# Diplomacy 101 : Time of treaty and time of avoidance of defeat

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**Abstract**

In this paper on diplomacy, I describe time of treaty and time of avoidance of defeat.
The paper ends with "The End"

## Introduction

In a previous paper, I've described my war-time pattern-for-match of the risk-free rate.
Using a linear polynomial for $r_f$ and $r_e$ gives us the **time of treaty** and **time of avoidance of defeat**.
In this paper on diplomacy, I describe time of treaty and time of avoidance of defeat.

## Time of treaty and time of avoidance of defeat

Putting

$$r_f(t) = f_0 + f_1 t$$

and

$$r_e(t) = e_0 + e_1 t$$

and solving for $t$ gives us
the **time of treaty**

$$t_T = \frac{-\sqrt{\left(f_1\left(2f_0(b-a) + ae_0 - a + b + c - 1\right) + ae_1\left(f_0 + 1\right)\right)^2 - 4f_1\left(f_1(b-a) + ae_1\right)\left(f_0\left(f_0(b-a) - a + b + c - 1\right) + ae_0\left(f_0 + 1\right) + c\right)} + f_1\left(2f_0(b-a) + ae_0 - a + b + c - 1\right) + ae_1\left(f_0 + 1\right)}{2f_1\left(f_1(a-b) - ae_1\right)}$$

and
the **time of avoidance of defeat**

$$t_{AoD} = \frac{\sqrt{\left(f_1\left(2f_0(b-a) + ae_0 - a + b + c - 1\right) + ae_1\left(f_0 + 1\right)\right)^2 - 4f_1\left(f_1(b-a) + ae_1\right)\left(f_0\left(f_0(b-a) - a + b + c - 1\right) + ae_0\left(f_0 + 1\right) + c\right)} + f_1\left(2f_0(b-a) + ae_0 - a + b + c - 1\right) + ae_1\left(f_0 + 1\right)}{2f_1\left(f_1(a-b) - ae_1\right)}$$

## The End