currently'

page= 1 paragraph=17 sentence= 4 line= 7 word in sentence= 3 word in line= 8 text='managing'

page= 1 paragraph=17 sentence= 4 line= 7 word in sentence= 4 word in line= 9 text='the'

page= 1 paragraph=17 sentence= 4 line= 7 word in sentence= 5 word in line=10 text='development'

page= 1 paragraph=17 sentence= 4 line= 8 word in sentence= 6 word in line= 0 text='of'

page= 1 paragraph=17 sentence= 4 line= 8 word in sentence= 7 word in line= 1 text='software'

page= 1 paragraph=17 sentence= 4 line= 8 word in sentence= 8 word in line= 2 text='engineering'

page= 1 paragraph=17 sentence= 4 line= 8 word in sentence= 9 word in line= 3 text='tools'

page= 1 paragraph=17 sentence= 4 line= 8 word in sentence= 10 word in line= 4 text='to'

page= 1 paragraph=17 sentence= 4 line= 8 word in sentence= 11 word in line= 5 text='assist'

page= 1 paragraph=17 sentence= 4 line= 8 word in sentence= 12 word in line= 6 text='with'

page= 1 paragraph=17 sentence= 4 line= 8 word in sentence= 13 word in line= 7 text='the'

page= 1 paragraph=17 sentence= 4 line= 8 word in sentence= 14 word in line= 8 text='design'

page= 1 paragraph=17 sentence= 4 line= 8 word in sentence= 15 word in line= 9 text='and'

page= 1 paragraph=17 sentence= 4 line= 9 word in sentence= 16 word in line= 0 text='implementation'

page= 1 paragraph=17 sentence= 4 line= 9 word in sentence= 17 word in line= 1 text='of'

page= 1 paragraph=17 sentence= 4 line= 9 word in sentence= 18 word in line= 2 text='IBM'

page= 1 paragraph=17 sentence= 4 line= 9 word in sentence= 19 word in line= 3 text='products'

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page= 1 paragraph=18 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='SOL'

page= 1 paragraph=18 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='Into'

page= 1 paragraph=18 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='Relational'

page= 1 paragraph=18 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='Algebra'

page= 1 paragraph=18 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text=':'

page= 1 paragraph=18 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='Optimization'

page= 1 paragraph=18 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text=','

page= 1 paragraph=18 sentence= 1 line= 2 word in sentence= 8 word in line= 0 text='Semantics'

page= 1 paragraph=18 sentence= 1 line= 2 word in sentence= 9 word in line= 1 text=','

page= 1 paragraph=18 sentence= 1 line= 2 word in sentence= 10 word in line= 2 text='and'

page= 1 paragraph=18 sentence= 1 line= 2 word in sentence= 11 word in line= 3 text='Equivalence'

page= 1 paragraph=18 sentence= 1 line= 2 word in sentence= 12 word in line= 4 text='of'

page= 1 paragraph=18 sentence= 1 line= 2 word in sentence= 13 word in line= 5 text='SOL'

page= 1 paragraph=18 sentence= 1 line= 2 word in sentence= 14 word in line= 6 text='Queries'

page= 1 paragraph=19 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='STEFANO'

page= 1 paragraph=19 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='CERI'

page= 1 paragraph=19 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='anp'

page= 1 paragraph=19 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='GEORG'

page= 1 paragraph=19 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='GOTTLOB'

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page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='In'

page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='this'

page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='paper'

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page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='we'

page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='present'

page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='a'

page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='translator'

page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='from'

page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 11 word in line=11 text='a'

page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 12 word in line=12 text='relevant'

page= 1 paragraph=20 sentence= 1 line= 1 word in sentence= 13 word in line=13 text='subset'

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 14 word in line= 0 text='of'

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 15 word in line= 1 text='SQL'

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 16 word in line= 2 text='into'

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 17 word in line= 3 text='relational'

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 18 word in line= 4 text='algebra'

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 19 word in line= 5 text=','

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 20 word in line= 6 text='The'

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 21 word in line= 7 text='translation'

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 22 word in line= 8 text='is'

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 23 word in line= 9 text='syntax-directed'

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 24 word in line=10 text=','

page= 1 paragraph=20 sentence= 1 line= 2 word in sentence= 25 word in line=11 text='with'

page= 1 paragraph=20 sentence= 1 line= 3 word in sentence= 26 word in line= 0 text='translation'

page= 1 paragraph=20 sentence= 1 line= 3 word in sentence= 27 word in line= 1 text='rules'

page= 1 paragraph=20 sentence= 1 line= 3 word in sentence= 28 word in line= 2 text='associated'

page= 1 paragraph=20 sentence= 1 line= 3 word in sentence= 29 word in line= 3 text='with'

page= 1 paragraph=20 sentence= 1 line= 3 word in sentence= 30 word in line= 4 text='grammar'

page= 1 paragraph=20 sentence= 1 line= 3 word in sentence= 31 word in line= 5 text='productions'

page= 1 paragraph=20 sentence= 1 line= 3 word in sentence= 32 word in line= 6 text=';'

page= 1 paragraph=20 sentence= 1 line= 3 word in sentence= 33 word in line= 7 text='each'

page= 1 paragraph=20 sentence= 1 line= 3 word in sentence= 34 word in line= 8 text='production'

page= 1 paragraph=20 sentence= 1 line= 4 word in sentence= 35 word in line= 0 text='corresponds'

page= 1 paragraph=20 sentence= 1 line= 4 word in sentence= 36 word in line= 1 text='to'

page= 1 paragraph=20 sentence= 1 line= 4 word in sentence= 37 word in line= 2 text='a'

page= 1 paragraph=20 sentence= 1 line= 4 word in sentence= 38 word in line= 3 text='particular'

page= 1 paragraph=20 sentence= 1 line= 4 word in sentence= 39 word in line= 4 text='type'

page= 1 paragraph=20 sentence= 1 line= 4 word in sentence= 40 word in line= 5 text='of'

page= 1 paragraph=20 sentence= 1 line= 4 word in sentence= 41 word in line= 6 text='SQL'

page= 1 paragraph=20 sentence= 1 line= 4 word in sentence= 42 word in line= 7 text='subquery'

page= 1 paragraph=20 sentence= 1 line= 4 word in sentence= 43 word in line= 8 text='.'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='The'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='translation'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='is'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='performed'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='in'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='two'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='steps'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text=','

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='associated'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='with'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='two'

page= 1 paragraph=21 sentence= 1 line= 1 word in sentence= 11 word in line=11 text='different'

page= 1 paragraph=21 sentence= 1 line= 2 word in sentence= 12 word in line= 0 text='grammars'

page= 1 paragraph=21 sentence= 1 line= 2 word in sentence= 13 word in line= 1 text='of'

page= 1 paragraph=21 sentence= 1 line= 2 word in sentence= 14 word in line= 2 text='SQL'

page= 1 paragraph=21 sentence= 1 line= 2 word in sentence= 15 word in line= 3 text='.'

page= 1 paragraph=21 sentence= 2 line= 2 word in sentence= 0 word in line= 4 text='The'

page= 1 paragraph=21 sentence= 2 line= 2 word in sentence= 1 word in line= 5 text='first'

page= 1 paragraph=21 sentence= 2 line= 2 word in sentence= 2 word in line= 6 text='step'

page= 1 paragraph=21 sentence= 2 line= 2 word in sentence= 3 word in line= 7 text=','

page= 1 paragraph=21 sentence= 2 line= 2 word in sentence= 4 word in line= 8 text='driven'

page= 1 paragraph=21 sentence= 2 line= 2 word in sentence= 5 word in line= 9 text='by'

page= 1 paragraph=21 sentence= 2 line= 2 word in sentence= 6 word in line=10 text='the'

page= 1 paragraph=21 sentence= 2 line= 2 word in sentence= 7 word in line=11 text='larger'

page= 1 paragraph=21 sentence= 2 line= 2 word in sentence= 8 word in line=12 text='grammar'

page= 1 paragraph=21 sentence= 2 line= 2 word in sentence= 9 word in line=13 text=','

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 10 word in line= 0 text='transforms'

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 11 word in line= 1 text='SQL'

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 12 word in line= 2 text='queries'

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 13 word in line= 3 text='into'

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 14 word in line= 4 text='equivalent'

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 15 word in line= 5 text='SQL'

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 16 word in line= 6 text='queries'

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 17 word in line= 7 text='that'

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 18 word in line= 8 text='can'

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 19 word in line= 9 text='be'

page= 1 paragraph=21 sentence= 2 line= 3 word in sentence= 20 word in line=10 text='accepted'

page= 1 paragraph=21 sentence= 2 line= 4 word in sentence= 21 word in line= 0 text='by'

page= 1 paragraph=21 sentence= 2 line= 4 word in sentence= 22 word in line= 1 text='a'

page= 1 paragraph=21 sentence= 2 line= 4 word in sentence= 23 word in line= 2 text='restricted'

page= 1 paragraph=21 sentence= 2 line= 4 word in sentence= 24 word in line= 3 text='grammar'

page= 1 paragraph=21 sentence= 2 line= 4 word in sentence= 25 word in line= 4 text='.'

page= 1 paragraph=21 sentence= 3 line= 4 word in sentence= 0 word in line= 5 text='The'

page= 1 paragraph=21 sentence= 3 line= 4 word in sentence= 1 word in line= 6 text='second'

page= 1 paragraph=21 sentence= 3 line= 4 word in sentence= 2 word in line= 7 text='step'

page= 1 paragraph=21 sentence= 3 line= 4 word in sentence= 3 word in line= 8 text='transforms'

page= 1 paragraph=21 sentence= 3 line= 4 word in sentence= 4 word in line= 9 text='SQL'

page= 1 paragraph=21 sentence= 3 line= 5 word in sentence= 5 word in line= 0 text='queries'

page= 1 paragraph=21 sentence= 3 line= 5 word in sentence= 6 word in line= 1 text='accepted'

page= 1 paragraph=21 sentence= 3 line= 5 word in sentence= 7 word in line= 2 text='by'

page= 1 paragraph=21 sentence= 3 line= 5 word in sentence= 8 word in line= 3 text='the'

page= 1 paragraph=21 sentence= 3 line= 5 word in sentence= 9 word in line= 4 text='restricted'

page= 1 paragraph=21 sentence= 3 line= 5 word in sentence= 10 word in line= 5 text='grammar'

page= 1 paragraph=21 sentence= 3 line= 5 word in sentence= 11 word in line= 6 text='into'

page= 1 paragraph=21 sentence= 3 line= 5 word in sentence= 12 word in line= 7 text='expressions'

page= 1 paragraph=21 sentence= 3 line= 5 word in sentence= 13 word in line= 8 text='of'

page= 1 paragraph=21 sentence= 3 line= 5 word in sentence= 14 word in line= 9 text='relational'

page= 1 paragraph=21 sentence= 3 line= 6 word in sentence= 15 word in line= 0 text='algebra'

page= 1 paragraph=21 sentence= 3 line= 6 word in sentence= 16 word in line= 1 text='.'

page= 1 paragraph=21 sentence= 4 line= 6 word in sentence= 0 word in line= 2 text='This'

page= 1 paragraph=21 sentence= 4 line= 6 word in sentence= 1 word in line= 3 text='approach'

page= 1 paragraph=21 sentence= 4 line= 6 word in sentence= 2 word in line= 4 text='allows'

page= 1 paragraph=21 sentence= 4 line= 6 word in sentence= 3 word in line= 5 text='performing'

page= 1 paragraph=21 sentence= 4 line= 6 word in sentence= 4 word in line= 6 text='the'

page= 1 paragraph=21 sentence= 4 line= 6 word in sentence= 5 word in line= 7 text='second'

page= 1 paragraph=21 sentence= 4 line= 6 word in sentence= 6 word in line= 8 text='step'

page= 1 paragraph=21 sentence= 4 line= 6 word in sentence= 7 word in line= 9 text=','

page= 1 paragraph=21 sentence= 4 line= 6 word in sentence= 8 word in line=10 text='which'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 9 word in line= 0 text='is'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 10 word in line= 1 text='the'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 11 word in line= 2 text='most'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 12 word in line= 3 text='difficult'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 13 word in line= 4 text='one'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 14 word in line= 5 text=','

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 15 word in line= 6 text='on'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 16 word in line= 7 text='a'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 17 word in line= 8 text='restricted'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 18 word in line= 9 text='number'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 19 word in line=10 text='of'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 20 word in line=11 text='productions'

page= 1 paragraph=21 sentence= 4 line= 7 word in sentence= 21 word in line=12 text='.'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='The'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='translator'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='can'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='be'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='used'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='in'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='conjunction'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='with'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='an'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='optimizer'

page= 1 paragraph=22 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='which'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 11 word in line= 0 text='operates'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 12 word in line= 1 text='on'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 13 word in line= 2 text='expressions'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 14 word in line= 3 text='of'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 15 word in line= 4 text='relational'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 16 word in line= 5 text='algebra'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 17 word in line= 6 text=','

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 18 word in line= 7 text='thus'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 19 word in line= 8 text='taking'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 20 word in line= 9 text='advantage'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 21 word in line=10 text='of'

page= 1 paragraph=22 sentence= 1 line= 2 word in sentence= 22 word in line=11 text='a'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Manuscript'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='received'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='June'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='13'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text=','

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='1984'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text=';'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='revised'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='September'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='6'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 10 word in line=10 text=','

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 11 word in line=11 text='1984'

page= 1 paragraph=23 sentence= 1 line= 1 word in sentence= 12 word in line=12 text='.'

page= 1 paragraph=23 sentence= 2 line= 1 word in sentence= 0 word in line=13 text='This'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 1 word in line= 0 text='work'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 2 word in line= 1 text='was'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 3 word in line= 2 text='supported'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 4 word in line= 3 text='in'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 5 word in line= 4 text='part'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 6 word in line= 5 text='by'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 7 word in line= 6 text='a'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 8 word in line= 7 text='grant'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 9 word in line= 8 text='from'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 10 word in line= 9 text='Data'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 11 word in line=10 text='Base'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 12 word in line=11 text='Informatica'

page= 1 paragraph=23 sentence= 2 line= 2 word in sentence= 13 word in line=12 text='.'

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='The'

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='authors'

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='are'

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='with'

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='the'

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='Dipartimento'

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='di'

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='Elettronica'

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text=','

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='Politecnico'

page= 1 paragraph=24 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='di'

page= 1 paragraph=25 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Milano'

page= 1 paragraph=25 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text=','

page= 1 paragraph=25 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='I'

page= 1 paragraph=25 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='20133'

page= 1 paragraph=25 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='Milano'

page= 1 paragraph=25 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text=','

page= 1 paragraph=25 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='Italy'

page= 1 paragraph=25 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='.'

page= 1 paragraph=26 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='body'

page= 1 paragraph=26 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='of'

page= 1 paragraph=26 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='knowledge'

page= 1 paragraph=26 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='on'

page= 1 paragraph=26 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='the'

page= 1 paragraph=26 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='optimization'

page= 1 paragraph=26 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='of'

page= 1 paragraph=26 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='algebraic'

page= 1 paragraph=26 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='expressions'

page= 1 paragraph=26 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='.'

page= 1 paragraph=26 sentence= 2 line= 1 word in sentence= 0 word in line=10 text='Moreover'

page= 1 paragraph=26 sentence= 2 line= 2 word in sentence= 1 word in line= 0 text=','

page= 1 paragraph=26 sentence= 2 line= 2 word in sentence= 2 word in line= 1 text='the'

page= 1 paragraph=26 sentence= 2 line= 2 word in sentence= 3 word in line= 2 text='proposed'

page= 1 paragraph=26 sentence= 2 line= 2 word in sentence= 4 word in line= 3 text='approach'

page= 1 paragraph=26 sentence= 2 line= 2 word in sentence= 5 word in line= 4 text='indicates'

page= 1 paragraph=26 sentence= 2 line= 2 word in sentence= 6 word in line= 5 text='a'

page= 1 paragraph=26 sentence= 2 line= 2 word in sentence= 7 word in line= 6 text='methodology'

page= 1 paragraph=26 sentence= 2 line= 2 word in sentence= 8 word in line= 7 text='for'

page= 1 paragraph=26 sentence= 2 line= 2 word in sentence= 9 word in line= 8 text='the'

page= 1 paragraph=26 sentence= 2 line= 2 word in sentence= 10 word in line= 9 text='correct'

page= 1 paragraph=26 sentence= 2 line= 3 word in sentence= 11 word in line= 0 text='specification'

page= 1 paragraph=26 sentence= 2 line= 3 word in sentence= 12 word in line= 1 text='and'

page= 1 paragraph=26 sentence= 2 line= 3 word in sentence= 13 word in line= 2 text='fast'

page= 1 paragraph=26 sentence= 2 line= 3 word in sentence= 14 word in line= 3 text='implementation'

page= 1 paragraph=26 sentence= 2 line= 3 word in sentence= 15 word in line= 4 text='of'

page= 1 paragraph=26 sentence= 2 line= 3 word in sentence= 16 word in line= 5 text='new'

page= 1 paragraph=26 sentence= 2 line= 3 word in sentence= 17 word in line= 6 text='relational'

page= 1 paragraph=26 sentence= 2 line= 3 word in sentence= 18 word in line= 7 text='query'

page= 1 paragraph=26 sentence= 2 line= 3 word in sentence= 19 word in line= 8 text='languages'

page= 1 paragraph=26 sentence= 2 line= 4 word in sentence= 20 word in line= 0 text='.'

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 0 word in line= 1 text='Finally'

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 1 word in line= 2 text=','

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 2 word in line= 3 text='the'

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 3 word in line= 4 text='translator'

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 4 word in line= 5 text='defines'

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 5 word in line= 6 text='the'

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 6 word in line= 7 text='semantics'

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 7 word in line= 8 text='of'

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 8 word in line= 9 text='the'

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 9 word in line=10 text='SQL'

page= 1 paragraph=26 sentence= 3 line= 4 word in sentence= 10 word in line=11 text='language'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 11 word in line= 0 text=','

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 12 word in line= 1 text='and'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 13 word in line= 2 text='can'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 14 word in line= 3 text='be'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 15 word in line= 4 text='used'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 16 word in line= 5 text='for'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 17 word in line= 6 text='the'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 18 word in line= 7 text='proof'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 19 word in line= 8 text='of'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 20 word in line= 9 text='equivalence'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 21 word in line=10 text='of'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 22 word in line=11 text='SQL'

page= 1 paragraph=26 sentence= 3 line= 5 word in sentence= 23 word in line=12 text='queries'

page= 1 paragraph=26 sentence= 3 line= 6 word in sentence= 24 word in line= 0 text='which'

page= 1 paragraph=26 sentence= 3 line= 6 word in sentence= 25 word in line= 1 text='are'

page= 1 paragraph=26 sentence= 3 line= 6 word in sentence= 26 word in line= 2 text='syntactically'

page= 1 paragraph=26 sentence= 3 line= 6 word in sentence= 27 word in line= 3 text='different'

page= 1 paragraph=26 sentence= 3 line= 6 word in sentence= 28 word in line= 4 text='.'

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Index'

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='Terms'

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='—'

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='Program'

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='translation'

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text=','

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='query'

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='equivalence'

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text=','

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='query'

page= 1 paragraph=27 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='languages'

page= 1 paragraph=27 sentence= 1 line= 2 word in sentence= 11 word in line= 0 text=','

page= 1 paragraph=27 sentence= 1 line= 2 word in sentence= 12 word in line= 1 text='query'

page= 1 paragraph=27 sentence= 1 line= 2 word in sentence= 13 word in line= 2 text='optimization'

page= 1 paragraph=27 sentence= 1 line= 2 word in sentence= 14 word in line= 3 text=','

page= 1 paragraph=27 sentence= 1 line= 2 word in sentence= 15 word in line= 4 text='relational'

page= 1 paragraph=27 sentence= 1 line= 2 word in sentence= 16 word in line= 5 text='algebra'

page= 1 paragraph=27 sentence= 1 line= 2 word in sentence= 17 word in line= 6 text=','

page= 1 paragraph=27 sentence= 1 line= 2 word in sentence= 18 word in line= 7 text='relational'

page= 1 paragraph=27 sentence= 1 line= 2 word in sentence= 19 word in line= 8 text='database'

page= 1 paragraph=27 sentence= 1 line= 3 word in sentence= 20 word in line= 0 text='model'

page= 1 paragraph=27 sentence= 1 line= 3 word in sentence= 21 word in line= 1 text=','

page= 1 paragraph=27 sentence= 1 line= 3 word in sentence= 22 word in line= 2 text='SQL'

page= 1 paragraph=27 sentence= 1 line= 3 word in sentence= 23 word in line= 3 text='.'

page= 1 paragraph=28 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='I'

page= 1 paragraph=28 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='.'

page= 1 paragraph=28 sentence= 2 line= 2 word in sentence= 0 word in line= 0 text='INTRODUCTION'

page= 1 paragraph=29 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='HE'

page= 1 paragraph=29 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='use'

page= 1 paragraph=29 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='of'

page= 1 paragraph=29 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='the'

page= 1 paragraph=29 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='relational'

page= 1 paragraph=29 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='model'

page= 1 paragraph=29 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='and'

page= 1 paragraph=29 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='languages'

page= 1 paragraph=29 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='is'

page= 1 paragraph=29 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='becoming'

page= 1 paragraph=29 sentence= 1 line= 2 word in sentence= 10 word in line= 0 text='more'

page= 1 paragraph=29 sentence= 1 line= 2 word in sentence= 11 word in line= 1 text='and'

page= 1 paragraph=29 sentence= 1 line= 2 word in sentence= 12 word in line= 2 text='more'

page= 1 paragraph=29 sentence= 1 line= 2 word in sentence= 13 word in line= 3 text='popular'

page= 1 paragraph=29 sentence= 1 line= 2 word in sentence= 14 word in line= 4 text='for'

page= 1 paragraph=29 sentence= 1 line= 2 word in sentence= 15 word in line= 5 text='the'

page= 1 paragraph=29 sentence= 1 line= 2 word in sentence= 16 word in line= 6 text='development'

page= 1 paragraph=29 sentence= 1 line= 2 word in sentence= 17 word in line= 7 text='of'

page= 1 paragraph=29 sentence= 1 line= 2 word in sentence= 18 word in line= 8 text='new'

page= 1 paragraph=29 sentence= 1 line= 2 word in sentence= 19 word in line= 9 text='database'

page= 1 paragraph=29 sentence= 1 line= 3 word in sentence= 20 word in line= 0 text='management'

page= 1 paragraph=29 sentence= 1 line= 3 word in sentence= 21 word in line= 1 text='systems'

page= 1 paragraph=29 sentence= 1 line= 3 word in sentence= 22 word in line= 2 text='.'

page= 1 paragraph=29 sentence= 2 line= 3 word in sentence= 0 word in line= 3 text='Formal'

page= 1 paragraph=29 sentence= 2 line= 3 word in sentence= 1 word in line= 4 text='languages'

page= 1 paragraph=29 sentence= 2 line= 3 word in sentence= 2 word in line= 5 text=','

page= 1 paragraph=29 sentence= 2 line= 3 word in sentence= 3 word in line= 6 text='such'

page= 1 paragraph=29 sentence= 2 line= 3 word in sentence= 4 word in line= 7 text='as'

page= 1 paragraph=29 sentence= 2 line= 3 word in sentence= 5 word in line= 8 text='the'

page= 1 paragraph=29 sentence= 2 line= 3 word in sentence= 6 word in line= 9 text='relational'

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 7 word in line= 0 text='calculus'

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 8 word in line= 1 text='and'

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 9 word in line= 2 text='algebra'

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 10 word in line= 3 text=','

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 11 word in line= 4 text='have'

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 12 word in line= 5 text='been'

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 13 word in line= 6 text='proposed'

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 14 word in line= 7 text='by'

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 15 word in line= 8 text='Codd'

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 16 word in line= 9 text='['

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 17 word in line=10 text='1'

page= 1 paragraph=29 sentence= 2 line= 4 word in sentence= 18 word in line=11 text=']'

page= 1 paragraph=30 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='0098-5589'

page= 1 paragraph=30 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='/'

page= 1 paragraph=30 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='85'

page= 1 paragraph=30 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='/'

page= 1 paragraph=30 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='0400-0324'

page= 1 paragraph=30 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='$'

page= 1 paragraph=30 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='01.00'

page= 1 paragraph=30 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='©'

page= 1 paragraph=30 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='1985'

page= 1 paragraph=30 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='IEEE'

page= 2 paragraph= 1 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='CERI'

page= 2 paragraph= 1 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='AND'

page= 2 paragraph= 1 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='GOTTLOB'

page= 2 paragraph= 1 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text=':'

page= 2 paragraph= 1 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='TRANSLATING'

page= 2 paragraph= 1 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='SQL'

page= 2 paragraph= 1 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='INTO'

page= 2 paragraph= 1 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='RELATIONAL'

page= 2 paragraph= 1 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='ALGEBRA'

page= 2 paragraph= 2 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='325'

page= 2 paragraph= 2 sentence= 1 line= 2 word in sentence= 1 word in line= 0 text='and'

page= 2 paragraph= 2 sentence= 1 line= 2 word in sentence= 2 word in line= 1 text='later'

page= 2 paragraph= 2 sentence= 1 line= 2 word in sentence= 3 word in line= 2 text='developed'

page= 2 paragraph= 2 sentence= 1 line= 2 word in sentence= 4 word in line= 3 text='in'

page= 2 paragraph= 2 sentence= 1 line= 2 word in sentence= 5 word in line= 4 text='the'

page= 2 paragraph= 2 sentence= 1 line= 2 word in sentence= 6 word in line= 5 text='literature'

page= 2 paragraph= 2 sentence= 1 line= 2 word in sentence= 7 word in line= 6 text='of'

page= 2 paragraph= 2 sentence= 1 line= 2 word in sentence= 8 word in line= 7 text='database'

page= 2 paragraph= 2 sentence= 1 line= 2 word in sentence= 9 word in line= 8 text='management'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 10 word in line= 0 text='systems'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 11 word in line= 1 text='['

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 12 word in line= 2 text='2'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 13 word in line= 3 text='],'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 14 word in line= 4 text='['

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 15 word in line= 5 text='3'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 16 word in line= 6 text='].'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 17 word in line= 7 text='In'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 18 word in line= 8 text='particular'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 19 word in line= 9 text=','

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 20 word in line=10 text='relational'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 21 word in line=11 text='algebra'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 22 word in line=12 text='can'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 23 word in line=13 text='be'

page= 2 paragraph= 2 sentence= 1 line= 3 word in sentence= 24 word in line=14 text='used'

page= 2 paragraph= 2 sentence= 1 line= 4 word in sentence= 25 word in line= 0 text='as'

page= 2 paragraph= 2 sentence= 1 line= 4 word in sentence= 26 word in line= 1 text='a'

page= 2 paragraph= 2 sentence= 1 line= 4 word in sentence= 27 word in line= 2 text='model'

page= 2 paragraph= 2 sentence= 1 line= 4 word in sentence= 28 word in line= 3 text='for'

page= 2 paragraph= 2 sentence= 1 line= 4 word in sentence= 29 word in line= 4 text='describing'

page= 2 paragraph= 2 sentence= 1 line= 4 word in sentence= 30 word in line= 5 text='many'

page= 2 paragraph= 2 sentence= 1 line= 4 word in sentence= 31 word in line= 6 text='approaches'

page= 2 paragraph= 2 sentence= 1 line= 4 word in sentence= 32 word in line= 7 text='to'

page= 2 paragraph= 2 sentence= 1 line= 4 word in sentence= 33 word in line= 8 text='query'

page= 2 paragraph= 2 sentence= 1 line= 4 word in sentence= 34 word in line= 9 text='optimization'

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 35 word in line= 0 text='['

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 36 word in line= 1 text='3'

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 37 word in line= 2 text=']'

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 38 word in line= 3 text='-'

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 39 word in line= 4 text='['

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 40 word in line= 5 text='6'

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 41 word in line= 6 text=']'

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 42 word in line= 7 text=','

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 43 word in line= 8 text='['

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 44 word in line= 9 text='16'

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 45 word in line=10 text=']'

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 46 word in line=11 text='-'

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 47 word in line=12 text='['

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 48 word in line=13 text='19'

page= 2 paragraph= 2 sentence= 1 line= 5 word in sentence= 49 word in line=14 text='].'

page= 2 paragraph= 3 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Although'

page= 2 paragraph= 3 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='some'

page= 2 paragraph= 3 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='earlier'

page= 2 paragraph= 3 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='proposals'

page= 2 paragraph= 3 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='for'

page= 2 paragraph= 3 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='relational'

page= 2 paragraph= 3 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='manipulation'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 7 word in line= 0 text='languages'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 8 word in line= 1 text='have'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 9 word in line= 2 text='been'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 10 word in line= 3 text='in'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 11 word in line= 4 text='fact'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 12 word in line= 5 text='based'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 13 word in line= 6 text='on'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 14 word in line= 7 text='relational'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 15 word in line= 8 text='algebra'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 16 word in line= 9 text='['

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 17 word in line=10 text='7'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 18 word in line=11 text=']'

page= 2 paragraph= 3 sentence= 1 line= 2 word in sentence= 19 word in line=12 text='or'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 20 word in line= 0 text='calculus'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 21 word in line= 1 text='['

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 22 word in line= 2 text='8'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 23 word in line= 3 text='],'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 24 word in line= 4 text='the'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 25 word in line= 5 text='trend'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 26 word in line= 6 text='in'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 27 word in line= 7 text='the'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 28 word in line= 8 text='design'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 29 word in line= 9 text='of'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 30 word in line=10 text='relational'

page= 2 paragraph= 3 sentence= 1 line= 3 word in sentence= 31 word in line=11 text='languages'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 32 word in line= 0 text='has'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 33 word in line= 1 text='at'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 34 word in line= 2 text='some'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 35 word in line= 3 text='point'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 36 word in line= 4 text='moved'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 37 word in line= 5 text='toward'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 38 word in line= 6 text='a'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 39 word in line= 7 text='different'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 40 word in line= 8 text='direction'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 41 word in line= 9 text=';'

page= 2 paragraph= 3 sentence= 1 line= 4 word in sentence= 42 word in line=10 text='this'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 43 word in line= 0 text='was'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 44 word in line= 1 text='probably'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 45 word in line= 2 text='due'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 46 word in line= 3 text='to'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 47 word in line= 4 text='the'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 48 word in line= 5 text='success'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 49 word in line= 6 text='of'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 50 word in line= 7 text='the'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 51 word in line= 8 text='SQL'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 52 word in line= 9 text='query'

page= 2 paragraph= 3 sentence= 1 line= 5 word in sentence= 53 word in line=10 text='language'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 54 word in line= 0 text='['

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 55 word in line= 1 text='9'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 56 word in line= 2 text='],'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 57 word in line= 3 text='developed'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 58 word in line= 4 text='for'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 59 word in line= 5 text='the'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 60 word in line= 6 text='System'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 61 word in line= 7 text='R'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 62 word in line= 8 text='prototype'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 63 word in line= 9 text='['

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 64 word in line=10 text='10'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 65 word in line=11 text=']'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 66 word in line=12 text=','

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 67 word in line=13 text='which'

page= 2 paragraph= 3 sentence= 1 line= 6 word in sentence= 68 word in line=14 text='has'

page= 2 paragraph= 3 sentence= 1 line= 7 word in sentence= 69 word in line= 0 text='become'

page= 2 paragraph= 3 sentence= 1 line= 7 word in sentence= 70 word in line= 1 text='de'

page= 2 paragraph= 3 sentence= 1 line= 7 word in sentence= 71 word in line= 2 text='facto'

page= 2 paragraph= 3 sentence= 1 line= 7 word in sentence= 72 word in line= 3 text='a'

page= 2 paragraph= 3 sentence= 1 line= 7 word in sentence= 73 word in line= 4 text='standard'

page= 2 paragraph= 3 sentence= 1 line= 7 word in sentence= 74 word in line= 5 text='used'

page= 2 paragraph= 3 sentence= 1 line= 7 word in sentence= 75 word in line= 6 text='by'

page= 2 paragraph= 3 sentence= 1 line= 7 word in sentence= 76 word in line= 7 text='many'

page= 2 paragraph= 3 sentence= 1 line= 7 word in sentence= 77 word in line= 8 text='other'

page= 2 paragraph= 3 sentence= 1 line= 7 word in sentence= 78 word in line= 9 text='systems'

page= 2 paragraph= 4 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='{'

page= 2 paragraph= 4 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='11J-'

page= 2 paragraph= 4 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='['

page= 2 paragraph= 4 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='13'

page= 2 paragraph= 4 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='].'

page= 2 paragraph= 5 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='SQL'

page= 2 paragraph= 5 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='is'

page= 2 paragraph= 5 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='an'

page= 2 paragraph= 5 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='easy-to-use'

page= 2 paragraph= 5 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='language'

page= 2 paragraph= 5 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='with'

page= 2 paragraph= 5 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='a'

page= 2 paragraph= 5 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='number'

page= 2 paragraph= 5 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='of'

page= 2 paragraph= 5 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='high-level'

page= 2 paragraph= 5 sentence= 1 line= 2 word in sentence= 10 word in line= 0 text='constructs'

page= 2 paragraph= 5 sentence= 1 line= 2 word in sentence= 11 word in line= 1 text='.'

page= 2 paragraph= 5 sentence= 2 line= 2 word in sentence= 0 word in line= 2 text='In'

page= 2 paragraph= 5 sentence= 2 line= 2 word in sentence= 1 word in line= 3 text='general'

page= 2 paragraph= 5 sentence= 2 line= 2 word in sentence= 2 word in line= 4 text=','

page= 2 paragraph= 5 sentence= 2 line= 2 word in sentence= 3 word in line= 5 text='small'

page= 2 paragraph= 5 sentence= 2 line= 2 word in sentence= 4 word in line= 6 text='SQL'

page= 2 paragraph= 5 sentence= 2 line= 2 word in sentence= 5 word in line= 7 text='queries'

page= 2 paragraph= 5 sentence= 2 line= 2 word in sentence= 6 word in line= 8 text='are'

page= 2 paragraph= 5 sentence= 2 line= 2 word in sentence= 7 word in line= 9 text='quite'

page= 2 paragraph= 5 sentence= 2 line= 2 word in sentence= 8 word in line=10 text='easy'

page= 2 paragraph= 5 sentence= 2 line= 2 word in sentence= 9 word in line=11 text='to'

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 10 word in line= 0 text='understand'

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 11 word in line= 1 text=';'

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 12 word in line= 2 text='however'

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 13 word in line= 3 text=','

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 14 word in line= 4 text='SQL'

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 15 word in line= 5 text='allows'

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 16 word in line= 6 text='writing'

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 17 word in line= 7 text='very'

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 18 word in line= 8 text='complex'

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 19 word in line= 9 text='queries'

page= 2 paragraph= 5 sentence= 2 line= 3 word in sentence= 20 word in line=10 text=','

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 21 word in line= 0 text='whose'

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 22 word in line= 1 text='meaning'

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 23 word in line= 2 text='is'

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 24 word in line= 3 text='quite'

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 25 word in line= 4 text='obscure'

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 26 word in line= 5 text=','

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 27 word in line= 6 text='and'

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 28 word in line= 7 text='whose'

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 29 word in line= 8 text='optimization'

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 30 word in line= 9 text='is'

page= 2 paragraph= 5 sentence= 2 line= 4 word in sentence= 31 word in line=10 text='extremely'

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 32 word in line= 0 text='hard'

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 33 word in line= 1 text='['

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 34 word in line= 2 text='14'

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 35 word in line= 3 text='].'

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 36 word in line= 4 text='Sometimes'

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 37 word in line= 5 text=','

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 38 word in line= 6 text='two'

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 39 word in line= 7 text='complex'

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 40 word in line= 8 text='queries'

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 41 word in line= 9 text='in'

page= 2 paragraph= 5 sentence= 2 line= 5 word in sentence= 42 word in line=10 text='SQL'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='happen'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='to'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='have'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='the'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='same'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='meaning'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text=','

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='although'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='they'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='are'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='very'

page= 2 paragraph= 6 sentence= 1 line= 1 word in sentence= 11 word in line=11 text='different'

page= 2 paragraph= 6 sentence= 1 line= 2 word in sentence= 12 word in line= 0 text='from'

page= 2 paragraph= 6 sentence= 1 line= 2 word in sentence= 13 word in line= 1 text='a'

page= 2 paragraph= 6 sentence= 1 line= 2 word in sentence= 14 word in line= 2 text='syntactic'

page= 2 paragraph= 6 sentence= 1 line= 2 word in sentence= 15 word in line= 3 text='point'

page= 2 paragraph= 6 sentence= 1 line= 2 word in sentence= 16 word in line= 4 text='of'

page= 2 paragraph= 6 sentence= 1 line= 2 word in sentence= 17 word in line= 5 text='view'

page= 2 paragraph= 6 sentence= 1 line= 2 word in sentence= 18 word in line= 6 text='.'

page= 2 paragraph= 6 sentence= 2 line= 2 word in sentence= 0 word in line= 7 text='In'

page= 2 paragraph= 6 sentence= 2 line= 2 word in sentence= 1 word in line= 8 text='this'

page= 2 paragraph= 6 sentence= 2 line= 2 word in sentence= 2 word in line= 9 text='paper'

page= 2 paragraph= 6 sentence= 2 line= 2 word in sentence= 3 word in line=10 text=','

page= 2 paragraph= 6 sentence= 2 line= 2 word in sentence= 4 word in line=11 text='we'

page= 2 paragraph= 6 sentence= 2 line= 2 word in sentence= 5 word in line=12 text='propose'

page= 2 paragraph= 6 sentence= 2 line= 3 word in sentence= 6 word in line= 0 text='a'

page= 2 paragraph= 6 sentence= 2 line= 3 word in sentence= 7 word in line= 1 text='method'

page= 2 paragraph= 6 sentence= 2 line= 3 word in sentence= 8 word in line= 2 text='for'

page= 2 paragraph= 6 sentence= 2 line= 3 word in sentence= 9 word in line= 3 text='translating'

page= 2 paragraph= 6 sentence= 2 line= 3 word in sentence= 10 word in line= 4 text='SQL'

page= 2 paragraph= 6 sentence= 2 line= 3 word in sentence= 11 word in line= 5 text='queries'

page= 2 paragraph= 6 sentence= 2 line= 3 word in sentence= 12 word in line= 6 text='into'

page= 2 paragraph= 6 sentence= 2 line= 3 word in sentence= 13 word in line= 7 text='expressions'

page= 2 paragraph= 6 sentence= 2 line= 3 word in sentence= 14 word in line= 8 text='of'

page= 2 paragraph= 6 sentence= 2 line= 4 word in sentence= 15 word in line= 0 text='relational'

page= 2 paragraph= 6 sentence= 2 line= 4 word in sentence= 16 word in line= 1 text='algebra'

page= 2 paragraph= 6 sentence= 2 line= 4 word in sentence= 17 word in line= 2 text='.'

page= 2 paragraph= 6 sentence= 3 line= 4 word in sentence= 0 word in line= 3 text='This'

page= 2 paragraph= 6 sentence= 3 line= 4 word in sentence= 1 word in line= 4 text='method'

page= 2 paragraph= 6 sentence= 3 line= 4 word in sentence= 2 word in line= 5 text='also'

page= 2 paragraph= 6 sentence= 3 line= 4 word in sentence= 3 word in line= 6 text='suggests'

page= 2 paragraph= 6 sentence= 3 line= 4 word in sentence= 4 word in line= 7 text='an'

page= 2 paragraph= 6 sentence= 3 line= 4 word in sentence= 5 word in line= 8 text='approach'

page= 2 paragraph= 6 sentence= 3 line= 4 word in sentence= 6 word in line= 9 text='to'

page= 2 paragraph= 6 sentence= 3 line= 5 word in sentence= 7 word in line= 0 text='the'

page= 2 paragraph= 6 sentence= 3 line= 5 word in sentence= 8 word in line= 1 text='design'

page= 2 paragraph= 6 sentence= 3 line= 5 word in sentence= 9 word in line= 2 text='of'

page= 2 paragraph= 6 sentence= 3 line= 5 word in sentence= 10 word in line= 3 text='new'

page= 2 paragraph= 6 sentence= 3 line= 5 word in sentence= 11 word in line= 4 text='query'

page= 2 paragraph= 6 sentence= 3 line= 5 word in sentence= 12 word in line= 5 text='languages'

page= 2 paragraph= 6 sentence= 3 line= 5 word in sentence= 13 word in line= 6 text='.'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='SQL'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='has'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='a'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='basic'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='structure'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='based'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='on'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='the'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='query'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='block'

page= 2 paragraph= 7 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='or'

page= 2 paragraph= 7 sentence= 1 line= 2 word in sentence= 11 word in line= 0 text='subquery'

page= 2 paragraph= 7 sentence= 1 line= 2 word in sentence= 12 word in line= 1 text=':'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='“'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='SELECT'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='target'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='\_'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='list'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='FROM'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='relation'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='\_'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='list'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='WHERE'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='predicate'

page= 2 paragraph= 8 sentence= 1 line= 1 word in sentence= 11 word in line=11 text='”.'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='If'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='the'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='predicate'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='corresponds'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='to'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='a'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='selection'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='formula'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='in'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='the'

page= 2 paragraph= 9 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='sense'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 11 word in line= 0 text='of'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 12 word in line= 1 text='Ullman'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 13 word in line= 2 text='['

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 14 word in line= 3 text='2'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 15 word in line= 4 text='],'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 16 word in line= 5 text='then'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 17 word in line= 6 text='a'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 18 word in line= 7 text='query'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 19 word in line= 8 text='block'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 20 word in line= 9 text='is'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 21 word in line=10 text='easily'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 22 word in line=11 text='mapped'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 23 word in line=12 text='to'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 24 word in line=13 text='a'

page= 2 paragraph= 9 sentence= 1 line= 2 word in sentence= 25 word in line=14 text='relational'

page= 2 paragraph= 9 sentence= 1 line= 3 word in sentence= 26 word in line= 0 text='algebra'

page= 2 paragraph= 9 sentence= 1 line= 3 word in sentence= 27 word in line= 1 text='expression'

page= 2 paragraph= 9 sentence= 1 line= 3 word in sentence= 28 word in line= 2 text='.'

page= 2 paragraph= 9 sentence= 2 line= 3 word in sentence= 0 word in line= 3 text='However'

page= 2 paragraph= 9 sentence= 2 line= 3 word in sentence= 1 word in line= 4 text=','

page= 2 paragraph= 9 sentence= 2 line= 3 word in sentence= 2 word in line= 5 text='SQL'

page= 2 paragraph= 9 sentence= 2 line= 3 word in sentence= 3 word in line= 6 text='allows'

page= 2 paragraph= 9 sentence= 2 line= 3 word in sentence= 4 word in line= 7 text='several'

page= 2 paragraph= 9 sentence= 2 line= 3 word in sentence= 5 word in line= 8 text='features'

page= 2 paragraph= 9 sentence= 2 line= 4 word in sentence= 6 word in line= 0 text='which'

page= 2 paragraph= 9 sentence= 2 line= 4 word in sentence= 7 word in line= 1 text='are'

page= 2 paragraph= 9 sentence= 2 line= 4 word in sentence= 8 word in line= 2 text='not'

page= 2 paragraph= 9 sentence= 2 line= 4 word in sentence= 9 word in line= 3 text='trivially'

page= 2 paragraph= 9 sentence= 2 line= 4 word in sentence= 10 word in line= 4 text='mapped'

page= 2 paragraph= 9 sentence= 2 line= 4 word in sentence= 11 word in line= 5 text=':'

page= 2 paragraph= 9 sentence= 2 line= 5 word in sentence= 12 word in line= 0 text='1'

page= 2 paragraph= 9 sentence= 2 line= 5 word in sentence= 13 word in line= 1 text=')'

page= 2 paragraph= 9 sentence= 2 line= 5 word in sentence= 14 word in line= 2 text='the'

page= 2 paragraph= 9 sentence= 2 line= 5 word in sentence= 15 word in line= 3 text='nesting'

page= 2 paragraph= 9 sentence= 2 line= 5 word in sentence= 16 word in line= 4 text='of'

page= 2 paragraph= 9 sentence= 2 line= 5 word in sentence= 17 word in line= 5 text='several'

page= 2 paragraph= 9 sentence= 2 line= 5 word in sentence= 18 word in line= 6 text='query'

page= 2 paragraph= 9 sentence= 2 line= 5 word in sentence= 19 word in line= 7 text='blocks'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 20 word in line= 0 text='2'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 21 word in line= 1 text=')'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 22 word in line= 2 text='the'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 23 word in line= 3 text='use'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 24 word in line= 4 text='of'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 25 word in line= 5 text='keywords'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 26 word in line= 6 text='such'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 27 word in line= 7 text='as'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 28 word in line= 8 text=':'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 29 word in line= 9 text='EXISTS'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 30 word in line=10 text=','

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 31 word in line=11 text='ALL'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 32 word in line=12 text=','

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 33 word in line=13 text='ANY'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 34 word in line=14 text=','

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 35 word in line=15 text='IN'

page= 2 paragraph= 9 sentence= 2 line= 6 word in sentence= 36 word in line=16 text='in'

page= 2 paragraph= 9 sentence= 2 line= 7 word in sentence= 37 word in line= 0 text='the'

page= 2 paragraph= 9 sentence= 2 line= 7 word in sentence= 38 word in line= 1 text='connection'

page= 2 paragraph= 9 sentence= 2 line= 7 word in sentence= 39 word in line= 2 text='between'

page= 2 paragraph= 9 sentence= 2 line= 7 word in sentence= 40 word in line= 3 text='query'

page= 2 paragraph= 9 sentence= 2 line= 7 word in sentence= 41 word in line= 4 text='blocks'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 42 word in line= 0 text='3'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 43 word in line= 1 text=')'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 44 word in line= 2 text='the'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 45 word in line= 3 text='use'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 46 word in line= 4 text='of'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 47 word in line= 5 text='variables'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 48 word in line= 6 text='and'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 49 word in line= 7 text='of'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 50 word in line= 8 text='predicates'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 51 word in line= 9 text='connecting'

page= 2 paragraph= 9 sentence= 2 line= 8 word in sentence= 52 word in line=10 text='query'

page= 2 paragraph= 9 sentence= 2 line= 9 word in sentence= 53 word in line= 0 text='blocks'

page= 2 paragraph= 9 sentence= 2 line= 9 word in sentence= 54 word in line= 1 text='indirectly'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 55 word in line= 0 text='4'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 56 word in line= 1 text=')'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 57 word in line= 2 text='the'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 58 word in line= 3 text='use'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 59 word in line= 4 text='of'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 60 word in line= 5 text='set'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 61 word in line= 6 text='comparison'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 62 word in line= 7 text='operations'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 63 word in line= 8 text='between'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 64 word in line= 9 text='two'

page= 2 paragraph= 9 sentence= 2 line=10 word in sentence= 65 word in line=10 text='query'

page= 2 paragraph= 9 sentence= 2 line=11 word in sentence= 66 word in line= 0 text='blocks'

page= 2 paragraph= 9 sentence= 2 line=11 word in sentence= 67 word in line= 1 text='.'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 0 word in line= 0 text='5'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 1 word in line= 1 text=')'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 2 word in line= 2 text='the'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 3 word in line= 3 text='grouping'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 4 word in line= 4 text='of'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 5 word in line= 5 text='tuples'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 6 word in line= 6 text='of'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 7 word in line= 7 text='a'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 8 word in line= 8 text='relation'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 9 word in line= 9 text='into'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 10 word in line=10 text='subsets'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 11 word in line=11 text='and'

page= 2 paragraph= 9 sentence= 3 line=12 word in sentence= 12 word in line=12 text='the'

page= 2 paragraph= 9 sentence= 3 line=13 word in sentence= 13 word in line= 0 text='evaluation'

page= 2 paragraph= 9 sentence= 3 line=13 word in sentence= 14 word in line= 1 text='of'

page= 2 paragraph= 9 sentence= 3 line=13 word in sentence= 15 word in line= 2 text='aggregate'

page= 2 paragraph= 9 sentence= 3 line=13 word in sentence= 16 word in line= 3 text='functions'

page= 2 paragraph= 9 sentence= 3 line=13 word in sentence= 17 word in line= 4 text='on'

page= 2 paragraph= 9 sentence= 3 line=13 word in sentence= 18 word in line= 5 text='each'

page= 2 paragraph= 9 sentence= 3 line=13 word in sentence= 19 word in line= 6 text='subset'

page= 2 paragraph= 9 sentence= 3 line=13 word in sentence= 20 word in line= 7 text='.'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 0 word in line= 0 text='In'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 1 word in line= 1 text='this'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 2 word in line= 2 text='paper'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 3 word in line= 3 text=','

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 4 word in line= 4 text='we'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 5 word in line= 5 text='show'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 6 word in line= 6 text='how'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 7 word in line= 7 text='all'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 8 word in line= 8 text='these'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 9 word in line= 9 text='features'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 10 word in line=10 text='can'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 11 word in line=11 text='be'

page= 2 paragraph= 9 sentence= 4 line=14 word in sentence= 12 word in line=12 text='mapped'

page= 2 paragraph= 9 sentence= 4 line=15 word in sentence= 13 word in line= 0 text='to'

page= 2 paragraph= 9 sentence= 4 line=15 word in sentence= 14 word in line= 1 text='expressions'

page= 2 paragraph= 9 sentence= 4 line=15 word in sentence= 15 word in line= 2 text='of'

page= 2 paragraph= 9 sentence= 4 line=15 word in sentence= 16 word in line= 3 text='relational'

page= 2 paragraph= 9 sentence= 4 line=15 word in sentence= 17 word in line= 4 text='algebra'

page= 2 paragraph= 9 sentence= 4 line=15 word in sentence= 18 word in line= 5 text='.'

page= 2 paragraph= 9 sentence= 5 line=16 word in sentence= 0 word in line= 0 text='Relational'

page= 2 paragraph= 9 sentence= 5 line=16 word in sentence= 1 word in line= 1 text='algebra'

page= 2 paragraph= 9 sentence= 5 line=16 word in sentence= 2 word in line= 2 text='has'

page= 2 paragraph= 9 sentence= 5 line=16 word in sentence= 3 word in line= 3 text='been'

page= 2 paragraph= 9 sentence= 5 line=16 word in sentence= 4 word in line= 4 text='preferred'

page= 2 paragraph= 9 sentence= 5 line=16 word in sentence= 5 word in line= 5 text='to'

page= 2 paragraph= 9 sentence= 5 line=16 word in sentence= 6 word in line= 6 text='relational'

page= 2 paragraph= 9 sentence= 5 line=16 word in sentence= 7 word in line= 7 text='calculus'

page= 2 paragraph= 9 sentence= 5 line=16 word in sentence= 8 word in line= 8 text='as'

page= 2 paragraph= 9 sentence= 5 line=17 word in sentence= 9 word in line= 0 text='target'

page= 2 paragraph= 9 sentence= 5 line=17 word in sentence= 10 word in line= 1 text='of'

page= 2 paragraph= 9 sentence= 5 line=17 word in sentence= 11 word in line= 2 text='our'

page= 2 paragraph= 9 sentence= 5 line=17 word in sentence= 12 word in line= 3 text='translator'

page= 2 paragraph= 9 sentence= 5 line=17 word in sentence= 13 word in line= 4 text='for'

page= 2 paragraph= 9 sentence= 5 line=17 word in sentence= 14 word in line= 5 text='the'

page= 2 paragraph= 9 sentence= 5 line=17 word in sentence= 15 word in line= 6 text='following'

page= 2 paragraph= 9 sentence= 5 line=17 word in sentence= 16 word in line= 7 text='reasons'

page= 2 paragraph= 9 sentence= 5 line=17 word in sentence= 17 word in line= 8 text=':'

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='1'

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text=')'

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='It'

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='is'

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='more'

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='procedural'

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text=','

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='because'

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='algebraic'

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='expressions'

page= 2 paragraph=10 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='also'

page= 2 paragraph=10 sentence= 1 line= 2 word in sentence= 11 word in line= 0 text='give'

page= 2 paragraph=10 sentence= 1 line= 2 word in sentence= 12 word in line= 1 text='the'

page= 2 paragraph=10 sentence= 1 line= 2 word in sentence= 13 word in line= 2 text='order'

page= 2 paragraph=10 sentence= 1 line= 2 word in sentence= 14 word in line= 3 text='of'

page= 2 paragraph=10 sentence= 1 line= 2 word in sentence= 15 word in line= 4 text='application'

page= 2 paragraph=10 sentence= 1 line= 2 word in sentence= 16 word in line= 5 text='of'

page= 2 paragraph=10 sentence= 1 line= 2 word in sentence= 17 word in line= 6 text='operations'

page= 2 paragraph=10 sentence= 1 line= 2 word in sentence= 18 word in line= 7 text='in'

page= 2 paragraph=10 sentence= 1 line= 2 word in sentence= 19 word in line= 8 text='the'

page= 2 paragraph=10 sentence= 1 line= 2 word in sentence= 20 word in line= 9 text='computation'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 21 word in line= 0 text='of'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 22 word in line= 1 text='the'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 23 word in line= 2 text='query'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 24 word in line= 3 text=';'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 25 word in line= 4 text='thus'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 26 word in line= 5 text=','

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 27 word in line= 6 text='it'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 28 word in line= 7 text='is'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 29 word in line= 8 text='a'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 30 word in line= 9 text='more'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 31 word in line=10 text='appropriate'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 32 word in line=11 text='model'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 33 word in line=12 text='for'

page= 2 paragraph=10 sentence= 1 line= 3 word in sentence= 34 word in line=13 text='query'

page= 2 paragraph=10 sentence= 1 line= 4 word in sentence= 35 word in line= 0 text='optimization'

page= 2 paragraph=10 sentence= 1 line= 4 word in sentence= 36 word in line= 1 text='and'

page= 2 paragraph=10 sentence= 1 line= 4 word in sentence= 37 word in line= 2 text='system'

page= 2 paragraph=10 sentence= 1 line= 4 word in sentence= 38 word in line= 3 text='implementation'

page= 2 paragraph=10 sentence= 1 line= 4 word in sentence= 39 word in line= 4 text='.'

page= 2 paragraph=11 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='2'

page= 2 paragraph=11 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text=')'

page= 2 paragraph=11 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='Many'

page= 2 paragraph=11 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='existing'

page= 2 paragraph=11 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='approaches'

page= 2 paragraph=11 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='to'

page= 2 paragraph=11 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='query'

page= 2 paragraph=11 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='optimization'

page= 2 paragraph=11 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='and'

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 9 word in line= 0 text='equivalence'

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 10 word in line= 1 text='are'

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 11 word in line= 2 text='('

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 12 word in line= 3 text='or'

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 13 word in line= 4 text='can'

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 14 word in line= 5 text='easily'

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 15 word in line= 6 text='be'

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 16 word in line= 7 text=')'

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 17 word in line= 8 text='expressed'

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 18 word in line= 9 text='in'

page= 2 paragraph=11 sentence= 1 line= 2 word in sentence= 19 word in line=10 text='relational'

page= 2 paragraph=11 sentence= 1 line= 3 word in sentence= 20 word in line= 0 text='algebra'

page= 2 paragraph=11 sentence= 1 line= 3 word in sentence= 21 word in line= 1 text='.'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='3'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text=')'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='Relational'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='algebra'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='uses'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='relations'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='('

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='or'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='sets'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text=')'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='as'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 11 word in line=11 text='operands'

page= 2 paragraph=12 sentence= 1 line= 1 word in sentence= 12 word in line=12 text=','

page= 2 paragraph=12 sentence= 1 line= 2 word in sentence= 13 word in line= 0 text='while'

page= 2 paragraph=12 sentence= 1 line= 2 word in sentence= 14 word in line= 1 text='calculus'

page= 2 paragraph=12 sentence= 1 line= 2 word in sentence= 15 word in line= 2 text='is'

page= 2 paragraph=12 sentence= 1 line= 2 word in sentence= 16 word in line= 3 text='based'

page= 2 paragraph=12 sentence= 1 line= 2 word in sentence= 17 word in line= 4 text='on'

page= 2 paragraph=12 sentence= 1 line= 2 word in sentence= 18 word in line= 5 text='tuple'

page= 2 paragraph=12 sentence= 1 line= 2 word in sentence= 19 word in line= 6 text='variables'

page= 2 paragraph=12 sentence= 1 line= 2 word in sentence= 20 word in line= 7 text='.'

page= 2 paragraph=12 sentence= 2 line= 2 word in sentence= 0 word in line= 8 text='For'

page= 2 paragraph=12 sentence= 2 line= 2 word in sentence= 1 word in line= 9 text='the'

page= 2 paragraph=12 sentence= 2 line= 2 word in sentence= 2 word in line=10 text='optimization'

page= 2 paragraph=12 sentence= 2 line= 3 word in sentence= 3 word in line= 0 text='of'

page= 2 paragraph=12 sentence= 2 line= 3 word in sentence= 4 word in line= 1 text='queries'

page= 2 paragraph=12 sentence= 2 line= 3 word in sentence= 5 word in line= 2 text=','

page= 2 paragraph=12 sentence= 2 line= 3 word in sentence= 6 word in line= 3 text='particularly'

page= 2 paragraph=12 sentence= 2 line= 3 word in sentence= 7 word in line= 4 text='with'

page= 2 paragraph=12 sentence= 2 line= 3 word in sentence= 8 word in line= 5 text='distributed'

page= 2 paragraph=12 sentence= 2 line= 3 word in sentence= 9 word in line= 6 text='environments'

page= 2 paragraph=12 sentence= 2 line= 3 word in sentence= 10 word in line= 7 text='or'

page= 2 paragraph=12 sentence= 2 line= 4 word in sentence= 11 word in line= 0 text='special-purpose'

page= 2 paragraph=12 sentence= 2 line= 4 word in sentence= 12 word in line= 1 text='database'

page= 2 paragraph=12 sentence= 2 line= 4 word in sentence= 13 word in line= 2 text='machines'

page= 2 paragraph=12 sentence= 2 line= 4 word in sentence= 14 word in line= 3 text=','

page= 2 paragraph=12 sentence= 2 line= 4 word in sentence= 15 word in line= 4 text='set-oriented'

page= 2 paragraph=12 sentence= 2 line= 4 word in sentence= 16 word in line= 5 text='models'

page= 2 paragraph=12 sentence= 2 line= 4 word in sentence= 17 word in line= 6 text='are'

page= 2 paragraph=12 sentence= 2 line= 5 word in sentence= 18 word in line= 0 text='more'

page= 2 paragraph=12 sentence= 2 line= 5 word in sentence= 19 word in line= 1 text='appropriate'

page= 2 paragraph=12 sentence= 2 line= 5 word in sentence= 20 word in line= 2 text='than'

page= 2 paragraph=12 sentence= 2 line= 5 word in sentence= 21 word in line= 3 text='tuple-oriented'

page= 2 paragraph=12 sentence= 2 line= 5 word in sentence= 22 word in line= 4 text='models'

page= 2 paragraph=12 sentence= 2 line= 5 word in sentence= 23 word in line= 5 text='['

page= 2 paragraph=12 sentence= 2 line= 5 word in sentence= 24 word in line= 6 text='19'

page= 2 paragraph=12 sentence= 2 line= 5 word in sentence= 25 word in line= 7 text=']'

page= 2 paragraph=12 sentence= 2 line= 5 word in sentence= 26 word in line= 8 text='.'

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='We'

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='have'

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='used'

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='standard'

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='relational'

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='algebra'

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text=','

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='with'

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='the'

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='only'

page= 2 paragraph=13 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='addition'

page= 2 paragraph=13 sentence= 1 line= 2 word in sentence= 11 word in line= 0 text='of'

page= 2 paragraph=13 sentence= 1 line= 2 word in sentence= 12 word in line= 1 text='a'

page= 2 paragraph=13 sentence= 1 line= 2 word in sentence= 13 word in line= 2 text='new'

page= 2 paragraph=13 sentence= 1 line= 2 word in sentence= 14 word in line= 3 text='operation'

page= 2 paragraph=13 sentence= 1 line= 2 word in sentence= 15 word in line= 4 text='for'

page= 2 paragraph=13 sentence= 1 line= 2 word in sentence= 16 word in line= 5 text='the'

page= 2 paragraph=13 sentence= 1 line= 2 word in sentence= 17 word in line= 6 text='evaluation'

page= 2 paragraph=13 sentence= 1 line= 2 word in sentence= 18 word in line= 7 text='of'

page= 2 paragraph=13 sentence= 1 line= 2 word in sentence= 19 word in line= 8 text='aggregate'

page= 2 paragraph=13 sentence= 1 line= 2 word in sentence= 20 word in line= 9 text='functions'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 21 word in line= 0 text=','

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 22 word in line= 1 text='which'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 23 word in line= 2 text='was'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 24 word in line= 3 text='required'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 25 word in line= 4 text='by'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 26 word in line= 5 text='the'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 27 word in line= 6 text='last'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 28 word in line= 7 text='feature'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 29 word in line= 8 text='in'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 30 word in line= 9 text='the'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 31 word in line=10 text='above'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 32 word in line=11 text='list'

page= 2 paragraph=13 sentence= 1 line= 3 word in sentence= 33 word in line=12 text='.'

page= 2 paragraph=14 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='SQL'

page= 2 paragraph=15 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='“|'

page= 2 paragraph=16 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Query'

page= 2 paragraph=17 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='NAMING'

page= 2 paragraph=17 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='TRANSFORMATION'

page= 2 paragraph=18 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='SQL'

page= 2 paragraph=19 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Query'

page= 2 paragraph=20 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='('

page= 2 paragraph=20 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='accepted'

page= 2 paragraph=20 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='by'

page= 2 paragraph=20 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='EG'

page= 2 paragraph=20 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text=')'

page= 2 paragraph=21 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='PRE'

page= 2 paragraph=21 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='—'

page= 2 paragraph=21 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='PROCESSING'

page= 2 paragraph=22 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='SQL'

page= 2 paragraph=23 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='‘'

page= 2 paragraph=24 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Query'

page= 2 paragraph=25 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='('

page= 2 paragraph=25 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='accepted'

page= 2 paragraph=25 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='by'

page= 2 paragraph=25 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='RG'

page= 2 paragraph=25 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text=')'

page= 2 paragraph=26 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='‘'

page= 2 paragraph=26 sentence= 1 line= 2 word in sentence= 1 word in line= 0 text='algebraic'

page= 2 paragraph=26 sentence= 1 line= 2 word in sentence= 2 word in line= 1 text='expression'

page= 2 paragraph=27 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='POST'

page= 2 paragraph=27 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='-'

page= 2 paragraph=27 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='PROCESSING'

page= 2 paragraph=28 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='|'

page= 2 paragraph=28 sentence= 1 line= 2 word in sentence= 1 word in line= 0 text='algebraic'

page= 2 paragraph=28 sentence= 1 line= 2 word in sentence= 2 word in line= 1 text='expression'

page= 2 paragraph=29 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='Fig'

page= 2 paragraph=29 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='.'

page= 2 paragraph=29 sentence= 2 line= 1 word in sentence= 0 word in line= 2 text='1'

page= 2 paragraph=29 sentence= 2 line= 1 word in sentence= 1 word in line= 3 text='.'

page= 2 paragraph=29 sentence= 3 line= 1 word in sentence= 0 word in line= 4 text='Overall'

page= 2 paragraph=29 sentence= 3 line= 1 word in sentence= 1 word in line= 5 text='architecture'

page= 2 paragraph=29 sentence= 3 line= 1 word in sentence= 2 word in line= 6 text='of'

page= 2 paragraph=29 sentence= 3 line= 1 word in sentence= 3 word in line= 7 text='the'

page= 2 paragraph=29 sentence= 3 line= 1 word in sentence= 4 word in line= 8 text='translator'

page= 2 paragraph=29 sentence= 3 line= 1 word in sentence= 5 word in line= 9 text='.'

page= 2 paragraph=30 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='A'

page= 2 paragraph=30 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='.'

page= 2 paragraph=30 sentence= 2 line= 1 word in sentence= 0 word in line= 2 text='Overview'

page= 2 paragraph=30 sentence= 2 line= 1 word in sentence= 1 word in line= 3 text='of'

page= 2 paragraph=30 sentence= 2 line= 1 word in sentence= 2 word in line= 4 text='the'

page= 2 paragraph=30 sentence= 2 line= 1 word in sentence= 3 word in line= 5 text='Proposed'

page= 2 paragraph=30 sentence= 2 line= 1 word in sentence= 4 word in line= 6 text='Approach'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 5 word in line= 0 text='The'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 6 word in line= 1 text='overall'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 7 word in line= 2 text='architecture'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 8 word in line= 3 text='of'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 9 word in line= 4 text='the'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 10 word in line= 5 text='translator'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 11 word in line= 6 text='is'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 12 word in line= 7 text='shown'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 13 word in line= 8 text='in'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 14 word in line= 9 text='Fig'

page= 2 paragraph=30 sentence= 2 line= 2 word in sentence= 15 word in line=10 text='.'

page= 2 paragraph=30 sentence= 3 line= 2 word in sentence= 0 word in line=11 text='1'

page= 2 paragraph=30 sentence= 3 line= 2 word in sentence= 1 word in line=12 text='.'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 0 word in line= 0 text='The'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 1 word in line= 1 text='translator'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 2 word in line= 2 text='is'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 3 word in line= 3 text='based'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 4 word in line= 4 text='on'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 5 word in line= 5 text='two'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 6 word in line= 6 text='grammars'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 7 word in line= 7 text='for'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 8 word in line= 8 text='the'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 9 word in line= 9 text='SQL'

page= 2 paragraph=30 sentence= 4 line= 3 word in sentence= 10 word in line=10 text='language'

page= 2 paragraph=30 sentence= 4 line= 4 word in sentence= 11 word in line= 0 text=':'

page= 2 paragraph=30 sentence= 4 line= 4 word in sentence= 12 word in line= 1 text='an'

page= 2 paragraph=30 sentence= 4 line= 4 word in sentence= 13 word in line= 2 text='extended'

page= 2 paragraph=30 sentence= 4 line= 4 word in sentence= 14 word in line= 3 text='grammar'

page= 2 paragraph=30 sentence= 4 line= 4 word in sentence= 15 word in line= 4 text='EG'

page= 2 paragraph=30 sentence= 4 line= 4 word in sentence= 16 word in line= 5 text=','

page= 2 paragraph=30 sentence= 4 line= 4 word in sentence= 17 word in line= 6 text='and'

page= 2 paragraph=30 sentence= 4 line= 4 word in sentence= 18 word in line= 7 text='a'

page= 2 paragraph=30 sentence= 4 line= 4 word in sentence= 19 word in line= 8 text='restricted'

page= 2 paragraph=30 sentence= 4 line= 4 word in sentence= 20 word in line= 9 text='grammar'

page= 2 paragraph=30 sentence= 4 line= 5 word in sentence= 21 word in line= 0 text='RG'

page= 2 paragraph=30 sentence= 4 line= 5 word in sentence= 22 word in line= 1 text='.'

page= 2 paragraph=30 sentence= 5 line= 5 word in sentence= 0 word in line= 2 text='EG'

page= 2 paragraph=30 sentence= 5 line= 5 word in sentence= 1 word in line= 3 text='does'

page= 2 paragraph=30 sentence= 5 line= 5 word in sentence= 2 word in line= 4 text='not'

page= 2 paragraph=30 sentence= 5 line= 5 word in sentence= 3 word in line= 5 text='accept'

page= 2 paragraph=30 sentence= 5 line= 5 word in sentence= 4 word in line= 6 text='all'

page= 2 paragraph=30 sentence= 5 line= 5 word in sentence= 5 word in line= 7 text='the'

page= 2 paragraph=30 sentence= 5 line= 5 word in sentence= 6 word in line= 8 text='statements'

page= 2 paragraph=30 sentence= 5 line= 5 word in sentence= 7 word in line= 9 text='accepted'

page= 2 paragraph=30 sentence= 5 line= 5 word in sentence= 8 word in line=10 text='by'

page= 2 paragraph=30 sentence= 5 line= 5 word in sentence= 9 word in line=11 text='the'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 10 word in line= 0 text='SQL'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 11 word in line= 1 text='grammar'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 12 word in line= 2 text='of'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 13 word in line= 3 text='['

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 14 word in line= 4 text='9'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 15 word in line= 5 text='],'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 16 word in line= 6 text='but'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 17 word in line= 7 text='it'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 18 word in line= 8 text='has'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 19 word in line= 9 text='approximately'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 20 word in line=10 text='the'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 21 word in line=11 text='same'

page= 2 paragraph=30 sentence= 5 line= 6 word in sentence= 22 word in line=12 text='expressive'

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 23 word in line= 0 text='power'

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 24 word in line= 1 text=';'

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 25 word in line= 2 text='it'

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 26 word in line= 3 text='also'

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 27 word in line= 4 text='includes'

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 28 word in line= 5 text='some'

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 29 word in line= 6 text='elements'

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 30 word in line= 7 text='('

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 31 word in line= 8 text='such'

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 32 word in line= 9 text='as'

page= 2 paragraph=30 sentence= 5 line= 7 word in sentence= 33 word in line=10 text='the'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 34 word in line= 0 text='EXISTS'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 35 word in line= 1 text='and'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 36 word in line= 2 text='ALL'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 37 word in line= 3 text='keywords'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 38 word in line= 4 text='in'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 39 word in line= 5 text='the'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 40 word in line= 6 text='predicates'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 41 word in line= 7 text=')'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 42 word in line= 8 text='which'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 43 word in line= 9 text='were'

page= 2 paragraph=30 sentence= 5 line= 8 word in sentence= 44 word in line=10 text='not'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 45 word in line= 0 text='present'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 46 word in line= 1 text='in'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 47 word in line= 2 text='the'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 48 word in line= 3 text='grammar'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 49 word in line= 4 text='of'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 50 word in line= 5 text='['

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 51 word in line= 6 text='9'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 52 word in line= 7 text='].'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 53 word in line= 8 text='In'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 54 word in line= 9 text='the'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 55 word in line=10 text='sequel'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 56 word in line=11 text=','

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 57 word in line=12 text='we'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 58 word in line=13 text='will'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 59 word in line=14 text='be'

page= 2 paragraph=30 sentence= 5 line= 9 word in sentence= 60 word in line=15 text='more'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 61 word in line= 0 text='specific'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 62 word in line= 1 text='on'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 63 word in line= 2 text='the'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 64 word in line= 3 text='SQL'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 65 word in line= 4 text='statements'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 66 word in line= 5 text='which'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 67 word in line= 6 text='are'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 68 word in line= 7 text='not'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 69 word in line= 8 text='accepted'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 70 word in line= 9 text='by'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 71 word in line=10 text='EG'

page= 2 paragraph=30 sentence= 5 line=10 word in sentence= 72 word in line=11 text='.'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='The'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='main'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='difference'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='between'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='the'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='grammar'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='of'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='['

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='9'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text=']'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='and'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 11 word in line=11 text='EG'

page= 2 paragraph=31 sentence= 1 line= 1 word in sentence= 12 word in line=12 text='is'

page= 2 paragraph=31 sentence= 1 line= 2 word in sentence= 13 word in line= 0 text='that'

page= 2 paragraph=31 sentence= 1 line= 2 word in sentence= 14 word in line= 1 text='EG'

page= 2 paragraph=31 sentence= 1 line= 2 word in sentence= 15 word in line= 2 text='allows'

page= 2 paragraph=31 sentence= 1 line= 2 word in sentence= 16 word in line= 3 text='a'

page= 2 paragraph=31 sentence= 1 line= 2 word in sentence= 17 word in line= 4 text='correspondence'

page= 2 paragraph=31 sentence= 1 line= 2 word in sentence= 18 word in line= 5 text='between'

page= 2 paragraph=31 sentence= 1 line= 2 word in sentence= 19 word in line= 6 text='types'

page= 2 paragraph=31 sentence= 1 line= 2 word in sentence= 20 word in line= 7 text='of'

page= 2 paragraph=31 sentence= 1 line= 2 word in sentence= 21 word in line= 8 text='SQL'

page= 2 paragraph=31 sentence= 1 line= 2 word in sentence= 22 word in line= 9 text='subqueries'

page= 2 paragraph=31 sentence= 1 line= 3 word in sentence= 23 word in line= 0 text='and'

page= 2 paragraph=31 sentence= 1 line= 3 word in sentence= 24 word in line= 1 text='productions'

page= 2 paragraph=31 sentence= 1 line= 3 word in sentence= 25 word in line= 2 text='of'

page= 2 paragraph=31 sentence= 1 line= 3 word in sentence= 26 word in line= 3 text='the'

page= 2 paragraph=31 sentence= 1 line= 3 word in sentence= 27 word in line= 4 text='grammar'

page= 2 paragraph=31 sentence= 1 line= 3 word in sentence= 28 word in line= 5 text=','

page= 2 paragraph=31 sentence= 1 line= 3 word in sentence= 29 word in line= 6 text='thus'

page= 2 paragraph=31 sentence= 1 line= 3 word in sentence= 30 word in line= 7 text='allowing'

page= 2 paragraph=31 sentence= 1 line= 3 word in sentence= 31 word in line= 8 text='a'

page= 2 paragraph=31 sentence= 1 line= 4 word in sentence= 32 word in line= 0 text='syntax-directed'

page= 2 paragraph=31 sentence= 1 line= 4 word in sentence= 33 word in line= 1 text='translation'

page= 2 paragraph=31 sentence= 1 line= 4 word in sentence= 34 word in line= 2 text='['

page= 2 paragraph=31 sentence= 1 line= 4 word in sentence= 35 word in line= 3 text='15'

page= 2 paragraph=31 sentence= 1 line= 4 word in sentence= 36 word in line= 4 text='].'

page= 2 paragraph=31 sentence= 1 line= 4 word in sentence= 37 word in line= 5 text='RG'

page= 2 paragraph=31 sentence= 1 line= 4 word in sentence= 38 word in line= 6 text='has'

page= 2 paragraph=31 sentence= 1 line= 4 word in sentence= 39 word in line= 7 text='a'

page= 2 paragraph=31 sentence= 1 line= 4 word in sentence= 40 word in line= 8 text='smaller'

page= 2 paragraph=31 sentence= 1 line= 4 word in sentence= 41 word in line= 9 text='number'

page= 2 paragraph=31 sentence= 1 line= 5 word in sentence= 42 word in line= 0 text='of'

page= 2 paragraph=31 sentence= 1 line= 5 word in sentence= 43 word in line= 1 text='productions'

page= 2 paragraph=31 sentence= 1 line= 5 word in sentence= 44 word in line= 2 text='than'

page= 2 paragraph=31 sentence= 1 line= 5 word in sentence= 45 word in line= 3 text='EG'

page= 2 paragraph=31 sentence= 1 line= 5 word in sentence= 46 word in line= 4 text=','

page= 2 paragraph=31 sentence= 1 line= 5 word in sentence= 47 word in line= 5 text='representing'

page= 2 paragraph=31 sentence= 1 line= 5 word in sentence= 48 word in line= 6 text='few'

page= 2 paragraph=31 sentence= 1 line= 5 word in sentence= 49 word in line= 7 text='types'

page= 2 paragraph=31 sentence= 1 line= 5 word in sentence= 50 word in line= 8 text='of'

page= 2 paragraph=31 sentence= 1 line= 5 word in sentence= 51 word in line= 9 text='SQL'

page= 2 paragraph=31 sentence= 1 line= 6 word in sentence= 52 word in line= 0 text='subqueries'

page= 2 paragraph=31 sentence= 1 line= 6 word in sentence= 53 word in line= 1 text='.'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 0 word in line= 0 text='The'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 1 word in line= 1 text='queries'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 2 word in line= 2 text='which'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 3 word in line= 3 text='are'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 4 word in line= 4 text='accepted'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 5 word in line= 5 text='by'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 6 word in line= 6 text='the'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 7 word in line= 7 text='EG'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 8 word in line= 8 text='but'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 9 word in line= 9 text='not'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 10 word in line=10 text='by'

page= 2 paragraph=32 sentence= 1 line= 1 word in sentence= 11 word in line=11 text='the'

page= 2 paragraph=32 sentence= 1 line= 2 word in sentence= 12 word in line= 0 text='RG'

page= 2 paragraph=32 sentence= 1 line= 2 word in sentence= 13 word in line= 1 text='are'

page= 2 paragraph=32 sentence= 1 line= 2 word in sentence= 14 word in line= 2 text='preprocessed'

page= 2 paragraph=32 sentence= 1 line= 2 word in sentence= 15 word in line= 3 text='and'

page= 2 paragraph=32 sentence= 1 line= 2 word in sentence= 16 word in line= 4 text='transformed'

page= 2 paragraph=32 sentence= 1 line= 2 word in sentence= 17 word in line= 5 text='into'

page= 2 paragraph=32 sentence= 1 line= 2 word in sentence= 18 word in line= 6 text='queries'

page= 2 paragraph=32 sentence= 1 line= 2 word in sentence= 19 word in line= 7 text='which'

page= 2 paragraph=32 sentence= 1 line= 2 word in sentence= 20 word in line= 8 text='are'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 21 word in line= 0 text='accepted'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 22 word in line= 1 text='by'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 23 word in line= 2 text='the'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 24 word in line= 3 text='RG'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 25 word in line= 4 text=';'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 26 word in line= 5 text='thus'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 27 word in line= 6 text=','

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 28 word in line= 7 text='the'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 29 word in line= 8 text='preprocessing'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 30 word in line= 9 text='consists'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 31 word in line=10 text='in'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 32 word in line=11 text='a'

page= 2 paragraph=32 sentence= 1 line= 3 word in sentence= 33 word in line=12 text='transformation'

page= 2 paragraph=32 sentence= 1 line= 4 word in sentence= 34 word in line= 0 text='from'

page= 2 paragraph=32 sentence= 1 line= 4 word in sentence= 35 word in line= 1 text='SQL'

page= 2 paragraph=32 sentence= 1 line= 4 word in sentence= 36 word in line= 2 text='into'

page= 2 paragraph=32 sentence= 1 line= 4 word in sentence= 37 word in line= 3 text='SQL'

page= 2 paragraph=32 sentence= 1 line= 4 word in sentence= 38 word in line= 4 text='.'

page= 2 paragraph=32 sentence= 2 line= 4 word in sentence= 0 word in line= 5 text='For'

page= 2 paragraph=32 sentence= 2 line= 4 word in sentence= 1 word in line= 6 text='the'

page= 2 paragraph=32 sentence= 2 line= 4 word in sentence= 2 word in line= 7 text='queries'

page= 2 paragraph=32 sentence= 2 line= 4 word in sentence= 3 word in line= 8 text='which'

page= 2 paragraph=32 sentence= 2 line= 4 word in sentence= 4 word in line= 9 text='are'

page= 2 paragraph=32 sentence= 2 line= 4 word in sentence= 5 word in line=10 text='accepted'

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 6 word in line= 0 text='by'

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 7 word in line= 1 text='the'

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 8 word in line= 2 text='RG'

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 9 word in line= 3 text=','

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 10 word in line= 4 text='we'

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 11 word in line= 5 text='have'

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 12 word in line= 6 text='defined'

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 13 word in line= 7 text='the'

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 14 word in line= 8 text='meaning'

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 15 word in line= 9 text='in'

page= 2 paragraph=32 sentence= 2 line= 5 word in sentence= 16 word in line=10 text='relational'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 17 word in line= 0 text='algebra'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 18 word in line= 1 text=';'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 19 word in line= 2 text='thus'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 20 word in line= 3 text=','

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 21 word in line= 4 text='the'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 22 word in line= 5 text='meaning'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 23 word in line= 6 text='of'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 24 word in line= 7 text='a'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 25 word in line= 8 text='query'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 26 word in line= 9 text='consists'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 27 word in line=10 text='in'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 28 word in line=11 text='a'

page= 2 paragraph=32 sentence= 2 line= 6 word in sentence= 29 word in line=12 text='translation'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 30 word in line= 0 text='from'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 31 word in line= 1 text='the'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 32 word in line= 2 text='query'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 33 word in line= 3 text='in'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 34 word in line= 4 text='SQL'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 35 word in line= 5 text='into'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 36 word in line= 6 text='an'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 37 word in line= 7 text='expression'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 38 word in line= 8 text='of'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 39 word in line= 9 text='relational'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 40 word in line=10 text='algebra'

page= 2 paragraph=32 sentence= 2 line= 7 word in sentence= 41 word in line=11 text='.'

page= 2 paragraph=32 sentence= 3 line= 8 word in sentence= 0 word in line= 0 text='Both'

page= 2 paragraph=32 sentence= 3 line= 8 word in sentence= 1 word in line= 1 text='the'

page= 2 paragraph=32 sentence= 3 line= 8 word in sentence= 2 word in line= 2 text='definitions'

page= 2 paragraph=32 sentence= 3 line= 8 word in sentence= 3 word in line= 3 text='of'

page= 2 paragraph=32 sentence= 3 line= 8 word in sentence= 4 word in line= 4 text='the'

page= 2 paragraph=32 sentence= 3 line= 8 word in sentence= 5 word in line= 5 text='preprocessing'

page= 2 paragraph=32 sentence= 3 line= 8 word in sentence= 6 word in line= 6 text='and'

page= 2 paragraph=32 sentence= 3 line= 8 word in sentence= 7 word in line= 7 text='of'

page= 2 paragraph=32 sentence= 3 line= 8 word in sentence= 8 word in line= 8 text='meaning'

page= 2 paragraph=32 sentence= 3 line= 8 word in sentence= 9 word in line= 9 text='are'

page= 2 paragraph=32 sentence= 3 line= 9 word in sentence= 10 word in line= 0 text='syntax-directed'

page= 2 paragraph=32 sentence= 3 line= 9 word in sentence= 11 word in line= 1 text=':'

page= 2 paragraph=32 sentence= 3 line= 9 word in sentence= 12 word in line= 2 text='rules'

page= 2 paragraph=32 sentence= 3 line= 9 word in sentence= 13 word in line= 3 text='are'

page= 2 paragraph=32 sentence= 3 line= 9 word in sentence= 14 word in line= 4 text='in'

page= 2 paragraph=32 sentence= 3 line= 9 word in sentence= 15 word in line= 5 text='correspondence'

page= 2 paragraph=32 sentence= 3 line= 9 word in sentence= 16 word in line= 6 text='with'

page= 2 paragraph=32 sentence= 3 line= 9 word in sentence= 17 word in line= 7 text='the'

page= 2 paragraph=32 sentence= 3 line= 9 word in sentence= 18 word in line= 8 text='productions'

page= 2 paragraph=32 sentence= 3 line=10 word in sentence= 19 word in line= 0 text='of'

page= 2 paragraph=32 sentence= 3 line=10 word in sentence= 20 word in line= 1 text='the'

page= 2 paragraph=32 sentence= 3 line=10 word in sentence= 21 word in line= 2 text='EG'

page= 2 paragraph=32 sentence= 3 line=10 word in sentence= 22 word in line= 3 text='and'

page= 2 paragraph=32 sentence= 3 line=10 word in sentence= 23 word in line= 4 text='RG'

page= 2 paragraph=32 sentence= 3 line=10 word in sentence= 24 word in line= 5 text='.'

page= 2 paragraph=32 sentence= 4 line=10 word in sentence= 0 word in line= 6 text='The'

page= 2 paragraph=32 sentence= 4 line=10 word in sentence= 1 word in line= 7 text='rationale'

page= 2 paragraph=32 sentence= 4 line=10 word in sentence= 2 word in line= 8 text='for'

page= 2 paragraph=32 sentence= 4 line=10 word in sentence= 3 word in line= 9 text='distinguishing'

page= 2 paragraph=32 sentence= 4 line=10 word in sentence= 4 word in line=10 text='the'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 5 word in line= 0 text='preprocessing'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 6 word in line= 1 text='from'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 7 word in line= 2 text='the'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 8 word in line= 3 text='meaning'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 9 word in line= 4 text='is'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 10 word in line= 5 text='that'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 11 word in line= 6 text='the'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 12 word in line= 7 text='meaning'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 13 word in line= 8 text='of'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 14 word in line= 9 text='an'

page= 2 paragraph=32 sentence= 4 line=11 word in sentence= 15 word in line=10 text='SQL'

page= 2 paragraph=32 sentence= 4 line=12 word in sentence= 16 word in line= 0 text='subquery'

page= 2 paragraph=32 sentence= 4 line=12 word in sentence= 17 word in line= 1 text='is'

page= 2 paragraph=32 sentence= 4 line=12 word in sentence= 18 word in line= 2 text=','

page= 2 paragraph=32 sentence= 4 line=12 word in sentence= 19 word in line= 3 text='in'

page= 2 paragraph=32 sentence= 4 line=12 word in sentence= 20 word in line= 4 text='general'

page= 2 paragraph=32 sentence= 4 line=12 word in sentence= 21 word in line= 5 text=','

page= 2 paragraph=32 sentence= 4 line=12 word in sentence= 22 word in line= 6 text='rather'

page= 2 paragraph=32 sentence= 4 line=12 word in sentence= 23 word in line= 7 text='difficult'

page= 2 paragraph=32 sentence= 4 line=12 word in sentence= 24 word in line= 8 text='.'

page= 2 paragraph=32 sentence= 5 line=12 word in sentence= 0 word in line= 9 text='Thus'

page= 2 paragraph=32 sentence= 5 line=12 word in sentence= 1 word in line=10 text=','

page= 2 paragraph=32 sentence= 5 line=12 word in sentence= 2 word in line=11 text='we'

page= 2 paragraph=32 sentence= 5 line=12 word in sentence= 3 word in line=12 text='have'

page= 2 paragraph=32 sentence= 5 line=12 word in sentence= 4 word in line=13 text='determined'

page= 2 paragraph=32 sentence= 5 line=13 word in sentence= 5 word in line= 0 text='a'

page= 2 paragraph=32 sentence= 5 line=13 word in sentence= 6 word in line= 1 text='small'

page= 2 paragraph=32 sentence= 5 line=13 word in sentence= 7 word in line= 2 text='set'

page= 2 paragraph=32 sentence= 5 line=13 word in sentence= 8 word in line= 3 text='of'

page= 2 paragraph=32 sentence= 5 line=13 word in sentence= 9 word in line= 4 text='subqueries'

page= 2 paragraph=32 sentence= 5 line=13 word in sentence= 10 word in line= 5 text='which'

page= 2 paragraph=32 sentence= 5 line=13 word in sentence= 11 word in line= 6 text='are'

page= 2 paragraph=32 sentence= 5 line=13 word in sentence= 12 word in line= 7 text='representative'

page= 2 paragraph=32 sentence= 5 line=13 word in sentence= 13 word in line= 8 text='of'

page= 2 paragraph=32 sentence= 5 line=13 word in sentence= 14 word in line= 9 text='all'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 15 word in line= 0 text='other'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 16 word in line= 1 text='subqueries'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 17 word in line= 2 text=','

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 18 word in line= 3 text='and'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 19 word in line= 4 text='we'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 20 word in line= 5 text='have'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 21 word in line= 6 text='given'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 22 word in line= 7 text='the'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 23 word in line= 8 text='meaning'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 24 word in line= 9 text='just'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 25 word in line=10 text='for'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 26 word in line=11 text='them'

page= 2 paragraph=32 sentence= 5 line=14 word in sentence= 27 word in line=12 text='.'