

I just think...: The meaning and discourse role of *just*

Stephen Emet

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The following are some examples from the Switchboard corpus (Godfrey and Holliman, 1993), which give a sense of *just*'s frequency and flexibility in conversation:

- (1) we enjoyed watching the country and the Grammys and stuff but i just i just don't care for him i just never have
- (2) i just i just i thought that it might be convenient for me sometime to just like i said just pull over and fish for a while
- (3) oh ye[ah]- yeah well i- you know i don't i don't know all that much myself i just i just know when i hear it that i like it"
- (4) well it's i just i just think the more you you know you just each person has to consciously think about doing something little or something big whatever you can do

1 *Just* as a hedge?

Just can be used to attenuate the force of a directive.

- (5) (a) Just sit down in that chair.
(b) Just close your eyes.
(c) If you'd just sign there for us. (Lee, 1987)

The *just* seems to make the directive more polite than the bare imperative.

Just can also reduce the force of an assertion, by indicating uncertainty.

- (6) um-hum that's true i i like i say i don't have any problem with people using firearms you know for sporting purposes or hunting purposes i just think it's just maybe a little too easy you know to acquire one

I just think acts as a "plausibility shield" (Prince et al., 1982), indicating the speaker's level of commitment. In particular, plausibility shields convey doubt on the part of the speaker. They exempt the speaker from total commitment (Stubbs, 1986).

A hedge in this sense modifies the force of a speech act (Brown and Levinson, 1987):

Ordinary communicative intentions are often potential threats to cooperative interaction. . . For to ask someone to do something is to presuppose that they can and are willing to do it. . . Consequently, to hedge these assumptions—that is, to avoid commitment to them—is a primary and fundamental method of disarming routine interactional threats.

In an exactly parallel way, conversational principles are the source of strong background assumptions about cooperation, information, truthfulness, relevance, and clarity, which on many occasions need to be softened for reasons of face. Here too, hedges are the most immediate tool for the job.

So perhaps *just* is a hedge whose function is to soften the force of speech acts. Of course, *just* also has a restrictive meaning. So “I just think” might be a more extreme form of “I think”:

I just think \Rightarrow I think but I do not know

On the side of the listener, hedges are perceived as unpersuasive (Blankenship and Holtgraves, 2005) and cause speakers to be perceived as less reliable or credible (Hosman and Wright, 1987).

Discourse markers *I mean*, *you know*, and *like* are more frequent among women and younger speakers (Macaulay, 2002; Laserna et al., 2014). If *just* is a hedge, it should have similar usage demographics.

2 The core meaning of *just*

Previous literature primarily treats *just* as an exclusive operator whose function is to “restrict the application of the utterances *exclusively to the part focused*” (Quirk et al., 1985). It is classified by Quirk et al as an exclusive subjunct, along with items like *exclusively*, *exactly*, *merely*, *only*, *purely*, *simply*, and *solely*.

Like Quirk et al. (1985), Lee (1987) takes *restriction* to be the “primary semantic function” of *just*. However, Lee suggests that *just* may express different types of restriction in different environments: “the type of restrictive meaning which it expresses varies in character from one context to the another” (1987, p. 378).

Lee divides uses of *just* into four categories:

1. Depreciatory

- (7) It was just Bill on the phone, nobody important.

2. Restrictive

- (8) A. Did you taste the pasta?
B: No, I just tried the pizza. It was OK.

3. Specificatory

- (9) (a) I put it just next to your bead.
(b) I just read your email.

4. Emphatic

- (10) I just hate it when you do that.

These meanings, according to Lee, “emerge” from the connections between *just* and other elements of the construction in which it occurs. Similarly, Aijmer (2002) claims that the core meaning of *just* is “exactly, only”. The core function of *just* is to “[instruct] the hearer to interpret the utterance as the expression of an attitude” (158). According to Molina and Romano (2011), the “central meaning” of *just* “stresses the notion of preciseness”, along either a “downtoning” (specification, restriction, minimization) or “uptoning” (exactness, emphasis, politeness, agreement) axis.

Wiegand (2016) is unique in providing a formal semantics for *just*. In line with previous literature, Wiegand treats *just* as an exclusive, similar to *only* or *merely*. However, unlike *only*, *just* is not required to associate with a focused element.

In general, *just* is treated as an exclusive like *only*, but one that is able to range over a broader class of alternatives.

What is it about *just*, that makes it (but not *only*) suitable for a wider range of discourse functions?

- (11) (a) I just thought they just all sort of rhymed you know.
(b) ??I only thought they just all sort of rhymed you know.

- (12) (a) We just didn’t think anybody would like it.
(b) *We only didn’t think anybody would like it.

3 Corpora and Fillers/Discourse Markers

Corpus investigations have been used to shed light on other fillers and discourse markers, such as *uh*, *um*, *like*, *well*, *I mean*, and *you know* (Clark and Fox Tree, 2002; Fox Tree and Schrock, 2002; Priva and Gleason, 2016; Macaulay, 2002; Fox Tree, 2006; Laserna et al., 2014).

Clark and Fox Tree (2002), for example, use corpus data to argue that *uh* and *um* are not meaningless fillers, but bona fide words of the language carrying conventional meanings. In particular, *uh* and *um* are used to announce that a delay is coming; *uh* means that the delay will be brief, and *um* means that the delay will be longer. The aim here is to investigate *just* by similar means.

- Who uses *just*?

- What do corpus investigations reveal about the meaning of *just*? In what ways is *just* similar to an exclusive like *only*, and in what ways to discourse markers like *like*, *you know*?

4 Topic Models

Topic modeling provides a means for exploring relationships between words in a document (Griffiths et al., 2007). A *topic* is a probability distribution over words; some words are assigned a high probability by a particular topic, whereas others are assigned a low probability. And *documents* are distributions over topics, and are biased towards certain topics over others. This distribution over topics is the *gist* of the document. Given a set of documents, an algorithm extracts a set of topics, seeking to maximize fit between predicted values and observed words in the document. Words that tend to occur with high probability in the same topics will be predictive of one another. And we can determine the “distance” between two words by examining their topic profiles.

Topic models have been used to examine trends in scientific fields (Priva and Austerweil, 2015). I use topic models to examine patterns of usage across speakers (and utterances).

Part of an individual’s linguistic knowledge is the ability to predict which words are likely to occur, given words that have occurred so far. Topic models are a way to represent this. Additionally, topic models may help illuminate multiple senses of a word, when a word is generated by multiple topics.

5 Study 1

5.1 Introduction

In the case of *just*, topic modeling might be useful in a number of ways. Topic models may help to identify and clarify different senses of *just*—e.g. when is *just* a hedge, an emphatic, etc. It may also indicate additional senses, beyond those identified in e.g. Lee (1987).

Also, if *just* is semantically close to *only*, then it should occur in similar topics. If *just* is primarily used as a discourse marker (e.g. a hedge) it should pattern with other discourse markers.

5.2 Materials and method

I looked at the use of *just* in the Switchboard corpus (Godfrey and Holliman, 1993). The Switchboard Corpus consists of about 2,400 telephone conversations recorded in 1990. Speakers were paired randomly with other speakers, and assigned a topic to discuss. The corpus comprises about 3 million words. Additionally, a subset of one million words of the corpus was annotated for a number of features, including part-of-speech.

What should be treated as a document? Individual speakers may differ in their tendencies to use certain words. So we may wish to treat each speaker as a document. But there may also be tendencies within a particular utterance. So we could treat each utterance as a document, resulting in a much greater number of documents.

Topic models were created in R using the `lda` package.

5.3 1a

5.3.1 Method

For this model, each speaker was regarded as a “document”. All words were included, and the number of topics was set to 30.

5.3.2 Results and discussion

64% of occurrences of *just* were generated by two topics.

Topic	Top words
3	i, you, know, yeah, and, that, to, it, the, a, like, of, don't, it's, they, but, think, just
14	i, and, you, to, a, the, it, that, yeah, of, uh, but, so, know, have, just, like, it's

These same two topics generate 67% of *likes*.

5.4 1b

5.4.1 Introduction

For this model, each speaker was again regarded as a “document” and there were 30 topics. In order to reduce noise, frequent function words (pronouns, auxiliaries, determiners) were removed.

5.4.2 Results and discussion

Here are the topics and their six most probable words:

Topic	
1	"wear" "dress" "clothes" "work" "shoes" "jeans"
2	"house" "here" "area" "live" "from" "there"
3	"umhum" "um" "right" "hm" "yes" "hum"
4	"credit" "money" "for" "pay" "card" "use"
5	"go" "there" "camping" "up" "went" "fun"
6	"he" "year" "team" "game" "think" "he's"
7	"know" "uh" "think" "be" "um" "but"
8	"if" "crime" "gun" "be" "jury" "think"
9	"phone" "magazines" "your" "privacy" "call" "magazine"
10	"movie" "read" "see" "one" "good" "seen"
11	"exercise" "i'm" "play" "i've" "get" "golf"
12	"computer" "use" "work" "at" "space" "system"
13	"know" "yeah" "like" "but" "just" "so"
14	"food" "like" "eat" "good" "um" "cook"
15	"war" "there" "us" "country" "over" "were"
16	"uh" "so" "but" "well" "my" "just"
17	"school" "college" "kids" "schools" "high" "education"
18	"tax" "money" "taxes" "pay" "state" "government"
19	"uhhuh" "yeah" "oh" "um" "that's" "well"
20	"drug" "drugs" "testing" "test" "air" "pollution"
21	"car" "cars" "buy" "new" "bought" "on"
22	"she" "dog" "her" "cat" "she's" "cats"
23	"she" "my" "her" "home" "kids" "know"
24	"here" "weather" "year" "this" "cold" "rain"
25	"music" "like" "listen" "um" "country" "play"
26	"uh" "yeah" "well" "but" "for" "with"
27	"he" "he's" "him" "his" "said" "guy"
28	"news" "watch" "on" "tv" "like" "read"
29	"recycling" "paper" "put" "up" "cans" "plastic"
30	"insurance" "for" "benefits" "company" "health" "pay"

Topic 13 produces 57.5% of *justs*. Topics 7, 13, 16, 19, and 26 are discourse topics, whereas the others have readily interpretable content.

Just patterns very clearly with other discourse markers and in terms of topic distribution is not close to *only*. The closest words for *just* on this model are *so*, *but*, *like*, *really*, and *well*. Again *just* is the closest word to *like*. *Just* and *like* are highly predictive of one another, which perhaps deserves closer investigation.

5.5 Additional models

Additional topic models were generated using each utterance as a document. But this yielded only noisy data. *Just* was spread around all topics, as were other frequent words. Removing function words did not improve the results.

I also ran models looking at only the 150 most frequent words in the corpus, since my primary interest was in the relationship between *just* and these other frequent items. But this also did not yield meaningful results.

6 Study 2

6.1 Introduction

If *just* behaves similarly to other discourse markers and hedges, then we would expect it to display similar usage demographics (women, younger speakers). Additionally, if *just* is used as a “shield”, attenuating the force of commitment, then we would expect it to frequently occur with propositional attitude verbs, since these may be used as a device for weakening commitment. In particular, *just* should be more frequent with psychological verbs than an exclusive like *only*.

I expected *just* to be followed more frequently by psychological verbs (such as *think*, *feel*, *want*, etc.) than *only*, based on contrasts like the following:

- (13) (a) I just thought they just all sort of rhymed you know.
(b) ??I only thought they just all sort of rhymed you know.
- (14) (a) We just didn't think anybody would like it.
(b) *We only didn't think anybody would like it.

The contrast is especially strong with a negated auxiliary, raising the additional question of why *just* but not *only* can precede a negation.

6.2 Materials and method

Again the Switchboard corpus was used, as it provides demographic information for all participants. Models were created in R, using the `lme4` package. The occurrence of *just* was the predicted value, with sex and age as fixed effects and caller ID as a random effect.

For psychological verbs, a list of verbs was selected based largely on Levin (1993). For this model I used an annotated subset of Switchboard, Switchboard in NXT (Calhoun et al., 2009). I looked at all utterances containing either *just* or *only*, to examine whether the occurrence of a psychological verb was predictive of *just*, rather than *only*, preceding it. The occurrence of *just* was the predicted value, with verb-type (psychological, or not) as a fixed effect, and caller ID and identity of the verb as random effects.

6.3 Results and discussion

Female speakers were significantly more likely to use “just” than male speakers ($\beta = 0.267, SE = 0.074, z = -7.70, p < 10^{-13}$).

Younger speakers were significantly more likely to use “just” than older speakers ($\beta = 0.393, SE = 0.023, z = -16.77, p < 10^{-15}$).

By contrast, male speakers were slightly more likely to use *only*.

There were 1,310 instances of *just* followed by a psych verb (14.4% of verbs following *just* were psych verbs), versus just 37 instances of *only* followed by a psych verb (6.6% of verbs following *only*). The most frequent verb following *just* was *think*. There was only one example of *only*+THINK (in any form of the verb) in the corpus:

(15) i can only think of one out of all the people that i’ve talked to

By contrast, *just* followed by some form of THINK occurs 257 times, and “just don’t/didn’t think” occurs 71 times.

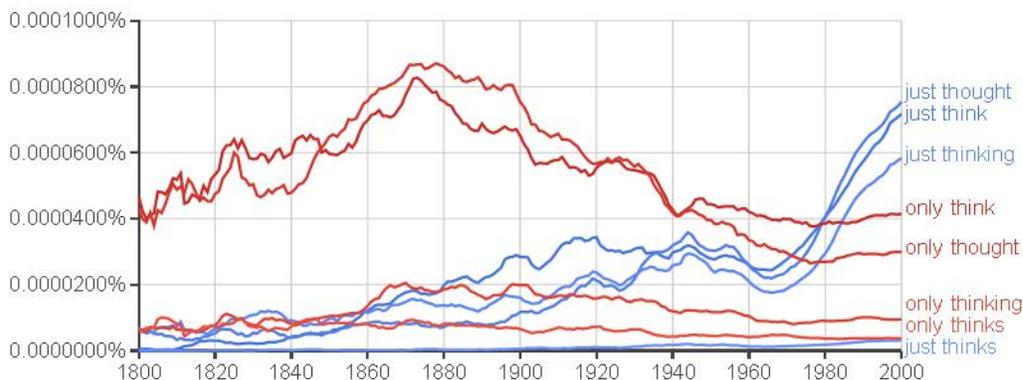
Just was significantly more likely to precede a psychological verb ($\beta = 1.634, SE = 0.76, z = 2.149, p = 0.0316$).

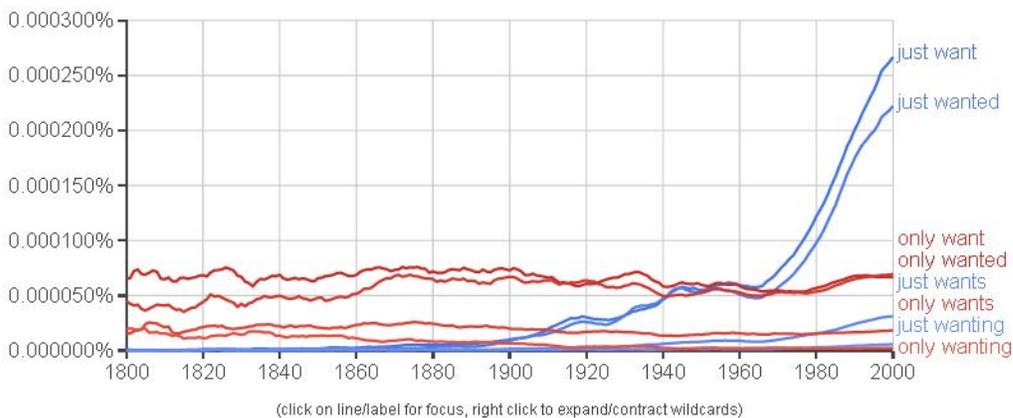
Just frequently occurs with psych verbs, which fits with the earlier hypothesis that *just* may be used to hedge commitments.

These results also emphasize the differences between *just* and *only*. *Only* is a true exclusive, and so “I only think X” entails “I don’t think Y” for other relevant thoughts Y. *Just* can have this reading but usually does not. Circumstances where one wishes to convey that among various relevant thoughts, they only think that a particular one is the case, seem to be rare.

7 Historical Trends

The frequency of *just* with psych verbs appears to be a relatively recent phenomenon. Consider for example the cases of *think* and *want* (Google Ngram, for books published in English between 1800 and 2000):





Usage of *just* with *think* and *want* begins to increase rapidly between roughly 1960 and 1980. What explains this shift? Has *just* acquired some new meaning, or was there some earlier meaning which for various reasons has become more useful or popular?

8 New sense of *just*

While *I just think* can attenuate the force of commitment, in other cases it does not seem to be a hedge on commitment at all. Rather, it seems to indicate that one will continue to hold one's view in the face of disagreement. This suggests an additional use for *just* not discussed elsewhere. Perhaps this is related to the rise of *just* with psych verbs, though at the moment that is just speculation.

One thing *just* can do, in addition to its scalar usage, is express an all-things-considered judgment. It indicates a summing up, or “in conclusion”. So “I just think. . .” indicates that what follows is, for the moment at least, one's settled view, one that takes into consideration potential reasons to the contrary. This is related to its emphatic usage, since where “I think” may be quite tentative, “I just think” conveys decisiveness. But it need not be merely a greater degree of confidence, and instead may reflect a summing up of the relevant factors. *Just* may convey “end of story”, “I've made up my mind”. This may be related to other cases of intensifiers applied to non-gradable predicates, like “I'm *so* there”. Since I will either be there or I won't be, the intensifier carries additional meaning, indicating a high degree of excitement. So perhaps ATC *just* is an intensifier that has taken on richer meanings in various social contexts.

The following examples from Switchboard are ones where I believe *just* has this summing-up, all-things-considered character (though it may be doing other things as well).

- (16) (a) I'm really sorry that I feel the way I do but I just think that we need to not take people as we have over the many- last many many years.
- (b) I mean North Americans [...] when you say that even I think I mean I tend to think of Americans and Canadians I just don't think of Mexicans as being North Americans although I guess strictly speaking they are

- (c) in reality I think what you would wind up with is a political football where they would see all these body counts that they can use to for their own will and I just don't think it would work.
- (d) i really don't see anything wrong with it i just don't think that it should be mandatory that every person have to do that
- (e) right it's just not i mean in general it's got the different terrains but i just don't think it's a a beautiful state
- (f) and maybe this is too general but i just believe that um they do not look at democracy the same way we do

In some cases, like (16 b), (16 d) and (16 e), a consideration for an opposing view is mentioned explicitly, and then "I just don't think" expresses that they nevertheless hold their view despite this. Or it may be that someone is expressing a view which they think might be somewhat unpopular, one they know others disagree with (as in (16 b)). It can thus serve the function of both conveying awareness of reasons and opinions to the contrary, and of finality: I've thought this through and made up my mind. It can thus indicate that further questioning on this matter is not open right now. In this way, it cuts off further discussion on that question.

All-things-considered *just* is not paraphrasable by *only*, and is perhaps best paraphrased by *simply*. All-things-considered *just* is not really an exclusive operator at all. "I just don't think it's a beautiful state" does not mean that I *do* think everything else (in some set of relevant alternative thoughts). Rather, it seems to mean something like, despite factors pointing in the other direction (its varied terrain, in (16 e)), I nevertheless think such-and-such.

All-things-considered *just* perhaps arises from the *exactly* or *precisely* meaning, in that it may indicate one's "final answer", what one thinks without qualification. In cases where there is no disagreement, or no coming to a decision, *just* is unnatural:

- (17) (a) I think I left my phone in the car.
- (b) ?I just think I left my phone in the car.

- (18) (a) [Opening a package of salad] I don't think this salad is good anymore - I'm gonna throw it away.
- (b) ?I just don't think this salad is good anymore.

Absent some controversy or reason to think otherwise, "just" is odd in these cases.

"Think" can be relativized to particular viewpoints, but "just think" resists such relativization.

- (19) (a) On the one hand, I think we ought to go - it'd be so exciting. But on the other, I think we should stay - it's really nice here.

- (b) ??On the one hand, I just think we ought to go - it'd be so exciting. But on the other, I just think we should stay - it's really nice here.

- (20) (a) I don't think so, but I'm open to changing my mind.
(b) ??I just don't think so, but I'm open to changing my mind.

What about cases other than those with *think*? I think something similar occurs with *want*, *can*, and *will*, although "all things considered" is perhaps not the best label in these cases. But there is still the sense of *no matter what, despite everything to the contrary*.

- (21) (a) I can't open this jar.
(b) I just can't open this jar.

The latter suggests that I've tried everything I can reasonably think of but still can't open the jar. If I made only a brief attempt, then *I just can't* isn't accurate. The following are examples from Switchboard:

- (22) (a) Tomczak was was trying hard but he just can't do it
(b) i'm trying but [laughter] i just can't recycle [laughter-everything]
(c) so i had the radiator replaced and they did everything they could possibly do they said there was some kind of problem they just couldn't figure out what it was
(d) i've tried i just can't do it

Similarly, *just won't* indicates greater stubbornness or unwillingness. I.e., despite effort/reason to the contrary, so-and-so just won't.

- (23) (a) and the sad part is that people to to you know combat this they just won't go to the doctor
(b) the dealer just wouldn't negotiate at all
(c) i hate working a muscle that you know just won't develop
- (24) (a) i don't really care if i get paid for it i just don't want it
(b) she could've had help with somebody cleaning and things like that and she refused she she just didn't want to do it
(c) they sit there and and they just don't want to learn a new system
(d) there's always somebody working behind your back a[nd]- who just doesn't want you to get your way

All-things-considered *just* naturally goes along with psych verbs, since it can be used to express one's settled opinion or desire. It is perhaps not surprising then that *think* is one of the most frequent items following *just*. *Only* by contrast is a true exclusive, and so is appropriate in fewer cases. There are very few examples in Switchboard:

- (25) (a) i can only think of one out of all the people that i've talked to
(b) i'd only want to do that in the summer
(c) i tend to find a restaurant and being on a on a tighter budget you know we don't go out to eat that much so once i find a restaurant i only want to go there

In a case like (25c), “I only want to go there” entails that for all other places (in the contextually relevant domain), I don't want to go to those places. In (25a) *only* modifies *can*.

9 Going forward

In topic model 1b, five topics generated discourse markers (one of these generated most of the *justs*). Which speakers use these topics? Are some speakers (men/women, older/younger) more likely to use one than another? If so, can anything be learned from that?

Given the frequent co-occurrence of *just* and *like*, further investigation of *like* may help explain why certain uses of *just* have gained frequency. What about these words makes it so that speakers who are likely to use one are likely to use the other? Has *like* acquired new meanings, and if so can what happened with *like* help explain what's happened with *just*?

If the intuition regarding *all-things-considered just* is plausible, is there a way to connect this to the corpus data?

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