

Problem 1: Provide links of articles

Solution:

- <http://www.telegraph.co.uk/culture/art/art-reviews/11525401/Sonia-Delaunay-Tate-Modern-review-a-riot-of-hues.html>
- <http://www.telegraph.co.uk/culture/art/art-reviews/11527259/Velazquez-Grand-Palais-Paris-review-super.html>

Problem 2: Table for URI, extracted entity

Solution:

Note: The arrow points to the Person for whom the text is applicable to

| 1. uri | label |
|---|------------------------------------|
| 2. http://d.opencalais.com/pershash-1/86c657d8-b4be-3eed-af55-47fe2c879a9e | Charles->"Charles" |
| 3. http://d.opencalais.com/pershash-1/24382f08-597b-3256-8b21-601507a8f846 | Nancy Cunard->"Nancy Cunard" |
| 4. http://d.opencalais.com/pershash-1/415034e6-21e3-32d3-9aed-6f1473493c23 | Marlene Dumas->"Marlene Dumas" |
| 5. http://d.opencalais.com/pershash-1/d37ce104-e574-3886-82c4-e3f75a81fc29 | Robert Delaunay->"Robert Delaunay" |
| 6. http://d.opencalais.com/pershash-1/d37ce104-e574-3886-82c4-e3f75a81fc29 | him->"Robert Delaunay" |
| 7. http://d.opencalais.com/pershash-1/d37ce104-e574-3886-82c4-e3f75a81fc29 | Robert->"Robert Delaunay" |
| 8. http://d.opencalais.com/pershash-1/d37ce104-e574-3886-82c4-e3f75a81fc29 | his->"Robert Delaunay" |
| 9. http://d.opencalais.com/pershash-1/d37ce104-e574-3886-82c4-e3f75a81fc29 | Robert->"Robert Delaunay" |
| 10. http://d.opencalais.com/pershash-1/d37ce104-e574-3886-82c4-e3f75a81fc29 | Robert->"Robert Delaunay" |
| 11. http://d.opencalais.com/pershash-1/d37ce104-e574-3886-82c4-e3f75a81fc29 | Robert->"Robert Delaunay" |
| 12. http://d.opencalais.com/pershash-1/d37ce104-e574-3886-82c4-e3f75a81fc29 | Robert->"Robert Delaunay" |
| 13. http://d.opencalais.com/pershash-1/d37ce104-e574-3886-82c4-e3f75a81fc29 | his->"Robert Delaunay" |
| 14. http://d.opencalais.com/pershash-1/c052e24b-eed0-3a51-9ae0-26db242df024 | Gloria Swanson->"Gloria Swanson" |

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| 15. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Sonia Delaunay->"Sonia Delaunay" |
| 16. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Delaunay->"Sonia Delaunay" |
| 17. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Sonia Delaunay->"Sonia Delaunay" |
| 18. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Delaunay->"Sonia Delaunay" |
| 19. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 20. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 21. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Her->"Sonia Delaunay" |
| 22. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Sonia->"Sonia Delaunay" |
| 23. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 24. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | She->"Sonia Delaunay" |
| 25. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 26. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 27. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Delaunay->"Sonia Delaunay" |
| 28. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 29. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 30. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 31. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 32. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |

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| 33. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 34. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Delaunay->"Sonia Delaunay" |
| 35. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 36. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | She->"Sonia Delaunay" |
| 37. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 38. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Delaunay->"Sonia Delaunay" |
| 39. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | She->"Sonia Delaunay" |
| 40. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 41. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | She->"Sonia Delaunay" |
| 42. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 43. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Delaunay->"Sonia Delaunay" |
| 44. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 45. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Sonia->"Sonia Delaunay" |
| 46. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 47. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 48. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | She->"Sonia Delaunay" |
| 49. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Sonia->"Sonia Delaunay" |
| 50. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Her->"Sonia Delaunay" |

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| 51. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 52. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 53. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Delaunay->"Sonia Delaunay" |
| 54. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | She->"Sonia Delaunay" |
| 55. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 56. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 57. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Delaunay->"Sonia Delaunay" |
| 58. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | her->"Sonia Delaunay" |
| 59. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 60. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | she->"Sonia Delaunay" |
| 61. http://d.opencalais.com/pershash-1/4b6fd697-34cc-30c4-b3af-a9765a79d791 | Delaunay->"Sonia Delaunay" |
| 62. http://d.opencalais.com/genericHasher-1/cabec86b-1ef2-36a3-9afd-4b58b6e470a7 | Odessa->"Odessa" |
| 63. http://d.opencalais.com/genericHasher-1/8a279b90-2170-3e5f-a909-c3b49316d0df | St Petersburg->"St Petersburg" |
| 64. http://d.opencalais.com/genericHasher-1/56fc901f-59a3-3278-addc-b0fc69b283e7 | Paris->"Paris" |
| 65. http://d.opencalais.com/genericHasher-1/56fc901f-59a3-3278-addc-b0fc69b283e7 | Paris->"Paris" |
| 66. http://d.opencalais.com/genericHasher-1/56fc901f-59a3-3278-addc-b0fc69b283e7 | Paris->"Paris" |
| 67. http://d.opencalais.com/genericHasher-1/56fc901f-59a3-3278-addc-b0fc69b283e7 | Paris->"Paris" |
| 68. http://d.opencalais.com/genericHasher-1/2e458a3d-9b69-33fb-9ce6-98ef05a4fe52 | the times Delaunay lived through->"Sonia Delaunay" |

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| 69. http://d.opencalais.com/genericHasher-1/262b4961-0477-3bea-9312-cc8ba0d4a7b1 | Delaunay bridged->"Sonia Delaunay" |
| 70. http://d.opencalais.com/genericHasher-1/237a1b23-e7be-3efc-8d07-053612534c32 | Sheâ€™d often wear->"Sonia Delaunay" |
| 71. http://d.opencalais.com/genericHasher-1/f073c9f9-93f4-31e7-a909-ff541bd73709 | She spent the Second World War->"Sonia Delaunay" |
| 72. http://d.opencalais.com/genericHasher-1/9699ee11-db81-317b-a3db-16e10b510fca | She embraced fashion->"Sonia Delaunay" |
| 73. http://d.opencalais.com/genericHasher-1/777c7c2b-c8a8-3d64-a264-6a0a246463a7 | Delaunay get on->"Sonia Delaunay" |
| 74. http://d.opencalais.com/genericHasher-1/53e4116c-4d00-3ef3-adb7-d8c9c47f04a0 | she was a perpetual outsider->"Sonia Delaunay" |
| 75. http://d.opencalais.com/genericHasher-1/82c91d41-5fa0-32f6-acc6-1ca8fd39fce3 | She claimed her deep affinity for colour, moreover, stemmed from the âœpure coloursâ€ of peasant weddings back in Ukraine.->"Sonia Delaunay" |
| 76. http://d.opencalais.com/genericHasher-1/1180c27a-ddb2-3a57-a6e5-04f995691388 | Robert died of cancer->"Robert Delaunay" |
| 77. http://d.opencalais.com/genericHasher-1/d03971b7-60a5-3b79-801b-90780b5cbd68 | Amsterdamâ€™s Metz & Co seized on her fashion designs->"Amsterdamâ€™s Metz & Co" |
| 78. http://d.opencalais.com/genericHasher-1/34969917-1896-3f29-ba9a-6fb601ac063f | she designed in patchwork colours->"Sonia Delaunay" |
| 79. http://d.opencalais.com/genericHasher-1/fdcdd296-d75c-303a-b72e-4ba9a67e9fcd | she always played down her own work->"Sonia Delaunay" |
| 80. http://d.opencalais.com/genericHasher-1/6d34a138-2c64-31b8-ab5f-21d348decda5 | she developed a theory->"Sonia Delaunay" |
| 81. http://d.opencalais.com/genericHasher-1/68edd6f2-efd3-30ac-8fe7-d39db4363015 | Her bleached yellow skin->"Sonia Delaunay" |
| 82. http://d.opencalais.com/genericHasher-1/084cf841-75c5-3dbf-812d-8be530b304b8 | She didnâ€™t give up art->"Sonia Delaunay" |
| 83. http://d.opencalais.com/genericHasher-1/841008b6-fc79-307b-9aad-b52abd5266f2 | she decorated in the late Sixties->"Sonia Delaunay" |
| 84. http://d.opencalais.com/genericHasher-1/5c68f9c9-3ca0-3dc4-b7fe-e576bcfe2824 | she worked->"Sonia Delaunay" |
| 85. http://d.opencalais.com/genericHasher-1/b60c0bea-4a90-3f1e-9be6-4ac3de13e62a | she rejected painting->"Sonia Delaunay" |
| 86. http://d.opencalais.com/genericHasher-1/cc5251b-e2d1-3302-9042-0292f315fa92 | she needed an alternative means of funding->"Sonia Delaunay" |

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| 87. http://d.opencalais.com/genericHasher-1/636bc105-0530-3a3a-bb9d-6e0729f9d54b | Robert put it->"Robert Delaunay" |
| 88. http://d.opencalais.com/genericHasher-1/b325947f-91ce-3f5d-a5b1-229416f9962d | It also saw Delaunay->"Sonia Delaunay" |
| 89. http://d.opencalais.com/genericHasher-1/57f4cef1-466c-36f3-a1ea-7b3583445570 | Delaunay had a privileged youth->"Sonia Delaunay" |
| 90. http://d.opencalais.com/pershash-1/9f1e2d56-8b00-3779-b0f9-af05bb037f5f | King Philip IV->"Philip IV" |
| 91. http://d.opencalais.com/pershash-1/9f1e2d56-8b00-3779-b0f9-af05bb037f5f | King Philip IV->"Philip IV" |
| 92. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | Diego Velázquez->"Diego Velázquez" |
| 93. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 94. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | His->"Diego Velázquez" |
| 95. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | him->"Diego Velázquez" |
| 96. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 97. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 98. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | His->"Diego Velázquez" |
| 99. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 100. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | Velázquez->"Diego Velázquez" |
| 101. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | him->"Diego Velázquez" |
| 102. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 103. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | His->"Diego Velázquez" |
| 104. http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |

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| 105. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 106. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | he->"Diego Velázquez" |
| 107. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | His->"Diego Velázquez" |
| 108. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 109. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | him->"Diego Velázquez" |
| 110. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 111. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 112. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | Velázquez->"Diego Velázquez" |
| 113. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 114. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | him->"Diego Velázquez" |
| 115. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 116. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | Velázquez->"Diego Velázquez" |
| 117. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 118. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 119. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | the King->"Diego Velázquez" |
| 120. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | him->"Diego Velázquez" |
| 121. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | he->"Diego Velázquez" |
| 122. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |

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| 123. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 124. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | he->"Diego Velázquez" |
| 125. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 126. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | Velázquez->"Diego Velázquez" |
| 127. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | his->"Diego Velázquez" |
| 128. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | her->"Diego Velázquez" |
| 129. | http://d.opencalais.com/pershash-1/a348acef-bdb8-3a5a-aa50-7f42fbf0e412 | her->"Diego Velázquez" |
| 130. | http://d.opencalais.com/genericHasher-1/0e13c7ea-337f-36ec-b788-7aeba90708e7 | It presents him->"Diego Velázquez" |
| 131. | http://d.opencalais.com/genericHasher-1/88e9a078-7eb4-34a0-83e7-ebbfd475e06b | Diego Velázquez died->"Diego Velázquez" |
| 132. | http://d.opencalais.com/genericHasher-1/cf091c18-b759-31a9-9d60-583b1010f923 | His complex, enigmatic portraits made him->"Diego Velázquez" |
| 133. | http://d.opencalais.com/genericHasher-1/97a8be23-18d3-3d54-aff2-286cf1b7b756 | Velázquez toned his style->"Diego Velázquez" |
| 134. | http://d.opencalais.com/genericHasher-1/24d02386-1843-3853-939c-2ee5b8c7a78c | him grew->"Diego Velázquez" |
| 135. | http://d.opencalais.com/genericHasher-1/54136ab0-15ab-3ae3-838d-56f1bc92be63 | he honed his critical eye->"Diego Velázquez" |
| 136. | http://d.opencalais.com/genericHasher-1/6029764f-c735-3146-ae4b-11a765bde35f | he quickly discovered a talent for naturalism->"Diego Velázquez" |

Problem 3: Manually labelled table

| 1. uri | manual_label | False Negative |
|------------|------------------------------------|----------------|
| 2. Person | Marlene Dumas->"Marlene Dumas" | Yes |
| 3. Person | Sonia Delaunay->"Sonia Delaunay" | No |
| 4. Person | Matisse->"Matisse" | Yes |
| 5. Person | Malevich->"Malevich" | Yes |
| 6. Person | Delaunay->"Sonia Delaunay" | No |
| 7. Person | Sonia Delaunay->"Sonia Delaunay" | No |
| 8. Person | Delaunay->"Sonia Delaunay" | No |
| 9. Person | her->"Sonia Delaunay" | No |
| 10. Person | her->"prostitute" | Yes |
| 11. Person | Gauguin->"Gauguin" | Yes |
| 12. Person | Her->"prostitute" | Yes |
| 13. Person | Sonia->"Sonia Delaunay" | No |
| 14. Person | Robert Delaunay->"Robert Delaunay" | No |
| 15. Person | she->"Sonia Delaunay" | No |
| 16. Person | him->"Robert Delaunay" | No |
| 17. Person | She->"Sonia Delaunay" | No |
| 18. Person | she->"Sonia Delaunay" | No |
| 19. Person | her->"Sonia Delaunay" | No |
| 20. Person | Charles->"Charles" | No |
| 21. Person | Picasso->"Picasso" | Yes |
| 22. Person | Braque->"Braque" | Yes |
| 23. Person | Delaunay->"Sonia Delaunay" | No |
| 24. Person | her->"Sonia Delaunay" | No |
| 25. Person | her->"Sonia Delaunay" | No |
| 26. Person | husband->"Robert Delaunay" | Yes |
| 27. Person | she->"Sonia Delaunay" | No |
| 28. Person | she->"Sonia Delaunay" | No |
| 29. Person | her->"Sonia Delaunay" | No |
| 30. Person | Robert->"Robert Delaunay" | No |

| | | |
|------------|----------------------------------|-----|
| 31. Person | his->"Robert Delaunay" | No |
| 32. Person | she->"Sonia Delaunay" | No |
| 33. Person | Delaunay->"Sonia Delaunay" | No |
| 34. Person | her->"Sonia Delaunay" | No |
| 35. Person | Diaghilev->"Diaghilev" | Yes |
| 36. Person | She->"Sonia Delaunay" | No |
| 37. Person | her->"Sonia Delaunay" | No |
| 38. Person | Delaunay->"Sonia Delaunay" | No |
| 39. Person | She->"Sonia Delaunay" | No |
| 40. Person | she->"Sonia Delaunay" | No |
| 41. Person | She->"Sonia Delaunay" | No |
| 42. Person | Robert->"Robert Delaunay" | No |
| 43. Person | her->"Sonia Delaunay" | No |
| 44. Person | Gloria Swanson->"Gloria Swanson" | No |
| 45. Person | Nancy Cunard->"Nancy Cunard" | No |
| 46. Person | Delaunay->"Sonia Delaunay" | No |
| 47. Person | her->"Sonia Delaunay" | No |
| 48. Person | Robert->"Robert Delaunay" | No |
| 49. Person | Sonia->"Sonia Delaunay" | No |
| 50. Person | her->"Sonia Delaunay" | No |
| 51. Person | Robert->"Robert Delaunay" | No |
| 52. Person | she->"Sonia Delaunay" | No |
| 53. Person | She->"Sonia Delaunay" | No |
| 54. Person | Robert->"Robert Delaunay" | No |
| 55. Person | Sonia->"Sonia Delaunay" | No |
| 56. Person | Her->"Sonia Delaunay" | No |
| 57. Person | her->"Sonia Delaunay" | No |
| 58. Person | she->"Sonia Delaunay" | No |
| 59. Person | Delaunay->"Sonia Delaunay" | No |
| 60. Person | She->"Sonia Delaunay" | No |
| 61. Person | her->"Sonia Delaunay" | No |
| 62. Person | she->"Sonia Delaunay" | No |

| | | |
|------------------|---|-----|
| 63. Person | Picasso->"Picasso" | Yes |
| 64. Person | his->"Picasso" | Yes |
| 65. Person | Delaunay->"Sonia Delaunay" | No |
| 66. Person | her->"Sonia Delaunay" | No |
| 67. Person | Klee->"Klee" | Yes |
| 68. Person | Kandinsky->"Kandinsky" | Yes |
| 69. Person | she->"Sonia Delaunay" | No |
| 70. Person | she->"Sonia Delaunay" | No |
| 71. Person | Delaunay->"Sonia Delaunay" | No |
| 72. City | Odessa->"Odessa" | No |
| 73. City | St Petersburg->"St Petersburg" | No |
| 74. City | Paris->"Paris" | No |
| 75. City | Paris->"Paris" | No |
| 76. City | Paris->"Paris" | No |
| 77. City | Paris->"Paris" | No |
| 78. City | Amsterdam->"Amsterdam" | Yes |
| 79. Organization | Tate->"Tate" | Yes |
| 80. Organization | Tate Modern->"Tate Modern" | Yes |
| 81. Organization | Tate Modern->"Tate Modern" | Yes |
| 82. Organization | Tate->"Tate" | Yes |
| 83. Organization | Tate->"Tate" | Yes |
| 84. Generic | artists have->"artists" | Yes |
| 85. Generic | Delaunay get on->"Sonia Delaunay" | No |
| 86. Generic | who was Sonia Delaunay->"Sonia Delaunay" | Yes |
| 87. Generic | Delaunay had a privileged youth->"Sonia Delaunay" | No |
| 88. Generic | prostitute detached from her boudoir backdrop->"prostitute" | Yes |
| 89. Generic | Her bleached yellow skin->"prostitute" | Yes |
| 90. Generic | she rejected painting->"Sonia Delaunay" | No |
| 91. Generic | She didn't give up art->"Sonia Delaunay" | No |
| 92. Generic | she made for her infant son->"Sonia Delaunay" | Yes |
| 93. Generic | It also saw Delaunay->"Sonia Delaunay" | No |
| 94. Generic | she developed a theory->"Sonia Delaunay" | No |

| | | |
|--------------|--|-----|
| 95. Generic | she always played down her own work->"Sonia Delaunay" | No |
| 96. Generic | She claimed her deep affinity for colour, moreover, stemmed from the %0Ûpure colours%0Û of peasant weddings back in Ukraine.->"Sonia Delaunay" | No |
| 97. Generic | She embraced fashion->"Sonia Delaunay" | No |
| 98. Generic | she designed in patchwork colours->"Sonia Delaunay" | No |
| 99. Generic | She%0Ûd often wear->"Sonia Delaunay" | No |
| 100. Generic | Robert put it->"Robert Delaunay" | No |
| 101. Generic | Metz & Co seized on her fashion designs->"Metz & Co" | Yes |
| 102. Generic | Delaunay bridged->"Sonia Delaunay" | No |
| 103. Generic | her move into design->"Sonia Delaunay" | Yes |
| 104. Generic | bankrolling her and Robert->"Sonia Delaunay, Robert Delaunay" | Yes |
| 105. Generic | she needed an alternative means of funding->"Sonia Delaunay" | No |
| 106. Generic | She didn%0Ût completely give up painting->"Sonia Delaunay" | Yes |
| 107. Generic | Robert died of cancer->"Robert Delaunay" | No |
| 108. Generic | Sonia returned to painting->"Sonia Delaunay" | Yes |
| 109. Generic | Her palette grew->"Sonia Delaunay" | Yes |
| 110. Generic | she worked->"Sonia Delaunay" | No |
| 111. Generic | the times Delaunay lived through->"Sonia Delaunay" | No |
| 112. Generic | She spent the Second World War->"Sonia Delaunay" | No |
| 113. Generic | she%0Ûd shown->"Sonia Delaunay" | Yes |
| 114. Generic | Delaunay was celebrating->"Sonia Delaunay" | Yes |
| 115. Generic | she was a perpetual outsider->"Sonia Delaunay" | No |
| 116. Generic | she decorated in the late Sixties->"Sonia Delaunay" | No |
| 117. Person | Diego VelÃ¡zquez->"Diego VelÃ¡zquez" | No |
| 118. Person | his->"Diego VelÃ¡zquez" | No |
| 119. Person | His->"Diego VelÃ¡zquez" | No |
| 120. Person | him->"Diego VelÃ¡zquez" | No |
| 121. Person | Manet->"Manet" | Yes |
| 122. Person | Picasso->"Picasso" | Yes |
| 123. Person | his->"Diego VelÃ¡zquez" | No |
| 124. Person | his->"Diego VelÃ¡zquez" | No |
| 125. Person | His->"Diego VelÃ¡zquez" | No |

| | | | |
|------|--------|------------------------------------|-----|
| 126. | Person | King Philip IV->"Philip IV" | No |
| 127. | Person | artist->"Diego Velázquez" | Yes |
| 128. | Person | his->"Diego Velázquez" | No |
| 129. | Person | Velázquez->"Diego Velázquez" | No |
| 130. | Person | him->"Diego Velázquez" | No |
| 131. | Person | his->"Diego Velázquez" | No |
| 132. | Person | His->"Diego Velázquez" | No |
| 133. | Person | his->"Diego Velázquez" | No |
| 134. | Person | King Philip IV->"Philip IV" | No |
| 135. | Person | his->"Diego Velázquez" | No |
| 136. | Person | he->"Diego Velázquez" | No |
| 137. | Person | His->"Diego Velázquez" | No |
| 138. | Person | his->"Diego Velázquez" | No |
| 139. | Person | him->"Diego Velázquez" | No |
| 140. | Person | his->"Diego Velázquez" | No |
| 141. | Person | his->"Diego Velázquez" | No |
| 142. | Person | Velázquez->"Diego Velázquez" | No |
| 143. | Person | drunken boy->"boy" | Yes |
| 144. | Person | the viewer->"viewer" | Yes |
| 145. | Person | his->"boy" | Yes |
| 146. | Person | him->"boy" | Yes |
| 147. | Person | his->"boy" | Yes |
| 148. | Person | Velázquez->"Diego Velázquez" | No |
| 149. | Person | his->"Diego Velázquez" | No |
| 150. | Person | his->"Diego Velázquez" | No |
| 151. | Person | the King->"Philip IV" | Yes |
| 152. | Person | him->"Diego Velázquez" | No |
| 153. | Person | he->"Diego Velázquez" | No |
| 154. | Person | his->"Diego Velázquez" | No |
| 155. | Person | his->"Diego Velázquez" | No |
| 156. | Person | Pope Innocent X->"Pope Innocent X" | Yes |
| 157. | Person | he->"Diego Velázquez" | No |

| | | | |
|------|---------|--|-----|
| 158. | Person | his->"Pope Innocent X" | Yes |
| 159. | Person | Velázquez->"Diego Velázquez" | No |
| 160. | Person | the viewer->"the viewer" | Yes |
| 161. | Person | his->"Diego Velázquez" | No |
| 162. | Person | her->"Venus" | Yes |
| 163. | Person | her->"Venus" | Yes |
| 164. | Generic | Diego Velázquez died->"Diego Velázquez" | No |
| 165. | Generic | His complex, enigmatic portraits made him->"Diego Velázquez" | No |
| 166. | Generic | Manet and Picasso both painted->"Manet, Picasso" | Yes |
| 167. | Generic | It presents him->"Diego Velázquez" | No |
| 168. | Generic | he quickly discovered a talent for naturalism->"Diego Velázquez" | No |
| 169. | Generic | Velázquez toned his style->"Diego Velázquez" | No |
| 170. | Generic | the King's confidence in him grew->"Philip IV" | Yes |
| 171. | Generic | he honed his critical eye->"Diego Velázquez" | No |

Problem 4: Calais labelled table

| 1. uri | Calais_label | True Positive |
|------------|------------------------------------|---------------|
| 2. Person | Charles->"Charles" | Yes |
| 3. Person | Nancy Cunard->"Nancy Cunard" | Yes |
| 4. Person | Marlene Dumas->"Marlene Dumas" | Yes |
| 5. Person | Robert Delaunay->"Robert Delaunay" | Yes |
| 6. Person | him->"Robert Delaunay" | Yes |
| 7. Person | Robert->"Robert Delaunay" | Yes |
| 8. Person | his->"Robert Delaunay" | Yes |
| 9. Person | Robert->"Robert Delaunay" | Yes |
| 10. Person | Robert->"Robert Delaunay" | Yes |
| 11. Person | Robert->"Robert Delaunay" | Yes |
| 12. Person | Robert->"Robert Delaunay" | Yes |
| 13. Person | his->"Robert Delaunay" | No |
| 14. Person | Gloria Swanson->"Gloria Swanson" | Yes |
| 15. Person | Sonia Delaunay->"Sonia Delaunay" | Yes |
| 16. Person | Delaunay->"Sonia Delaunay" | Yes |

| | | |
|------------|----------------------------------|-----|
| 17. Person | Sonia Delaunay->"Sonia Delaunay" | Yes |
| 18. Person | Delaunay->"Sonia Delaunay" | Yes |
| 19. Person | her->"Sonia Delaunay" | Yes |
| 20. Person | her->"Sonia Delaunay" | Yes |
| 21. Person | Her->"Sonia Delaunay" | No |
| 22. Person | Sonia->"Sonia Delaunay" | Yes |
| 23. Person | she->"Sonia Delaunay" | Yes |
| 24. Person | She->"Sonia Delaunay" | Yes |
| 25. Person | she->"Sonia Delaunay" | Yes |
| 26. Person | her->"Sonia Delaunay" | Yes |
| 27. Person | Delaunay->"Sonia Delaunay" | Yes |
| 28. Person | her->"Sonia Delaunay" | Yes |
| 29. Person | her->"Sonia Delaunay" | Yes |
| 30. Person | she->"Sonia Delaunay" | Yes |
| 31. Person | she->"Sonia Delaunay" | Yes |
| 32. Person | her->"Sonia Delaunay" | Yes |
| 33. Person | she->"Sonia Delaunay" | Yes |
| 34. Person | Delaunay->"Sonia Delaunay" | Yes |
| 35. Person | her->"Sonia Delaunay" | Yes |
| 36. Person | She->"Sonia Delaunay" | Yes |
| 37. Person | her->"Sonia Delaunay" | Yes |
| 38. Person | Delaunay->"Sonia Delaunay" | Yes |
| 39. Person | She->"Sonia Delaunay" | Yes |
| 40. Person | she->"Sonia Delaunay" | Yes |
| 41. Person | She->"Sonia Delaunay" | Yes |
| 42. Person | her->"Sonia Delaunay" | Yes |
| 43. Person | Delaunay->"Sonia Delaunay" | Yes |
| 44. Person | her->"Sonia Delaunay" | Yes |
| 45. Person | Sonia->"Sonia Delaunay" | Yes |
| 46. Person | her->"Sonia Delaunay" | Yes |
| 47. Person | she->"Sonia Delaunay" | Yes |
| 48. Person | She->"Sonia Delaunay" | Yes |

| | | |
|-------------|--|-----|
| 49. Person | Sonia->"Sonia Delaunay" | Yes |
| 50. Person | Her->"Sonia Delaunay" | Yes |
| 51. Person | her->"Sonia Delaunay" | Yes |
| 52. Person | she->"Sonia Delaunay" | Yes |
| 53. Person | Delaunay->"Sonia Delaunay" | Yes |
| 54. Person | She->"Sonia Delaunay" | Yes |
| 55. Person | her->"Sonia Delaunay" | Yes |
| 56. Person | she->"Sonia Delaunay" | Yes |
| 57. Person | Delaunay->"Sonia Delaunay" | Yes |
| 58. Person | her->"Sonia Delaunay" | No |
| 59. Person | she->"Sonia Delaunay" | Yes |
| 60. Person | she->"Sonia Delaunay" | Yes |
| 61. Person | Delaunay->"Sonia Delaunay" | Yes |
| 62. City | Odessa->"Odessa" | Yes |
| 63. City | St Petersburg->"St Petersburg" | Yes |
| 64. City | Paris->"Paris" | Yes |
| 65. City | Paris->"Paris" | Yes |
| 66. City | Paris->"Paris" | Yes |
| 67. City | Paris->"Paris" | Yes |
| 68. Generic | the times Delaunay lived through->"Sonia Delaunay" | Yes |
| 69. Generic | Delaunay bridged->"Sonia Delaunay" | Yes |
| 70. Generic | She%Ųd often wear->"Sonia Delaunay" | Yes |
| 71. Generic | She spent the Second World War->"Sonia Delaunay" | Yes |
| 72. Generic | She embraced fashion->"Sonia Delaunay" | Yes |
| 73. Generic | Delaunay get on->"Sonia Delaunay" | Yes |
| 74. Generic | she was a perpetual outsider->"Sonia Delaunay" | Yes |
| 75. Generic | She claimed her deep affinity for colour, moreover, stemmed from the %Ųpure colours%Ų of peasant weddings back in Ukraine.->"Sonia Delaunay" | Yes |
| 76. Generic | Robert died of cancer->"Robert Delaunay" | Yes |
| 77. Generic | Amsterdam%Ųs Metz & Co seized on her fashion designs->"Amsterdam%Ųs Metz & Co" | No |
| 78. Generic | she designed in patchwork colours->"Sonia Delaunay" | Yes |
| 79. Generic | she always played down her own work->"Sonia Delaunay" | Yes |

| | | |
|-------------|--|-----|
| 80. Generic | she developed a theory->"Sonia Delaunay" | Yes |
| 81. Generic | Her bleached yellow skin->"Sonia Delaunay" | No |
| 82. Generic | She didn't give up art->"Sonia Delaunay" | Yes |
| 83. Generic | she decorated in the late Sixties->"Sonia Delaunay" | Yes |
| 84. Generic | she worked->"Sonia Delaunay" | Yes |
| 85. Generic | she rejected painting->"Sonia Delaunay" | Yes |
| 86. Generic | she needed an alternative means of funding->"Sonia Delaunay" | Yes |
| 87. Generic | Robert put it->"Robert Delaunay" | Yes |
| 88. Generic | It also saw Delaunay->"Sonia Delaunay" | Yes |
| 89. Generic | Delaunay had a privileged youth->"Sonia Delaunay" | Yes |
| 90. Person | King Philip IV->"Philip IV" | Yes |
| 91. Person | King Philip IV->"Philip IV" | Yes |
| 92. Person | Diego Velázquez->"Diego Velázquez" | Yes |
| 93. Person | his->"Diego Velázquez" | Yes |
| 94. Person | His->"Diego Velázquez" | Yes |
| 95. Person | him->"Diego Velázquez" | Yes |
| 96. Person | his->"Diego Velázquez" | Yes |
| 97. Person | his->"Diego Velázquez" | Yes |
| 98. Person | His->"Diego Velázquez" | Yes |
| 99. Person | his->"Diego Velázquez" | Yes |
| 100. Person | Velázquez->"Diego Velázquez" | Yes |
| 101. Person | him->"Diego Velázquez" | Yes |
| 102. Person | his->"Diego Velázquez" | Yes |
| 103. Person | His->"Diego Velázquez" | Yes |
| 104. Person | his->"Diego Velázquez" | Yes |
| 105. Person | his->"Diego Velázquez" | Yes |
| 106. Person | he->"Diego Velázquez" | Yes |
| 107. Person | His->"Diego Velázquez" | Yes |
| 108. Person | his->"Diego Velázquez" | Yes |
| 109. Person | him->"Diego Velázquez" | Yes |
| 110. Person | his->"Diego Velázquez" | Yes |
| 111. Person | his->"Diego Velázquez" | Yes |

| | | | |
|------|---------|--|-----|
| 112. | Person | Velázquez->"Diego Velázquez" | Yes |
| 113. | Person | his->"Diego Velázquez" | No |
| 114. | Person | him->"Diego Velázquez" | No |
| 115. | Person | his->"Diego Velázquez" | No |
| 116. | Person | Velázquez->"Diego Velázquez" | Yes |
| 117. | Person | his->"Diego Velázquez" | Yes |
| 118. | Person | his->"Diego Velázquez" | Yes |
| 119. | Person | the King->"Diego Velázquez" | No |
| 120. | Person | him->"Diego Velázquez" | Yes |
| 121. | Person | he->"Diego Velázquez" | Yes |
| 122. | Person | his->"Diego Velázquez" | Yes |
| 123. | Person | his->"Diego Velázquez" | Yes |
| 124. | Person | he->"Diego Velázquez" | Yes |
| 125. | Person | his->"Diego Velázquez" | No |
| 126. | Person | Velázquez->"Diego Velázquez" | Yes |
| 127. | Person | his->"Diego Velázquez" | Yes |
| 128. | Person | her->"Diego Velázquez" | No |
| 129. | Person | her->"Diego Velázquez" | No |
| 130. | Generic | It presents him->"Diego Velázquez" | Yes |
| 131. | Generic | Diego Velázquez died->"Diego Velázquez" | Yes |
| 132. | Generic | His complex, enigmatic portraits made him->"Diego Velázquez" | Yes |
| 133. | Generic | Velázquez toned his style->"Diego Velázquez" | Yes |
| 134. | Generic | him grew->"Diego Velázquez" | No |
| 135. | Generic | he honed his critical eye->"Diego Velázquez" | Yes |
| 136. | Generic | he quickly discovered a talent for naturalism->"Diego Velázquez" | Yes |

Problem 5: F-Score

Solution:

Precision: $123/136 = 0.9044 = 90.44\%$

Recall : $123/171 = 0.7193 = 71.93\%$

F-Score : $0.801 = 80.1\%$

Explanation:

The algorithm used in opencalais does a good job of extracting names when the full names are given. It then proceeds to associate all pronouns to such found names. Similarly, it also matches all cities well because it is easy to identify a city by looking up the word in a dictionary of cities. The algo finds all obvious generic relations of the simple form, which have subject verb object or subject verb. It wrongly associates pronouns in several cases to an identified person, when the pronoun is actually associated to a general person like “his->the boy”, “her->the prostitute”. Due to this it also misidentifies generic relations where the sentence contains a pronoun but is associated to a general subject/object. In such cases, it associates the relation to an already identified person when the relation may not refer to the person at all. Example: In “Her bleached yellow skin” the relation and “Her” is associated to a prostitute who is portrayed in a painting but opencalais associates it “Sonia Delauney”, the painter. It also fails in every case where the sentence is of the form subject+verb+preposition+object. It also fails where the subject/object is several people like in the case of “bankrolling her and Robert” where both “her and Robert” are the object. Another major flaw I discovered was it does not have a sense of gender. It associates “Diego Vellázquez” to both his and her when its algorithm should prevent mapping diego to her when it has already been mapped to his.

Although the algo has good precision it has average recall because it has one major flaw among several. Its biggest flaw is it fails to identify people where only the first name or only the last name is provided or the person is an authority like Pope Innocent X because it identifies a person only if its full name is provided. It chooses to ignore such names. It also fails to identify the organization “Tate Modern” and cities that have an apostrophe like “Amsterdam’s”.