ABSTRACT

Notwithstanding the large number of simulation and experiential learning papers addressing ethics and social responsibility, little has been done to simulate the financial consequences of corporate social responsibility (CSR). And yet, the increasing financial accountability of corporate leaders is driving them to consider CSR for its financial as much as its social consequences. Indeed, much of the literature addresses CSR as a kind of public relations activity, the cost of which is justified for the goodwill it buys. This paper develops a simulation design built around this concept. It combines a corporate reputation and risk management model to allocate rewards for both immediate profitability and goodwill.

INTRODUCTION

Several decades ago, the Journal of Marketing published a series of articles taking a somewhat tongue-in-cheek view of the morality of marketing as a discipline and as a profession (Farmer 1967, 1977, 1987). First asking the reader if he would let his daughter marry a marketing man, he says that he “would chase him off the premises fast. Who wants his daughter to marry a huckster?” (Farmer 1967, p. 3) Ten years later, in considering whether his son should marry a marketing lady, he muses, “maybe, just maybe, she will do something highly creative and even moral in a field long abused for being immoral. Above all, that future has to work!” (Farmer 1977, p. 18) Finally, in an article run by the Journal of Marketing just after his death...
in 1987, he surrenders: “In the end, and how I hate to admit it, marketing may well be the most moral field of all. What other discipline not only saves lives, but minimizes wars?” (Farmer 1987, p. 115)

Over a period of 20 years, Farmer’s view of business in general and of marketing in particular seemed to reflect his times, which were, of course, changing. The transition from Vietnam War-era protests to Gordon Gecko’s greed is good mantra followed the progression of America’s baby boom generation from draft eligibility and idealism to the wealth-consuming, pragmatic demands of middle age, such as children and mortgages. It wasn’t just that greed was good – running business according to marketing principles produced more common good than did the alternatives. It appeared that Keith’s (1960) marketing revolution was complete.

So is marketing a contributor to the public good (Farmer 1987), or a detractor largely in the hands of folks out for their own good, the public be damned (Farmer 1967)? Our purpose in this paper is to visit Farmer’s questions in terms of social issues and simulations. How does the marketing concept fare in the face of social issues, from simply falling short with a product does not match up to its original promise or catastrophic events such as the 1982 Tylenol murders, 1984 Bhopal disaster, 2000 Ford / Firestone fiasco, 2010 BP oil spill?

More important to this paper, how would a simulation address such issues, providing participants with realistic performance feedback that addresses their handling of social issues? We begin from a perspective of marketing as a philosophy that says profit may best be obtained by anticipating and meeting the needs of customers better than competitors do, following the first Journal of Marketing reference to the marketing concept (Kelley, 1958) and the New Testament’s admonition that greatness requires being the “servant of all” (Mark 9:35). We then introduce a situation where the simulation participant’s best efforts lead to a dual effect – one in which the company is truly serving customer needs and the second where the same efforts violate them.

The setting is a quick-service restaurant (QSR) simulation. We examine the case where a QSR prospers by doing a good job satisfying its customers’ short-term wants for popular food items that tend to have a long-term deleterious effect on both patrons and society as a whole. To illustrate the problem, consider the success of QSRs over the past 50 years. Consistent with the marketing concept, QSRs have proved to be very successful in satisfying customer needs, and, as promised by the concept, this has rewarded them with enormous financial success. The long-term consequences are documented in the popular media by such works as the 2004 film, Supersize Me or books such as Fast Food Nation (Schlosser 2001) and The Omnivore’s Dilemma (Pollan 2007).

Figure 1 captures the most poignant part of the marketer’s dilemma. Ideally, product offerings should fit into cell 2 in the figure, offering customers both short- and long-term benefit. However, the message of Supersize Me and Fast Food Nation is that QSRs typically make most of their money from product offerings in cell 4. Nor is the solution to slavishly switch totally healthy menu. As McDonald’s discovered with its ill-fated McLean Deluxe, its core customer base would not sacrifice immediate satisfaction for “healthier” food. Products like the McLean Deluxe occupy cell 1, but not for long, as they tend to fail if they do not provide immediate gratification (Morris 2009).

Cell 3, comprised of products that provide neither short- nor long-term benefits, should be empty but for the odd snake-oil vendor. So we have three potentially viable product offerings. Products in cell 2 are ideal, but difficult
to attain. The marketer can try to sell products from cell 1, but risks losing customers who are not ready to have their tastes dictated to them. Products in cell 4 provide an exchange of instant gratifications, but risk the long-term wellbeing of the customer, and therefore, the reputation of the company.

Given the ubiquitous nature of the cell-1/cell-4 dilemma, the challenge for simulation design is to model the trade-offs in a way that will give simulations’ participants a realistic experience managing the trade-offs. Erring on the side of cell-1 products risks financial ruin through lack of customer interest. Erring on the side of cell-4 not only provides ethical dilemmas, but risks catastrophic consequences through litigation and/or negative effects on corporate reputation. This paper will outline design principles for addressing this challenge, concluding by answering the question in the title of the paper and adding to it – “Would you take a marketing man you liked to a quick-service restaurant?”

THE PROBLEM OF MENU MANAGEMENT

The problem of menu management, or “menu engineering” as it is commonly referred to in the hospitality industry, is central to the operation of a successful restaurant. Menu engineering is tasked with developing a menu that contributes the greatest possible contribution to the restaurant’s overall profitability. The concept was developed by Michael Kasavana and Donald Smith of Michigan State University’s School of Hospitality (Kasavana and Smith 1982), based on an adaptation of the classic Boston Consulting Group’s Business Portfolio Matrix. Instead of looking at “relative market share” and “growth” for the X- and Y-axes, respectively, as done in the BCG model, the menu engineering matrix looks at “popularity” and “profitability.” The result is a matrix illustrated in Figure 2.

Stars are the ideal menu item – items that are both profitable and popular. Therefore, the menu management process involves engineering as many of them as possible. However, their classification is based on a comparison with other items in the menu. Items always vary in both popularity and profitability, so a restaurant will inevitably have a mix of menu-item types. The management problem is to continually improve, increasing the overall popularity and profitability of items relative to those offered by competing restaurants.

Cash cows is a term taken from the original BCG matrix, and perhaps is a misnomer in this setting. They are also sometimes called plowhorses. They are not particularly profitable on an individual basis, but they make up for it in their popularity (sales volume). They produce a steady revenue base upon which the restaurant can draw as it works with its more profitable items.

Question marks, or what menu engineering often refers to as challenges, are hopeful products. They are individually profitable, so the challenge is to transform them in a way that will make them popular as well.

Finally, dogs are neither profitable nor popular in comparison to other items on the menu. Because the evaluation is based on a comparison with other items on the same menu, they might still be superior to those of other restaurants. However, in the interest of continuous improvement, they represent a category to be analyzed and either eliminated or modified to increase the profitability and/or popularity, thus raising the overall quality and competitiveness of the menu.

Both popularity and profitability are quantifiable, thus making the menu analysis matrix highly operational for managers to work with. To get an index of popularity, a manager simply looks at the sales volume of a particular item compared to the overall average. For instance, if a menu features 20 items, each one should account for 5% of

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Menu Mix Analysis Matrix

Figure 2

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<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Stars</td>
<td>Question Marks</td>
</tr>
<tr>
<td>Low</td>
<td>Cash Cows</td>
<td>Dogs</td>
</tr>
</tbody>
</table>

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the items sold, all else being equal. An item that accounted for 10% of sales would have a popularity index of \(10%/5\% = 2.0\). An index of 1.0 would place a menu item exactly halfway along the popularity axis.

Profitability is also easy to work with. If an item sells for $10.00 and the cost of food is $3.00, its contribution margin is \$(10.00 - 3.00) = 7.00\). This can also be converted to an index. If the average menu item has a contribution margin of $5.00, the one with a $7.00 contribution would have a profitability index of \$(7.00/5.00) = 1.4\).

Note that we state the contribution margin in dollars rather than as a percentage. This is because meals tend to substitutes, regardless of the price. A customer that eats an inexpensive meal is not likely to eat a second one, just because it is inexpensive. An expensive meal with a relatively low percentage contribution might still contribute more to profit and overhead than a less expensive meal with a higher percentage contribution.

Obviously, in a simulation as in real life, the manager needs some external standard against which to evaluate the popularity (i.e. sales volume) of each menu item. In essence, then, menu management becomes a special case of product-line management, and in this case, an example of what Andrews, Cannon, Cannon and Low (2009) call the volume-oriented resource utilization approach. The sales would fall out of a standard demand-curve formulation, such as the one suggested by Gold’s (2005) system-dynamics-based model.

Our focus here will be on the impact of the specific menu-management decisions, and particularly, the manner in which we might account for the impact of social responsibility in the model. Beginning with the profit impact of menu decisions, this can again be accommodated by the standard equations found Gold’s (2005) model. As we have noted, popularity is reflected in the demand curve, which, in turn, depends on price and the distance of the menu item’s characteristics from those desired by the various market segments incorporated in the simulation. Unit contribution margin is also a standard part of the standard model, converting to total contribution when multiplied by demand.
MODELING THE EFFECTS OF SOCIAL RESPONSIBILITY

The literature suggests a number of ways to incorporate the impact of corporate social responsibility (CSR) on simulated marketing and management decisions. The literature suggests a number of ways to incorporate the impact of social responsibility on simulated marketing and management decisions. Bos, Shami, and Nab (2006) identify several simulations incorporating ethics and corporate social responsibility. They further indicate, not surprisingly, that ethics and social responsibility have become more salient in business school education subsequent to the Enron debacle of 2000. A number of simulations have been developed, but a Business Source Complete search undertaken in November 2010 for the terms “social” AND “responsibility” in the journal Simulation & Gaming scored just three hits, including the Bos et al. article. Moratis, Hoff and Reul (2006) identify several success factors for inculcating a sense of corporate responsibility among business students: The school must have a vision of CSR. It must contain a capacity for or culture of innovation. It must avoid being too abstract, and it must ensure the responsibility for learning rests squarely on the students themselves.

A Business Source Complete search (in November 2010) for the terms “social responsibility” and “simulation” yields 37 hits. When the term “profit” is added, the number of relevant articles falls to four. None really relate to the short- or long-term impact of being socially responsible (or not) on a firm’s profits. Social responsibility is demanded, but its impact on companies is not known.

Searching the Bernie Keys Library on “social responsibility” yielded 82 papers. Many described experiential exercises to give participants experience grappling with ethical dilemmas. Of those that involved computer-based simulations, the most common approach was what might be labeled “event handling.” For instance, Thorelli (1999) describes a number of social-responsibility-related scenarios that have been developed for Intopia, requiring players to adjust their regular decision-making approach. In fact, this approach would be realistic for our menu management problem as well. As Werner, Feinstein, and Hardigree (2007) point out, fast-food restaurants indeed face the possibility of litigation for damages resulting from obesity-related illnesses. There is also the possibility of catastrophic social events, such as the aforementioned release of the film Supersize Me, the best-selling book, Fast-Food Nation (Schlosser 2001), or The Omnivore’s Dilemma (Pollan 2007). The disadvantage of this approach is its episodic nature. Simulation participants have no feedback on how they are managing social issues until a catastrophic event occurs. Our approach is to make the effects of social responsibility continuous in two ways: First, we link it to corporate reputation, based on the approach suggested by Cannon and Schwaiger (2005a,b). Second, we assess a financial cost to the risk of litigation, much as an insurance company would.

Both of these will be unitized and added as an element of unit costs so they figure directly into the simulation’s algorithm for determining the overall profitability of each menu item.

MODELING COMPANY REPUTATION EFFECTS OF SOCIAL RESPONSIBILITY

Cannon and Schwaiger (2005a) develop a reputational framework for managing social responsibility. They suggest “a broader view of profit” in which reputation represents a kind of capital investment. Foregoing short-term profits to serve consumers long-term welfare increases this reputational investment. Conversely, sacrificing long-term customer welfare in favor of short-term profits uses it up.

This provides a useful framework for addressing the menu problem in a restaurant simulation. Simulation participants can choose to maximize short-term profits by providing the kinds of food consumers want, regardless of the long-term health implications. However, the health problems will have a long-term negative impact on the restaurant’s reputation, as we have seen with McDonald’s and quick-service restaurants in general. Conversely, simulation participants can forego some short-term profits in favor of a healthier, but less popular, menu, thus building their reputational capital as a socially responsible marketer who cares about the long-term welfare of its customers.

To implement the “broader view of profit” approach, we need a mechanism for assigning a dollar value to reputational capital. Rust, Zeithaml, and Lemon (2004) provide

\[
CE(t) = \sum_{j=1}^{J} \sum_{n=1}^{N} \left( L_{i,j,t} \cdot Q_{j,t} \right) \cdot \frac{(R_{t+n} - C_{t+n})}{(1 + k)^n}
\]

where

- \( CE(t) \) = customer equity from customers acquired at time \( t \)
- \( t \) = the accounting period of revenue from a customer transaction
- \( J \) = the total number of customer segments available
- \( j \) = an index representing a specific customer segment
- \( N \) = the expected number of periods for which revenue is anticipated from newly acquired customers.
- \( n \) = an index representing future periods of revenue from a customer’s transactions
- \( R_{t+n} \) = average revenue per customer at time \( t+n \)
- \( C_{t+n} \) = cost of generating revenue \( R_{t+n} \) at time \( t+n \)
- \( k \) = the discount rate for future cash flow
- \( L_{i,j,t} \) = the customer retention probability for segment \( j \) at time \( t+n \)
such a mechanism. They develop a customer equity model that converts the value of future sales into current profits. In essence, it is a capital budgeting model that puts the value of reputational investment on an equal footing with current profits.

As mentioned above, simulation participants are presented with a set of menu offerings with varying product margins and reputational characteristics. Product margins ($R C$) are captured directly by equation (1) while reputational characteristics are captured indirectly through customer loyalty ($L$). We draw on Cannon and Schwaiger’s (2005b) model of reputational impact ($RI$) to illustrate how product reputational characteristics influence customer equity. Figure 3 illustrates the structure of the algorithms.

We have focused on healthfulness as the key reputational characteristic, speaking as if it is always a positive attribute. This is not necessarily the case. The weighting factor ($w_{pi,t}$) varies by segment. A restaurant with a very unhealthy, but decadently delicious menu, could develop a very positive reputation with a segment that places a negative value on the strictures of healthful eating. This turns “menu engineering” into menu strategy. If a company chose to eschew CSR and target such a segment, its negative reputation in a health-oriented segment could actually have a positive reputational influence. Conversely, a restaurant that wanted to avoid the problems of unhealthy food could target the health-oriented segment. Equipped with highly targeted advertising, a restaurant chain with a very broad and heterogeneous customer base could conceivably target several different segments simultaneously.

FROM REPUTATIONAL IMPACT TO CUSTOMER

\[
RI_{i,j,t} = \frac{R_{i,j,t}}{R_{j,t}} - 1
\]

where

$R_{i,j,t}$ = the reputation impact of company $i$ to segment $j$ at time $t$

$R_{i,t}$ = the reputation of company $i$ to segment $j$ at time $t$

$R_{j,t}$ = the industry average reputation in segment $j$ at time $t$

LOYALTY

Reputational impact refers to a company’s reputation ($R$) relative to its benchmark (we will use industry average for illustration).

Reputation ($R_{i,j}$), in turn, is the product of past reputational investment. As with other types of investment, reputation depreciates over time. In any given year, the value of the restaurant’s reputation ($R_{i,j,t}$) will be the residual value (after depreciation) of the prior reputation (what we refer to as the “lagged effect”) plus the current year’s reputational investment. Current reputational investment is based on the CSR ratings of the current menu items, weighted by the preferences ($w_{pi,t}$) of each market segment. Implicit is the fact that the importance of the CSR rating varies not only by segment (for instance, socially concerned versus socially unconcerned people), but also by the menu item. The rating is more likely to be important for a main dish than a dessert, both because the main dish is a larger part of the meal, but also because a dessert is often considered a kind of “treat,” where the normal rules of nutrition do not necessarily apply.

\[
R_{i,j,t} = a_j \sum_{p=1}^P w_{p,i,t} R_{p,i,j,t} + (1 - a_j)R_{i,j,t-1}
\]

where

$R_{i,j,t}$ = the reputational characteristic (CSR rating) of company $i$’s product (menu item) $p$ to segment $j$ at time $t$

$w_{p,i,t}$ = the importance of the CSR rating of menu item $p$ to segment $j$ at time $t$, relative to other menu items available in the restaurant and from other competing restaurants

$a_j$ = Parameter representing the lagged effect of prior reputation in segment $j$

$R_{i,j,t}$ = the reputational characteristics of company $i$’s product $p$ to segment $j$ at time $t$

Reputation acts to leverage the marketing budget. That is, if a restaurant has a good reputation, the same amount of money will have a greater effect on consumer response. Conversely, a restaurant with a poor reputation will have to spend more money to achieve the same effect. This is shown in equation 4.

\[
EM_{i,j} = (1 + ar_j \cdot RI_{i,j,t}) \cdot M_{i,j,t}
\]

where

$EM_{i,j}$ = the marketing expenditures of company $i$ at time $t$

$M_{i,j,t}$ = the marketing expenditures of company $i$ at time $t$

$ar$ = a scaling parameter representing the relative impact company reputation can have on effective marketing expenditures.

The actual level of effectiveness achieved by $EM_{i,j,t}$ depends on the competition. We can address this in the same manner we addressed reputational impact, by comparing the restaurant’s overall reputational score with the industry average.
to which the restaurant supports the requisite policies, weighted by the policies’ relative importance to each segment of consumers.

\[ R_{i,j,t} = a \left( \sum_{p} w_{p,i,t} R_{p,i,t} \right) \left( \sum_{v} w_{v,i,t} R_{v,i,t} \right) + (1-a) R_{i,j,t-1} \]  (7)

where

\[ R_{i,v,x,j,t} = \text{the reputational impact of company } i\text{'s policy decision } v \text{ on segment } j \text{ at time } t \]

\[ w_{v,i,t} = \text{the relative importance of the reputational impact of policy decision } v \text{ on segment } j \text{ at time } t \]

In practice, the policy decisions would be embedded in proposals, some of which would bear no relationship to the decisions, all of which would entail some cost to management. The relative importance weights will vary by the particular interests of each segment. For instance, one might imagine that, if a segment was inclined to celebrate its lack of concern for CSR, it would have little interest in most of the policies. It might, however, put high importance on supporting legislation to limit or prohibit obesity law suits.

The probability of litigation (\(LIT\)) for a given firm can be modeled as a function of a benchmark probability and reputational impact (see equation 2).

\[ LIT_{i,j,t} = \frac{\sum_{j} LIT_{j,t}}{1 + ey \cdot R_{i,j,t}} \]  (8)

where

\[ LIT_{i,j,t} = \text{the probability of litigation for company } i \text{ by segment } j \text{ at time } t \]

\[ LIT_{j,t} = \text{the probability of litigation for a segment } j \text{ benchmark (perhaps an industry average probability) at time } t \]

\[ ey \] = scaling parameter representing the relative impact reputation can have on the probability of litigation by segment \(j\)

The expected cost of litigation can be modeled as the product of expected litigation cost in the event a company is sued and the probability of litigation. To avoid confusing terms, we refer to expected litigation cost in the event a company is sued as “litigation cost.”

\[ ELC_{i,j,t} = LC_{i,j,t} \cdot LIT_{i,j,t} \]  (9)

where

\[ ELC_{i,j,t} = \text{the expected cost of litigation for company } i \text{ by segment } j \text{ at time } t \]

\[ LC_{i,j,t} = \text{litigation cost for company } i \text{ by segment } j \text{ at time } t \]

The logic behind the litigation cost model is transform the episodic nature of law suits into relatively stable, man-
ageable costs. In essence, the company is providing its own legal insurance. Managing the risk in this manner provides good training for students who participate in the game, giving them practical experience in risk management.

**THE STUDENTS’ PERSPECTIVE**

In order to effectively participate in the simulation, a person needs to have access to the basic information that will be driving the algorithms. In the interest of brevity, we will illustrate with a small subsample of menu items and segments. For instance, consider three menu items – a hamburger, fries and soft-drink combo, rated at 1,500 calories (item a); a large salad with reduced calorie dressing, rated at 300 calories (item b); and a kids meal rated at 600 calories (item c).

As consumers, consider two segments: Segment 1 we will characterize as self-indulgent fast-food lovers. They love food and rarely think about calories or nutrition. Segment 2 consists of health-conscious parents who frequent QSRs to ease their busy schedules and keep their children happy, along with a little self-indulgence with food they love but wish they didn’t.

Aside from the item and segment descriptions, Table 1 contains illustrative information that would be provided to simulation participants. Note the segment patterns. The data make both intuitive sense and lend themselves to algorithms that the participants might develop for their own benefit. The price and cost information are sufficient to form the *profitability index* required by Figure 2. Sales information would also be forthcoming in the game, so participants are able to construct a *popularity index*. Even more important, the sales data would enable them to estimate the size and sales potential of the segments.

Table 2 provides information regarding importance weights for managerial CSR policies. This, combined with a discussion of the nature and significance of the policies, would prepare participants to sort through the decision information, classify it, and make the appropriate decisions.

The final student desideratum is to provide benchmarking information regarding the kinds of reputational costs that are likely to accrue under various types of circumstances. This could take the form of another table, showing the imputed costs for various menu items. These, of course, would change with the parameters of the game. Students, of course, will not have access to the algorithms, so they will develop their own heuristics. The benchmarks give them a place to start.

**SUMMARY AND CONCLUSIONS**

So, would you take a marketing man you liked to a quick-service restaurant? Hopefully, the simulation design we have discussed in this paper would help you make up

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**Illustrative Student Information for Three Menu Items and Two Segments**

Table 1

<table>
<thead>
<tr>
<th>Menu</th>
<th>Item</th>
<th>Price</th>
<th>Cost</th>
<th>CSR Rating</th>
<th>Segment 1</th>
<th>Segment 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Desirability</td>
<td>Weight</td>
</tr>
<tr>
<td>Item a</td>
<td>Combo</td>
<td>$8.00</td>
<td>$3.00</td>
<td>-1.0</td>
<td>+1.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>Item b</td>
<td>Salad</td>
<td>$4.00</td>
<td>$1.00</td>
<td>+0.5</td>
<td>-0.5</td>
<td>-1.0</td>
</tr>
<tr>
<td>Item c</td>
<td>K Meal</td>
<td>$3.00</td>
<td>$1.50</td>
<td>-0.3</td>
<td>+5.0</td>
<td>-0.2</td>
</tr>
</tbody>
</table>

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**Illustrative Policy Decision Weightings by Segment**

Table 2

<table>
<thead>
<tr>
<th>Policy Decisions</th>
<th>Segment 1 Weights</th>
<th>Segment 2 Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support and follow legislation that limits or prohibits obesity lawsuits</td>
<td>+0.0</td>
<td>-0.2</td>
</tr>
<tr>
<td>Support and monitor research on the addictive effects of fast-food and fast-food ingredients</td>
<td>+0.1</td>
<td>+0.8</td>
</tr>
<tr>
<td>Promote and support public information about health and the prevention of obesity-related diseases</td>
<td>+0.1</td>
<td>+0.7</td>
</tr>
<tr>
<td>Place warnings on products</td>
<td>+0.2</td>
<td>+0.9</td>
</tr>
<tr>
<td>Be transparent regarding secret ingredients that might be problematic</td>
<td>+0.1</td>
<td>+0.9</td>
</tr>
</tbody>
</table>
your mind. But the decision would not be easy. It addresses the imperatives of practical marketing management, largely for lack of a better approach. That is, it is based on the premise that no business can stay in business without serving its stockholders. And so the simulation seeks to balance the desires of those who want unhealthy food and will pay for it against the reputational opportunity of trying to make the world a better place. It does it with an algorithm, not the heart. That’s the bad news. The good news is that it mirrors what most companies are doing today. Furthermore, it provides a rationale not only for seeking to meet customers’ needs (or at least their wants) but for seeking and selling better ways of living whenever possible. So, yes, take the old man to lunch!

REFERENCES


