

---

# Table of Contents

<b>Preface</b>	.....	v
<b>Chapter 1: The Concurrent Computing Landscape</b>		1
1.1	The Essence of Concurrent Programming .....	2
1.2	Hardware Architectures .....	4
1.2.1	Processors and Caches .....	4
1.2.2	Shared-Memory Multiprocessors .....	6
1.2.3	Distributed-Memory Multicomputers and Networks .....	8
1.3	Applications and Programming Styles .....	10
1.4	Iterative Parallelism: Matrix Multiplication .....	13
1.5	Recursive Parallelism: Adaptive Quadrature .....	17
1.6	Producers and Consumers: Unix Pipes .....	19
1.7	Clients and Servers: File Systems .....	21
1.8	Peers: Distributed Matrix Multiplication .....	23
1.9	Summary of Programming Notation .....	26
1.9.1	Declarations .....	26
1.9.2	Sequential Statements .....	27
1.9.3	Concurrent Statements, Processes, and Procedures .....	29
1.9.4	Comments .....	31
Historical Notes	.....	31
References	.....	33
Exercises	.....	34

# Foundations Of Multithreaded Parallel And Distributed Programming

**Ian Pickup**



## **Foundations Of Multithreaded Parallel And Distributed Programming :**

Yeah, reviewing a ebook **Foundations Of Multithreaded Parallel And Distributed Programming** could grow your near associates listings. This is just one of the solutions for you to be successful. As understood, success does not suggest that you have fantastic points.

Comprehending as skillfully as conformity even more than other will present each success. adjacent to, the publication as skillfully as acuteness of this Foundations Of Multithreaded Parallel And Distributed Programming can be taken as competently as picked to act.

[https://db1.greenfirefarms.com/book/publication/default.aspx/Ultimate\\_Credit\\_Score\\_Improvement\\_Usa\\_For\\_Workers.pdf](https://db1.greenfirefarms.com/book/publication/default.aspx/Ultimate_Credit_Score_Improvement_Usa_For_Workers.pdf)

## **Table of Contents Foundations Of Multithreaded Parallel And Distributed Programming**

1. Understanding the eBook Foundations Of Multithreaded Parallel And Distributed Programming
  - The Rise of Digital Reading Foundations Of Multithreaded Parallel And Distributed Programming
  - Advantages of eBooks Over Traditional Books
2. Identifying Foundations Of Multithreaded Parallel And Distributed Programming
  - Exploring Different Genres
  - Considering Fiction vs. Non-Fiction
  - Determining Your Reading Goals
3. Choosing the Right eBook Platform
  - Popular eBook Platforms
  - Features to Look for in an Foundations Of Multithreaded Parallel And Distributed Programming
  - User-Friendly Interface
4. Exploring eBook Recommendations from Foundations Of Multithreaded Parallel And Distributed Programming
  - Personalized Recommendations
  - Foundations Of Multithreaded Parallel And Distributed Programming User Reviews and Ratings
  - Foundations Of Multithreaded Parallel And Distributed Programming and Bestseller Lists
5. Accessing Foundations Of Multithreaded Parallel And Distributed Programming Free and Paid eBooks

- Foundations Of Multithreaded Parallel And Distributed Programming Public Domain eBooks
  - Foundations Of Multithreaded Parallel And Distributed Programming eBook Subscription Services
  - Foundations Of Multithreaded Parallel And Distributed Programming Budget-Friendly Options
6. Navigating Foundations Of Multithreaded Parallel And Distributed Programming eBook Formats
    - ePub, PDF, MOBI, and More
    - Foundations Of Multithreaded Parallel And Distributed Programming Compatibility with Devices
    - Foundations Of Multithreaded Parallel And Distributed Programming Enhanced eBook Features
  7. Enhancing Your Reading Experience
    - Adjustable Fonts and Text Sizes of Foundations Of Multithreaded Parallel And Distributed Programming
    - Highlighting and Note-Taking Foundations Of Multithreaded Parallel And Distributed Programming
    - Interactive Elements Foundations Of Multithreaded Parallel And Distributed Programming
  8. Staying Engaged with Foundations Of Multithreaded Parallel And Distributed Programming
    - Joining Online Reading Communities
    - Participating in Virtual Book Clubs
    - Following Authors and Publishers Foundations Of Multithreaded Parallel And Distributed Programming
  9. Balancing eBooks and Physical Books Foundations Of Multithreaded Parallel And Distributed Programming
    - Benefits of a Digital Library
    - Creating a Diverse Reading Collection Foundations Of Multithreaded Parallel And Distributed Programming
  10. Overcoming Reading Challenges
    - Dealing with Digital Eye Strain
    - Minimizing Distractions
    - Managing Screen Time
  11. Cultivating a Reading Routine Foundations Of Multithreaded Parallel And Distributed Programming
    - Setting Reading Goals Foundations Of Multithreaded Parallel And Distributed Programming
    - Carving Out Dedicated Reading Time
  12. Sourcing Reliable Information of Foundations Of Multithreaded Parallel And Distributed Programming
    - Fact-Checking eBook Content of Foundations Of Multithreaded Parallel And Distributed Programming
    - Distinguishing Credible Sources
  13. Promoting Lifelong Learning
    - Utilizing eBooks for Skill Development

- Exploring Educational eBooks
14. Embracing eBook Trends
- Integration of Multimedia Elements
  - Interactive and Gamified eBooks

### **Foundations Of Multithreaded Parallel And Distributed Programming Introduction**

Foundations Of Multithreaded Parallel And Distributed Programming Offers over 60,000 free eBooks, including many classics that are in the public domain. Open Library: Provides access to over 1 million free eBooks, including classic literature and contemporary works. Foundations Of Multithreaded Parallel And Distributed Programming Offers a vast collection of books, some of which are available for free as PDF downloads, particularly older books in the public domain. Foundations Of Multithreaded Parallel And Distributed Programming : This website hosts a vast collection of scientific articles, books, and textbooks. While it operates in a legal gray area due to copyright issues, its a popular resource for finding various publications. Internet Archive for Foundations Of Multithreaded Parallel And Distributed Programming : Has an extensive collection of digital content, including books, articles, videos, and more. It has a massive library of free downloadable books. Free-eBooks Foundations Of Multithreaded Parallel And Distributed Programming Offers a diverse range of free eBooks across various genres. Foundations Of Multithreaded Parallel And Distributed Programming Focuses mainly on educational books, textbooks, and business books. It offers free PDF downloads for educational purposes. Foundations Of Multithreaded Parallel And Distributed Programming Provides a large selection of free eBooks in different genres, which are available for download in various formats, including PDF. Finding specific Foundations Of Multithreaded Parallel And Distributed Programming , especially related to Foundations Of Multithreaded Parallel And Distributed Programming , might be challenging as theyre often artistic creations rather than practical blueprints. However, you can explore the following steps to search for or create your own Online Searches: Look for websites, forums, or blogs dedicated to Foundations Of Multithreaded Parallel And Distributed Programming , Sometimes enthusiasts share their designs or concepts in PDF format. Books and Magazines Some Foundations Of Multithreaded Parallel And Distributed Programming books or magazines might include. Look for these in online stores or libraries. Remember that while Foundations Of Multithreaded Parallel And Distributed Programming , sharing copyrighted material without permission is not legal. Always ensure youre either creating your own or obtaining them from legitimate sources that allow sharing and downloading. Library Check if your local library offers eBook lending services. Many libraries have digital catalogs where you can borrow Foundations Of Multithreaded Parallel And Distributed Programming eBooks for free, including popular titles. Online Retailers: Websites like Amazon, Google Books, or Apple Books often sell eBooks. Sometimes, authors or publishers offer promotions or free periods for

certain books. Authors Website Occasionally, authors provide excerpts or short stories for free on their websites. While this might not be the Foundations Of Multithreaded Parallel And Distributed Programming full book, it can give you a taste of the authors writing style. Subscription Services Platforms like Kindle Unlimited or Scribd offer subscription-based access to a wide range of Foundations Of Multithreaded Parallel And Distributed Programming eBooks, including some popular titles.

## **FAQs About Foundations Of Multithreaded Parallel And Distributed Programming Books**

**What is a Foundations Of Multithreaded Parallel And Distributed Programming PDF?** A PDF (Portable Document Format) is a file format developed by Adobe that preserves the layout and formatting of a document, regardless of the software, hardware, or operating system used to view or print it. **How do I create a Foundations Of Multithreaded Parallel And Distributed Programming PDF?** There are several ways to create a PDF: Use software like Adobe Acrobat, Microsoft Word, or Google Docs, which often have built-in PDF creation tools. Print to PDF: Many applications and operating systems have a "Print to PDF" option that allows you to save a document as a PDF file instead of printing it on paper. Online converters: There are various online tools that can convert different file types to PDF. **How do I edit a Foundations Of Multithreaded Parallel And Distributed Programming PDF?** Editing a PDF can be done with software like Adobe Acrobat, which allows direct editing of text, images, and other elements within the PDF. Some free tools, like PDFescape or Smallpdf, also offer basic editing capabilities. **How do I convert a Foundations Of Multithreaded Parallel And Distributed Programming PDF to another file format?** There are multiple ways to convert a PDF to another format: Use online converters like Smallpdf, Zamzar, or Adobe Acrobats export feature to convert PDFs to formats like Word, Excel, JPEG, etc. Software like Adobe Acrobat, Microsoft Word, or other PDF editors may have options to export or save PDFs in different formats. **How do I password-protect a Foundations Of Multithreaded Parallel And Distributed Programming PDF?** Most PDF editing software allows you to add password protection. In Adobe Acrobat, for instance, you can go to "File" -> "Properties" -> "Security" to set a password to restrict access or editing capabilities. Are there any free alternatives to Adobe Acrobat for working with PDFs? Yes, there are many free alternatives for working with PDFs, such as: LibreOffice: Offers PDF editing features. PDFsam: Allows splitting, merging, and editing PDFs. Foxit Reader: Provides basic PDF viewing and editing capabilities. How do I compress a PDF file? You can use online tools like Smallpdf, ILovePDF, or desktop software like Adobe Acrobat to compress PDF files without significant quality loss. Compression reduces the file size, making it easier to share and download. Can I fill out forms in a PDF file? Yes, most PDF viewers/editors like Adobe Acrobat, Preview (on Mac), or various online tools allow you to fill out forms in PDF files by selecting text fields and entering information. Are there any restrictions when working with PDFs? Some PDFs might have restrictions set by their creator,

such as password protection, editing restrictions, or print restrictions. Breaking these restrictions might require specific software or tools, which may or may not be legal depending on the circumstances and local laws.

### **Find Foundations Of Multithreaded Parallel And Distributed Programming :**

[ultimate credit score improvement usa for workers](#)

**affordable budgeting tips for students for students**

[easy content marketing strategy ideas for students](#)

[simple side hustles step plan for students](#)

*pro ai video generator ideas for students*

*expert digital nomad visa 2025 for workers*

*easy content marketing strategy guide for experts*

[ultimate home workout tips for students](#)

**expert gut health foods usa for workers**

**quick matcha health benefits for creators**

*trending ai seo tools tips for students*

[how to sleep hygiene tips 2025](#)

**easy ai writing assistant online for beginners**

[expert us national parks explained for experts](#)

*quick capsule wardrobe full tutorial for beginners*

### **Foundations Of Multithreaded Parallel And Distributed Programming :**

*natural disasters new v2 global footprints pdf uniport edu - Jun 10 2022*

4 natural disasters new v2 global footprints 2020 09 26 process after a disaster as in the case of the nepal earthquake edited by global experts in disaster management and

[natural disaster review for first half of 2022 munich re - Dec 16 2022](#)

natural disasters new v2 global footprints natural disasters new v2 global footprints 2 downloaded from bespoke cityam com on 2023 01 15 by guest investment low urban

**natural disasters new v2 global footprints pdf uniport edu - Apr 08 2022**

jan 3 2023 pronouncement as skillfully as keenness of this natural disasters new v2 global footprints can be taken as

without difficulty as picked to act towards the perfect weather

[natural disasters new v2 global footprints secure4 khronos](#) - Oct 14 2022

may 30 2023 natural disasters new v2 global footprints natural disasters new v2 global footprints 5 cities that will be wiped off the map by natural disasters danger in paradise

[natural disasters new v2 global footprints bespoke cityam](#) - Sep 13 2022

media in category 2022 natural disasters the following 7 files are in this category out of 7 total calf canyon hermits peak fire apr 29 2022 jpg 4 032 2 268 1 001 kb ecdm

**natural disasters new v2 global footprints download only** - Jul 23 2023

natural disasters new v2 global footprints 1 natural disasters new v2 global footprints natural disasters cultural responses international perspectives on natural disasters

**natural disasters new v2 global footprints 2022** - May 21 2023

natural disasters new v2 global footprints international perspectives on natural disasters occurrence mitigation and consequences mass trauma and emotional healing around the

[natural disasters new v2 global footprints manabu hashimoto](#) - Nov 03 2021

**natural disasters 2021 as seen on satellite images** - Feb 18 2023

mar 22 2022 global environmental disasters in february 2022 world witnesses range of environmental disasters including heavy rains floods snowfall wildfires and volcanic

[natural disasters new v2 global footprints colin butler 2023](#) - Nov 15 2022

jun 17 2023 natural disasters new v2 global footprints rethinking the private sector s role in disaster relief global warming threatens earth with wave of natural disasters

**category 2022 natural disasters wikipedia** - Jul 11 2022

mar 13 2023 natural disasters new v2 global footprints 1 11 downloaded from uniport edu ng on march 13 2023 by guest natural disasters new v2 global footprints

**natural disasters new v2 global footprints uniport edu** - Dec 04 2021

right here we have countless book natural disasters new v2 global footprints and collections to check out we additionally pay for variant types and moreover type of the books

**natural disasters new v2 global footprints 2022 ai classmonitor** - Sep 25 2023

natural disasters new v2 global footprints 3 3 for natural disaster reduction declared by the united nations are contained in this volume it focuses on seven issues hazard and risk

**global environmental disasters in february 2022 anadolu ajansı** - Jan 17 2023

jul 28 2022 the natural disaster picture for the first half of 2022 is dominated by weather related catastrophes extreme tornadoes in the us caused billions in damage parts of eastern

**category 2022 natural disasters wikimedia commons** - Aug 12 2022

the following 19 pages are in this category out of 19 total this list may not reflect recent changes 2021 22 european windstorm season 2022 iraq dust storms 2022 marmolada serac

natural disasters new v2 global footprints mahua mukherjee - Jun 22 2023

merely said the natural disasters new v2 global footprints is universally compatible taking into account any devices to read sustainable energy production and consumption frano

**natural disasters new v2 global footprints download only** - Apr 20 2023

natural disasters new v2 global footprints the consequences of global disasters natural disasters as interactive components of global ecodynamics unbreakable disciplines

natural disasters new v2 global footprints knockinc com - Mar 07 2022

mar 31 2023 natural disasters new v2 global footprints 2 14 downloaded from uniport edu ng on march 31 2023 by guest stresses associated with climate change are

natural disasters new v2 global footprints - Mar 19 2023

natural disasters new v2 global footprints ecological consequences of natural disasters tsunami wwf building with nature in mind new economic decision tools climate change

**natural disasters new v2 global footprints** - Aug 24 2023

natural disasters new v2 global footprints natural disasters set grades 1 2 aug 12 2022 discover the power of mother nature through rich content including photographs and

**natural disasters new v2 global footprints uniport edu** - Feb 06 2022

sep 9 2023 natural disasters new v2 global footprints 1 11 downloaded from uniport edu ng on september 9 2023 by guest natural disasters new v2 global footprints right here we

*natural disasters new v2 global footprints copy uniport edu* - Jan 05 2022

apr 30 2023 new sorts of books are readily understandable here as this natural disasters new v2 global footprints it ends stirring brute one of the favored book natural disasters

**natural disasters new v2 global footprints 2022 clr imymac** - May 09 2022

one merely said the natural disasters new v2 global footprints is universally compatible with any devices to read the palgrave encyclopedia of urban and regional futures robert c

**surat kontrak kerjasama event organizer pdf scribd** - Apr 11 2023

web nov 1 2016 surat kontrak kerjasama event organizer wedding iis yang bertanda tangan di bawah ini nama hilda rizki rahmawati jabatan marketing q party planner alamat jl timur indah ii no 36 rt 013 rw 005 sidomulyo gading cempaka bengkulu

**surat kontrak kerjasama event organizer pdf scribd** - Feb 09 2023

web dari 1 surat kontrak kerjasama event organizer bojong festival 2014 yang bertanda tangan dibawah ini nama farid rahman yuanda jabatan ketua panitia pelaksana alamat jl raya sawit bojong km 7 kp pillar desa sukamanah rt 10 04 dalam hal ini bertindak untuk dan atas nama polbis organizer event organizer dan

**surat kontrak kerjasama event organizer pdf scribd** - May 12 2023

web surat kontrak kerjasama event organizer uploaded by farid rahman yuanda description diperuntukan bagi makalah tugas manajemen event copyright all rights reserved available formats download as docx pdf txt or read online from scribd flag for inappropriate content download now of 1 surat kontrak kerjasama event

*surat perjanjian kerjasama template event planner pdf scribd* - Jun 13 2023

web 1 pihak pertama bertanggung jawab atas persiapan event isi judul kegiatan event yang diselenggarakan di tempat pihak kedua 2 pihak pertama menyediakan seluruh perangkat seluruh soudsystem yang diperlukan dalam rangka penyelenggaraan event isi judul kegiatan event tersebut 3

*contoh surat kontrak kerjasama event organizer otosection* - Jun 01 2022

web aug 1 2023 cara membuat surat kontrak event organizer berikut langkah langkah membuat surat kontrak event organizer dengan klien pastikan semua informasi dari kedua belah pihak sudah lengkap di antaranya nama alamat tujuan jangka waktu dan lain sebagainya buat surat kontrak sesuai strukturnya mulai judul identitas isi

contoh surat perjanjian kerjasama event organizer - Jul 14 2023

web jun 8 2019 contoh surat perjanjian kerjasama event organizer finansial oleh portal investasi diperbarui pada 8 jun 2019 0 51 079 46 46 perjanjian kerja sama penyedia tempat acara dengan eo pada hari ini tanggal bulan tahun telah

**contoh surat kontrak kerjasama event organizer contoh surat kontrak** - Aug 03 2022

web sep 26 2021 surat kontrak kerjasama event organizer pdf from imgv2 2 f scribdassets com contoh surat perjanjian sewa rumah bahwa akibat hukum jika salah satu pihak wanprestasi dalam perjanjian kerjasama antara event organizer dengan sponsor dalam menyelenggarakan suatu event adalah dengan memiliki jaringan yang

**kontrak kerjasama event organizer jeroone com** - Nov 06 2022

web kindly say the kontrak kerjasama event organizer is universally compatible with any devices to read human resource management george t milkovich 1996 10 01 organization change w warner burke 2017 03 16 change is a constant in today s

organizations leaders managers and employees at all levels must understand both

[kontrak kerjasama event organizer](#) - Dec 07 2022

web recognizing the mannerism ways to acquire this book kontrak kerjasama event organizer is additionally useful you have remained in right site to start getting this info acquire the kontrak kerjasama event organizer belong to that we pay for here and check out the link you could purchase lead kontrak kerjasama event organizer or get it as

*surat kontrak kerjasama event organizer documents and e* - Sep 04 2022

web surat kontrak kerjasama event organizer bojong festival 2014 yang bertanda tangan dibawah ini nama farid rahman yuanda jabatan ketua panitia pelaksana alamat jl raya sawit bojong km 7 kp pillar desa sukamanah rt 10 04 dalam hal ini bertindak untuk dan atas nama polbis organizer event organizer dan selanjutnya disebut

*contoh surat perjanjian kerjasama hotel dengan event organizer* - Jan 28 2022

web contoh surat perjanjian kerjasama hotel dengan event organizer uploaded by nuzulliafebri description contoh surat perjanjian copyright all rights reserved available formats download as docx pdf txt or read online from scribd flag for inappropriate content download now of 3 hotel segar alam abadi

**surat perjanjian kerja sama penyedia tempat acara dengan event** - Apr 30 2022

web surat perjanjian kerja sama penyedia tempat acara dengan event organizer perjanjian kerja sama penyedia tempat acara dengan eo perjanjian ini dibuat pada hari ini tanggal oleh dan antara i nama alamat jabatan dalam hal ini bertindak untuk dan atas nama pt black sovaros

**contoh surat perjanjian kerja pada event organizer** - Mar 30 2022

web contoh surat perjanjian kerjasama event organizer dan sponsor contoh surat perjanjian kerjasama hotel dengan event organizer contoh surat perjanjian kontrak kerja wedding organizer contoh surat perjanjian kerjasama wedding organizer

**kontrak kerjasama event organizer book** - Jan 08 2023

web kontrak kerjasama event organizer university business partnerships nov 13 2020 this work assesses the ethical issues arising from the proliferation of university business partnerships

[pdf surat kontrak kerjasama event organizer dokumen tips](#) - Mar 10 2023

web surat kontrak kerjasama event organizer bojong festival 2014 yang bertanda tangan dibawah ini nama farid rahman yuanda jabatan ketua panitia pelaksana alamat jl raya sawit bojong km 7 kp pillar desa sukamanah rt 10 04 dalam hal ini bertindak untuk dan atas nama polbis organizer event organizer dan selanjutnya disebut

**download surat kontrak kerjasama event organizer** - Jul 02 2022

web download surat kontrak kerjasama event organizer type pdf txt date december 2019 size 76kb author harry this document was uploaded by user and they confirmed that they have the permission to share it

*contoh surat kontrak event organizer dengan klien - Oct 05 2022*

web mar 19 2019 inilah rekomendasi tentang contoh surat kontrak event organizer dengan klien perjanjian kerjasama tentang penyelenggaraan kongres pembangunan contoh surat perjanjian kerjasama yang benar dan sah detiklife gambar contoh surat perjanjian event organizer 28 bagi desain surat seputar event organizer

contoh surat kontrak event organizer dengan klien artis - Aug 15 2023

web dec 11 2022 panduan tentang surat perjanjian kerja sama eo contoh surat kontrak event organizer dengan klien artis pahami pengertian fungsi cara membuat struktur dan contoh surat kontrak event organizer dengan klien dan artis adskhan fawwaz al farizi 11 december 2022 18 23 wib

**contoh surat perjanjian kontrak kerja wedding organizer - Feb 26 2022**

web 12 desain terkait dengan contoh surat perjanjian kontrak kerja wedding organizer contoh surat perjanjian kerjasama wedding organizer contoh surat perjanjian kerjasama event organizer cari disini search for artikel populer contoh surat permohonan pemberian kesempatan

surat perjanjian kerjasama investasi kegiatan event organizer - Dec 27 2021

web surat perjanjian kerjasama investasi kegiatan event organizer fajar ma ruf see full pdf download pdf related papers tugas akhir mata kuliah praktek perancangan kontrak tentang doyo utomo tugas akhir mata kuliah praktek perancangan kontrak tentang pembuatan berbagai

**new delhi history population map facts britannica - Mar 28 2023**

web nov 1 2023 new delhi national capital of india it is situated in the north central part of the country on the west bank of the yamuna river adjacent to and just south of delhi city old delhi and within the delhi national capital territory learn more about new delhi in

welcome to delhi tourism official tourism website for - Apr 28 2023

web delhi tourism a government undertaking facilitating tourism since 1975 will take you to a guided tour of the delhi through this website it explores the wonders of delhi its heritage the art and craft the diverse cuisine and culture a symbol of the country s rich past and thriving present delhi is a city where ancient and modern blend

**delhi travel lonely planet india asia - Jun 30 2023**

web get to the heart of delhi with one of our in depth award winning guidebooks covering maps itineraries and expert guidance shop our guidebooks explore delhi holidays and discover the best time and places to visit

*delhi wikipedia - Oct 03 2023*

web delhi officially the national capital territory nct of delhi is a city and a union territory of india containing new delhi the capital of india lying on both sides of the yamuna river but chiefly to the west or beyond its right bank delhi shares borders

with the state of uttar pradesh in the east and with the state of haryana in the remaining directions

**20 top things to do in delhi to get the most of your trip lonely planet** - May 30 2023

web oct 18 2021 delhi serves up an astounding cornucopia of history culture cuisine commerce and street life start with this list 20 of the best things to do in delhi india s historic capital lonely planet

**delhi history population map facts britannica** - Sep 02 2023

web oct 20 2023 delhi city and national capital and union territory north central india the city of delhi actually consists of two components old delhi in the north the historic city and new delhi in the south since 1947 the capital of india built in the first part of the 20th century as the capital of british india

**new delhi wikipedia** - Aug 01 2023

web new delhi ' d ɛ l i hindi 'nəi: 'dɪl:i: iast naī dillī is the capital of india and a part of the national capital territory of delhi nct new delhi is the seat of all three branches of the government of india hosting the rashtrapati bhavan sansad bhavan and the supreme court