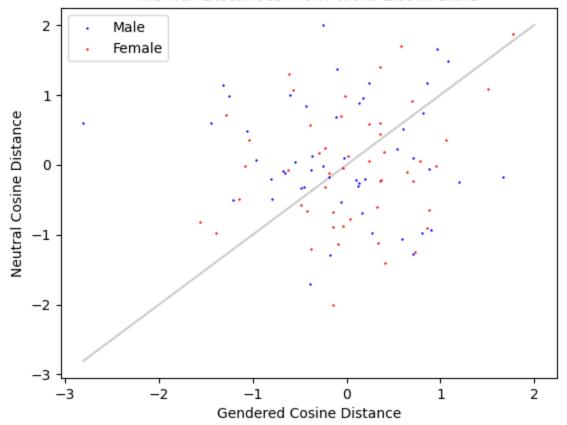
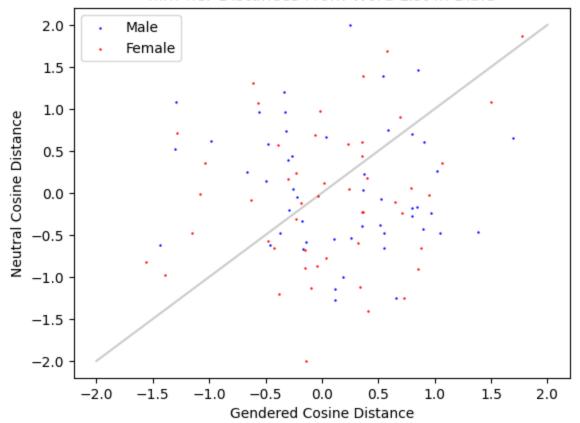
```
In [ ]: import analyze as a
In [ ]: titles = ["Bible", "BUG", "GAP", "Moby Dick"]
        bibleNEmbeds = a.embeds('NvectorsBible.txt')
        bibleGEmbeds = a.embeds('GvectorsBible.txt')
        bugNEmbeds = a.embeds('NvectorsBUG.txt')
        bugGEmbeds = a.embeds('GvectorsBUG.txt')
        gapNEmbeds = a.embeds('NvectorsGAP.txt')
        gapGEmbeds = a.embeds('GvectorsGAP.txt')
        mobyNEmbeds = a.embeds('NvectorsMoby.txt')
        mobyGEmbeds = a.embeds('GvectorsMoby.txt')
        neutralEmbeds = [bibleNEmbeds, bugNEmbeds, gapNEmbeds, mobyNEmbeds]
        genderEmbeds = [bibleGEmbeds, bugGEmbeds, gapGEmbeds, mobyGEmbeds]
        genderPairs = a.genderPairs('GenderPairs.csv')
        spotlightWords = a.spotlightWords('Spotlight.csv')
In [ ]: """for i, title in enumerate(titles):
                                                       ")
            print("
            a.plotter(genderPairs, spotlightWords, neutralEmbeds[i], genderEmbeds[i], title
        #delete quotes for all graphs - takes up a lot of space
Out[ ]: 'for i, title in enumerate(titles):\n
                                               print("_
         __")\n
                  a.plotter(genderPairs, spotlightWords, neutralEmbeds[i], genderEmbeds
        [i], title)'
In [ ]: a.plotter(genderPairs, spotlightWords, bibleNEmbeds, bibleGEmbeds, titles[0])
```

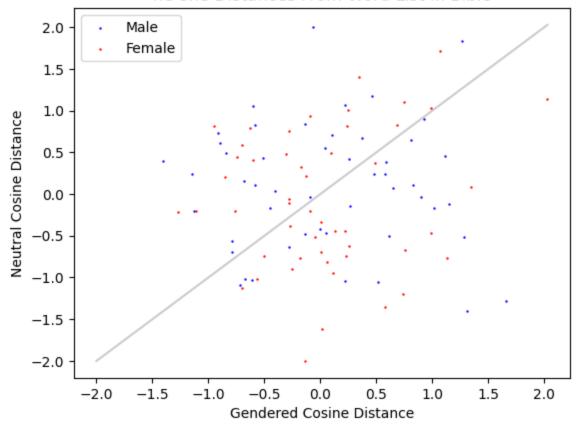




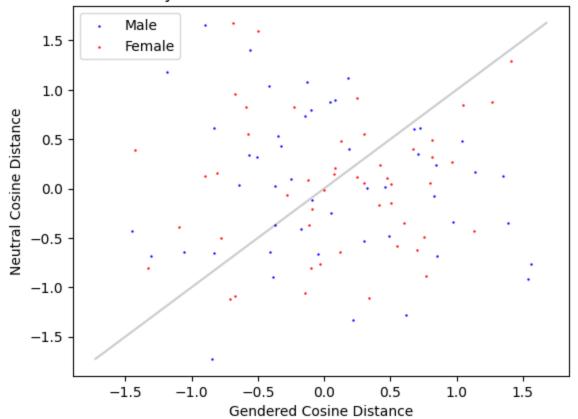
him-her Distances From Word List in Bible



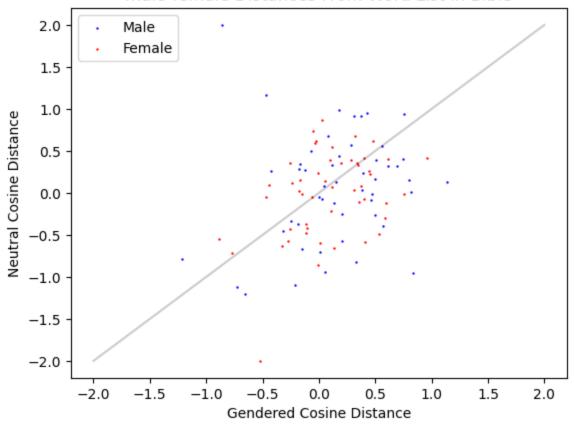




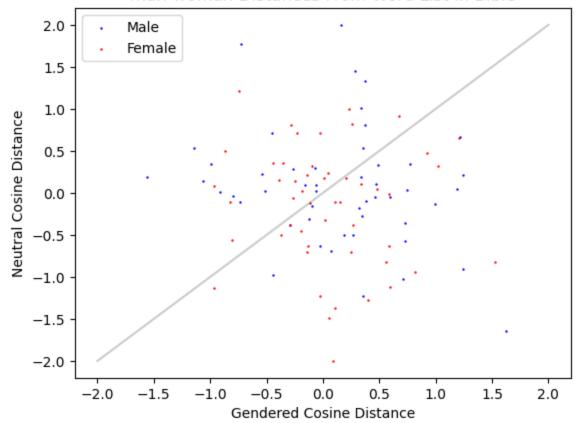
they-them Distances From Word List in Bible



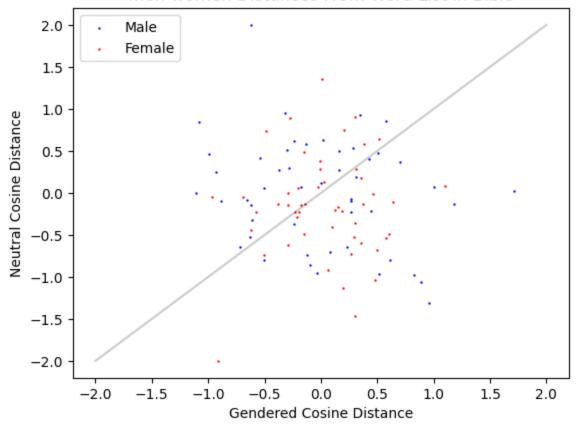




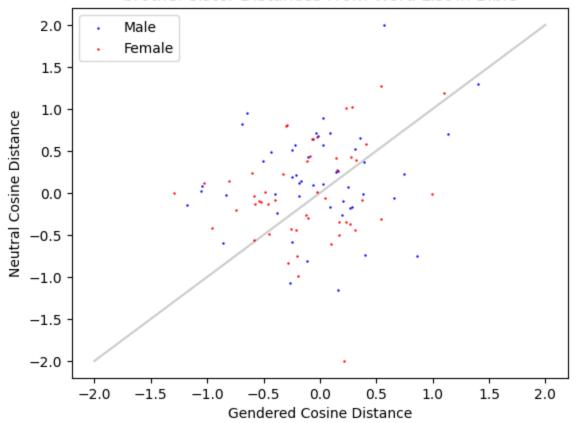
man-woman Distances From Word List in Bible

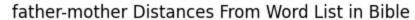


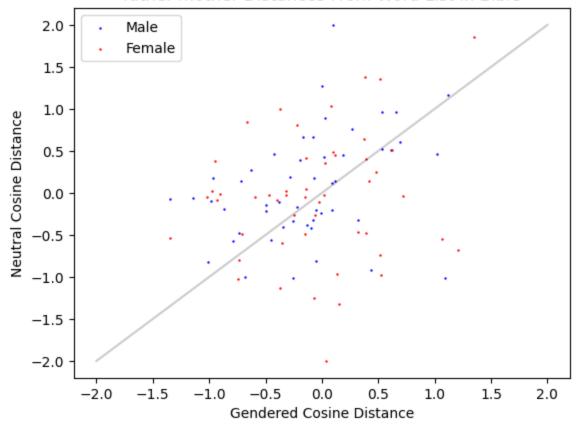




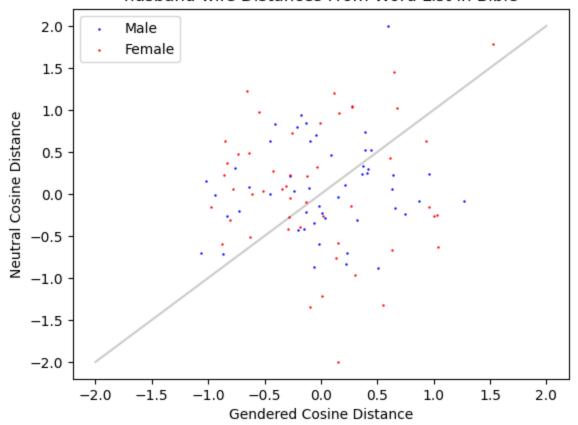
brother-sister Distances From Word List in Bible





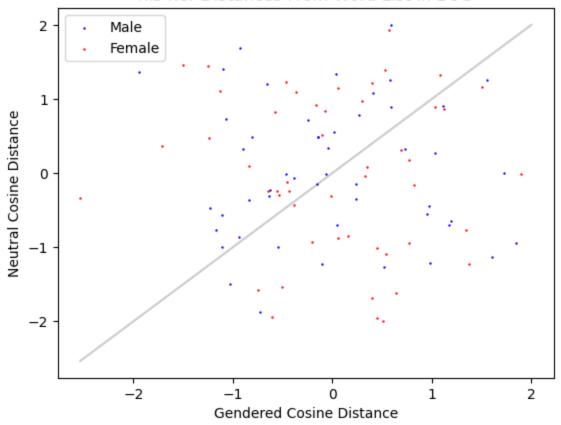


husband-wife Distances From Word List in Bible

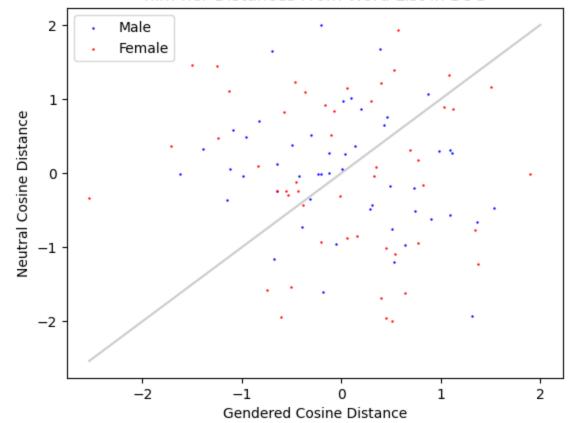


In []: a.plotter(genderPairs, spotlightWords, bugNEmbeds, bugGEmbeds, titles[1])

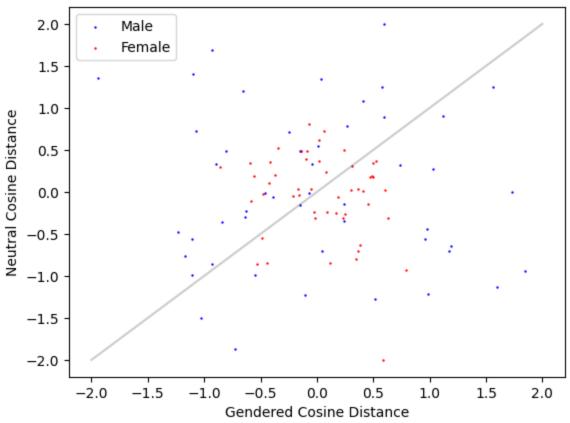




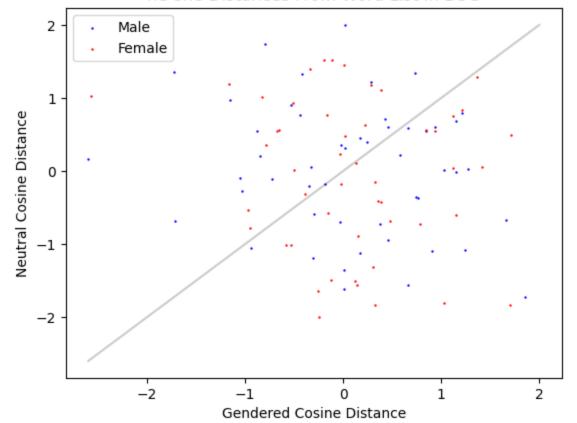
him-her Distances From Word List in BUG



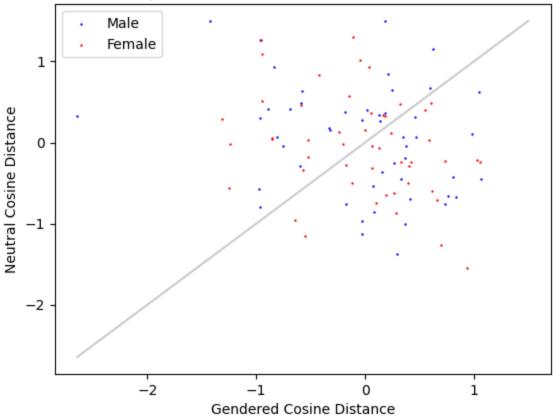




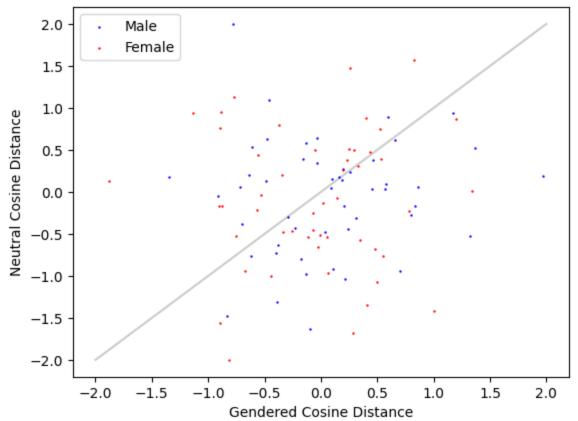
he-she Distances From Word List in BUG



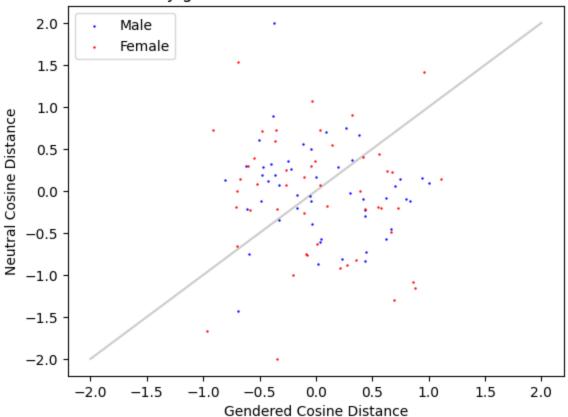




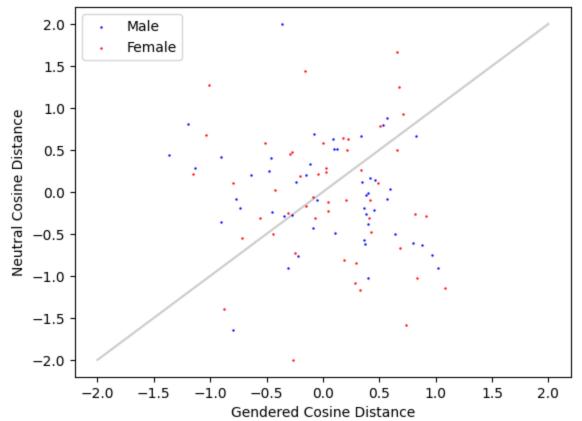
male-female Distances From Word List in BUG



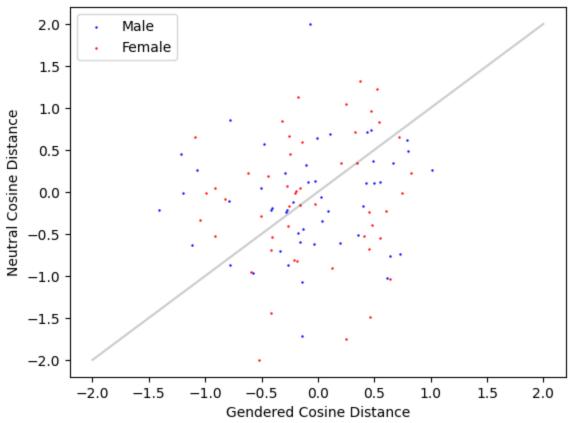




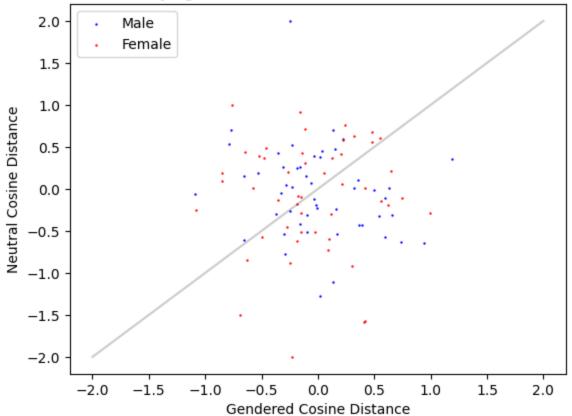
man-woman Distances From Word List in BUG



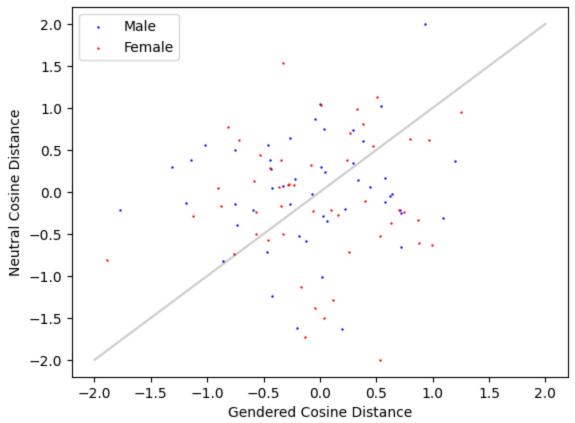




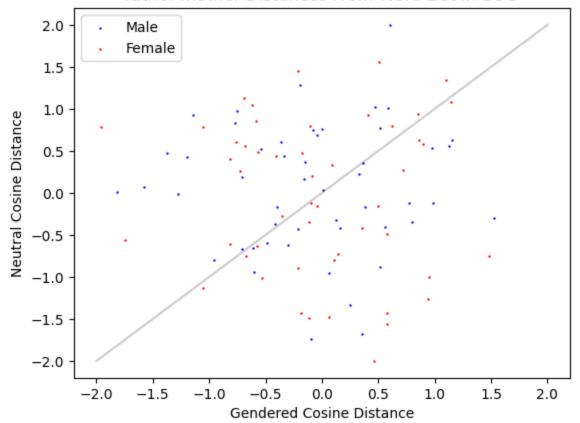
boys-girls Distances From Word List in BUG



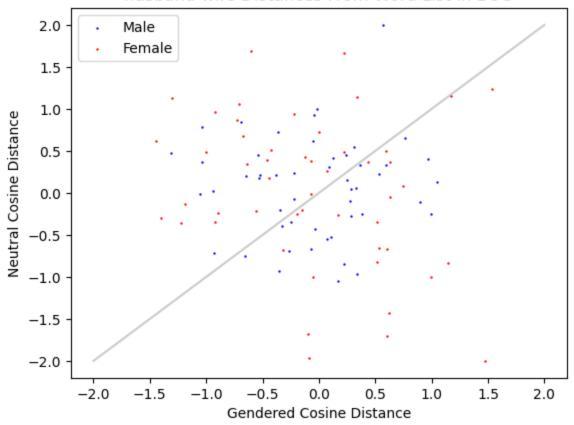




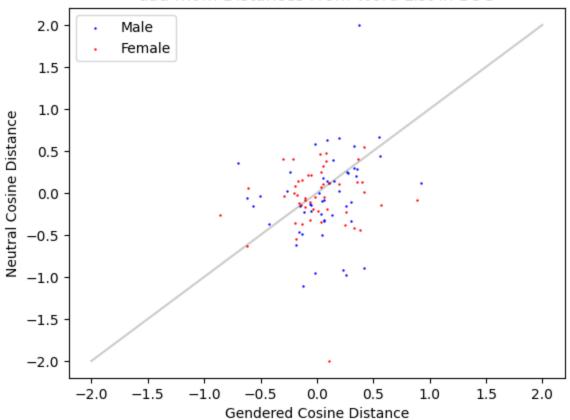
father-mother Distances From Word List in BUG



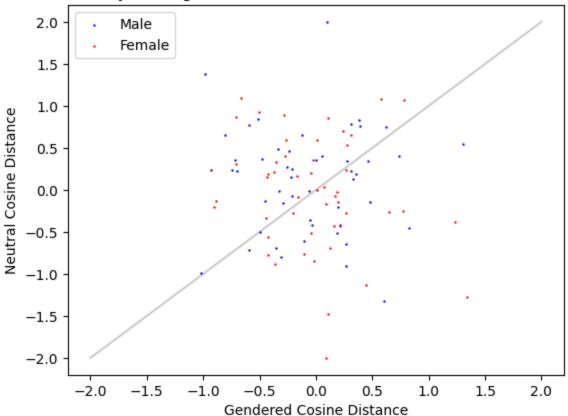




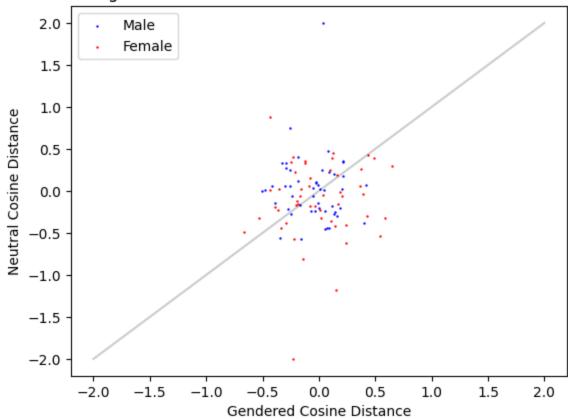
dad-mom Distances From Word List in BUG



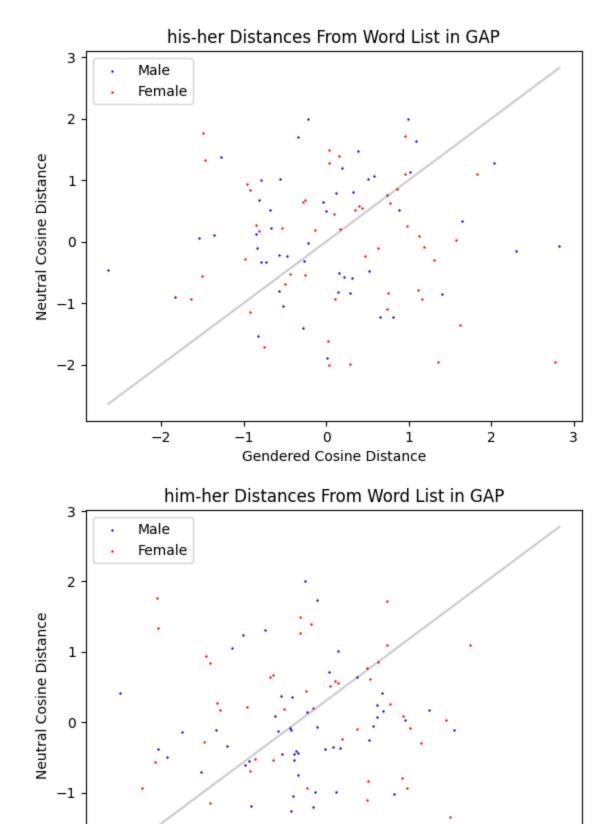




gentlemen-ladies Distances From Word List in BUG



In []: a.plotter(genderPairs, spotlightWords, gapNEmbeds, gapGEmbeds, titles[2])



-2

-1

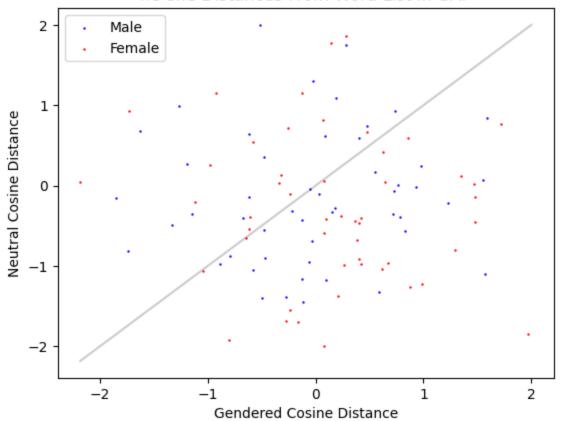
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Gendered Cosine Distance

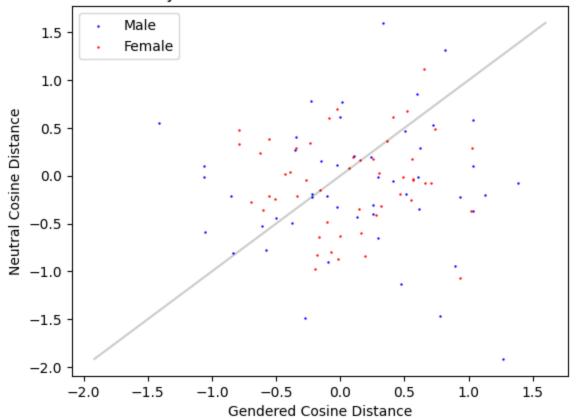
2

-2

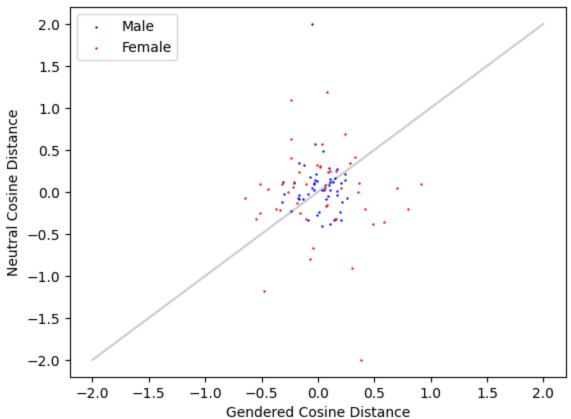




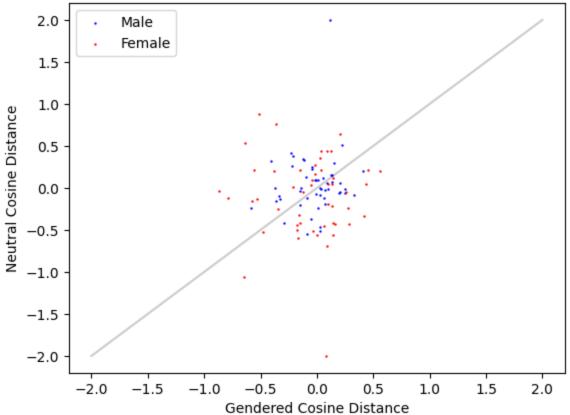
they-them Distances From Word List in GAP



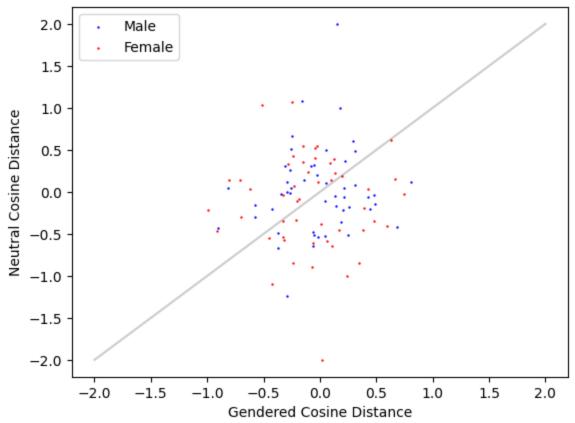




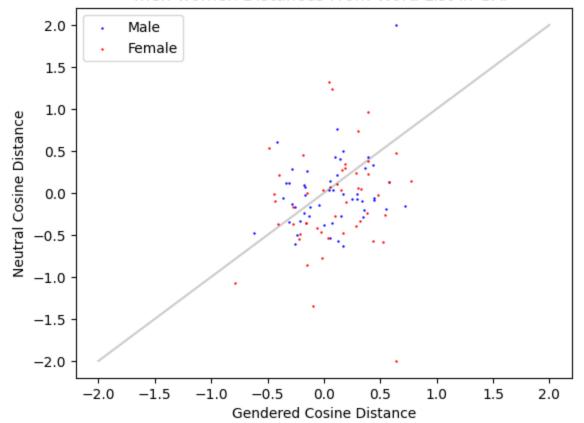




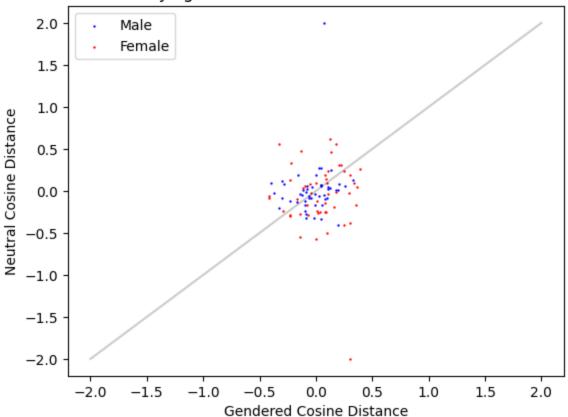




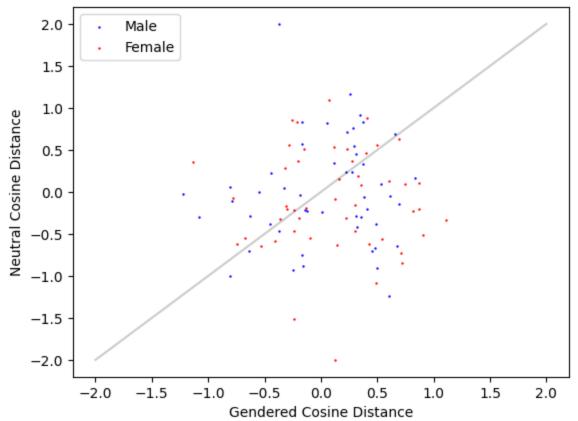
men-women Distances From Word List in GAP



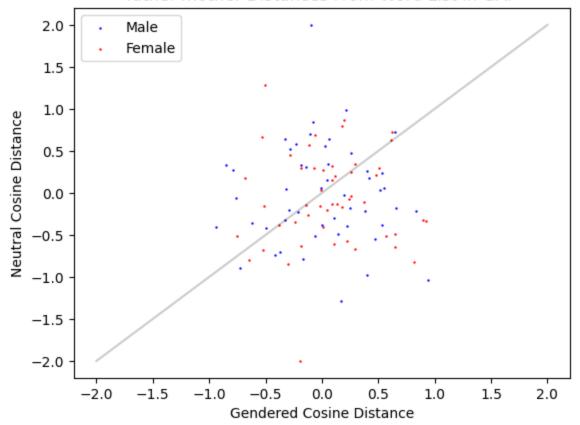




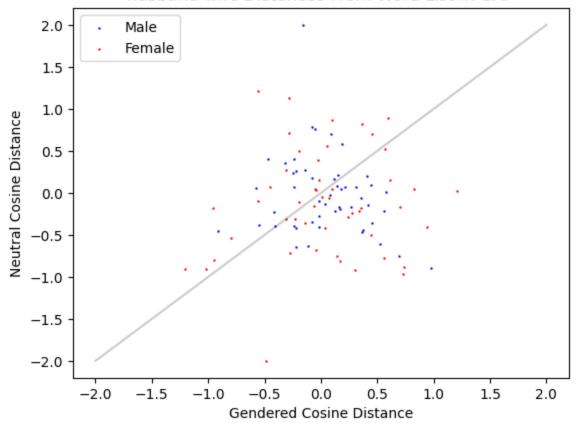
brother-sister Distances From Word List in GAP



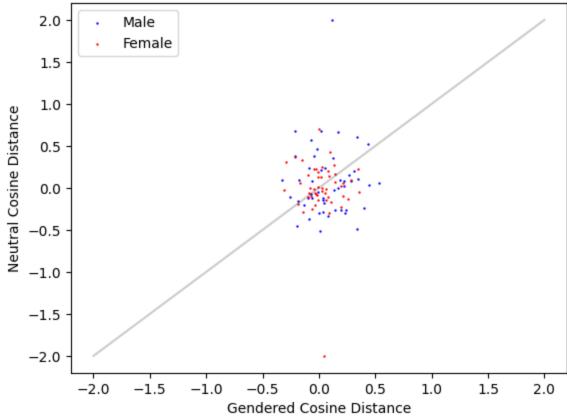




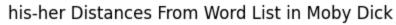
husband-wife Distances From Word List in GAP

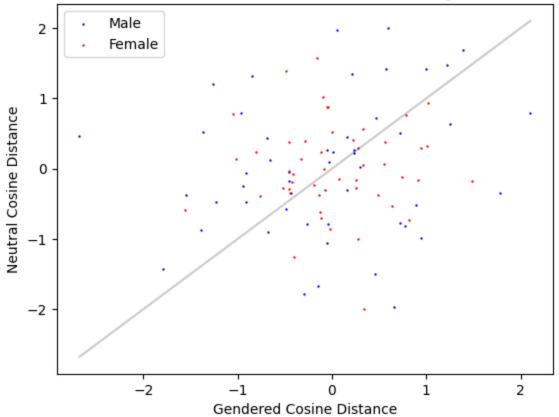




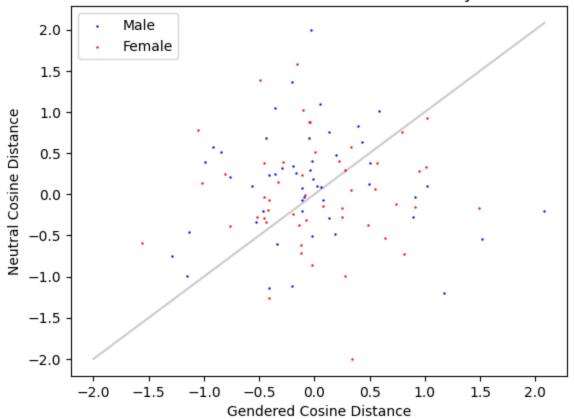


In []: a.plotter(genderPairs, spotlightWords, mobyNEmbeds, mobyGEmbeds, titles[3])

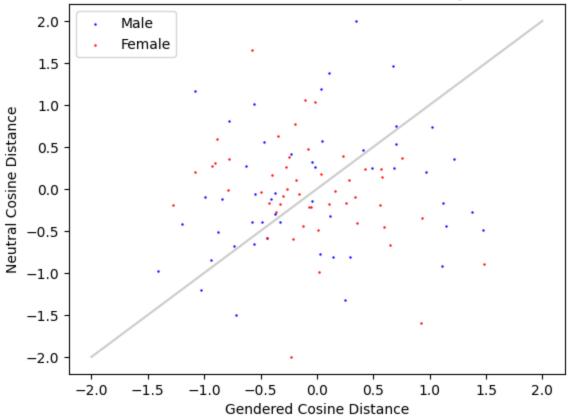




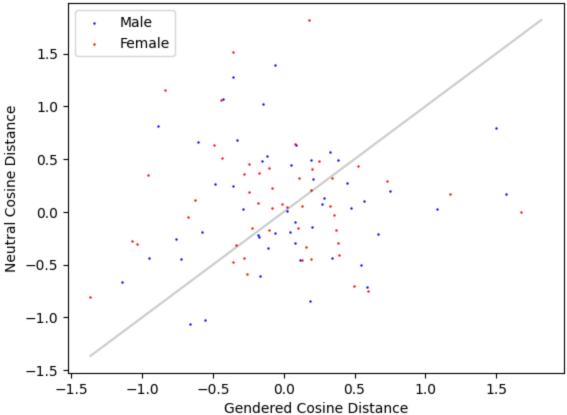
him-her Distances From Word List in Moby Dick



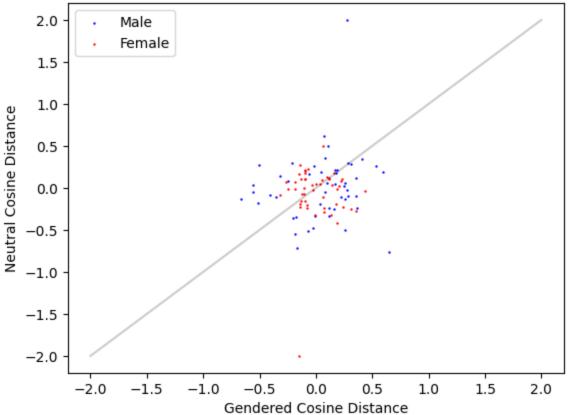




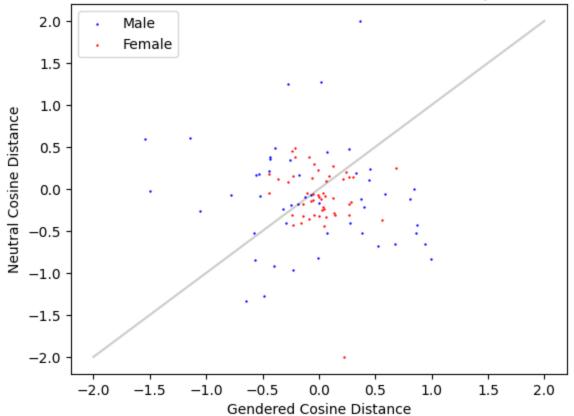
they-them Distances From Word List in Moby Dick



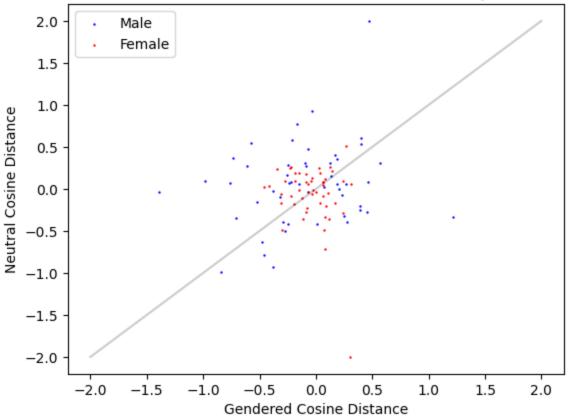




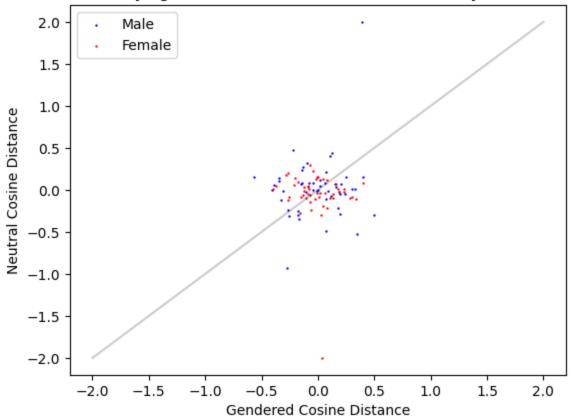
man-woman Distances From Word List in Moby Dick



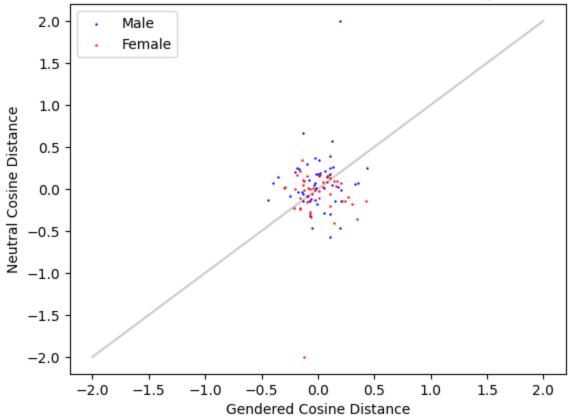




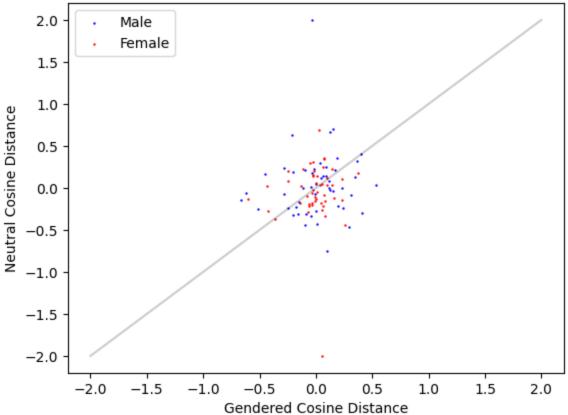
boys-girls Distances From Word List in Moby Dick



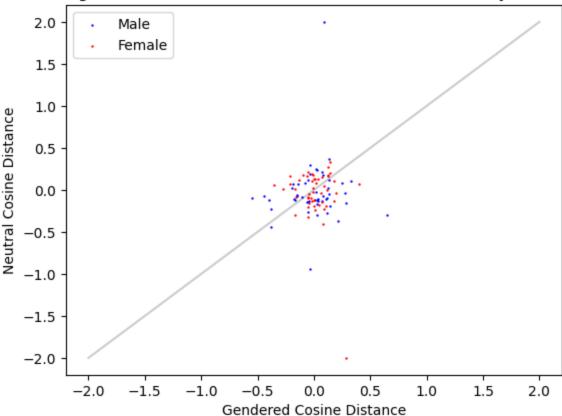




father-mother Distances From Word List in Moby Dick



gentlemen-ladies Distances From Word List in Moby Dick



```
In [ ]:
        """for i, (gen, neu) in enumerate(list(zip(genderEmbeds, neutralEmbeds))):
            avg = 0
            count = 0
            for word in spotlightWords:
                if word in gen.keys() and word in neu.keys():
                    count += 1
                    top3gen = set(a.closestWordsNorm(gen, gen[word], 110))
                    top3neu = set(a.closestWordsNorm(neu, neu[word], 110))
                    top3set = top3gen.union(top3neu)
                    diff = round((len(top3set) - len(top3gen))/100, 3)
                    avg += diff
            avg = round(avg / count, 3)
            print(f'Top 3 rank change for {titles[i]}: {avg}')"""
        #Doesn't work right
        print('Top 10')
        for i, (gen, neu, title) in enumerate(list(zip(genderEmbeds, neutralEmbeds, titles)
            print(f'{title} Cosine Differences between Neutral and Gendered Embeddings')
            diff = a.closestWordsDistances(spotlightWords, gen, neu, 10)
            print(diff)
        print('Top 5')
        for i, (gen, neu, title) in enumerate(list(zip(genderEmbeds, neutralEmbeds, titles)
            print(f'{title} Cosine Differences between Neutral and Gendered Embeddings')
            diff = a.closestWordsDistances(spotlightWords, gen, neu, 5)
            print(diff)
        print('Top 2')
```

```
for i, (gen, neu, title) in enumerate(list(zip(genderEmbeds, neutralEmbeds, titles)
     print(f'{title} Cosine Differences between Neutral and Gendered Embeddings')
     diff = a.closestWordsDistances(spotlightWords, gen, neu, 2)
     print(diff)
Top 10
Bible Cosine Differences between Neutral and Gendered Embeddings
0.967
BUG Cosine Differences between Neutral and Gendered Embeddings
0.906
GAP Cosine Differences between Neutral and Gendered Embeddings
Moby Dick Cosine Differences between Neutral and Gendered Embeddings
0.919
Top 5
Bible Cosine Differences between Neutral and Gendered Embeddings
BUG Cosine Differences between Neutral and Gendered Embeddings
0.908
GAP Cosine Differences between Neutral and Gendered Embeddings
Moby Dick Cosine Differences between Neutral and Gendered Embeddings
0.92
Top 2
Bible Cosine Differences between Neutral and Gendered Embeddings
BUG Cosine Differences between Neutral and Gendered Embeddings
GAP Cosine Differences between Neutral and Gendered Embeddings
Moby Dick Cosine Differences between Neutral and Gendered Embeddings
0.915
```