*Note:* Experiment #s with “\*\*” next to it represent the best results for that specific text based on ROUGE scores.

Reference summary for *Letters on Demonology and Witchcraft* (used for ROUGE scores):

"The book takes the form of ten letters addressed to Lockhart, the epistolary mode permitting Scott to be both conversational in tone and discursive in method. In these, Scott surveys opinions respecting demonology and witchcraft from the Old Testament period to his own day."

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 1\*\* | *Letters on Demonology and Witchcraft* by Walter Scott | early\_stopping = True length\_penalty = 2.0  num\_beams = 5  min\_length = 50  max\_length = 150 | ROUGE-1:  Precision = 0.268  Recall = 0.25  F-Measure = 0.259  ROUGE-2:  Precision = 0.025  Recall = 0.023  F-Measure = 0.024  ROUGE-L:  Precision = 0.195  Recall = 0.182  F-Measure = 0.188 |

*Summary generated for Experiment #1:*

*A selection of letters from some of the world's best-known and most-revered experts on witchcraft, demonology, exorcism and other forms of witchcraft, written by some of the world's best-known and most-revered experts on the subject.*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 2 | *Letters on Demonology and Witchcraft* by Walter Scott | **early\_stopping = False** length\_penalty = 2.0  num\_beams = 5  min\_length = 50  max\_length = 150 | ROUGE-1:  Precision = 0.136  Recall = 0.341  F-Measure = 0.195  ROUGE-2:  Precision = 0.009  Recall = 0.023  F-Measure = 0.013  ROUGE-L:  Precision = 0.109  Recall = 0.272  F-Measure = 0.156 |

*Summary generated for Experiment #2 (set early\_stopping to False):  
A selection of letters from some of the world's best-known and most-revered experts on witchcraft, demonology, exorcism and other forms of witchcraft, written by some of the world's best-known and most-revered experts in the fields of witchcraft, demonology, exorcism and other forms of witchcraft, written by some of the world's best-known and most-revered experts in the fields of witchcraft, demonology, exorcism and other forms of witchcraft, written by some of the world's best-known and most-revered experts in the fields of witchcraft, demonology, exorcism and other forms of witchcraft, written by some of the world's best-known and*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 3 | *Letters on Demonology and Witchcraft* by Walter Scott | early\_stopping = True **length\_penalty = 0.5**  num\_beams = 5  min\_length = 50  max\_length = 150 | ROUGE-1:  Precision = 0.263  Recall = 0.227  F-Measure = 0.244  ROUGE-2:  Precision = 0.027  Recall = 0.023  F-Measure = 0.025  ROUGE-L:  Precision = 0.211  Recall = 0.182  F-Measure = 0.195 |

*Summary generated for Experiment #3 (decrease length\_penalty):*

*A selection of letters from some of the world's best-known and most-revered experts on witchcraft, demonology, exorcism and other forms of witchcraft, written by some of the world's best-known and most-revered experts.*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 4 | *Letters on Demonology and Witchcraft* by Walter Scott | early\_stopping = True length\_penalty = 2.0  **num\_beams = 3**  min\_length = 50  max\_length = 150 | ROUGE-1:  Precision = 0.237  Recall = 0.205  F-Measure = 0.220  ROUGE-2:  Precision = 0.0  Recall = 0.0  F-Measure = 0.0  ROUGE-L:  Precision = 0.158  Recall = 0.136  F-Measure = 0.146 |

*Summary generated for Experiment #4 (decrease num\_beams):*

*A selection of letters from some of the world's best-known and most-revered authors, all of which have been published in the world's most popular online library, The Project Gutenberg.) Read the full collection here.*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 5 | *Letters on Demonology and Witchcraft* by Walter Scott | early\_stopping = True length\_penalty = 2.0  **num\_beams = 7**  min\_length = 50  max\_length = 150 | ROUGE-1:  Precision = 0.25  Recall = 0.227  F-Measure = 0.238  ROUGE-2:  Precision = 0.0  Recall = 0.0  F-Measure = 0.0  ROUGE-L:  Precision = 0.175  Recall = 0.159  F-Measure = 0.167 |

*Summary generated for Experiment #5 (increase num\_beams):*

*A selection of letters from some of the world's leading experts on witchcraft, exorcism and demonology, as compiled by the Project Gutenberg team at Queen's University Belfast, Northern Ireland, between 2006 and 2012... Read the full collection here.*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 6 | *Letters on Demonology and Witchcraft* by Walter Scott | early\_stopping = True length\_penalty = 2.0  num\_beams = 5  **min\_length = 25**  max\_length = 150 | ROUGE-1:  Precision = 0.391  Recall = 0.205  F-Measure = 0.269  ROUGE-2:  Precision = 0.0  Recall = 0.0  F-Measure = 0.0  ROUGE-L:  Precision = 0.304  Recall = 0.159  F-Measure = 0.209 |

*Summary generated for Experiment #6 (decrease min\_length):*

*A selection of letters from some of the world's best-known and most-revered experts on witchcraft, demonology, exorcism and the occult.*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 7 | *Letters on Demonology and Witchcraft* by Walter Scott | early\_stopping = True length\_penalty = 2.0  num\_beams = 5  **min\_length = 75**  max\_length = 150 | ROUGE-1:  Precision = 0.217  Recall = 0.295  F-Measure = 0.25  ROUGE-2:  Precision = 0.017  Recall = 0.023  F-Measure = 0.020  ROUGE-L:  Precision = 0.167  Recall = 0.227  F-Measure = 0.192 |

*Summary generated for Experiment #7 (increase min\_length):*

*A selection of letters from some of the world's best-known and most-revered experts on witchcraft, demonology, exorcism and other forms of witchcraft, written by some of the world's best-known and most-revered experts in the fields of witchcraft, demonology, exorcism and other forms of witchcraft, written by some of the world's best-known experts*

Reference summary for *Joker: Folie à Deux* (used for ROUGE scores):

*"'Joker: Folie a Deux' finds Arthur Fleck institutionalized at Arkham awaiting trial for his crimes as Joker. While struggling with his dual identity, Arthur not only stumbles upon true love, but also finds the music that's always been inside him."*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 8 | *Joker: Folie à Deux* Wikipedia article | early\_stopping = True length\_penalty = 2.0  num\_beams = 5  max\_length = 150 | ROUGE-1:  Precision = 0.263  Recall = 0.244  F-Measure = 0.253  ROUGE-2:  Precision = 0.081  Recall = 0.075  F-Measure = 0.078  ROUGE-L:  Precision = 0.184  Recall = 0.171  F-Measure = 0.177 |

*Summary generated for Experiment #8:*

*The first photo from Joker: Folie a Deux has been released, and it features Joaquin Phoenix as The Joker, Lady Gaga as Harley Quinn, Zazie Beetz as Harley Quinn's music therapist, and Harry Lawtey as Harvey Dent.*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 9 | *Joker: Folie à Deux* Wikipedia article | **early\_stopping = False** length\_penalty = 2.0  num\_beams = 5  max\_length = 150 | ROUGE-1:  Precision = 0.216  Recall = 0.268  F-Measure = 0.239  ROUGE-2:  Precision = 0.06  Recall = 0.075  F-Measure = 0.067  ROUGE-L:  Precision = 0.157  Recall = 0.195  F-Measure = 0.174 |

*Summary generated for Experiment #9 (set early\_stopping to False):*

*The first photo from Joker: Folie a Deux has been released, and it features Joaquin Phoenix as The Joker, Lady Gaga as Harley Quinn, Zazie Beetz as Harley Quinn's music therapist, and Harry Lawtey as Harvey Dent, with Leigh Gill and Sharon Washington reprising their roles from the first film.*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 10\*\* | *Joker: Folie à Deux* Wikipedia article | early\_stopping = True **length\_penalty = 0.5**  num\_beams = 5  max\_length = 150 | ROUGE-1:  Precision = 0.636  Recall = 0.171  F-Measure = 0.269  ROUGE-2:  Precision = 0.3  Recall = 0.075  F-Measure = 0.12  ROUGE-L:  Precision = 0.455  Recall = 0.122  F-Measure = 0.192 |

*Summary generated for Experiment #10 (decrease length\_penalty):*

*The first trailer for Joker: Folie a Deux has been released.*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 11 | *Joker: Folie à Deux* Wikipedia article | early\_stopping = True **length\_penalty = 3.0**  num\_beams = 5  max\_length = 150 | ROUGE-1:  Precision = 0.296  Recall = 0.195  F-Measure = 0.235  ROUGE-2:  Precision = 0.115  Recall = 0.075  F-Measure = 0.091  ROUGE-L:  Precision = 0.222  Recall = 0.146  F-Measure = 0.176 |

*Summary generated for Experiment #11 (increase length\_penalty):*

*The first photo from Joker: Folie a Deux has been released, featuring Joaquin Phoenix as The Joker, Lady Gaga as Harley Quinn, and Zazie Beetz as Lee.*

| **Experiment #** | **Text Used** | **Parameters** | **ROUGE Scores (rounded to the nearest thousandths)** |
| --- | --- | --- | --- |
| 12 | *Joker: Folie à Deux* Wikipedia article | early\_stopping = True length\_penalty = 2.0  **num\_beams = 3**  max\_length = 150 | ROUGE-1:  Precision = 0.32  Recall = 0.195  F-Measure = 0.242  ROUGE-2:  Precision = 0.125  Recall = 0.075  F-Measure = 0.094  ROUGE-L:  Precision = 0.24  Recall = 0.146  F-Measure = 0.181 |

*Summary generated for Experiment #12 (decrease num\_beams):*

*The first photo from Joker: Folie a Deux has been released, and it features Joaquin Phoenix as The Joker and Lady Gaga as Harley Quinn.*

*Notes (not shown in results above):*

* For *Letters on Demonology and Witchcraft*, increasing length\_penalty had no effect (compared to Experiment #1)
* For *Letters on Demonology and Witchcraft,* decreasing and increasing max\_length had no effect (compared to Experiment #1)
* For the *Joker: Folie à Deux* Wikipedia article, increasing num\_beams has the same effect as decreasing it (Experiment #12)
* For the *Joker: Folie à Deux* Wikipedia article, decreasing and increasing max\_length had the same effect as increasing length\_penalty (Experiment #11)