

count_example

November 20, 2020

```
[1]: from model import Model
      from dmchunk import Chunk
      import pandas as pd
```

```
[2]: df = pd.DataFrame(columns = ["subject", "trial", "RT"])
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```
[3]: def count_from(m, start, end):
      g = Chunk(name = "goal", slots = {"isa": "count-goal", "start": start, "end":
      ↪end})
      m.goal = g
      done = False
      while not done:
          if not "current" in g.slots:
              g.slots["current"] = g.slots["start"]
              request = Chunk(name = "request", slots = {"isa": "count-fact",
      ↪"num1": g.slots["current"]})
              m.time += .05
              chunk, latency = m.retrieve(request)
              m.add_encounter(chunk)
              m.time += latency
              print(m.time)
              print(g.slots["current"])
              g.slots["current"] = chunk.slots["num2"]
              m.time += 0.3
          elif g.slots["current"] != g.slots["end"]:
              request = Chunk(name = "request", slots = {"isa": "count-fact",
      ↪"num1": g.slots["current"]})
              m.time += .05
              chunk, latency = m.retrieve(request)
              m.add_encounter(chunk)
              m.time += latency
              print(m.time)
              print(g.slots["current"])
              g.slots["current"] = chunk.slots["num2"]
              m.time += 0.3
      else:
          print(m.time)
```

```
print(g.slots["current"])
done = True
```

```
[4]: n = 100
k = 10
for subj in range(0,n):
    m = Model() # create a new model for each subject
    numbers = ["zero", "one", "two", "three", "four", "five", "six", "seven", "
↪eight", "nine"]
    for i in range(0, len(numbers)-1):
        fact = Chunk(name = "cf" + numbers[i], slots = {"isa":"count-fact",
↪"num1":numbers[i], "num2":numbers[i+1]})
        m.add_encounter(fact)
    for trial in range(0,k):
        start_time = m.time
        count_from(m, "two", "three")
        df.loc[subj * k + trial] = [subj, trial, m.time - start_time]
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```

```
[5]: print(df)
```

	subject	trial	RT
0	0.0	0.0	0.359017
1	0.0	1.0	0.371604
2	0.0	2.0	0.363642
3	0.0	3.0	0.355236
4	0.0	4.0	0.356318
..
995	99.0	5.0	0.358611
996	99.0	6.0	0.353548

```

997      99.0      7.0  0.357272
998      99.0      8.0  0.354427
999      99.0      9.0  0.353783

```

[1000 rows x 3 columns]

```
[6]: means = df.groupby(["trial"])[ "RT" ].mean().reset_index()
```

```
[7]: print(means)
```

```

      trial      RT
0      0.0  0.359278
1      1.0  0.361783
2      2.0  0.359924
3      3.0  0.358243
4      4.0  0.357429
5      5.0  0.356626
6      6.0  0.355500
7      7.0  0.355615
8      8.0  0.355012
9      9.0  0.354861

```

```
[8]: print(m)
```

=== Model ===

Time: 3.565244571460028 s

Goal:Chunk goal

Slots: {'isa': 'count-goal', 'start': 'two', 'end': 'three', 'current': 'three'}

Encounters: []

Fan: 0

DM:Chunk cfzero

Slots: {'isa': 'count-fact', 'num1': 'zero', 'num2': 'one'}

Encounters: [0]

Fan: 0

Chunk count-fact

Slots: {}

Encounters: [0]

Fan: 9

Chunk zero

Slots: {}

Encounters: [0]

Fan: 1

Chunk one

Slots: {}
Encounters: [0]
Fan: 2

Chunk cfone
Slots: {'isa': 'count-fact', 'num1': 'one', 'num2': 'two'}
Encounters: [0]
Fan: 0

Chunk two
Slots: {}
Encounters: [0]
Fan: 2

Chunk cftwo
Slots: {'isa': 'count-fact', 'num1': 'two', 'num2': 'three'}
Encounters: [0, 0.05, 0.4073516937487639, 0.7674297616192288,
1.1233341741964908, 1.480667733596701, 1.837602954984357, 2.196213820182284,
2.549762260493319, 2.907034297524298, 3.2614614654869625]
Fan: 0

Chunk three
Slots: {}
Encounters: [0]
Fan: 2

Chunk cfthree
Slots: {'isa': 'count-fact', 'num1': 'three', 'num2': 'four'}
Encounters: [0]
Fan: 0

Chunk four
Slots: {}
Encounters: [0]
Fan: 2

Chunk cffour
Slots: {'isa': 'count-fact', 'num1': 'four', 'num2': 'five'}
Encounters: [0]
Fan: 0

Chunk five
Slots: {}
Encounters: [0]
Fan: 2

Chunk cffive
Slots: {'isa': 'count-fact', 'num1': 'five', 'num2': 'six'}

Encounters: [0]
Fan: 0

Chunk six
Slots: {}
Encounters: [0]
Fan: 2

Chunk cfsix
Slots: {'isa': 'count-fact', 'num1': 'six', 'num2': 'seven'}
Encounters: [0]
Fan: 0

Chunk seven
Slots: {}
Encounters: [0]
Fan: 2

Chunk cfseven
Slots: {'isa': 'count-fact', 'num1': 'seven', 'num2': 'eight'}
Encounters: [0]
Fan: 0

Chunk eight
Slots: {}
Encounters: [0]
Fan: 2

Chunk cfeight
Slots: {'isa': 'count-fact', 'num1': 'eight', 'num2': 'nine'}
Encounters: [0]
Fan: 0

Chunk nine
Slots: {}
Encounters: [0]
Fan: 1

[]: