

Changes in figures and changes in grounds:  
A note on change predicates,  
mental spaces and scalar norms

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## Changes in figures and changes in grounds: A note on change predicates, mental spaces and scalar norms

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Previous work has shown that there are a number of SUBJECTIVE uses of change predicates; in Sweetser (1996) I suggested some generalizations about which English change predicates are open to such extended interpretations, which do not involve an actual change of an individual entity (Matsumoto (1996a,b) has made interesting generalizations about Japanese change predicates). This paper analyzes another subjective use of change predicates, one where not the subject of the change predicate, but the scale or standard of comparison, is the entity which is interpreted as changing. For example, a professor who is getting older and keeps on teaching 20-year-old students might say, "The students keep getting younger every year." In fact, not the students' age, but the professor's evaluative scale is changing as the professor ages. I propose an analysis of these usages in terms of mental space structure and figure-ground reversal.

Keywords: Mental spaces, change predicates, subjective change, scalar predicates.

Natural language, like rationality, seems to be based on a system more complex and less rigid than traditional logics. To know whether a speaker's statement is "true" in language, we crucially require knowledge about issues such as the speaker's point of view or perspective. In this short paper, I cannot begin to address the broader subject of perspective in language, which has been richly addressed in the linguistic and literary scholarly communities in the last decade. However, I would like to discuss a particular set of examples which clearly show the way in which meaning changes with perspective. I will use the Mental Spaces model proposed by Fauconnier (1985) to explicate these examples. None of these examples are liter-

ally "true" – like metaphorical usages, therefore, they have not been of much interest to logically-oriented formal semanticists. They are, however, productive and pervasive usages in English. And they constitute yet further examples of the ways in which linguistic forms, far from expressing only truth value, regularly express the relatedness of varied viewpoints on a single scene.

### Viewpoint, motion, and change predicates

Predicates which most basically describe motion or change can frequently be used instead to describe subjective scanning viewpoint over a temporal or spatial expanse (cf. Talmy, 1983, in press; Langacker, 1987, 1988; Matsumoto, 1996a, b). Examples of such **subjective motion** and **subjective**

change<sup>1)</sup> interpretations are the most sensible readings of *The highway runs from Los Angeles to San Francisco* (no actual motion, the highway remains in place) or *The wells get deeper as you go down the road* (each individual well is deeper than the one adjacent to it, none of them is changing in depth). Talmy and Langacker see such usages as involving construal of the subjectively scanned sequence in terms of objective motion or change. In Sweetser (1996), I discussed some of the parameters which determine the possibility of interpreting a change predicate such as *get deeper* to refer to a sequence of scanned objects, each deeper than the next, rather than to a single object which changes over time. And I argued that the difference between these two interpretations could essentially be seen as a contrast between an **individual** and a **role** reading of a change predicate's subject, using these terms in the sense of Fauconnier (1985).

These research efforts left largely unexamined, however, a further class of subjective-change uses of change predicates, as in the following examples:

- (1) The students **get younger** every year.  
(cf. Talmy, in press)
- (2) Orwell's future predictions **get more accurate** every year.
- (3) Chekhov **gets more comprehensible** as you get older.
- (4) Shakespeare just **gets better** every time I read him.

- (5) When you buy a bigger car, the roads **get narrower**.

All of the examples in (1)–(5) are most plausibly interpreted not as meaning that the individual in question changes, nor that it is one of a sequence of individuals (each more accurate, or more comprehensible, than the last one), but rather that some subject's judgment or reference scale has changed. (1), although it could in a science fiction novel refer to students who were living time backwards, and in real life it might refer to a situation wherein a college is admitting more and more sixteen-year-old freshmen and fewer nineteen-year-olds each year, nonetheless has an almost stock reading which expresses the view of a faculty member who keeps teaching students of normal college age (different students each year, though the age range remains constant), while her own age of course diverges farther from college age with every passing year. (2), if Orwell were alive, could be taken to mean that each year he issues a set of predictions more accurate than the ones he issued last year. But we most likely understand it as meaning that a set of unchanged predictions are placed higher on the accuracy scale each year, as changing events and our changing understanding of the world alter that scale. (3) plausibly expresses the views of someone who feels that her increasing experience of human nature has made her more capable of understanding Chekhov, and (4) that of someone who feels that she is gradually learning more about literature and thus appreciating Shakespeare's greatness. (5) suggests that a driver in a larger car

1) Or *fictive* change, in Talmy's terminology; I am here using the term *subjective change*, following Langacker (1987 and elsewhere), partly because Matsumoto has preferred it, and my work in this area is so clearly compatible with his.

will have a correspondingly different scale of judgment about road-width.

It is, of course, a fact that not only objects but judgment scales alter. And this is true even for "objective" characteristics such as size and height. Travelers returning to the U.S. from Europe in the 1970's found themselves suddenly seeing their own American cars as huge, having managed within weeks to alter their subconscious norms of car-size. High-school students revisiting their kindergarten classroom will perceive it as smaller than they remembered, and be surprised by the tiny scale of the furniture. A famous joke has a middle-aged son saying that his father is so much smarter than when the son was twenty; and a folk-tale tells of a peasant who, when he complained of the small size of his house, was advised by his rabbi (or priest) to bring the farm animals in as well as the family, and finally to remove them ("Oh, rabbi, thank you, the house is so much bigger!"). These jokes focus on the fact that in such cases, our *experience* is not one of change in ourselves. We may know we have changed, but we are not aware that we have changed in the relevant respects to alter this judgment. Subjectively, then, we feel that the object has changed. In essence, this is the same kind of **figure-ground reversal** (Talmy, 1978, 1988, in press) that occurs with motion scenarios when we say that *The scenery rushed past the train windows* to express our experience of the train's relative stability with respect to our viewpoint, and the landscape's relative motion (cf. Talmy, in press)<sup>2</sup>). We similarly experience our own standards of judgment as a mostly stable ba-

sis for interaction, and our surrounding environment as being often fairly changeable.

In a standard change scenario, the figure is the object that changes – but there is always a ground as well, namely the scale with respect to which the parameter of change (size, comprehensibility, etc.) is judged. Often this ground is rather backgrounded, and only the parameter is mentioned. If I tell you that my friend Chris is *small* or *short*, you don't think of a six-inch Lilliputian, but of someone smaller or shorter than some norm which you assume we share for human height; likewise, if I say that my nephew *got taller*, I don't have to tell you that both his earlier and more recent heights are within some presumed possible range for human children. But how exactly do we use change predicates to talk about the cases where the ground, the norms and scales relative to which we judge, is the changing factor? What I shall do in this paper is to set forth a mental spaces model which allows us to describe and analyze the kinds of interaction between figure and ground which allow us to talk about a changing context of judgment by using linguistic forms which refer to a change in the object judged.

#### An attested example

(Context : Piper has just commented to Eve on the difficulty of arranging her kitchen so as to make it convenient for both herself (she is 5'7 1/2") and her mother-in-law, who is less than five feet tall.)

2) Langacker (1987, 1988) would refer to *trajector-landmark* reversal.

- Eve: Well, after all, you're fairly tall.
- Piper: Actually, I'm a pretty ordinary height for a Euro-American woman of my generation.
- Eve: Yeah, I guess that's true. I suppose when I lived in Minnesota I had different norms for women's height, with all the tall Scandinavian Americans; and since I've been living in California, I've just changed my standards, because the Hispanic and Asian American populations tend to be shorter.
- Piper: Oh yeah. I remember when I lived in a Hispanic neighborhood on the Upper West Side, and commuted to work on Wall Street, **with every stop the train got closer to Wall Street, I got shorter and shorter**<sup>3</sup>.

Piper did not of course mean that her height changed, but that as Hispanic Americans from her neighborhood left the train, they were replaced by the predominantly "Anglo" (and predominantly male) Wall Street business people, who were mostly taller, so that the average height of the people on the train was different. She started her ride as one of the taller people in the car, and ended it as an average-height female passenger, shorter than most of the men present.

### The analysis

This example's use of the change predicate *get shorter* means not that the subject's

height changed, but that the norm on the height scale changed to a taller height, so that the subject's height was no longer taller than the norm<sup>4</sup>). How are we to relate this use to the more basic use of *get shorter* to mean that the subject's height changed? Elsewhere in the literature, Matsumoto (1996b) and I (Sweetser, 1996) have noted that change predicates do not refer only to change of individuals over time, but can also refer to roles taking on new fillers which differ from their old fillers with respect to a specific parameter: thus, (6) might mean that Higginbottom submits a paper each year to the Berkeley Linguistics Society proceedings volume, and that each year's filler of the role "Higginbottom's paper" is longer than the preceding year's filler of this role.

- (6) Higginbottom's paper gets longer every year.

On this reading, no individual paper has changed length, but the role is associated with successively longer fillers, and English allows the predicate *get shorter* to express this situation as well as an individual change scenario.

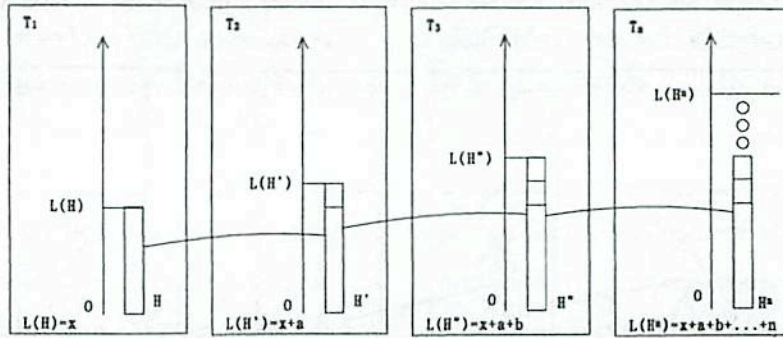
Diagram A shows the central, individual-change sense of *get shorter*; Diagram B sets forth the "role" sense. How do these relate to the sense involving norm-shift? As in the other two senses, the norm-shifting use of a change predicate involves a sequence of temporally defined spaces,  $T_1 - T_n$ . The predicate *short* does not define a particular length,

3) Preceding contextual utterances are only approximately transcribed from the participants' short-term memory; Piper's final utterance is word for word.

4) It is worth noting here that the quoted discussion is actively about height norms – the content of Eve's preceding utterance is even more explicitly about norm-shifts than Piper's cited utterance.

**Diagram A. Individual "objective change."**

Higginbottom's paper keeps getting longer. (i.e., he adds more text to it)

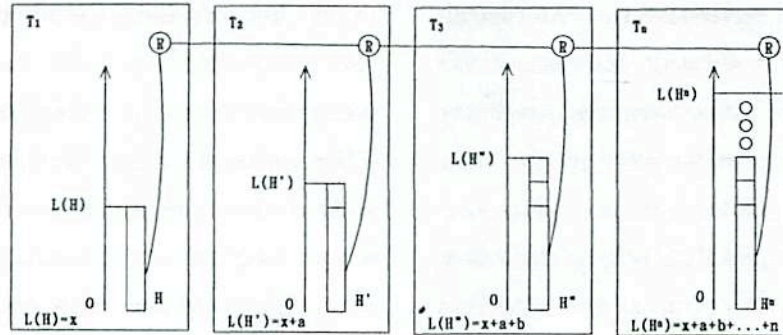


L = length  
 H = Higginbottom's paper  
 T = time  
 H, H', H'', etc. = various instantiations of the individual paper at different times  
 (identity of the letter H marks identity of the individual across spaces)

**Diagram B. Role reading of change-predicate subject.**

(the objective change here is in the role-value relationships)

Higginbottom's paper keeps getting longer. (i.e., there's a customary slot "Higginbottom's paper" which is filled, in successive conference volumes, by different papers, each paper being longer than the one which appeared in the preceding volume.)



L = length  
 R = the role "Higginbottom's paper" (lines connecting R's to each other indicate identity of the role through time.)  
 T = time (T<sub>1</sub>, T<sub>2</sub>, etc. = successive times)  
 H, H', H'', etc. = successive various (fillers) of the role "Higginbottom's paper" at different times. (lines connecting H's to R's indicate that in that space, that H fills the role R.)

but relates the referent object's dimension to some norm of height or length. The norm, in turn, is dependent on the population being compared. A *short adult*, for example, is probably taller than a *tall six-year-old*<sup>5</sup>.

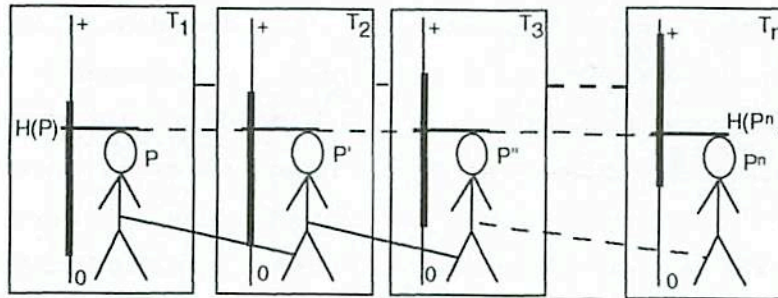
There are thus several ways in which the relationship between an individual's height and the scale of comparison can be reevaluated. First, of course, the individual can change. Second, however, the population

and/or the norm can change. Eve, in the example above, discusses her global reevaluation of height scales due to living in a local environment (California) where she was rel-

5) This phenomenon is a long-recognized fact about adjectives (cf., for example, Vendler, 1967; Lakoff, 1972); one might want nowadays to relate it to the general issues of linguistic framing (cf. Fillmore, 1976 and elsewhere). The work of Langacker (see Langacker, 1987, 1991 for his framework) is remarkable for its general attention to the mutual dependence of different parts of an expression, in interpretation.

## Diagram C. Subjective change.

"... I got shorter and shorter." (i.e., the population of the subway car changed to taller people, and my height was therefore shorter relative to the car's population at later times than at earlier times.)



$T_1, T_2, \text{ etc.} = \text{different times}$

$P = \text{the individual } P \text{ (lines connecting } P\text{'s mark identity of the individual through time.)}$

$H(P) = \text{the height of individual } P \text{ (unchanging over time)}$

The height scale is some general scale of human heights, relative to some broader population than the car-passengers.

The bolded portion of the scale marks the height range of the subway car population at the relevant time.

actively taller than she had been in her native Minnesota. Piper is discussing a much more local kind of environment: the changing population of a subway car during the course of a journey. She uses the predicate *get shorter* to refer to the rest of the car's population getting taller – in the role sense, rather than in the individual sense. If she had said *The people in the train car got taller and taller*, she would have been construing the situation as objective change, albeit in a role reading of the subject rather than an individual reading: no individual changes in height, but the role of “people in the train” is successively filled by taller and taller individuals. Diagram B would suffice to demonstrate the change-predicate use in this utterance.

But in fact, Piper said *I got shorter and shorter*. In Diagram C, we see an analysis of this utterance as understood in context<sup>6</sup>).

6) We are not discussing the possible objective uses of this utterance, though of course they exist: for example, Alice in Wonderland might reasonably have uttered it after drinking the potion which caused her to shrink to a tiny size.

At  $T_1$ , Piper is in a subway car, and the surrounding passengers cover a certain height range: her own height is in the upper part of that range. At successive moments  $T_2, T_3$ , and so on, the surrounding passengers form a different height range for each moment, and as time goes on, each successive set of passenger heights is taller than the preceding one. Piper's own height of course remains the same, but gradually changes its placement in the contextual range of heights. Relative to the more stable height norms of the U.S. population or of the world population, Piper's height might not be judged differently at the end of this ride than at the beginning; but if we take the local context of the subway car's population as the relevant scale-setter, then our judgment of her height changes when that scale changes. This is certainly an example of subjective change. It is also, as stated above, an example of figure-ground reversal; Piper's height, the figure here, is seen as changing relative to a ground, when in fact the reverse is more objectively the case: the real figure (the

thing really changing) is not Piper, but the rest of the car's population and the subjective judgment-scale based on that population.

Notice that there is a relationship between the role reading of the subject in *The people in the train car got taller and taller* and the reading of Piper's *I got shorter and shorter*. If we could not construe the role *people in the train car* as a stable role (albeit with changing fillers), there would be no unified norm-based scale of height for us to construe as the "stable" landmark against which Piper's height is being evaluated. So, in a way, the apparatus of Diagram B should be thought of as present, backgrounded, in Diagram C as well.

#### **Objective change as the basis for figure – ground – reversing subjective change construal**

In the case of the scenery rushing past the train windows, or the woman feeling shorter and shorter as the train car's population is gradually replaced by taller people, there is objective motion (that of the train) or an objective change (that of the surrounding individuals' average height) which is reconstrued subjectively as subjective motion or subjective change. The "objective" change in the setting or in the basis of judgment is precisely what gets reinterpreted as change in the judged entity in figure-ground-reversing examples of subjective change. The state of the world changes to make it better match Orwell's predictions in (2), and the age of the faculty member changes to become farther from the average student age in (3). In (4), the adjective *comprehensible* actually in-

herently refers to a relationship between the comprehender and the object of comprehension. However, it highlights the object's areas of responsibility for the relationship (clarity of expression, for example) rather than the subject's, and of course Chekhov's works are not in fact altering over time. But the aging and maturing of the reader is understood as being an objective change, which leads to the change in subjective viewpoint about comprehensibility.

When there is no particular objective change which can readily be evoked as the stimulus for alteration in subjective evaluation of experience, it can be difficult to get a figure-ground-reversing subjective-change interpretation of a change predicate. Thus, (3) is completely comfortable; but (7), without the mention of an objective change context which is being reconstrued as subjective change, seems preferentially construable as meaning that a living Chekhov is revising his works so that they gain in clarity and in comprehensibility – the basic objective-change reading, with no reversal of figure and ground. Of course, with enough added context – if the speaker has been discussing her personal changing and developing comprehension of literature – (7) seems perfectly acceptable with the subjective reading.

- (3) Chekhov gets more comprehensible as you get older.
- (7) Chekhov gets/is getting more comprehensible.

The perceived objectivity of some change is therefore possibly relevant to the ease with which speakers reverse figure and ground to



produce this particular kind of subjective-change use of change predicates.

Another relevant factor, in determining the ease of such interpretations of change predicates, is the degree to which the parameter of change is seen as objectively existing and objectively evaluated. As we have said above, although a parameter such as size or length is instantiated in the physical world, and experienced by humans via a common perceptual apparatus, it is nonetheless scaled subjectively by relation to cognitive norms which differ depending on the frames evoked (*big elephant* vs. *big flea*) and depending on the subject's normative assessment of a particular frame or domain (what size of cars is she accustomed to seeing?). Although we typically leave norms and frames implicit in using and interpreting *big* or *get longer*, in examples such as Piper's utterance about the subway train we can see that speakers access the subjective framing of height judgments and are not too troubled by the fact that these judgments are situation-dependent.

Certain lexical items, however, refer to parameters which centrally depend on an objectivist understanding (or an objectivist folk theory) of the world. These lexical items are, as one might expect, often incongruous in contexts which demand a subjective-change interpretation. *Accurate* and *true* are good examples of this semantic class; their meanings involve the understanding that mapping between a reality and a representation can be assessed independently of viewpoint. (8) cannot, therefore, be readily construed as meaning that the reader's assessment of the textbook changes (e.g., because she has learned

more physics between readings).

- (8) # This physics textbook **gets more accurate** with each reading.  
 (9) # Buddhism **gets truer and truer** as the years go by.

On the other hand, notice that *accurate* is acceptable in a figure-ground-reversing subjective change interpretation in (2), where the objective change parameter is apparently sufficiently provided as background by the phrase *every year*. This may be partly due to the framing provided by the phrase *future predictions: predictions* refers to statements which will be compared with actuality as the real world changes in time, allowing an idea of objective change in the setting to be built into the idea of prediction. And if true is understood to mean "valid for me personally" rather than "objectively valid," then (9) becomes entirely acceptable: it is then completely parallel to (3).

### Subjective change and the stable subject

Of course, the most crucial stable element in the subjective change scenario outlined above is the subject, the single experiencer of a continuous temporal spectrum of experiences. It should therefore come as no surprise to find that, in cases where the subjective change judgment cannot be attributed to a stable subject or subjects, we have difficulty giving subjective change readings to change predicates. Although (1)–(5), for example, do not clearly state the identity of the subject, they express the view of some subject or group of subjects. In (1), the view

is that of a faculty member (or older member of the campus community) – perhaps the speaker is herself the subject in question, or perhaps she is just expressing the experience of any older person on the campus. We imagine the subject(s) as experiencing a difference between earlier and later times in their lives. (10) is another example of this kind: the student reader's acquaintance with the language changes, and she experiences a contrast between her earlier and later readings of Jane Austen:

- (10) Jane Austen's novels **get shorter** as I get more familiar with 18th century language.

However, imagine that we are attempting to convey the idea that when Jane Austen wrote her novels (at the end of the eighteenth century and the beginning of the nineteenth), the norm of novel-length was longer than it is now, so her novels did not seem long to her contemporaries, but they do to modern readers. (11), which construes this as subjective change, seems truly fanciful, if not simply unacceptable; the immediately accessible interpretation of this sentence is instead the far more pragmatically bizarre objective change reading where the novels have actually changed length. (12), which expresses the changing relation between norms and Austen's actual novel-lengths simply as a contrast, rather than as a change, seems more acceptable. And (13), which brings the subjective judgment factor into overt expression with *seem*, is a really unmarked way of expressing this situation.

- (11) # Jane Austen's novels **have gotten longer** since she wrote them<sup>7)</sup>.  
 (12) Jane Austen's novels **are longer** now **than** they were when she wrote them.  
 (13) Jane Austen's novels **seem longer** now **than** when she wrote them.

Since there are no subjects who personally experienced the comparison of Austen's novels to these changing norms over nearly two centuries, it is difficult to set up a subjectively stable (though actually changing) viewer-perspective as the landmark against which Austen's works are subject to changing evaluation. For a changing metric to be subjectively stable, there must be a subject who experiences that stability.

Note that the problem in interpreting (11) is not a lack of objective change in the population norms and the basis for judgment: we do, of course, assume that the surrounding population of novels was different at the relevant periods, and that the changing population of novels was the cause of the changing length-norms. In fact, there has been more objective change than in our scenario for (10), where the only change was in the reader/subject's knowledge state.

Why should change predicates show this restriction to expressing stable-subject

7) # indicates that the sentence is perfectly grammatical, but cannot be interpreted as describing subjective change. I note here that at least one of my colleagues, George Lakoff, has no trouble attributing subjective readings to most of the sentences which I have said are not subjectively construable, including (10). His judgments seem unusual. But the generalization here is that no speaker will give subjective readings to these examples while falling to give such readings to the more accessible examples such as (1)–(5).

subjective changes rather than subjective changes without such a subject, and is this fact a part of a broader pattern? My answer is that the restriction is connected to an idea of unified event structure, and that clausal syntax iconically reflects such structure. A change predicate such as *get longer* compresses into one clause the expression of a change event involving a series of states at different times. As discussed in Sweetser (1996), the more morphologically and syntactically compressed an expression is, the more we tend to interpret it as describing a canonical single event – in this case, a canonical single change event, involving objective change of a single entity over time. A canonical single event involves stable participants through its temporal structure.

In Sweetser (1996), I argued that monolexic change predicates such as *lengthen* and *grow* are the most restricted in usage, staying close to the canonical change scenario and generally demanding individual change readings like those in Diagram A rather than role readings such as those represented in Diagram B. For example, *Higginbottom's paper grows every year*, unlike *Higginbottom's paper gets longer every year*, cannot be interpreted as referring to a succession of papers, but must be taken as referring to a single paper which the author keeps revising. Phrasal change predicates such as *get longer*, however, allow role readings, and can even be extended to subjective change readings, as we have seen. But such predicates seem to demand some unity, at least that of the subject, in order to be reconstrued as subjective change.

Predicates of contrast or comparison, on the other hand (e.g., *is longer than*), compare two distinct situations, which need not be part of a single event. It can be the case that these happen to be two states of the same entity at different times: thus *Sandy is taller than she was last year* is as acceptable as *Sandy is taller than Chris is*. We naturally infer from the comparison of Sandy's present and past states that she has undergone a change over time from the earlier to the later state. But the linguistic form of the comparative construction does not focus on the event of change; instead, it highlights the two states and the difference between them. It is thus not surprising to find that a temporally stable subject of experience is less of a requirement for the interpretation of comparatives than for that of change predicates. A comparison, of course, requires some stable subject to evaluate the objects of comparison: but in (12), the stable subject is not the actual experiencer(s) of the shorter and longer lengths, but the meta-experiencer, the speaker who is aware of the history of differing evaluations of the length of an Austen novel at different times in the last two centuries. Obviously, such an interpretation of (12) leaves a great deal of structure implicit. And it is probably less marked to express at least some of that structure by adding the expression of experience, as in the use of *seem* in (13) – or even by mentioning the two sets of subjects, as in (14).

- (14) Jane Austen's novels seem longer to a modern audience than they did to her contemporaries.

### Conclusions

I have argued that there is a cline from the most central interpretations of change predicates – references to objective change of individual entities – to more extended interpretations, including subjective change readings such as role readings and figure-ground reversal readings. A linguist needs significant apparatus to appropriately describe figure-ground reversing uses of change predicates: the mental spaces framework is necessary, together with appropriate understandings of scalar models, and of scales as the ground against which change and degree judgments are construed. All of this apparatus has been argued for by other scholars, on other grounds; its usefulness is further confirmed if it has enabled us to state new generalizations about a new class of linguistic usages.

Given an analysis of the figure-ground-reversing subjective uses of change predicates, we can see intuitively that this use is farther from the central use than the role use is – and it seems appropriate that it is therefore more restricted in some ways, as well. It is particularly interesting to observe that, although a subjective change scenario diverges fairly radically from the prototype of an objective scenario with stable participants, it is nonetheless constrained in how completely it can depart from such a scenario. In particular, if the participants are not to be construed as stable, the subject experiencing the change must be unique and stable – and this requirement is stronger for change predicates than for other constructions such as comparatives.

Linguistic usage is both motivated and constrained in multiple, complex ways by our

ability to reconstrue one kind of event or experience in terms of another. In general, such cognitive reconstrual appears to be constantly present, and constantly offering varied options for linguistic expression of the same “objective” content. But as we express scenarios farther from the central meaning of some class of expressions, we may see added constraints on the use of those expressions – and we may also be able to observe added aspects of the central meaning itself, which were invisible or redundant in the central usage context.

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