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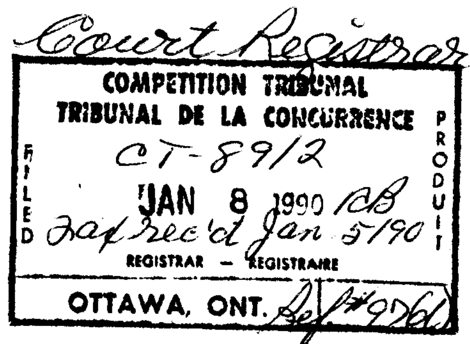


PROVINCE OF ONTARIO)
JUDICIAL DISTRICT OF YORK)
TO WIT:)

I, **JOHN J. QUINN**, a Notary Public in and for the Province of Ontario, by Royal Authority duly appointed, residing in the Municipality of Metropolitan Toronto, in the said Province **DO HEREBY CERTIFY** that the paper writing hereto annexed, the first page of which is stamped with an impression of my seal, is a true and correct photostatic copy of a document produced and shown to me out of the custody of Messrs. Blake, Cassels & Graydon, Toronto, and purporting to be Public Affidavit Evidence of Steven Globerman, dated December 29, 1989, the said photostatic copy having been compared by me, page for page, with the said original document, an act whereby being requested I have granted the same under my Notarial Form and Seal of Office to serve and avail as occasion shall or may require.

DATED at Toronto this 4th day of January, 1990.

John Quinn
A Notary Public in and for the Province of Ontario

CT-89/2
Director Nutrasweet
Exhibit No. / No. de la pièce D-53-B
Filed on / Déposée le Feb. 8/90; 9h37
Registrar / Greffier

IN THE COMPETITION TRIBUNAL

IN THE MATTER OF an Application by the Director of Investigation and Research under sections 77, 78 and 79 of the Competition Act, R.S.C., 1985, c.C-34, as amended;

B E T W E E N:

THE DIRECTOR OF INVESTIGATION AND RESEARCH,

Applicant,

- and -

THE NUTRASWEET COMPANY

Respondent,

- and -

TOSOH CANADA LTD.

Intervenor

A F F I D A V I T

I, STEVEN GLOBERMAN, of the City of Vancouver, and the Province of British Columbia, make oath and say as follows:

1. I have been a professor in the Faculty of Business Administration at Simon Fraser University since 1982; I served as professor in the Faculty of Commerce and Business Administration at the University of British Columbia and the Faculty of Administrative Studies at York University. In these capacities, I have taught courses in managerial economics,

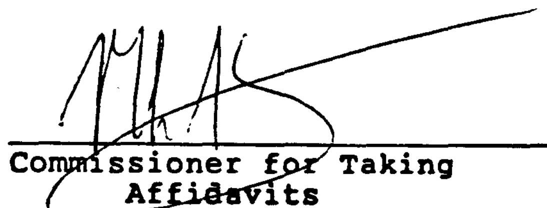
industrial organization and competitive strategy and conducted research on topics related to industrial economics and competition policy.

2. I have been retained by the Bureau of Competition Policy ("Bureau") to advise on the economic, and more particularly, the industrial organization aspects of the issues raised in the Application filed by the Director of Investigation and Research (the "Director") in this proceeding.

3. Attached hereto as Exhibit "A" to this my Affidavit is a true copy of the report prepared for the Respondent pursuant to the aforesaid request.

SWORN before me at the)
City of Toronto, in the)
Province of Ontario)
this 27th day of December,)
1989

STEVEN GLOBERMAN



Commissioner for Taking Affidavits

MARK KATZ

EXHIBIT "A"

IN THE COMPETITION TRIBUNAL

IN THE MATTER OF an Application by the Director of Investigation and Research under sections 77, 78 and 79 of the Competition Act, R.S.C., 1985, c.C-34, as amended;

B E T W E E N:

THE DIRECTOR OF INVESTIGATION AND RESEARCH,

Applicant,

- and -

THE NUTRASWEET COMPANY

Respondent,

- and -

TOSOH CANADA LTD.

Intervenor

PUBLIC AFFIDAVIT EVIDENCE OF STEVEN GLOBERMAN

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1. I, **STEVEN GLOBERMAN**, have been a professor in the Faculty of Business Administration at Simon Fraser University since 1982. Prior to that, I served as a professor in the Faculty of Commerce and Business Administration at University of British Columbia and the Faculty of Administrative Studies at York University. In these capacities, I have taught courses

in managerial economics, industrial organization and competitive strategy and conducted research on topics related to industrial economics and competition policy.

2. I have been retained by the Bureau of Competition Policy ("Bureau") to advise on the economic, and more particularly, the industrial organization aspects of the issues raised in the Application filed by the Director of Investigation and Research (the "Director") in this proceeding.

3. I have been provided with information from the Bureau and from its legal counsel on the structure of the aspartame market and the behaviour of The NutraSweet Company ("NutraSweet") in that market. I have also conducted interviews with representatives of the

and been provided with information about the aspartame industry from the latter source. These materials constitute the factual basis for my report.

4. My comments are divided into the following categories:

(i) Background Factors;
(ii) Contestability of the Aspartame Market;
(iii) Evaluation of Whether NutraSweet's Behaviour is Preemptive of Competition.

Background Factors

5. Section 78 of the Competition Act (the "Act") cites a number of actions as constituting the potential abuse of a dominant position without restricting the generality of the term. Economists have recognized that dominant firms can engage in a range of practices which may have the effect of preventing or lessening competition. (See Donald Hay and John Vickers, The Economics of Market Dominance, Oxford: Basil Blackwell, 1987). It is, therefore, appropriate to assess the potential abuse of a dominant position without restricting the generality of the term to those particular instances identified in the Act.

6. The actual entry and actual expansion of rival firms is regarded by economists as the main marketplace mechanism for counteracting the adverse effects of dominance by a single firm or firms. Specifically, competitors are expected to enter a market in which the dominant firm(s) is not producing and distributing output efficiently, or is otherwise inattentive to consumer wishes, but is continuing to earn profits in excess of those required to cover all costs of doing business including the required return to invested capital (i.e., economic profits).

7. Under a specific and fairly restrictive set of criteria, the mere threat of entry can be sufficient to ensure that an industry consisting of a dominant firm(s) cannot earn economic profits and, therefore, the presence of an actual rival is not required to induce competitive behaviour. These criteria describe what is called a "perfectly contestable" market structure, and they ensure (under reasonable conditions described by economists as "sustainability conditions") that market performance will be optimal with respect to costs and prices. Pro-competitive remedies aimed at reducing or limiting a dominant firm's position are not required in a perfectly contestable market. *See* William Baumol, John Panzar and Robert Willig, *Contestable Markets and the Theory of Industry Structure*, New York: Harcourt, Brace, Jovanovich, 1982).

8. As noted in the preceding paragraph, there are several specific critical assumptions underlying the applicability of a model of perfect contestability. Specifically, a perfectly contestable market is one where: (i) cost conditions are the same for all firms; (ii) there are no sunk costs of entry (so exit is costless); and (iii) entry can occur successfully before existing firms have time to respond. In effect, a perfectly contestable market is one where existing firms are completely vulnerable to so-called "hit-and-run" entry.

9. The assumptions underlying models of perfect contestability have been characterized as being implausible under most realistic business circumstances. (William G. Shepherd, "Contestability vs. Competition", The American Economic Review, September, 1984). In particular, there are usually non-trivial sunk costs associated with entry and/or expansion of rivals, and rivals usually do not face the same cost conditions as the incumbent(s). When there are sunk costs and other risks associated with entry, economists acknowledge that potential entry will not necessarily constrain a dominant firm to behave in a perfectly competitive fashion. Moreover, an incumbent dominant firm may seek to maintain its position or slow the rate at which it loses its dominant market share to new competitors by increasing the perceived costs and risks of competitive entry or (equivalently) by reducing rivals perceptions of post-entry profitability. (Alexis Jacquemin, The New Industrial Organization, Cambridge, Mass.: The MIT Press, 1987). This type of behaviour has been identified in the relevant literature as "strategic entry deterrence" or "pre-emptive" competition.

10. A pre-emptive strategy involves the incumbent firm assuming expenditures or otherwise foregoing near-term profits in order to reduce the financial payoff that a rival would expect to receive if it entered the market, thereby influencing

the rival to abandon or delay a decision to enter into or expand within the market. The presumably higher long-run profits in the absence of competitive entry or expansion compared to long-run profits given competitive entry or expansion constitute the reward to the incumbent for implementing specific pre-emptive strategies. If a pre-emptive strategy is to be successful, it must also satisfy certain criteria. In particular, the incumbent firm must ensure its credibility in the eyes of its rivals in a way that effectively constrains their behaviour. That is, rivals must perceive that their post-entry profitability has been reduced by the incumbent's actions. If rivals believe that the incumbent's actions are unlikely to be perpetuated, the latter's pre-emptive actions will presumably be discounted by its rivals.

11. Pre-emptive strategies can affect rivals' perceptions of post-entry profitability, for example, by increasing their costs, by decreasing their perceived market opportunities, and (or) by increasing uncertainty about the profitability associated with their entry. Pre-emptive weapons can include, among other things, advertising and promotion, long-term exclusive contracts and strategic pricing and other related conditions of sale. It must also be recognized that strategies to pre-empt competition can also be consistent with promoting

efficiency and the welfare of consumers. That is, the incumbent firm(s) can initiate business strategies that both reduce rivals' perceptions of post-entry profitability while imparting benefits to consumers. Examples in this regard include the introduction of new products, the implementation of marketing restrictions which reduce costs and (or) encourage an optimal level of service to consumers and so forth. It is, therefore, possible for entry prevention to result in outcomes that are more economically efficient than when entry is permitted by established firms. In the same vein, it is possible for actions undertaken primarily to improve efficiency to also have related entry deterrence effects.

12. My analytical task in evaluating the Application is to assess whether some or all of the types of behaviour described therein are pre-emptive of competition. Actual competition is usually more effective than potential competition in policing market behaviour in imperfectly contestable markets. (A literature review is provided in Richard J. Gilbert, "The Role of Potential Competition in Industrial Organization", Journal of Economic Perspectives, Vol. 3, Summer 1989). Hence, if NutraSweet's behaviour discourages competitive entry and/or expansion, it can ordinarily be expected to impose long-term costs on consumers in the form of higher prices and lower output rates, as well as possibly lower rates of technological

change and other manifestations of dynamic inefficiency. I have not been requested to determine for purposes of this report whether bringing about these pre-emptive or exclusionary consequences was a motivation for NutraSweet's conduct.

Contestability of the Aspartame Market

13. As noted above, a perfectly contestable market would be characterized by, among other things, the absence of the need for rivals to make sunk cost investments and the capacity for entry to occur successfully before existing firms have time to respond. Important features of the aspartame market suggest that it is unrealistic to assume that this market is contestable in the sense described above. In particular, significant financial investments are required if a firm expects to compete successfully, and a substantial portion of the required investments may not be fungible or retrievable if entry is unsuccessful. These investments occur notably in the following activities:

(A) Marketing: The introduction of a new brand of aspartame requires expenditures to promote customer awareness of the product, to demonstrate the characteristics of the product to potential buyers and to monitor the competitive strategies of rivals, among other things. To the extent that

these marketing expenditures are specific to the aspartame product being introduced and promoted, they will have no salvageable value if the aspiring entrant is unsuccessful in the marketplace. A suggestion of the potential costs associated with introducing a new food ingredient is a NutraSweet estimate that Pfizer and McNeal Specialty Products will spend a combined $ million-plus advertising their ingredient sweeteners, alitame and sucralose, respectively. (Respondent's Affidavit of Documents,

)

(B) Research and Development: My understanding of the industry is that the synthesis of aspartame from its basic components is a complicated process as evidenced by the fact that there are a substantial number of process patents in place related to the synthesizing process. Substantial research expenditures are also apparently required to successfully formulate aspartame for use in new products, especially when bulking agents are required. As an illustration of these expenditures, it is reported that NutraSweet spent $35 million on research and development in 1988, or 6 percent of its total revenues. However, I understand that some part of this amount was spent on the development of "Simplesse", a fat substitute. (Respondent's Affidavit of Documents, Document No. 47; Article from St. Louis Business Journal). Again, to the extent that

research and development expenditures to formulate aspartame sweeteners are specific to targetted market applications, they constitute a sunk cost if entry is unsuccessful.

(C) Production: To the extent that existing plants producing other chemical and pharmaceutical products can convert some portion of their capacity to the production of aspartame at relatively low cost, with the capability to switch back to producing other products if necessary, such plants would constitute a potential source of "hit-and-run" entry. My understanding is that multi-purpose chemical plants can be used to produce aspartame but at a higher cost than a specialized plant. In particular, multi-purpose plants are apparently not integrated backward into the production of raw materials while specialized plants are, and this integration constitutes a cost advantage for specialized plants. It is also my understanding that several multi-purpose plants that produced aspartame in the past (located in Korea and Italy) stopped producing aspartame in or around 1988, as they found they were not cost competitive.

14. Dedicated aspartame plants are not fungible. Specifically, parts in a dedicated plant are interrelated in a specialized way such that it is difficult to take out "chunks" of equipment and sell the equipment in parts for use

elsewhere. Hence a dedicated plant will likely be sold intact to another producer or sold for pure scrap value. Given the existing highly concentrated distribution of market share in the aspartame business, an entrant would realistically contemplate having to sell an efficient-scale aspartame facility to a monopsony buyer (NutraSweet), or else persuade another potential entrant that its plant has a market value equal to its undepreciated costs. Unless the potential entrant sees itself as having unique competitive advantages not enjoyed by the unsuccessful entrant, the latter possibility is unlikely.

15. An already constructed aspartame plant can presumably be idled for some period of time rather than being sold in a "distress" sale. To this extent, it can remain in the market as a threat to the incumbent dominant firm; however, there will be costs associated with this option in the form of foregoing income associated with the capital tied-up in the idle facility. Information available to me suggests that the capital requirements for a new aspartame facility with a capacity of around 2400 tonnes per year are in the neighbourhood of approximately $ million (U.S.). (Respondent's Affidavit of Documents,

I also understand that an aspartame plant utilizing the NutraSweet process technology would offer lowest

average-unit costs at an installed capacity of about tonnes per year, or somewhat more, and would therefore have correspondingly higher total capital expenditure requirements than the 2400 tonne facility described above. If one takes as a working assumption that chemical companies expect to earn at least 15 percent to 20 percent per year on invested capital, an idle dedicated aspartame facility can impose holding costs in the range of $ million per year for a 2400 tonne plant and presumably substantially more for a 5000 tonne plant. The point here is that there are significant financial costs associated with "shutting-in" an already constructed aspartame facility.

16. The main point to be underscored here is that significant sunk cost investments are required to enter the aspartame industry as an economically-viable competitor. These sunk costs violate a critical assumption underlying models of contestable markets as described above. To my knowledge, only Ajinomoto, NutraSweet, and Holland Sweetener company ("HSC") have already existing dedicated aspartame facilities; however, all three would have to incur significant additional capital expenditures in order to expand their existing facilities or to build new efficient scale facilities. Additional marketing expenditures to promote the sale of the resulting output would also presumably be required. Moreover, Ajinomoto should

probably not be seen as a potential competitor to NutraSweet for the foreseeable future,

17. There are also reasons to believe that rivals do not enjoy the capacity to enter the aspartame market successfully before the incumbent NutraSweet has time to respond:

(A) Capacity Expansion: It takes time to build a dedicated aspartame facility. For example, HSC's first production-scale plant was started in and completed in . (Information supplied in interview with HSC management). It also appears to be quite difficult for a producer to pre-sell aspartame for future delivery if the producer does not have already installed manufacturing capacity. For example, (a c u s t o m e r) has stated that sales people are trying to sell aspartame out of inventory, but that (it) wants to buy from someone with a

manufacturing plant. (Interview between Warren Grover and). (Another customer) has also remarked that there are several brokers peddling aspartame, but their long-run commitment is questionable as there does not appear to be any commercial production. (Interview between Warren Grover and). At the present time, HSC is the only independent competitor to NutraSweet with an operating dedicated facility as indicated by the data in Table 1:

Table 1

Estimated Supply - Demand Balance for Aspartame - 1989

Supply (metric Tonnes)

Company	Capacity
NutraSweet (Augusta)	*
NutraSweet (University Park)	
Ajinomoto	
Holland Sweetener	
Total	

* including a capacity expansion in 1989 of tonnes.

Demand (metric tonnes)

Total

(Sources: NutraSweet; Interview with HSC.)

Clearly, NutraSweet currently owns, or is contractually linked with, virtually all of the installed dedicated capacity for aspartame production. To this extent and given the preceding comments, it is difficult to argue that NutraSweet's rivals can enter or expand successfully before NutraSweet has time to respond.

(B) Contractual Conditions: The two largest buyers of aspartame, , have long-term supply contracts with NutraSweet. My understanding is that the existing contract in force commits to buy aspartame exclusively from NutraSweet over a four-year period commencing on January 1, 1986. also concluded a contract with NutraSweet in 1986 which committed it to purchase aspartame exclusively from NutraSweet until March 1990.

The importance of as purchasers of aspartame is suggested by the following statistics. In 1988, carbonated soft drink beverages represented percent of Canadian sales of NutraSweet brand aspartame. They are projected to account for percent of Canadian sales of NutraSweet brand aspartame in 1989. (Respondent's Affidavit of Documents;). , in turn, account for over % of diet soft drink sales in Canada. It is, therefore, apparent that the

bulk of the existing market for aspartame is governed by long-term exclusive supply agreements with NutraSweet. My understanding is that the contract between NutraSweet and contains a "meet-or-release" clause which provides NutraSweet the right to meet a lower price offer to the customer (for the same approximate amount of aspartame to be supplied under contract), or else to release to purchase the amount of aspartame bid by the rival firm. These meet-or-release clauses presumably reduce the time between when lower-priced competitive offers are made, and the time that NutraSweet finds out about such offers. Indeed, as long as major NutraSweet customers such as have exclusive supply contracts containing meet-or-release clauses, it is (as a practical matter) difficult for a rival to capture a share of the market sufficient to support an efficient scale plant (or indeed to expand incrementally) without NutraSweet having the time and opportunity to respond.

18. In summary, the existing market for aspartame cannot be realistically characterized as contestable according to the criteria described earlier in this report. In the circumstances of this case, it cannot be concluded that potential entry alone will constrain NutraSweet to act in a

competitive fashion. With even relatively small sunk costs of entry and the associated deterrence of rivals, dominant firms can continue to enjoy above-average profits.

Pre-emptive Behaviour of NutraSweet

19. To the extent that an incumbent firm(s) can increase the costs and risks of competitive entry, it should be able to extend the period of time over which it can expect to enjoy economic profits. The strategic issue for the incumbent firm(s) would then become whether the expected future stream of economic profits exceed the costs associated with implementing pre-emptive strategies. Where they do, pre-emptive strategies can be rational practices for a dominant firm. The broad issue that should be considered in assessing whether a dominant firm's behaviour is likely to reduce competition significantly is whether the behaviour in question is likely to increase the costs and risks facing rivals or otherwise reduce the expected post-entry profits of rivals.

20. Several business practices implemented by NutraSweet can be expected to increase the costs and risks of rival entry, or to otherwise reduce the anticipated post-entry profits of rivals: (a) world-wide exclusive supply contracts; (b) trademark allowances; (c) cooperative advertising allowances; and (d) predatory pricing.

21. World-Wide Exclusive Supply Contracts With Major Customers: As noted earlier, are the major buyers of aspartame. They accounted for approximately percent of aspartame purchases in Canada in 1988. To the extent that and are governed by exclusive world-wide supply contracts with NutraSweet, they are per force no longer potential customers for rivals seeking to sell aspartame in the Canadian market, or in other geographic markets covered by such contracts for the life of these contracts. It might be argued that rivals can compete against NutraSweet by offering more attractive exclusive world-wide supply contracts to major multinational buyers. To be sure, this is not possible until after the U.S. aspartame use patent expires after 1992. But even with the expiration of the use patent, rivals would be at a disadvantage in competing for world-wide exclusive supply contracts in that they would have to pre-build a significant amount of additional capacity before they could credibly compete for such substantial "all-or-nothing" volumes of business. My understanding is that large customers are reluctant to place relatively large orders with prospective suppliers who have not made a substantial commitment to produce an acceptable aspartame product. This requirement would impose the need to assume substantial additional sunk costs on the part of rivals which, in turn, would increase the risks

associated with competing. I understand that and have recently renegotiated the exclusive supply provisions of their respective supply agreements so that they apply to country-specific customer requirements. To the extent that this continues to be the case, the deterrent effect on prospective entrants is diminished in accord with the foregoing argument.

22. The existence of "meet-or-release" clauses in the relevant contracts would not seem to change the foregoing conclusions in a meaningful way given my understanding that the meet-or-release clauses cover the full amount of each customer's supply agreement.

23. An implication of the foregoing observation is that a rival who does not commit to pre-building a relatively large amount of dedicated plant capacity may have difficulty in competing for the business available in the presence of exclusive supply contracts; however, if large segments of the potential market are foreclosed for periods of time by such exclusive supply contracts, rivals face the prospect of having substantial excess capacity for the plants they construct or expand. Moreover, while their capacity is idle they cannot take advantage of learning-by-doing and other experiential benefits lowering unit costs that are a function of the

accumulated volume of aspartame produced. Absent exclusive supply contracts, rivals would presumably be freer to bid for whatever share of the available aspartame business they think is optimal in order to support investments in building and expanding capacity.

24. Trademark Allowance: Under its trademark allowance program as I understand it, NutraSweet provides a discount

to buyers on the condition that the buyers display the NutraSweet logo on the product packaging in accordance with certain criteria. In particular, the buyer cannot display the logo if the customer uses another producer's aspartame or any other intense sweetener mixed with NutraSweet's aspartame. While generally there is no requirement for a customer to display the NutraSweet logo (with the exceptions of the current

), it must do so to receive the trademark allowance. The trademark allowance can be preemptive of competition in several ways:

(i) It is equivalent to a "fidelity rebate". Specifically, the customer receives the allowance if it is completely "loyal" to NutraSweet but loses the allowance if it diverts any portion of its purchases to another producer of aspartame for use in the final products covered by its supply agreement. This has

the impact of requiring rivals to offer commensurately lower prices to customers on the marginal volumes they are bidding for in order to compensate for the higher effective prices that customers can expect to pay on the aspartame volumes they continue to buy from NutraSweet. This requirement will presumably reduce the expected post-entry profitability of rivals.

(ii) In the short-run, the trademark allowance increases the costs of switching suppliers, since customers of NutraSweet will have to incur costs associated with changing their imprinting plates for labelling and so forth. Equivalently, rivals would presumably have to compensate customers for absorbing such switching costs to the extent necessary to make their offers competitive with NutraSweet's.

25. In the long-run, trademark allowances increase the potential costs of switching suppliers to the extent that the customer's logo becomes tied to the NutraSweet logo in the minds of consumers of the final products. In this circumstance, aspartame customers will presumably need to increase their advertising and marketing expenditures in order to regain the consumer goodwill potentially dissipated by removing the NutraSweet logo from their products.

Equivalently, rivals would presumably have to compensate customers for absorbing these switching costs (or the perceived risks of incurring these costs) to the extent necessary to make their offers competitive with Nutrasweet's. My reading of the available evidence suggests that aspartame buyers have difficulty in estimating the potential magnitude of such long-run switching costs; however, many acknowledge the risk that such costs could arise if they did stop using the NutraSweet logo. Even acknowledges that the NutraSweet logo has independent value and that it decreases consumer anxiety about aspartame sweetened products. (Interview between Warren Grover and). This perception is consistent with a market research study conducted by Dimension Research Inc. which concluded that percent of respondents would switch from their favorite brand of diet soft drink to a NutraSweet-sweetened brand if their favorite brand no longer contained NutraSweet. (Respondent's Affidavit of Documents;).

26. Cooperative Advertising Allowances: My understanding is that most of NutraSweet's customer contracts contain a cooperative advertising allowance which provides for NutraSweet to make payment to the customer on a per pound of aspartame-purchased basis. The allowance seems concentrated in the $ per pound range, with a modal value of per

pound. The cooperative advertising allowance is received in exchange for the customer's participation in advertising programs where both the NutraSweet logo and the customer's logo are promoted. To this extent, it could impose long-run switching costs similar to those described in the preceeding discussion of trademark allowance.

27. Predatory Pricing: The Application asserts that "... the Respondant has sold aspartame in Canada at a price below its acquisition cost or below its long-run average cost, with the result that competition has been lessened substantially; ...". I am advised by legal counsel for the Director that the measurement of "acquisition cost" under this provision of the Act should be determined by reference to NutraSweet's long-run average cost of production and distribution of aspartame in Canada. Classical price predation involves pricing below cost in order to drive rivals out of business, or to discourage them from entering or expanding within the business, thereby creating or preserving monopoly power. A criticism of the classical price predation model is that if predation is to be a credible strategy, the incumbent must be prepared to predate at all times and in all places in the market where entry is taking place. But this is likely to be a prohibitively expensive strategy for the incumbent if rivals believe that they potentially have equal or lower costs than the incumbent. In

this case, they will discount the likelihood of the incumbent being willing and able to maintain prices below costs for an indefinite period of time. Hence, they are unlikely to be intimidated into leaving the market. Alternatively, if rivals have higher costs than the incumbent, it would not be economically desirable for the incumbent to charge prices that allow higher cost producers to be able to enter the industry.

28. The incumbent might believe that lowering prices below levels that would maximize profits in the absence of a threat of entry will discourage entry if it believes that rivals have imperfect information about the incumbent's costs, and if rivals take the incumbent's lower prices as a signal of the incumbent's lower costs. To be sure, if this strategy is to be credible to rivals, the incumbent must signal by moving prices lower for long periods of time. If price changes were regularly reversed, future decreases would be discounted by rivals. In this circumstance, if the incumbent lowers prices to levels that still allow it to cover its operating costs while building additional capacity to supply the increased quantity demanded stimulated by its lower prices, the incumbent's sustained price reductions could well be a credible deterrent to entry.

29. My understanding is that available data show that NutraSweet implemented aggressive price reductions in the Canadian market in the years immediately prior to the patent expiration in Canada and has continued to implement price decreases in the past few years. For example, quotes its Canadian aspartame prices as declining from per pound to per pound (i.e., decline) over the period 1985 to 1988. It does not seem plausible to me that NutraSweet's costs would have declined to the same extent over such a short period of time. For other large customers, including

the net prices charged by NutraSweet decreased by even larger percentages over the same period. My understanding is that comparable price reductions to customers have also occurred in Europe. (Interview with HSC.) Price decreases have not been nearly as marked in the United States. Hence, NutraSweet appears to have emphasized price decreases in those markets where the threat of entry was most immediate. This behaviour does not seem to be motivated by decreases in demand, since factors that affect demand for aspartame such as the consumption of diet colas would suggest that demand was increasing over the period of the price reductions. Nor is it plausible that cost decreases account for the bulk of the price declines. To the extent that demand and cost changes do not seem capable of adequately

explaining NutraSweet's pricing behaviour one might suggest that the price changes described above were adopted primarily to exclude potential rivals from the market. The price reductions were arguably made in advance of the patent expiration in order to signal credibly that NutraSweet intended to price aggressively in the face of entry.

30. The above interpretation of NutraSweet's pricing behaviour would be reinforced if it could be demonstrated that its prices in the Canadian market were below some "reasonable" cost standard. In this case, one would be led to infer that NutraSweet expected to recoup the losses incurred in its short-run pricing by being able to sustain commensurately higher prices over the long-run than would be likely if competitive entry took place. The issue would then turn on the definition of a "reasonable" cost standard. One such standard is "reasonably anticipated marginal cost" as approximated by average variable cost. (P. Areeda and D. Turner, "Predatory Pricing and Related Practices Under Section 2 of the Sherman Act", Harvard Law Review, February, 1975.) A price below average variable cost would be considered predatory by this standard. Another standard suggested to be appropriate when a market is characterized as a monopoly or oligopoly is a price between average variable cost and average total cost. (Paul L. Joskow and Alvin K. Klevorick, "A Framework For Analyzing

Predatory Pricing Policy", Yale Law Journal, Vol. 89, December, 1979). My understanding is that NutraSweet's pricing in Canada has not generated revenues equal to its reported total costs of sales in Canada. It can be inferred from this fact that NutraSweet's realized price per unit is below its average total cost.

31. As explained in this report, if a set of business practices preempts competition in an imperfectly contestable market, it is likely to impose anti-competitive costs on consumers in the longer-run. However, to the extent that these practices are also sources of important efficiency benefits, their potential efficiency-enhancing effects must also be taken into account by the Tribunal. There may be several potential efficiency benefits associated with the practices discussed above. For example, world-wide exclusive supply agreements may reduce costs associated with the ordering, inventorying and transporting activities, both directly for the buyer of aspartame and also possibly for the seller. With respect to this argument, I am unaware of any direct evidence on the existence and magnitude of the potential efficiency gains alluded to above. (A customer) has indicated that having one supplier lowers required inventory levels which is consistent with there being real cost savings associated with exclusive supply. (It) also mentioned that normally something like

NutraSweet-brand aspartame is sold to it on a world-wide basis. (Interview between Grover and). (Another customer) also stated that it had an exclusive arrangement with NutraSweet until 1987 and suggested that an exclusive supply agreement is not what it wants. (Interview between Warren Grover and). (Another customer), while acknowledging that there are certain (unspecified) efficiencies in exclusive supply arrangements states that it normally has alternative suppliers and that new contracts are negotiated with the possibility of using alternative suppliers. (Interview between Warren Grover and). It would, therefore, seem that (it) sees net benefits in multiple sourcing. (Another customer) stated that it purchases aspartame directly from NutraSweet, although it could have purchased it through its parent in the United States. (Interview between Warren Grover and). If there are significant economies associated with centralizing purchasing of aspartame, one would not expect to see (it) purchasing its aspartame directly. As another example, (a customer) has stated that an exclusive supply clause is not usual in most purchasing contracts. (Interview between Warren Grover and). In summary, based upon interview evidence available to me, most purchasers of aspartame do not state or evidence a belief that

there are significant net cost savings associated with single-sourcing of aspartame. In Europe, there are multiple suppliers now.

32. In summary, several of NutraSweet's practices can be seen as increasing the costs and risks or otherwise reducing the expected post-entry profitability of rivals. Exclusive world-wide supply contracts require rivals to enter the market on a relatively large scale, with larger associated risks, or else requires them to compete for smaller customer accounts while suffering certain competitive disadvantages related to higher production costs associated with operating small scale plants. Fidelity rebates also contribute to reduced post-entry profitability for rivals by requiring them to provide discounts to customers to offset the allowances NutraSweet grants customers on the basic amounts covered by the fidelity rebates, as well as to compensate customers for the perceived risks associated with deleting the NutraSweet logo. Substantial explicit price reductions in markets where competitive entry appears most likely, (*e.g.*, the Canadian market) immediately prior to and following the expiration of NutraSweet's use patent are consistent with a policy of pricing to discourage or limit entry. Protracted delays in rival entry can provide NutraSweet durable competitive advantages in the form of learning economies and a longer period of time during which a

tie between NutraSweet's logo and those of its customers can develop in the minds of final customers, which in turn would accentuate barriers to entry to an efficient competitor.

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