

## Supplementary Material

### 0.1 Style Transfer Cases

Negative -> Positive (Yelp)	
Input:	it is n't terrible , but it is n't very good either .
CrossAlign:	it is always great , but it is always very good .
MultiDec:	it is n't delicious but , it is not very well good .
StyleEmb:	it is n't terrible , but it is n't very good either .
CycleRL:	it is n't recommend , but it is n't very great variations .
BackTrans:	she was very nice , but the service is great .
RuleBase:	it is n't oh so good ! but it is
DelRetrGen:	it is n't great but it is reasonably priced .
UnsupMT:	it is excellent , but it is good too .
Ours:	<b>it is excellent , and it is very good delicious .</b>
Human:	it is n't perfect , but it is very good .
Input:	the food was so-so and very over priced for what you get .
CrossAlign:	the food was fantastic and very very nice for what you .
MultiDec:	the food was low up and over great , see you need .
StyleEmb:	the food was so-so and very over priced for what you get .
CycleRL:	the food was so-so and very over priced for what great qualities .
BackTrans:	the food is delicious and the staff are very good for me .
RuleBase:	the food was so-so and very over priced for what you get just right .
DelRetrGen:	the service is fantastic and the food was so-so and the food is very priced for what you get .
UnsupMT:	the food was decent and very perfectly priced for what you get .
Ours:	<b>the food was great and very perfectly priced for what you get .</b>
Human:	the food was great and perfectly priced
Input:	i guess she was n't happy that we were asking the prices .
CrossAlign:	i guess she was n't great and we were pretty good .
MultiDec:	i would maybe worked that i been taking they were but very helpful .
StyleEmb:	i guess she was n't happy that we were n't more service .
CycleRL:	i guess she was n't happy that we were asking great qualities .
BackTrans:	i think i will be back to go here , we love it .
RuleBase:	i very reasonable and happy that we were asking the prices .
DelRetrGen:	fast , fast , happy that we were asking , and the prices were great .
UnsupMT:	i think she was happy that we are attentive the prices .
Ours:	<b>i guess she was happy that we were asking the prices .</b>
Human:	she was happy that we were asking for the prices .
Positive -> Negative (Yelp)	
Input:	the service was top notch and the food was a bit of heaven .
CrossAlign:	the service was top notch and the room was very expensive on me .
MultiDec:	the service was top and the food was a bit of this plate .
StyleEmb:	the service was top notch and the food was a bit of heaven .
CycleRL:	the service was top that awful and the dinner was not great existent .
BackTrans:	the service is horrible and the food is not very good .
RuleBase:	slow the food was a bit of
DelRetrGen:	the food was a bit of weird .
UnsupMT:	the service was lacking and the food was a bit of sick .
Ours:	<b>the service was bad and the food was a bit of sick .</b>
Human:	the service was bad and the food was hellish
Input:	food is always amazing no matter what i order .
CrossAlign:	food is does not sense about what i did n't care .
MultiDec:	food is always better no do so you have .
StyleEmb:	food is always amazing no matter what i order .
CycleRL:	food is always no amazing matter what i order .
BackTrans:	really awful and chocolate service .
RuleBase:	awful no matter what i order .
DelRetrGen:	no matter what i repeated order .

UnsupMT:	food is always horrible no clue what i order .
Ours:	<b>food is awful no matter what i order .</b>
Human:	the food is always terrible when i order here .
Input:	i 'll definitely go back here again .
CrossAlign:	i 'll not go back here again again again .
MultiDec:	i 'll go definitely back here again .
StyleEmb:	i 'll definitely go back here again .
CycleRL:	i 'll great judgement back again .
BackTrans:	i am i 've not .
RuleBase:	rude staff and terrible here again .
DelRetrGen:	i refuse to go here again .
UnsupMT:	i 'll probably not go back here again .
Ours:	<b>i 'll never go back here again .</b>
Human:	i wo n't go back there .
<b>Negative -&gt; Positive (Amazon)</b>	
Input:	this is not worth the money and the brand name is misleading .
CrossAlign:	this is not the best and the best is not great .
MultiDec:	this is not worth the money and this pan , at amazon .
StyleEmb:	this is not worth the money and the brand name is the price .
CycleRL:	this is not worth the money and the brand name minimizes rental .
BackTrans:	this is not a great biased , and the de de .
RuleBase:	you can not beat the price and the brand name is misleading .
DelRetrGen:	well worth the money and the brand name is misleading .
UnsupMT:	this is definitely worth the money and the brand name is illustrated .
Ours:	<b>this is worth the money and the brand name is great .</b>
Human:	this is worth the money and the brand name is awesome .
Input:	i could barely get through it they taste so nasty .
CrossAlign:	i ve had it for my husband and they are .
MultiDec:	i could do take it all them so easy so .
StyleEmb:	i could smell of smell of it right and helps .
CycleRL:	i could barely get through it they taste so nasty .
BackTrans:	i can t be happy with this product .
RuleBase:	beautifully through it they taste so nasty .
DelRetrGen:	i have used it through and it is very sharp and it was very nasty .
UnsupMT:	i can perfect get through it they taste so delicious .
Ours:	<b>i totally noticed they taste so good .</b>
Human:	i loved it because they taste so great .
Input:	i will never again purchase another game where this is a requirement .
CrossAlign:	i ve never had this for my wife and it s a num_extend
MultiDec:	i will never use these out of this , is the best .
StyleEmb:	i will never purchase again another game you ll put a bad .
CycleRL:	i will never again purchase another game where this is dangerously floured .
BackTrans:	i can t use it for my phone , but it s une .
RuleBase:	i will never again purchase measuring cup this is a requirement .
DelRetrGen:	i will never again purchase another one in the game where this is a requirement .
UnsupMT:	i will definitely again purchase another pan where this is a cannot .
Ours:	<b>i will purchase this game again where it is a requirement .</b>
Human:	i will purchase this type of game again .
<b>Positive -&gt; Negative (Amazon)</b>	
Input:	i would definitely recommend this for a cute case .
CrossAlign:	i would not recommend this for a long time .
MultiDec:	i would definitely recommend this for a bra does it .
StyleEmb:	i would definitely recommend this for a cute case .
CycleRL:	i wish of this product the promises online terrible .
BackTrans:	midnight i have to get this product for a un .
RuleBase:	skip this one for a cute case .
DelRetrGen:	i would not recommend this for a cute case .
UnsupMT:	i would definitely not recommend this for a cute case .

Ours:	<b>i would definitely not recommend this for a cute case .</b>
Human:	i would definitely not recommend this for a cute case .
Input:	very nice unit , easy to assemble and operate .
CrossAlign:	very good , but you are very happy with .
MultiDec:	very nice unit , easy to wear and tastes .
StyleEmb:	very good in case , it feels excellent results .
CycleRL:	very clip , did to [UNK] deliver and punch .
BackTrans:	no texture , and et t have to get the hair .
RuleBase:	very nice unit didn t work at assemble and operate .
DelRetrGen:	very nice unit and was looking forward to this operate .
UnsupMT:	very nice unit , impossible to assemble and operate .
Ours:	<b>very terrible unit , hard to assemble and boot .</b>
Human:	very ugly unit , hard to assemble and difficult to operate .
Input:	i would n t trade them but this is a great knife for the price .
CrossAlign:	i don t know it s just like the same for a few days .
MultiDec:	i can t return it and this product a great game for the price .
StyleEmb:	i would n t believe it to say the last such a decent use price .
CycleRL:	i [UNK] t trade them but this is a great glitch containing [UNK] smoking .
BackTrans:	i don t buy this product , but it s not a le .
RuleBase:	i i wish i had n them but price .
DelRetrGen:	i would n t trade them or recommend this knife for the price .
UnsupMT:	i would n t trade them but this is a horrible toy for the price .
Ours:	<b>i would trade them but here it is a horrible knife for the price .</b>
Human:	i would trade them because this is a horrible knife for the price .
<b>Factual -&gt; Romantic (Captions)</b>	
Input:	a man and woman against a pink background smile .
CrossAlign:	a man in a red shirt is running on a beach .
MultiDec:	a man and woman on a red crowd looks .
StyleEmb:	a man and a woman smile and talk with one .
CycleRL:	a man and woman against a pink background smile .
BackTrans:	a man and woman against a pink background smile .
RuleBase:	a man and woman against a pink background smile loved .
DelRetrGen:	a man and woman watches a pink street to show his lover .
UnsupMT:	a man and woman crossing a kiss together dreaming of love .
Ours:	<b>a man and a woman hug with a pink smile on face .</b>
Human:	a bearded man and a woman in a dress holding a cup with a smiley face .
<b>Factual -&gt; Humorous (Captions)</b>	
Input:	a young man dances by a fountain .
CrossAlign:	a man is running on a beach to find the space .
MultiDec:	a young man stands next like a car .
StyleEmb:	a young man dances along an inflatable fountain .
CycleRL:	a man dances by a fountain .
BackTrans:	a young man dances by a fountain .
RuleBase:	a young man dances by a fountain deadly .
DelRetrGen:	a young man is running off for supremacy .
UnsupMT:	a young man sits by a fountain like a monkey with a smiley face .
Ours:	<b>a young man dances by a fountain in a yellow jacket , playfully playing .</b>
Human:	a boy in dark clothing near fountain water spout trying play with water .

## 0.2 Transfer Degree Control Cases

<b>Negative -&gt; Positive</b>	
Source:	it is n't terrible , but it is n't very good either .
Human:	it is n't perfect , but it is very good .
$w = 1.0$ :	it is n't terrible , but it is n't very good either .
$w = 2.0$ :	it is n't terrible , but it is n't very good delicious either .
$w = 3.0$ :	it is n't terrible , but it is very good delicious either .

$w = 4.0$ :	it is n't terrible , but it is very good and delicious .
$w = 5.0$ :	it is n't terrible , but it is very good and delicious appetizer .
$w = 6.0$ :	it is excellent , and it is very good and delicious well .
Source:	there is definitely not enough room in that part of the venue .
Human:	there is so much room in that part of the venue
$w = 1.0$ :	there is definitely not enough room in that part of the venue .
$w = 2.0$ :	there is definitely enough amazing room in that part of the venue .
$w = 3.0$ :	there is definitely amazing enough room in that part of the venue .
$w = 4.0$ :	there is definitely amazing enough room in that amazing part .
$w = 5.0$ :	there is definitely amazing enough room in that well of the hidden gem .
$w = 6.0$ :	there is definitely amazing nice room , and the part of amazing phenomenal !
Source:	definitely disappointed that i could not use my birthday gift !
Human:	definitely not disappointed that i could use my birthday gift !
$w = 1.0$ :	definitely disappointed that i could not use my birthday gift they .
$w = 2.0$ :	definitely disappointed that i could use not got my birthday gift questions !
$w = 3.0$ :	definitely liked you and i could use my birthday gift easy that !
$w = 4.0$ :	definitely liked you and i 'll seen my birthday gift both a message !
$w = 5.0$ :	definitely recommend and i could enjoys all my birthday gift free salsa !
$w = 6.0$ :	definitely recommend and i 'll answered all my birthday gift from friend !
Source:	we sit down and we got some really slow and lazy service .
Human:	the service was quick and responsive
$w = 1.0$ :	we sit down and we got some really slow and lazy service .
$w = 2.0$ :	we sit down and we got some really nice slow and lazy service .
$w = 3.0$ :	we sit down and we got some really nice fast and decorated service .
$w = 4.0$ :	we sit down and we got really some great quick and organized service .
$w = 5.0$ :	we sit down and we got some really quick great fly and decent service .
$w = 6.0$ :	we enjoy nice brunch and we got really quick friendly service and have great fun .
Source:	there chips are ok , but their salsa is really bland .
Human:	these chips are okay but their salsa is really tasty
$w = 1.0$ :	there chips are ok , but their salsa is really bland and amazing .
$w = 2.0$ :	there chips are ok , but their salsa is really nice and tasty .
$w = 3.0$ :	there chips are ok , but their salsa is really nice tasty !
$w = 4.0$ :	there chips are ok , their salsa is amazing really enjoy !
$w = 5.0$ :	there are ok chips forward to their salsa and is amazing great !
$w = 6.0$ :	there are nice chips , their salsa is amazing great !
Source:	the wine was very average and the food was even less .
Human:	the wine was above average and the food was even better
$w = 1.0$ :	the wine was very average and the food was even less than needs .
$w = 2.0$ :	the wine was very nice and the food was even less dining .
$w = 3.0$ :	the wine was very nice and the food was easy even above business .
$w = 4.0$ :	the wine was very amazing and the food was above happy .
$w = 5.0$ :	the wine was very amazing and the food is large always fun .
$w = 6.0$ :	great wine is very amazing and the food always reasonable .
Source:	the burgers were over cooked to the point the meat was crunchy .
Human:	the burgers were cooked perfectly and the meat was juicy
$w = 1.0$ :	the burgers were over cooked to the point the meat was crunchy .
$w = 2.0$ :	the burgers were over cooked to the point the meat was crunchy perfect .
$w = 3.0$ :	the burgers were over cooked to the point the meat was crunchy perfect .
$w = 4.0$ :	the burgers were fantastic from top to the the point meat was great crunchy .
$w = 5.0$ :	the burgers were fantastic from always the point the service is perfect crunchy .
$w = 6.0$ :	the burgers were fantastic from always the meat is perfectly .
Source:	said we could n't sit at the table if we were n't ordering dinner .
Human:	they said we could sit at the table with no hesitation
$w = 1.0$ :	said we could n't sit at the table if we were n't ordering dinner .
$w = 2.0$ :	said we could n't sit at the table if we were ordering a dinner !
$w = 3.0$ :	said we nice as the table of the brunch if we were n't ordering !
$w = 4.0$ :	said we lovely as the table for the brunch , we were n't ordering !

w = 5.0: said we lovely as the table for brunch from the dinner we were always !  
w = 6.0: said we lovely as the table for brunch from the dinner we were always !

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**Positive -> Negative**

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Source: really good service and food .

Human: the service was bad

w = 1.0: really good service and food .

w = 2.0: very good service and food .

w = 3.0: very good food but service is terrible !

w = 4.0: not good food and service is terrible !

w = 5.0: bad service and food !

w = 6.0: very terrible service and food !

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Source: they were so helpful , kind , and reasonably priced .

Human: they should 've been more helpful , kind , and reasonably priced .

w = 1.0: they were so helpful , kind , and reasonably priced , slow .

w = 2.0: they were so helpful , kind , and priced were bad .

w = 3.0: they were so helpful , kind , and noticed priced no reasonably .

w = 4.0: they were so only rude , although , one were sort about fries .

w = 5.0: they were so only rude , although , took not minutes they nasty .

w = 6.0: they were so only rude , nothing but bad was noticed .

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Source: the atmosphere was fun and the staff treats you well .

Human: the atmosphere was lame and the staff treats you like dirt

w = 1.0: the atmosphere was fun and the staff shut you totally said the well .

w = 2.0: the atmosphere was not fun and the staff said they totally let it well .

w = 3.0: the atmosphere was not fun and the staff said it was wrong .

w = 4.0: the atmosphere was not fun and the toilet was bad .

w = 5.0: the atmosphere was not that but the staff was bad and wrong .

w = 6.0: the atmosphere was trash and the staff bad !

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Source: i also love their convenient location right off of scottsdale road .

Human: i hate how their location is remote to get to from scottsdale road

w = 1.0: i also love their convenient location right off of scottsdale road !

w = 2.0: i also not love their convenient location right off of scottsdale road .

w = 3.0: i can not drive to their location though right off of scottsdale road .

w = 4.0: i might not drive to their location right off of scottsdale road .

w = 5.0: i apparently not driving off their purchase location, it was n't short management .

w = 6.0: i hate driving to their location right off of scottsdale road .

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Source: i actually can not wait to come back next year !

Human: i would not return here next year

w = 1.0: i actually can wait to come back next year !

w = 2.0: i actually not come back next year .

w = 3.0: i actually could n't wait to come back this bad place next year ?

w = 4.0: i actually could n't wait to said wrong service .

w = 5.0: i could n't wait to said this wrong service two minutes ?

w = 6.0: i could n't wait to said this wrong service was no tables .

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Source: everything is fresh and so delicious !

Human: everything was so stale

w = 1.0: everything is fresh and so salty , but three spot is delicious !

w = 2.0: everything is fresh and so salty , but absolutely \_num\_ smell delicious !

w = 3.0: everything is no and later but only smelled nasty , it was cold !

w = 4.0: service is half but to only later but his smelled bad !

w = 5.0: everything is terrible and no closed toilet

w = 6.0: everything is terrible and smelled nasty !

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Source: great food recommendations steak and tuna were both great .

Human: the steak and tuna were not up to par

w = 1.0: great food recommendations and steak tuna were both great the lost food .

w = 2.0: food ordered recommendations steak and tuna were both terrible but got more .

w = 3.0: food ordered steak recommendations but tuna were finally flat had bad wrong .

w = 4.0: ordered food steak but were tuna was both ok my bad mine .

$w = 5.0$ :	ordered food were steak but was already tasted disappointed the food .
$w = 6.0$ :	but noticed mine were bad and i already left flat poor food .
Source:	i was nervous and she made me feel so comfortable and welcome .
Human:	she did not make me feel welcomed
$w = 1.0$ :	i was nervous and she made me feel so comfortable and welcome .
$w = 2.0$ :	i was nervous and she made me feel so comfortable and mad .
$w = 3.0$ :	i was nervous and she made me feel so busy .
$w = 4.0$ :	i was nervous and she is so busy and made me feel mad .
$w = 5.0$ :	i was nervous and she made me feel wrong and so mad .
$w = 6.0$ :	i was nervous and she made me sad and felt mad .

### 0.3 Multi-aspect Attribute Transfer Cases

Source:[0.9, 1.0, 0.9, 0.8, 0.9]	Target:[0.0, 0.0, 0.0, 0.0, 0.0]
from a can, pours straw gold with thick white head ; aroma is pine and sugar , some citrus but mostly pine . taste is fruity , citrus , tea , slight pine , toast grain. mouthfeel is spot on, carbonation is medium , this brew is quite refreshing ! definitely something i wanna buy in quantity to go camping with this summer !	from a can, pours yellow cloudy lead ; aroma is spicy grassy hop, some citrus but mostly pine . taste is fruity , citrus , tea , slight pine , toast grain. mouthfeel is spot on, carbonation is medium , and unimpressive flavor character ! definitely i will never buy in quantity to go camping with this summer !
Source:[0.5, 0.3, 0.7, 0.3, 0.3]	Target:[1.0, 1.0, 1.0, 1.0, 1.0]
this beer pours a pale straw color . the head is a half an inch in height , and recedes quickly leaving no lacing . the aroma is of nothing. when i try really hard i can detect some extremely faint malt . the taste is little easier to detect that the aroma, but it is still mostly nothing . the mouthfeel is light bodied with nice carbonation . it is actually pretty good for a light lager. overall, this beer tastes too much like water for my likings . i will not be having this beer again .	this beer pours a deep red, glowing, standing out a lot , and recedes quickly . the aroma is of smoked meat , smoked cheese. the taste is little easier to detect that the aroma, but it is still very good . the mouthfeel is light bodied with nice carbonation . it is actually pretty good . overall, this beer tastes like my likings . i will try this beer again .

### 0.4 Transformer-based Auto-encoder Reconstruction Low Bias

Encode:	ever since joes has changed hands it 's just gotten worse and worse .
Decode:	ever since joes has changed hands it 's just gotten worse and worse .
Encode:	there is definitely not enough room in that part of the venue .
Decode:	there is definitely not enough room in that part of the venue .
Encode:	she said she 'd be back and disappeared for a few minutes .
Decode:	she said she 'd be back and disappeared for a few minutes .
Encode:	definitely disappointed that i could not use my birthday gift !
Decode:	definitely disappointed that i could not use my birthday gift !
Encode:	the atmosphere was fun and the staff treats you well .
Decode:	the atmosphere was fun and the staff treats you well .
Encode:	their pizza is the best i have ever had as well as their ranch !
Decode:	their pizza is the best i have ever had as well as their ranch !
Encode:	i also love their convenient location right off of scottsdale road .
Decode:	i also love their convenient location right off of scottsdale road .

### 0.5 Failure Cases

Adding meaningless phrases
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Source:	just left and took it off the bill . (Negative)
Output:	just left and took it off the bill . <b>great fun</b> . (Positive)
Attribute-independent data bias	
Source:	everything is fresh and so delicious !
Output:	everything is terrible and <b>no closed toilet</b>